STATS IN BRIEF

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Teaching Vacancies and Difficult-to-Staff Teaching Positions in Public Schools

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Staffing public schools

with qualified teachers has been a subject of interest and investigation among policymakers, researchers, and educators for several decades. Previous research has demonstrated that certain subject areas such as special education, science, and mathematics, and certain school settings such as urban, rural, high-poverty, high-minority, and low-achieving schools face regular staffing challenges (Borman and Dowling 2008; Hampden-Thompson, Herring, and Kienzl 2008; Hanushek, Kain, and Rivkin 2004; Ingersoll 2001, 2002, 2004; Lankford, Loeb, and Wyckoff 2002). Additionally, working conditions (including but not limited to larger schools, lower salaries, and bigger classes) are associated with difficulty filling teaching vacancies (Loeb, Darling-Hammond, and Luczak 2005), and neighborhood characteristics such as safety and amenities are related to teachers' decisions about where to teach (Boyd, Lankford, Loeb, Ronfeldt, and Wyckoff 2011).

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In response to these findings that certain types of subjects and schools face staffing challenges, federal, state, and local governments have enacted policies aimed at recruiting and retaining qualified teachers, including the creation of alternative paths toward teacher certification and the offer of targeted bonuses to teachers to work in certain subject areas or school settings (Barnes, Crowe, and Schaefer 2007; Rice, Roellke, Sparks, and Kolbe 2009).

This brief investigates teaching vacancies and difficult-to-staff teaching positions (i.e., positions for which the principals reported that it was very difficult to fill a vacancy or that they could not fill a vacancy in a specific subject area) in public schools in four school years (1999–2000, 2003–04, 2007–08, and 2011–12).

DATA, MEASURES, AND METHODS

This Statistics in Brief uses data from the Public School Questionnaire of the 1999–2000, 2003–04, 2007–08, and 2011–12 Schools and Staffing Surveys (SASS) to examine the percentages of public schools with teaching vacancies and the percentages of public schools with subject areas with difficult-to-staff teaching positions. On these questionnaires, principals indicated whether or not their schools had any vacant teaching positions in the current school year and, if they did, how difficult it was to fill positions in the following subject areas: general elementary, special education, English or language arts, social studies, computer science, mathematics, biology or life sciences, physical sciences, English as a second language (ESL) or bilingual education, foreign languages, music or art, and career or technical education.[1] In an effort to highlight those schools facing the greatest challenges in filling vacant positions, this brief considers schools to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that principals "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy."

This brief first presents a picture of teaching vacancies and difficult-to-staff teaching positions overall and by school level (elementary, middle, and high[2]) and then focuses on staffing difficulties in different subjects and by selected characteristics at the high school level. The findings highlighted in these sections are an illustrative rather than exhaustive list of all statistically significant differences found in the study. Differences discussed in this brief are statistically significant at the $p < .05$ level to ensure that they are larger than might be expected due to sampling variation (see the **Methodology and Technical Notes** for more information on *p* values). No adjustments were made for multiple comparisons. For more information about the data, measures, and methods used in this brief, please see the **Methodology and Technical Notes** at the end of the report.

[1] While all four of the SASS surveys included in this report include all of these subjects, there were at times minor variations in how the surveys named or described these subjects. For a complete list of subject names across each of the surveys, see the **Methodology and Technical Notes.**

[2] Additional estimates for teaching vacancies and difficult-to-staff teaching positions in combined schools are located in Appendix A.

STUDY QUESTIONS

1 What percentages of all public schools reported teaching vacancies? What percentages of all public schools reported difficult-to-staff teaching positions?

2 What percentages of public high schools reported difficult-to-staff teaching positions in different subject areas?

3 How did the percentages of public high schools that had difficult-to-staff teaching positions in zero, one, or two or more subject areas vary by selected school characteristics?

KEY FINDINGS

- Compared to the 1999–2000 school year, a lower percentage of schools had at least one teaching vacancy in the 2011–12 school year (figure 1).
- In 2011–12, the percentage of schools that had at least one difficult-to-staff teaching position was less than half the percentage in 1999–2000 (figure 1).
- The percentages of public high schools that reported difficult-to-staff teaching positions were lower in every reportable subject area in 2011–12 than they were in 1999–2000 (table A-3).[3]
- In the 1999–2000, 2003–04, 2007–08, and 2011–12 school years, a larger percentage of high-minority than low-minority public high schools had two or more subject areas with difficult-to-staff teaching positions (figure 4).

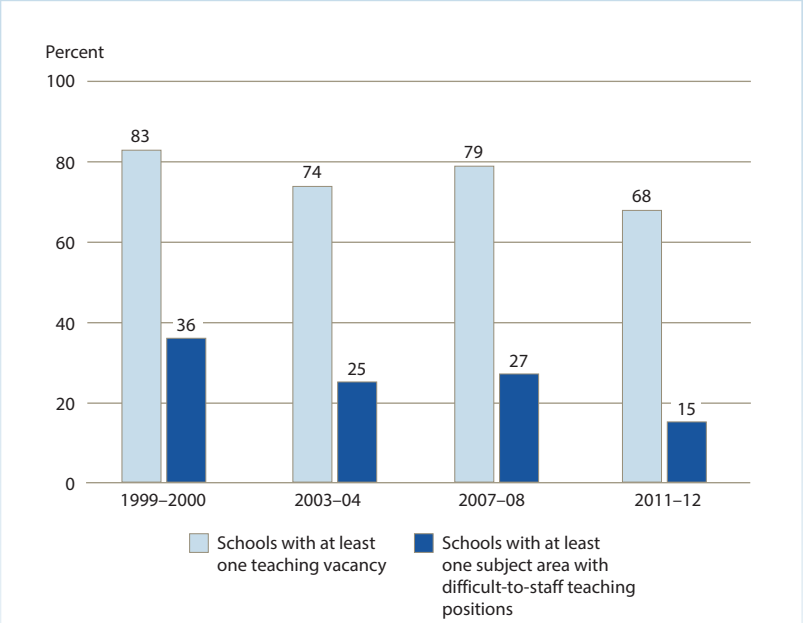
[3] As noted on table A-3, reporting standards were not met for the percentage of public high schools that reported difficult-to-staff teaching positions in social studies in 2011–12.

1 What percentages of all public schools reported teaching vacancies? What percentages of all public schools reported difficult-to-staff teaching positions?

The percent of all public schools that had vacant teaching positions decreased from the 1999–2000 school year to the 2011–12 school year. Similarly, the percent of all public schools that had at least one difficult-to-staff teaching position decreased from 1999–2000 to 2011–12 (figure 1). Specifically, the percentage of public schools that had at least one teaching vacancy dropped from 83 percent in 1999–2000 to 74 percent in 2003–04, rose to 79 percent in 2007–08, and dropped to 68 percent in 2011–12. Similarly, the percentage of public schools that had at least one difficult-to-staff teaching position dropped from 36 percent in 1999–2000 to 25 percent in 2003–04, rose to 27 percent in 2007–08, and dropped to 15 percent in 2011–12.

FIGURE 1.

Percent of all public schools that had teaching vacancies and that had at least one difficult-to-staff teaching position: School years 1999–2000, 2003–04, 2007–08, and 2011–12



NOTE: Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy."

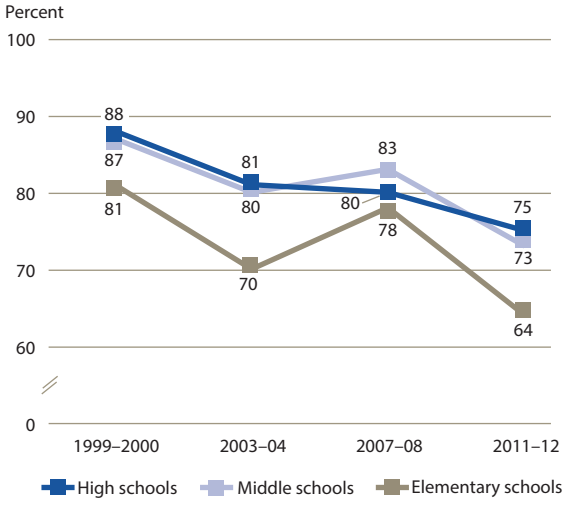
SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

Figures 2a and 2b display the percentages of public schools that reported teaching vacancies and difficult-to-staff teaching positions by school level. At the elementary school level, the percentage of schools that reported at least one teaching vacancy dropped from 81 percent in 1999–2000 to 64 percent in 2011–12, and the percentage of schools that reported at least one difficult-to-staff teaching position dropped from 26 percent in 1999–2000 to 8 percent in 2011–12. At the middle school level, from 1999–2000 to 2011–12, the percentage of schools with at least one teaching vacancy dropped from 87 percent to 73 percent, and the percentage of schools with at least one difficult-to-staff teaching position from 48 percent to 17 percent. At the high school level, the percentage of schools with at least one teaching vacancy dropped from 88 percent to 75 percent, and the percentage of schools with at least one difficult-to-staff teaching position dropped from 54 percent in 1999–2000 to 28 percent in 2011–12.

