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Projections of Education Statistics to 2028

Forty-seventh Edition

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Foreword

Projections of Education Statistics to 2028 is the 47th report in a series begun in 1964. It includes statistics on elementary and secondary schools and degree-granting postsecondary institutions. This report provides revisions of projections shown in *Projections of Education Statistics to 2027* and projections of enrollment, graduates, teachers, and expenditures to the year 2028.

In addition to projections at the national level, the report includes projections of public elementary and secondary school enrollment and public high school graduates to the year 2028 at the state level. The projections in this report were produced by the National Center for Education Statistics (NCES) to provide researchers, policy analysts, and others with state-level projections developed using a consistent methodology. They are not intended to supplant detailed projections prepared for individual states.

Assumptions regarding the population and the economy are the key factors underlying the projections of education statistics. NCES projections do not reflect changes in national, state, or local education policies that may affect education statistics.

Appendix A of this report outlines the projection methodology and describes the models and assumptions used to develop the national and state projections. The enrollment models use enrollment data and population estimates and projections from NCES, the U.S. Census Bureau, and the forecasting service IHS Global Inc. The models are based on the mathematical projection of past data patterns into the future. Some models also use projections of economic variables from IHS Global Inc.

The projections presented in this report are based on assumptions for the fertility rate, internal migration, net immigration, and mortality rate from the Census Bureau. For further information, see appendix A.

James L. Woodworth, Commissioner
National Center for Education Statistics

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About This Report

PROJECTIONS

This edition of *Projections of Education Statistics* provides projections for key education statistics, including enrollment, graduates, teachers, and expenditures in elementary and secondary public and private schools, as well as enrollment and degrees conferred at degree-granting postsecondary institutions. Included are national data on enrollment and graduates for at least the past 15 years and projections to the year 2028. Also included are state-level data on enrollment in public elementary and secondary schools and public high schools beginning in 1990, with projections to 2028. This report is organized by the level of schooling with sections 1, 2, 3, and 4 covering aspects of elementary and secondary education and sections 5 and 6 covering aspects of postsecondary education.

There are a number of limitations in projecting some statistics. Because of this, state-level data on enrollment and graduates in private elementary and secondary schools and on enrollment and degrees conferred in degree-granting postsecondary institutions are not included. Neither the actual numbers nor the projections of public and private elementary and secondary school enrollment include homeschooled students. Projections of elementary and secondary school enrollment and public high school graduates by age, state, and race/ethnicity are not included as the projections of the population by age, state, and race/ethnicity are not presently available. While there were enough years of data to produce projections of public elementary and secondary enrollment separately for Asians and Pacific Islanders, there were not enough years of data to produce separate projections for Asians and Pacific Islanders for either public high school graduates or enrollment in degree-granting postsecondary institutions.

Similar methodologies were used to obtain a uniform set of projections for each of the 50 states and the District of Columbia. These projections are further adjusted to agree with the national projections of public elementary and secondary school enrollment and public high school graduates contained in this report.

The summary of projections provides highlights of the national and state data, while the reference tables and figures present more detail. All calculations within *Projections of Education Statistics* are based on unrounded estimates. Therefore, the reader may find that a calculation, such as a difference or percentage change, cited in the text or figure may not be identical to the calculation obtained by using the rounded values shown in the accompanying tables. Most figures in this report present historical and forecasted data from 2003 through 2028. The shaded area of these figures highlights the projected data and begins at the last year of actual data and ends in 2028. As the last year of historical data differs by survey, the year in which the shaded area begins also differs.

Most statements in sections 1 through 6 examine a single statistic over a period of time. In each case, a trend test using linear regression was conducted to test for structure in the data over that time period. If the p value for the trend variable was less than or equal to .05, the text states that the statistic has either increased or decreased. If the p value was greater than .05 and the data for both the first and last years of the time period come from a universe sample and/or are projections, then the text compares the first and last years in the time period. However, if the data for at least one of the two years came from a sample survey, a two-tailed t test at the .05 level was conducted to determine if any apparent difference between the data for the two years is not reliably measurable due to the uncertainty around the data. Depending on the results of the test, the text will either include a comparison of the two numbers or say that there was no measurable difference between the two numbers.

Appendix A describes the methodology and assumptions used to develop the projections; appendix B presents supplementary tables; appendix C describes data sources; appendix D is a list of the references; appendix E presents a list of abbreviations; and appendix F is a glossary of terms.