Public high schools showed more evidence of difficult-to-staff positions than did other school levels. That is, in all four school years, higher percentages of public high schools than public elementary or middle schools reported at least one difficult-to-staff teaching position. Given this finding, the remainder of the brief focuses exclusively on difficult-to-staff teaching positions at the high school level.

FIGURE 2a.

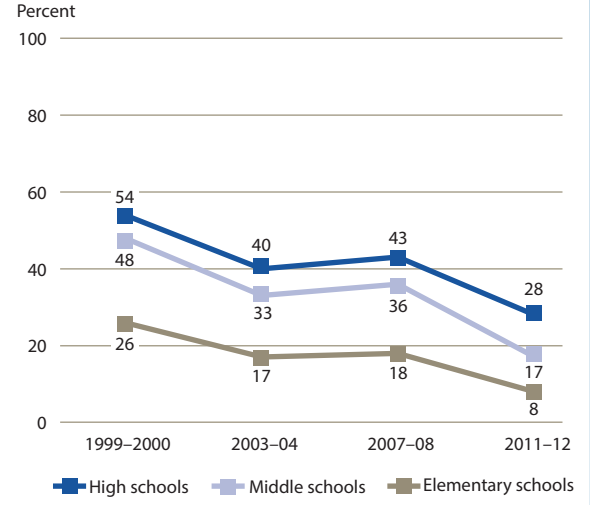
Percent of all public schools that had at least one teaching vacancy, by school level: School years 1999–2000, 2003–04, 2007–08, and 2011–12



SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

FIGURE 2b.

Percent of all public schools that had at least one difficult-to-staff teaching position, by school level: School years 1999–2000, 2003–04, 2007–08, and 2011–12



NOTE: Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy."

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

2 What percentages of public high schools reported difficult-to-staff teaching positions in different subject areas?

Some subjects were consistently more difficult to staff than other subject areas in public high schools. For instance, the percentages of public high schools that reported difficulty staffing mathematics (24 percent in 1999–2000, 16 percent in 2003–04, 19 percent in 2007–08, and 9 percent in 2011–12) were higher than those in almost every other subject (table A-3). The only exception to this pattern was in 2011–12, when the percentages of public high schools that reported difficulty staffing special education and physical sciences were not measurably different than the percentage of public high schools that reported difficulty staffing mathematics. After mathematics, special education had the next highest level of staffing difficulties.

Again, in all four school years the percentages of public high schools that reported difficulty staffing special education (20 percent in 1999–2000, 13 percent in 2003–04, 13 percent in 2007–08, and 8 percent in 2011–12) were higher than or almost every other subject, except mathematics (table A-3). There were two exceptions. The percentage of public high schools that reported difficulty in staffing special education did not differ significantly from those with staffing difficulties in physical sciences and foreign languages in 2011–12. This was the case in 2007–08 for these two subject areas as well as biology or life sciences.

Physical sciences and foreign languages were the next most challenging subjects to staff. While the percentages of public high schools that reported difficulty staffing physical sciences and foreign languages did not differ from each other in any of the four school years, higher percentages of public high schools reporting difficulty staffing these subjects than almost any other subject, excluding mathematics and special education (table A-3). There were very few exceptions to this pattern. The percentage of public high schools that reported difficulty staffing physical sciences was not measurably different from the percentage of public high schools that reported difficulty staffing biology or life sciences in both 1999–2000 and 2007–08.

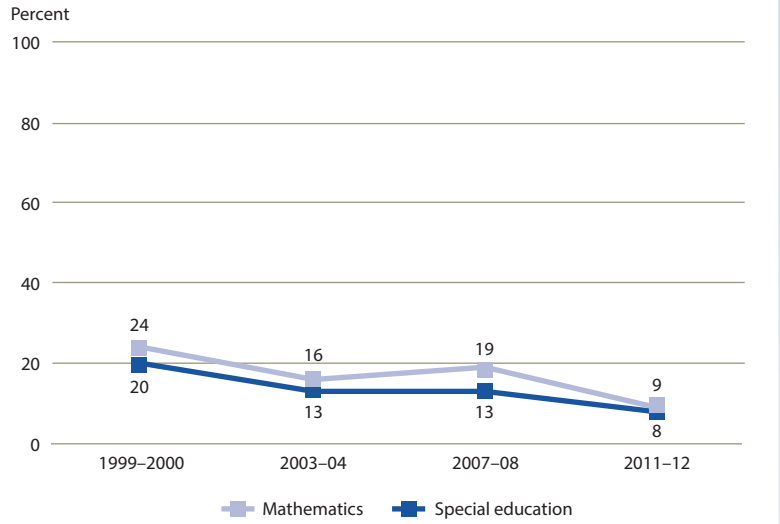
The percentage of public high schools that reported difficulty staffing foreign languages was not measurably different from the percentage of public high schools that reported difficulty staffing biology or life sciences in both 2007–08 and 2011–12 and not measurably different from the percentage of public high schools that reported difficulty staffing career, technical, or vocational education in 2007–08.

Despite persistent staffing challenges in some subjects, the percentage of public high schools that reported difficult-to-staff teaching positions in 2011–12 was lower than the percentage in 1999–2000, 2003–04, and 2007–08 for nearly every subject area (table A-3).[4] Figure 3 illustrates this pattern in mathematics and special education. Specifically, the percentage of public high schools that reported difficulty staffing mathematics dropped from 24 percent in 1999–2000 to 9 percent in 2011–12. Similarly, the percentage of public high schools that reported difficulty staffing special education dropped from 20 percent in 1999–2000 to 8 percent in 2011–12.

The only exception to this pattern of lower percentages of staffing difficulties from year-to-year was that the percentage of public high schools that reported difficulty staffing physical sciences did not measurably differ from 2003–04 to 2011–12.

FIGURE 3.

Percent of all public high schools that had at least one difficult-to-staff teaching position, in mathematics or special education: School years 1999–2000, 2003–04, 2007–08, and 2011–12



NOTE: Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy."

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

[4] Comparisons cannot be made to the percentage of public high schools that reported difficulty staffing social studies in 2011–12, since reporting standards for this category were not met. See table A-3.

3 How did the percentages of public high schools that had difficult-to-staff teaching positions in zero, one, or two or more subject areas vary by selected school characteristics?

This section of the brief presents results related to two main findings. First, the percentages of public high schools that had difficult-to-staff teaching positions did vary by some school characteristics. For instance, compared to low-minority and small public high schools, high-minority and large public high schools consistently faced staffing challenges.[5] Second, across multiple characteristics, including minority student composition, schoolwide Title I status,[6] school size, and school locale, the percentages of public high schools with difficult-to-staff teaching positions were higher in the 1999–2000 school year than they were in the 2011–12 school year.

The following pages provide more detail about these two overarching findings. The first part of each page details the extent to which different types of high schools differed from each other within the same school year; these comparisons discuss findings about school characteristics that prior research has found to be associated with persistent staffing challenges. The second part of each page explains the ways in which staffing difficulties differed from year to year.

Figure 2b indicates that over half of public high schools had at least one difficult-to-staff teaching position in 1999–2000, as did over a quarter in 2011–12. This section provides a more detailed look at staffing challenges by breaking out the percentages of public high schools that had zero, one, or two or more subject areas with difficult-to-staff positions. The discussion focuses on comparisons between schools that reported they had no subject areas with difficult-to-staff positions and schools that reported they had difficulties staffing two or more subject areas.

[5] Low-minority public high schools had less than 5 percent minority enrollment. Small public high schools had fewer than 500 students. High-minority public high schools had 50 percent or more minority enrollment. Large public high schools had 1,000 or more students.

[6] In 1999–2000, schools where 50 percent or more of the students were from low-income families were permitted to use Title I funds for schoolwide purposes. In 2003–04, 2007–08, and 2011–12, schools where 40 percent or more of the students were from low-income families were permitted to use Title I funds for schoolwide purposes.

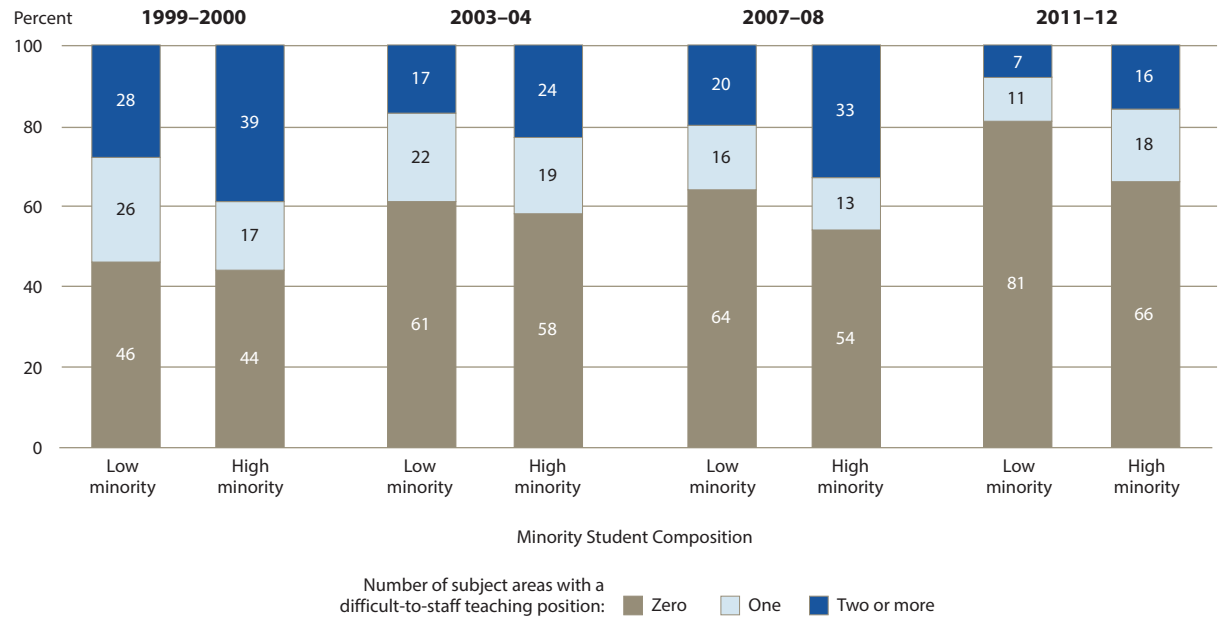
Minority Student Composition

Compared to low-minority public high schools, larger percentages of high-minority public high schools reported that they had two or more subject areas with difficult-to-staff teaching positions in all four school years (28 vs. 39 percent in 1999–2000, 17 vs. 24 percent in 2003–04, 20 vs. 33 percent in 2007–08, and 7 vs. 16 percent in 2011–12; figure 4).

Still, across all four categories of minority student enrollment the percentages of public high schools that reported two or more subject areas with difficult-to-staff teaching positions were lower in 2011–12 than they were in 1999–2000, and the percentages of public high schools that reported zero subject areas with difficult-to-staff teaching positions were higher in 2011–12 than they were in 1999–2000 (figure 4 and table A-4). For instance, among high-minority public high schools, the percentage that reported two or more subject areas with difficult-to-staff teaching positions dropped from 39 percent in 1990–2000 to 16 percent in 2011–12, while the percentage that reported zero subject areas with difficult-to-staff teaching positions rose from 44 percent in 1999–2000 to 66 percent in 2011–12.

FIGURE 4.

Percentage distribution of all public high schools that had zero, one, or two or more subject areas with difficult-to-staff teaching positions, by minority student composition: School years 1999–2000, 2003–04, 2007–08, and 2011–12



NOTE: "Low minority" public high schools had less than 5 percent minority enrollment. "High minority" public high schools had 50 percent or more minority enrollment. "Minority students" refers to Black, Hispanic, Asian, Pacific Islander, American Indian/Alaska Native students, and students of two or more races. Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy." Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

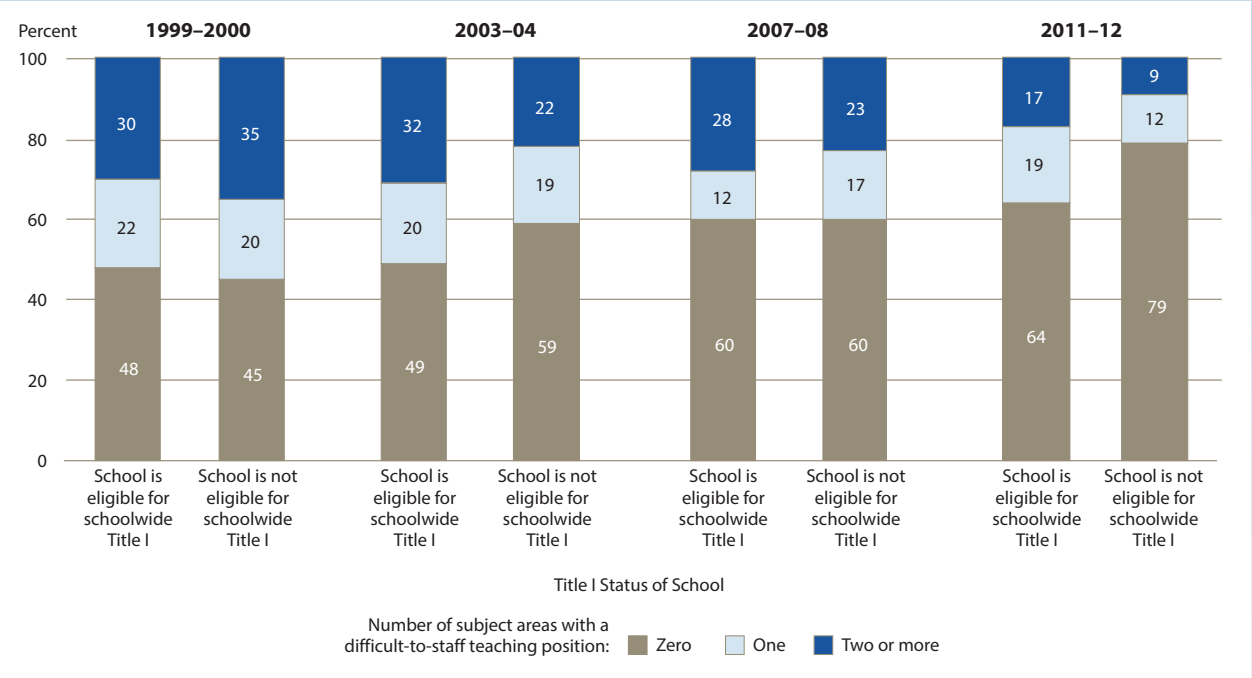
Schoolwide Title I Status

In 1999–2000, a higher percentage of public high schools that were not eligible for schoolwide Title I reported two or more subject areas with difficult-to-staff teaching positions, compared to public high schools that were schoolwide Title I eligible (35 vs. 30 percent; figure 5). The two types of schools were not significantly different in terms of subject areas with difficult-to-staff teaching positions in 2003–04 and 2007–08.[7] However, by 2011–12 this situation had reversed. In that year a higher percentage of public high schools that were eligible for schoolwide Title I status reported two or more subject areas with difficult-to-staff teaching positions, compared to those that were not schoolwide Title I eligible (17 vs. 9 percent).

However, there was a clear-cut pattern across all schools from year to year. Compared to 1999–2000, a higher percentage of both schoolwide Title I and non-schoolwide Title I public high schools reported no subject areas with difficult-to-staff teaching positions in 2011–12 (48 vs. 64 percent for schoolwide Title I schools; 45 vs. 79 percent for non-schoolwide Title I). In accord with this, a lower percentage of all public high schools reported two or more subject areas with difficult-to-staff teaching positions in 2011–12

FIGURE 5.

Percentage distribution of all public high schools that had zero, one, or two or more subject areas with difficult-to-staff teaching positions, by schoolwide Title I eligibility status: School years 1999–2000, 2003–04, 2007–08, and 2011–12



NOTE: Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy." In 1999–2000, schools where 50 percent or more of the students were from low-income families were permitted to use Title I funds for schoolwide purposes. In 2003–04, 2007–08, and 2011–12, schools where 40 percent or more of the students were from low-income families were permitted to use Title I funds for schoolwide purposes. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

[7] Percentage point differences that appear to be large may not be statistically significantly different from each other due to large corresponding standard errors.

when compared with 1999–2000 (17 vs. 30 percent for schoolwide Title I schools; 9 vs. 35 percent for non-schoolwide Title I schools).

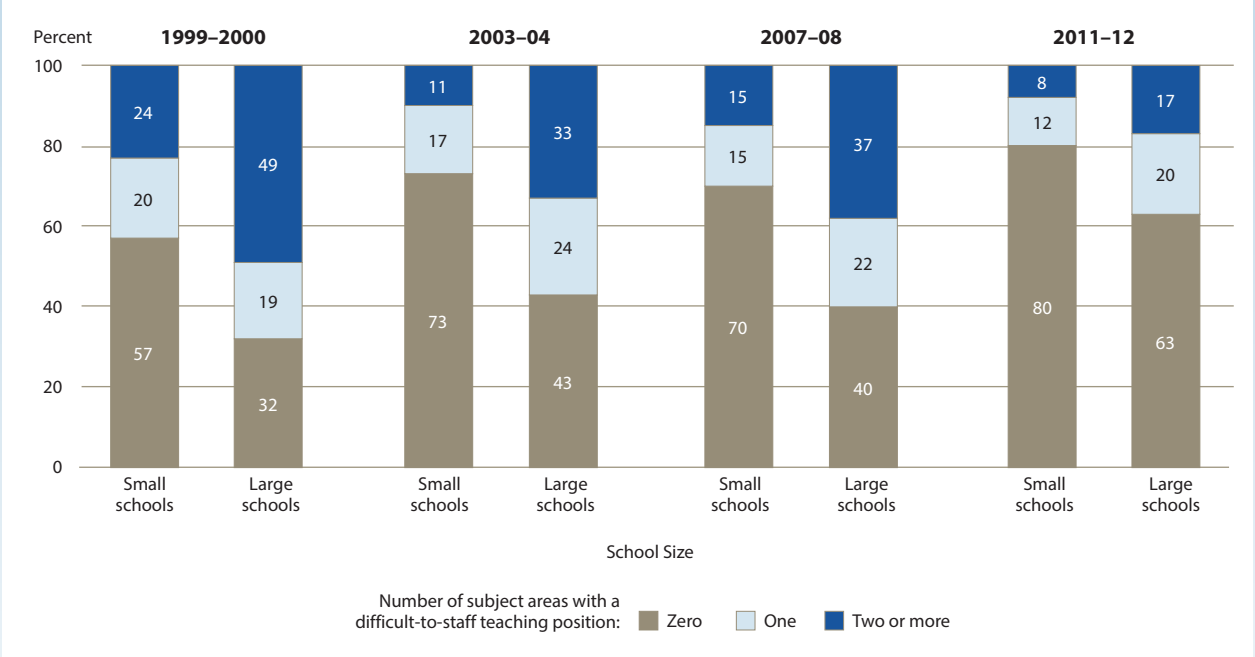
School Size

Compared to small public high schools, higher percentages of large public high schools reported staffing difficulties (figure 6). In all four school years, a higher percentage of large public high schools reported two or more subject areas with difficult-to-staff teaching positions (49 vs. 24 percent in 1999–2000, 33 vs. 11 percent in 2003–04, 37 vs. 15 percent in 2007–08, and 17 vs. 8 percent in 2011–12). Conversely, a lower percentage of large public high schools reported zero subject areas with difficult-to-staff teaching positions (32 vs. 57 percent in 1999–2000, 43 vs. 73 percent in 2003–04, 40 vs. 70 percent in 2007–08, and 63 vs. 80 percent in 2011–12).

Because larger schools have more staff positions than do smaller schools, it may not be surprising that they report higher numbers of subject areas with difficult-to-staff teaching positions.[8] However, while the results in figure 6 indicate that there are differences in staffing difficulty by size, they also show that changes in staffing difficulty were apparent for both small and large schools from 1999–2000 to 2011–12. Specifically, from 1999–2000 to 2011–12, the percent of large public high schools that reported two or more subject areas with difficult-to-staff teaching positions dropped from 49

FIGURE 6.

Percentage distribution of all public high schools that had zero, one, or two or more subject areas with difficult-to-staff teaching positions, by school size: School years 1999–2000, 2003–04, 2007–08, and 2011–12



NOTE: Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy." "Small" public high schools had less than 500 students. "Large" public high schools had 1,000 or more students. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

[8] Potentially, large schools may be located in heavily populated areas with larger populations of students and teachers. For more discussion on difficulty staffing by school locale, see page 12 of this brief.

percent to 17 percent, whereas the percent of large public high schools that reported zero subject areas with difficult-to-staff teaching positions rose from 32 percent to 63 percent Similarly, from 1999–2000 to 2011–12, the percent of small public high schools that reported two or more subject areas with difficult-to-staff teaching positions dropped from 24 percent to 8 percent, whereas the percent of small public high schools that reported zero subject areas with difficult-to-staff teaching positions rose from 57 percent to 80 percent.

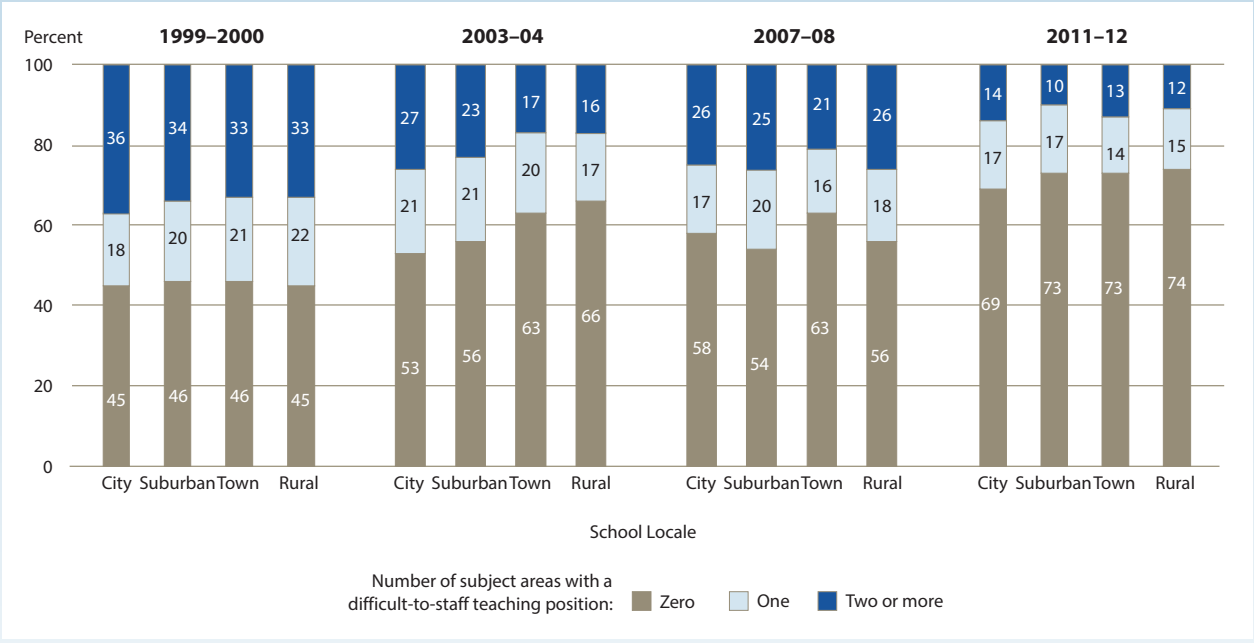
School Locale

Overall, there were few differences in staffing difficulties by school locale in a given year. One exception to this overall finding was in 2003–04. In that school year, the percentages of city schools and schools in suburbs that reported two or more subject areas with difficult-to-staff teaching positions were higher than the corresponding percentages for towns and rural areas (27 and 23 percent for city and suburban schools, respectively, vs. 17 and 16 percent for schools in towns and rural areas, respectively; figure 7).

Across all four locales, the percentages of public high schools that reported zero subject areas with difficult-to-staff teaching positions were higher in 2011–12 than they were in 1999–2000, and the percentages of public high schools that reported two or more subject areas with difficult-to-staff teaching positions were lower in 2011–12 than they were in 1999–2000 (figure 7).

FIGURE 7.

Percentage distribution of all public high schools that had zero, one, or two or more subject areas with difficult-to-staff teaching positions, by school locale: School years 1999–2000, 2003–04, 2007–08, and 2011–12



NOTE: Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy." Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

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Schools and Staffing Survey, 1999–2000: Overview of the Data for Public, Private, Public Charter, and Bureau of Indian Affairs Elementary and Secondary Schools (NCES 2002-313). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2002313.

Characteristics of Schools, Districts, Teachers, Principals, and School Libraries in the United States: 2003–04 Schools and Staffing Survey (NCES 2006-313 Revised). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006313.

Characteristics of Public, Private, and Bureau of Indian Education Elementary and Secondary Schools in the United States: Results from the 2007–08 Schools and Staffing Survey (NCES 2009-321). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2009321.

Characteristics of Public and Private Elementary and Secondary Schools in the United States: Results from the 2011–12 Schools and Staffing Survey (NCES 2013-312). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2013312.

Teacher Attrition and Mobility: Results from the 2012–13 Teacher Follow-up Survey (NCES 2014-077). http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014077.

METHODOLOGY AND TECHNICAL NOTES

Overview of SASS

SASS is sponsored by the National Center for Education Statistics (NCES)—which is part of the Institute of Education Sciences within the U.S. Department of Education—and is conducted by the U.S. Census Bureau. SASS is designed to produce national, regional, and state estimates for public elementary and secondary schools and related components (i.e., teachers, principals, school districts, and school library media centers). This report uses data from the Public School Questionnaires of the 1999–2000, 2003–04, 2007–08, and 2011–12 SASS. Estimates in this brief are based on data collected from about 8,430 schools in 1999–2000, 7,990 schools in 2003–04, 7,570 schools in 2007–08, and 7,480 schools in 2011–12. When properly weighted, these data produce nationally representative estimates for public schools in each year. Information about obtaining SASS data and publications can be found at the SASS website: http://nces.ed.gov/surveys/sass/.

Public School Sample Design

In 1999–2000, the sampling frame for traditional public schools was an adjusted version of the 1997–98 Common Core of Data (CCD), a universe survey of all elementary and secondary schools in the United States based on administrative data collected annually by NCES from each state education agency. The foundation for the 2003–04 SASS public school sampling frame was the 2001–02 CCD file. For the 2007–08 SASS data collection, the sampling frame for public schools was built from the 2005–06 CCD Public Elementary/Secondary School Universe Survey. The starting point for the 2011–12 SASS public school sampling frame was the preliminary 2009–10 CCD Nonfiscal School Universe data file. The SASS public school samples are stratified probability-proportionate-to-size (PPS) samples.

In 1999–2000, public charter schools were added to SASS. In that year, all known charter schools were included in SASS, and their data were included in separate data files. Because charter schools were not part of the public school sampling frame, this brief does not include an analysis of the charter school file for 1999–2000. In subsequent administrations of SASS, charter schools were sampled as part of the public school sample. In order to improve national estimates, the sample size for public charter schools was increased for the 2011–12 SASS. Because charter schools were part of the public school sample, this brief does include charter schools in the analyses for the 2003–04, 2007–08, and 2011–12 school years. The results of this brief should be interpreted with caution due to the inclusion of charter schools in 2003–04, 2007–08, and 2011–12 and the exclusion of charter schools in 1999–2000.[9] Still, the exclusion of charter schools from the analyses in this brief in 1999–2000 is unlikely to have a large impact on the findings in this report, since charter schools made up only 1.7 percent of all public schools and enrolled only 0.7 percent of all public school students in 1999–2000 (Snyder and Dillow 2013).

For more information about the SASS sample designs, see Tourkin et al. (2004), Tourkin et al. (2007), Tourkin et al. (2010), and Goldring et al. (2013a).

Data Collection

Data collection for 1999–2000 SASS began in August 1999. Data collection began with a mailout phase, followed by a second mailing, and additional nonresponse follow-up conducted by telephone from centralized telephone centers. Remaining nonrespondents were assigned to field staff, who obtained interviews by phone or personal visit. Data collection was completed in June 2000 (Tourkin et al. 2004).

The 2003–04 SASS utilized a field-based methodology for the principal, school, library media center, and teacher data collection (i.e., school-level data collection). Public school data collection began in September 2003. Census Bureau field representatives were

[9] Analysis of the 2003–04, 2007–08, and 2011–12 data without charter schools revealed similar magnitudes to the results presented in the brief. In the majority of cases the differences were less than 1 percentage point, with a few differences within 2 percentage points. Given the small magnitude of the differences between the without-charter percentages and the with-charter percentages, the findings of the brief would not change with the exclusion of charters.

responsible for all data collection at the sampled schools; these representatives visited schools between October 2003 and January 2004. Nonresponse follow-ups and public school data collection were completed in May 2004 (Tourkin et al. 2007).

The 2007–08 SASS data collection used a mail-based survey, with telephone and field follow-up. An advance letter was mailed to sampled schools during the summer of 2007 to verify school addresses. Subsequently, a package containing all surveys and explanatory information was mailed to sampled schools. Using a computer-assisted telephone interviewing (CATI) instrument to verify school information, schools were contacted to establish a survey coordinator. Schools were called from Census telephone centers to remind survey coordinators to have staff complete and return all forms. Individual survey respondents (i.e., principals, librarians, and teachers) were called from the telephone centers to attempt to complete the questionnaire over the phone. Field follow-up was conducted for schools that did not return their questionnaires (Tourkin et al. 2010).

In 2011–12, SASS employed a mail-based survey approach with subsequent telephone and in-person field follow-up. In preparation for school-level data collection, advance letters were mailed to the sampled schools in June 2011 to verify their addresses. School packages were mailed in October 2011. Next, schools were telephoned using a computer-assisted telephone interviewing instrument to verify school information, establish a survey coordinator (who became the main contact person at the school for subsequent communication). The field follow-up period was preceded by phone calls from the telephone centers to remind the survey coordinators to have staff complete and return all forms. Individual survey respondents (principal, librarian, and teachers) were also called from the telephone centers and asked to complete the questionnaire by phone.

Data collection ended in June 2012 (Goldring et al. 2013a).

Response Rates and Nonresponse Bias Analysis

Unit response rates. Unit response rates are the rate at which the sampled units respond by substantially completing the questionnaire. The base-weighted unit response rates are the base-weighted number of interviewed cases divided by the base-weighted number of eligible cases. The base weight for each sampled unit is the inverse of the probability of selection. For the 1999–2000 SASS, the base-weighted public school response rate was 88.5 percent (Tourkin et al. 2004); for the 2003–04 SASS, the base-weighted public school response rate was 80.8 percent (Tourkin et al. 2007); for the 2007–08 SASS, the base-weighted public school response rate was 80.4 was percent (Tourkin et al. 2010); and for the 2011–12 SASS, the base-weighted public school response rate was 72.5 percent (Goldring et al. 2013a).

Item response rates. Documentation for the 1999–2000 SASS reports unweighted item response rates. The unweighted item response rates are the number of sample cases responding to an item divided by the number of sample cases eligible to answer the item. In the 1999–2000 SASS, the final unweighted item response rates ranged from 67 to 100 percent in the Public School data file (Tourkin et al. 2004). Documentation for the 2003–04, 2007–08, and 2011–12 SASS reports weighted item response weights. Weighted item response rates are the final-weighted number of sample cases responding to an item divided by the final-weighted number of sample cases eligible to answer the item. In the 2003–04 SASS, weighted item response rates ranged from 71 to 100 percent in the Public School data file (Tourkin et al. 2007). In the 2007–08 SASS, the final-weighted item response rates ranged from 80.5 to 100 percent in the Public School data file (Tourkin et al. 2010). In the 2011–12 SASS, the final weighted item response rates ranged from 80 to 100 percent in the Public School data file (Goldring et al. 2013b).

Nonresponse bias analysis. A comprehensive nonresponse bias analysis has been conducted for each SASS data file for all survey administrations. No evidence of substantial bias due to unit- or item-level nonresponse

was found in the 2003–04 and 2007–08 Public School data files. Nonresponse bias analysis found some evidence of bias in the 1999–2000 and 2011–12 public school data files. For more information on nonresponse bias analyses, see Tourkin et al. (2004), Tourkin et al. (2007), Tourkin et al. (2010), and Goldring et al. (2013b).

Imputation procedures. SASS is a fully imputed dataset. In general, missing values are filled during one of three stages of imputation: (1) survey data are imputed with a valid response using data from other items in the same questionnaire or from other related sources, (2) data are imputed from items found in the questionnaires of respondents who have certain characteristics in common or from the aggregated answers of similar questionnaires, and (3) the remaining unanswered items are imputed clerically by Census Bureau analysts. A numerical flag is assigned to each imputed item so that it is possible for data users to identify which items were imputed, how the imputations were performed, and whether or not to include the imputed data in their analysis. For more information on imputation procedures, see Tourkin et al. (2004), Tourkin et al. (2007), Tourkin et al. (2010), and Goldring et al. (2013a).

Variables Used in the Analysis

The key outcome variables in this report are derived from two questions on the SASS Public School Questionnaires. In all four survey years, the survey questionnaire asked if the school had any teaching vacancies (that is, "teaching positions for which teachers were recruited and interviewed") in the current school year. Responses to this question form the basis for analyses of both teaching vacancies and difficult-to-staff teaching positions.[10] In this brief, schools with a "no" response to this question were considered to have no vacancies and no difficult-to-staff teaching positions. Schools with a "yes" response were considered to have at least one teaching vacancy.

For schools that had vacancies, information on difficult-to-staff teaching positions was derived from additional survey items on all four SASS Public School Questionnaires. Schools with vacancies were asked to report the degree of difficulty they had staffing the vacancies across a variety of subject areas. In 1999–2000 and 2003–04, the questionnaire listed the following subject areas: general elementary; special education; English/language arts; social studies; computer science; mathematics; biology or life sciences; physical sciences; English as a second language (ESL), English for speakers of other languages (ESOL), or bilingual education; foreign languages; music or art; and vocational or technical education. In 2007–08, the questionnaire listed the following subject areas: general elementary; special education; English or language arts; social studies; computer science; mathematics; biology or life sciences; physical sciences; English as a second language (ESL) or bilingual education; foreign languages; music or art; and career, technical, or vocational education. In 2011–12, the questionnaire listed the following subject areas: general elementary; special education; English or language arts; social studies; computer science; mathematics; biology or life sciences; physical sciences (e.g., chemistry, physics, earth sciences); English as a second language (ESL) or bilingual education; foreign languages; music or art; career or technical education; and other. Exclusion of the "other" category in 2011–12 changes the estimates reported in table A-2 by less than 1 percent. For all years, estimates for difficult-to-staff teaching positions in high schools do not include responses to the "general elementary" category because high schools do not typically have general elementary positions. As expected, the number of high schools that selected this option in each year was very low. In this brief, schools that responded that it was "very difficult" to fill a vacancy or that they "could not fill the vacancy" in any particular subject area were considered to have at least one difficult-to-staff teaching position.

The appendix tables at the end of this brief include estimates of teaching vacancies and difficult-to-staff teaching positions by locale (i.e., city, suburb, town, rural). NCES updated its approach to classifying schools' locations between the 2003–04 and 2007–08 administrations of the Schools and Staffing Survey. Therefore, in this

[10] This brief uses self-reported data, which may be subject to inaccuracies in judgment or recollection.

brief, classification of schools into locale categories for the 1999–2000 and 2003–04 school years is based on metro-centric locale codes, whereas classification of schools into locale categories for the 2007–08 and 2011–12 school years is based on urban-centric locale codes. For more information on locale codes, see http://nces.ed.gov/ccd/rural_locales.asp.

Weighting and Variance Estimation

Each SASS data file contains a final weight and a set of replicate weights. The final weights are needed so that the sample estimates reflect the target survey population in data analyses. Each of the analyses uses the school final weight (SFNLWGT).

In surveys with complex sample designs, such as SASS, direct estimates of sampling errors that assume a simple random sample will typically underestimate the variability in the estimates. The SASS sample design and estimation include procedures that deviate from the assumption of simple random sampling. For this reason, the preferred method of calculating sampling errors is replication. Each SASS data file includes a set of replicate weights designed to produce variance estimates. Each of the analyses in this brief uses the school replicate weights (SREPWT1–SREPWT88) to create balanced repeated replication variance estimates.

Statistical Procedures

Comparisons made in the text were tested for statistical significance at the $p < .05$ level to ensure that the differences were larger than might be expected due to sampling variation. Consistent with widely accepted statistical standards, only those findings that are statistically significant at the .05 level are reported. That is, there is less than a 5 percent chance that the difference occurred by chance. When comparing estimates between categorical groups (e.g., sex, race/ethnicity), *t* statistics were calculated. The following formula was used to compute the *t* statistic:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}}$$

where E_1 and E_2 are the estimates being compared and se_1 and se_2 are the corresponding standard errors of these estimates. No adjustments were made for multiple comparisons. It is important to note that many of the variables examined in this report may be related to one another and to other variables not included in the analyses. The complex interactions and relationships among the variables were not fully explored and warrant more extensive analysis. Furthermore, the variables examined in this report are just a few of those that could be examined. Readers are cautioned not to draw causal inferences based on the results presented.

The coefficient of variation (CV) represents the ratio of the standard error to the estimate. The CV is an important measure of the reliability and accuracy of an estimate. In this report, the CV was calculated for all estimates, and in cases where the standard error was between 30 and 50 percent of the estimate, the estimates were noted with a "!" symbol (interpret data with caution) in the accompanying tables.

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APPENDIX A: DATA TABLES

Table A-1. Percentage distribution of all public schools that had and did not have teaching vacancies, by school year and school level: School years 1999–2000, 2003–04, 2007–08, and 2011–12

School level	1999–2000	2003–04	2007–08	2011–12
School had at least one teaching vacancy				
All schools	83.2	73.7	78.5	67.7
Primary	81.4	70.4	77.5	64.0
Middle	87.0	80.3	83.1	73.3
High	87.5	80.6	79.6	75.1
Combined[1]	73.1	67.3	73.3	63.6
School had no teaching vacancies				
All schools	16.8	26.3	21.5	32.3
Primary	18.6	29.6	22.5	36.0
Middle	13.0	19.7	16.9	26.7
High	12.5	19.4	20.4	24.9
Combined[1]	26.9	32.7	26.7	36.4

[1] Combined schools are those schools with grade levels in both elementary and secondary grade levels, or with all students in ungraded classrooms.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

Table A-2. Percentage distribution of all public schools that had and did not have difficult-to-staff teaching positions, by school year and school level: School years 1999–2000, 2003–04, 2007–08, and 2011–12

School level	1999–2000	2003–04	2007–08	2011–12
School had at least one difficult-to-staff teaching position				
All schools	35.7	24.8	27.1	14.6
Primary	25.8	16.9	17.7	7.9
Middle	48.0	32.7	35.9	16.7
High	54.5	40.1	42.9	27.7
Combined[1]	35.9	28.2	34.1	23.6
School had no difficult-to-staff teaching positions				
All schools	64.3	75.2	72.9	85.4
Primary	74.2	83.1	82.3	92.1
Middle	52.0	67.3	64.1	83.3
High	45.5	59.9	57.1	72.3
Combined[1]	64.1	71.8	65.9	76.4

[1] Combined schools are those schools with grade levels in both elementary and secondary grade levels, or with all students in ungraded classrooms.

NOTE: Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy."

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

Table A-3. Percent of all public high schools that had at least one difficult-to-staff teaching position, by subject area: School years 1999–2000, 2003–04, 2007–08, and 2011–12

Subject area	1999–2000	2003–04	2007–08	2011–12
Mathematics	23.5	15.7	19.1	9.1
Special education	20.0	12.9	13.1	7.6
Foreign languages	16.7	9.8	11.9	6.7
Physical sciences	15.0	9.8	13.1	8.4
Biology or life sciences	13.3	7.5	13.4	5.3
Career, technical, or vocational education	13.0	7.9	9.1	4.2
Music or art	9.4	5.6	5.0	1.8
Computer science	9.1	4.0	4.0	1.3
English as a Second Language (ESL) or bilingual education	6.8	4.3	5.8	2.6
English or language arts	4.8	3.8	5.0	2.1
Social studies	2.5	1.3	1.9 !	‡

! Interpret data with caution. The coefficient of variation is between 30 and 50 percent.

‡ Reporting standards not met. The cell size is less than 30.

NOTE: A school was considered to have a subject area with a difficult-to-staff teaching position when the principal reported there were teaching vacancies in the school and that it was "very difficult" to fill the vacancy or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy."

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

Table A-4. Percentage distribution of all public high schools with at least one teaching vacancy, by selected school characteristics: School years 1999–2000, 2003–04, 2007–08, and 2011–12

School characteristic	1999–2000	2003–04	2007–08	2011–12
Total	**87.5**	**80.6**	**79.6**	**75.1**
Minority student composition[1]				
Less than 5 percent	88.2	82.1	77.4	67.1
5–19 percent	90.5	80.2	84.1	73.5
20–49 percent	84.6	83.1	78.1	76.0
50 percent or more	86.0	77.9	78.9	79.1
School classification				
Traditional public	†	81.1	79.8	75.1
Charter school	†	65.7	75.6	75.3
Schoolwide Title I eligibility status				
School is eligible for schoolwide Title I	84.4	90.0	79.5	79.0
School is not eligible for schoolwide Title I	88.4	84.8	83.5	72.3
Region				
Northeast	93.1	92.6	83.0	74.7
Midwest	88.8	81.4	76.2	71.0
South	87.3	83.8	84.4	81.8
West	82.4	68.4	74.7	71.1
Percent of K–12 students who were approved for free or reduced-price school lunch				
0–34	89.7	88.6	85.9	76.0
35–49	87.0	85.7	88.3	76.9
50–74	82.5	80.5	78.9	80.1
75 or more	77.3	60.8	73.4	72.2
School size				
Less than 500 students	78.8	67.9	67.4	65.3
500–599 students	94.2	89.1	86.9	76.7
1,000 or more students	95.8	92.9	92.4	87.7
School locale				
City	85.9	84.9	79.8	76.6
Suburban	88.0	85.6	79.5	78.3
Town	87.2	80.3	78.8	72.4
Rural	88.1	74.1	79.9	73.4

† Not applicable.

[1] "Minority students" refers to Black, Hispanic, Asian, Pacific Islander, American Indian/Alaska Native students, and students of Two or more races.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files", 1999–2000, 2003–04, 2007–08, and 2011–12.

Table A-5. Percentage distribution of all public high schools that had zero, one, or two or more subject areas with difficult-to-staff teaching positions, by selected school characteristics: School years 1999–2000, 2003–04, 2007–08, and 2011–12

School characteristic	Number of subject areas with at least one difficult-to-staff teaching position											
	1999–2000			2003–04			2007–08			2011–12		
	Zero	One	Two or more	Zero	One	Two or more	Zero	One	Two or more	Zero	One	Two or more
Total	**45.5**	**20.8**	**33.7**	**59.9**	**19.6**	**20.5**	**57.1**	**17.8**	**25.1**	**72.3**	**15.8**	**11.9**
Minority student composition[1]												
Less than 5 percent	46.1	26.2	27.7	60.9	22.1	16.9	64.4	16.1	19.5	81.3	11.4	7.3
5–19 percent	42.3	21.4	36.3	62.9	18.2	18.9	54.6	24.0	21.4	77.9	14.0	8.0
20–49 percent	49.9	15.3	34.8	58.2	19.5	22.3	57.8	18.8	23.4	69.8	16.6	13.6
50 percent or more	44.2	17.3	38.6	57.7	18.6	23.7	53.7	13.3	33.0	66.0	18.4	15.6
School classification												
Traditional public	†	†	†	59.5	19.7	20.8	56.7	17.7	25.6	72.2	15.8	12.0
Charter school	†	†	†	75.2	‡	‡	65.4	‡	‡	72.8	15.7	11.5
Schoolwide Title I eligibility status[2]												
School is eligible for schoolwide Title I	48.4	21.8	29.8	48.6	19.8	31.6	59.7	12.4	27.9	64.5	18.9	16.6
School is not eligible for schoolwide Title I	44.7	20.5	34.8	58.8	19.0	22.1	60.2	17.0	22.8	78.6	12.2	9.2
Region												
Northeast	40.5	21.8	37.7	46.3	25.0	28.6	53.6	21.4	25.0	73.6	15.7	10.7
Midwest	41.9	25.1	33.0	64.3	19.2	16.5	64.0	19.8	16.2	76.9	15.0	8.1
South	49.2	18.6	32.2	59.3	18.1	22.7	54.6	17.2	28.2	65.3	17.6	17.1
West	48.8	16.9	34.3	63.8	18.8	17.3	55.3	14.1	30.6	75.5	14.5	10.0
Percent of K–12 students who were approved for free or reduced-price school lunch												
0–34	43.2	21.9	34.9	54.5	22.5	23.0	54.3	21.0	24.7	75.1	15.6	9.3
35–49	48.1	15.6	36.2	56.6	20.2	23.2	54.0	18.9	27.2	71.5	18.0	10.4
50–74	51.3	18.9	29.8	56.8	20.5	22.7	50.2	14.7	35.1	64.4	16.8	18.9
75 or more	52.7	22.5	24.8	72.2	13.1	14.7	61.4	16.2	22.3	69.9	16.1	14.0
School size												
Less than 500 students	56.7	19.8	23.5	72.7	16.8	10.5	69.9	14.6	15.5	79.8	12.0	8.2
500–599 students	40.9	24.6	34.5	57.2	19.4	23.4	54.5	17.8	27.7	70.7	17.3	12.0
1,000 or more students	31.7	19.1	49.2	43.0	23.9	33.1	40.3	22.4	37.3	62.8	20.1	17.2

See notes at end of table.

Table A-5. Percentage distribution of all public high schools that had zero, one, or two or more subject areas with difficult-to-staff teaching positions, by selected school characteristics: School years 1999–2000, 2003–04, 2007–08, and 2011–12—Continued

School characteristic	Number of subject areas with at least one difficult-to-staff teaching position											
	1999–2000			2003–04			2007–08			2011–12		
	Zero	One	Two or more	Zero	One	Two or more	Zero	One	Two or more	Zero	One	Two or more
School locale												
City	45.1	18.4	36.5	52.5	20.7	26.8	57.6	16.5	25.9	68.6	17.3	14.1
Suburban	45.8	20.3	33.9	56.2	21.3	22.5	54.2	20.4	25.4	72.8	17.5	9.7
Town	46.4	21.0	32.7	63.0	20.3	16.7	63.2	16.1	20.7	73.1	14.1	12.8
Rural	45.1	22.3	32.6	66.3	17.3	16.4	55.9	17.6	26.5	73.7	14.6	11.7

† Not applicable.

‡ Reporting standards not met. The cell size is less than 30.

[1] "Minority students" refers to Black, Hispanic, Asian, Pacific Islander, American Indian/Alaska Native students, and students of Two or more races.

[2] In 1999–2000, schools where 50 percent or more of the students were from low-income families were permitted to use Title I funds for schoolwide purposes. In 2003–04, 2007–08, and 2011–12, schools where 40 percent or more of the students were from low-income families were permitted to use Title I funds for schoolwide purposes.

NOTE: Schools were considered to have a difficult-to-staff teaching position when principals reported that a teaching vacancy was "very difficult" to fill or that the principal "could not fill the vacancy" in a particular subject area. Schools were considered to have no difficult-to-staff positions if principals reported there were no vacant teaching positions, or that there were vacant positions but no subject area that was "very difficult" to fill or for which the school "could not fill the vacancy." High schools that reported difficult-to-staff positions only for general elementary positions are excluded from this analysis. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

APPENDIX B: STANDARD ERROR TABLES

Table B-1. Standard errors for table A-1: Percentage distribution of all public schools that had and did not have teaching vacancies, by school year and school level: School years 1999–2000, 2003–04, 2007–08, and 2011–12

School level	1999–2000	2003–04	2007–08	2011–12
School had at least one teaching vacancy				
All schools	0.58	0.78	0.84	0.74
Primary	0.90	1.11	1.24	1.25
Middle	1.28	1.94	2.15	1.27
High	0.75	1.29	1.73	1.27
Combined	2.43	2.41	3.25	2.82
School had no teaching vacancies				
All schools	0.58	0.78	0.84	0.74
Primary	0.90	1.11	1.24	1.25
Middle	1.28	1.94	2.15	1.27
High	0.75	1.29	1.73	1.27
Combined	2.43	2.41	3.25	2.82

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

Table B-2. Standard errors for table A-2: Percentage distribution of all public schools that had and did not have difficult-to-staff teaching positions, by school year and school level: School years 1999–2000, 2003–04, 2007–08, and 2011–12

School level	1999–2000	2003–04	2007–08	2011–12
School had at least one difficult-to-staff teaching position				
All schools	0.57	0.69	0.87	0.49
Primary	0.85	0.96	1.07	0.56
Middle	1.70	1.63	2.43	0.98
High	0.99	1.26	1.81	1.16
Combined	2.11	1.92	2.67	2.00
School had no difficult-to-staff teaching positions				
All schools	0.57	0.69	0.87	0.49
Primary	0.85	0.96	1.07	0.56
Middle	1.70	1.63	2.43	0.98
High	0.99	1.26	1.81	1.16
Combined	2.11	1.92	2.67	2.00

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

Table B-3. Standard errors for table A-3: Percent of all public high schools that had at least one difficult-to-staff teaching position, by subject area: School years 1999–2000, 2003–04, 2007–08, and 2011–12

Subject area	1999–2000	2003–04	2007–08	2011–12
Mathematics	0.77	0.85	1.41	0.71
Special education	0.68	0.76	1.19	0.62
Foreign languages	0.67	0.61	1.22	0.56
Physical sciences	0.61	0.66	1.04	0.65
Biology or life sciences	0.59	0.55	1.21	0.53
Career, technical, or vocational education	0.45	0.67	1.13	0.49
Music or art	0.50	0.57	0.86	0.30
Computer science	0.49	0.41	0.86	0.25
English as a Second Language (ESL) or bilingual education	0.43	0.52	0.92	0.43
English or language arts	0.36	0.58	0.84	0.36
Social studies	0.29	0.29	0.79	†

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.

Table B-4. Standard errors for table A-4: Percentage distribution of all public high schools with at least one teaching vacancy, by selected school characteristics: School years 1999–2000, 2003–04, 2007–08, and 2011–12

School characteristic	1999–2000	2003–04	2007–08	2011–12
Total	**0.75**	**1.29**	**1.73**	**1.27**
Minority student composition				
Less than 5 percent	1.20	3.28	3.54	2.82
5–19 percent	1.17	3.86	2.87	2.44
20–49 percent	2.61	1.87	4.05	2.41
50 percent or more	1.51	3.84	3.12	2.24
School classification				
Traditional public	†	1.32	1.71	1.28
Charter school	†	10.01	10.84	3.95
Schoolwide Title I eligibility status				
School is eligible for schoolwide Title I	1.73	1.98	6.66	2.36
School is not eligible for schoolwide Title I	0.92	2.77	3.46	2.63
Region				
Northeast	1.42	1.08	4.34	3.06
Midwest	1.21	2.20	3.06	2.32
South	1.09	1.54	1.96	1.97
West	2.34	4.30	4.87	2.11
Percent of K–12 students who were approved for free or reduced-price school lunch				
0–34	0.84	0.96	1.62	1.75
35–49	2.20	2.53	2.83	2.46
50–74	4.81	5.92	6.10	2.57
75 or more	3.59	8.76	5.26	3.05
School size				
Less than 500 students	1.50	2.47	3.46	2.01
500–599 students	0.77	1.33	2.25	1.90
1,000 or more students	0.54	0.99	1.23	1.30
School locale				
City	1.61	2.31	3.29	3.35
Suburban	1.77	2.35	3.55	2.12
Town	2.34	2.21	4.32	2.92
Rural	1.17	2.81	2.67	1.84

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files", 1999–2000, 2003–04, 2007–08, and 2011–12.

Table B-5. Standard errors for table A-5: Percentage distribution of all public high schools that had zero, one, or two or more subject areas with difficult-to-staff teaching positions, by selected school characteristics: School years 1999–2000, 2003–04, 2007–08, and 2011–12

School characteristic	Number of subject areas with at least one difficult-to-staff teaching position											
	1999–2000			2003–04			2007–08			2011–12		
	Zero	One	Two or more	Zero	One	Two or more	Zero	One	Two or more	Zero	One	Two or more
Total	**0.99**	**0.79**	**0.81**	**1.26**	**0.98**	**0.93**	**1.81**	**1.30**	**1.51**	**1.16**	**0.87**	**0.83**
Minority student composition												
Less than 5 percent	1.99	1.74	1.58	2.42	2.11	1.87	3.83	2.43	3.11	2.05	1.69	1.36
5–19 percent	1.95	1.62	1.74	2.71	1.76	1.78	2.98	2.97	2.51	1.75	1.41	1.17
20–49 percent	2.12	1.31	1.81	2.30	1.86	1.69	3.72	2.43	2.97	2.35	1.71	1.76
50 percent or more	2.01	1.57	1.93	2.57	2.06	1.98	4.04	2.27	3.66	2.22	1.70	1.70
School classification												
Traditional public	†	†	†	1.29	1.00	0.96	1.83	1.33	1.41	1.17	0.88	0.88
Charter school	†	†	†	7.98	†	†	11.63	†	†	3.84	3.42	2.23
Schoolwide Title I eligibility status												
School is eligible for schoolwide Title I	2.16	1.85	1.53	4.22	3.26	4.46	6.86	3.63	5.17	2.68	1.85	2.17
School is not eligible for schoolwide Title I	1.19	0.85	0.94	3.71	2.35	3.38	4.80	3.23	4.29	2.36	2.03	1.81
Region												
Northeast	2.54	2.30	2.04	2.84	2.70	2.32	4.72	3.52	3.92	2.56	2.61	2.04
Midwest	1.79	1.68	1.86	2.30	1.86	1.66	3.10	2.87	2.07	1.54	1.31	1.12
South	1.67	1.29	1.19	1.97	1.30	1.49	2.98	2.15	2.42	2.40	1.68	1.92
West	2.05	1.22	2.28	2.58	1.99	2.30	4.40	2.73	4.08	1.77	1.32	1.25
Percent of K–12 students who were approved for free or reduced-price school lunch												
0–34	1.32	1.05	1.05	1.81	1.40	1.33	2.29	1.69	2.17	1.58	1.44	1.02
35–49	2.92	1.82	2.62	3.03	2.63	2.30	3.76	2.71	3.09	2.43	2.08	1.98
50–74	3.68	2.38	3.20	4.78	3.19	4.04	5.17	3.08	5.16	2.85	2.08	2.34
75 or more	3.36	2.79	2.37	4.60	3.51	2.61	5.51	3.99	4.51	3.29	2.29	2.34
School size												
Less than 500 students	1.89	1.23	1.48	2.06	1.54	1.31	3.10	1.89	2.44	1.46	0.95	1.13
500–599 students	1.77	1.70	1.52	2.52	1.91	2.03	3.30	2.28	2.98	1.98	1.74	1.40
1,000 or more students	1.19	0.88	1.29	1.91	1.53	1.65	2.54	2.42	2.62	1.96	1.59	1.53

See notes at end of table.

Table B-5. Standard errors for table A-5: Percentage distribution of all public high schools that had zero, one, or two or more subject areas with difficult-to-staff teaching positions, by selected school characteristics: School years 1999–2000, 2003–04, 2007–08, and 2011–12—Continued

School characteristic	Number of subject areas with at least one difficult-to-staff teaching position											
	1999–2000			2003–04			2007–08			2011–12		
	Zero	One	Two or more	Zero	One	Two or more	Zero	One	Two or more	Zero	One	Two or more
School locale												
City	2.18	1.72	1.78	2.80	2.44	2.32	3.88	2.83	3.84	2.74	2.35	2.04
Suburban	1.76	1.51	1.38	2.29	1.93	1.78	4.09	2.95	3.17	2.05	1.95	1.28
Town	2.46	1.57	2.05	2.76	2.33	1.91	3.16	2.22	2.40	2.61	2.01	1.84
Rural	1.78	1.57	1.62	2.07	1.47	1.50	3.08	2.00	2.40	1.75	1.31	1.53

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Data Files," 1999–2000, 2003–04, 2007–08, and 2011–12.