LIMITATIONS OF PROJECTIONS

Projections of a time series usually differ from the final reported data due to errors from many sources, such as the properties of the projection methodologies, which depend on the validity of many assumptions.

The mean absolute percentage error is one way to express the forecast accuracy of past projections. This measure expresses the average of the absolute values of errors in percentage terms, where errors are the differences between past projections and actual data. For example, based on past editions of *Projections of Education Statistics*, the mean absolute percentage errors of public school enrollment in grades prekindergarten through 12 for lead times of 1, 2, 5, and 10 years were 0.3, 0.5, 1.2, and 2.6 percent, respectively. In contrast, mean absolute percentage errors of private school enrollment in grades prekindergarten through 8 for lead times of 1, 2, 5, and 10 years were 3.1, 5.8, 8.3, and 21.5 percent, respectively. For more information on mean absolute percentage errors, see table A-2 in appendix A.

Section 1
Elementary and Secondary Enrollment

INTRODUCTION

Total public and private elementary and secondary school enrollment was 56 million in fall 2016, representing a 3 percent increase since fall 2003 (table 1). Between fall 2016, the last year of actual public school data, and fall 2028, a further increase of 2 percent is expected. Both public and private school enrollments are projected to be higher in 2028 than in 2016. Public school enrollments are projected to be higher in 2028 than in 2016 for Blacks, Hispanics, Asians/Pacific Islanders, and students of Two or more races (table 6). Enrollment is projected to be lower for Whites and American Indians/Alaska Natives. Public school enrollments are projected to be higher in 2028 than in 2016 for the South and West, and to be lower for the Northeast and Midwest (table 3).

Factors affecting the projections

The grade progression rate method was used to project school enrollments. This method assumes that future trends in factors affecting enrollments will be consistent with past patterns. It implicitly includes the net effect of factors such as dropouts, deaths, nonpromotion, transfers to and from public schools, and state-level migration. See appendixes A.0 and A.1 for more details.

Factors that were not considered

The projections do not assume changes in policies or attitudes that may affect enrollment levels. For example, they do not account for changing state and local policies on prekindergarten (preK) and kindergarten programs. Continued expansion of these programs could lead to higher enrollments at the elementary school level. Projections exclude the number of students who are homeschooled.

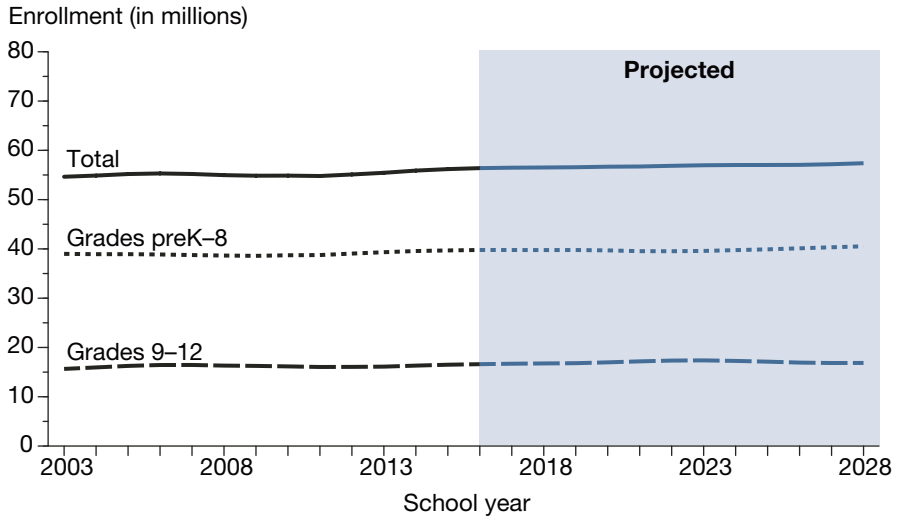
Students of Two or more races

This is the eighth edition of *Projections of Education Statistics* to include actual and projected numbers for enrollment in public elementary and secondary schools for students of Two or more races. Collection of enrollment data for this racial/ethnic group began in 2008. The actual values from 2008 through 2016 and all the projected values for enrollments of the other racial/ethnic groups are lower than they would have been if this racial/ethnic category had not been added.

Accuracy of Projections

An analysis of projection errors from the past 35 editions of *Projections of Education Statistics* indicates that the mean absolute percentage errors (MAPEs) for lead times of 1, 2, 5, and 10 years out for projections of public school enrollment in grades prekindergarten–12 were 0.3, 0.5, 1.2, and 2.6 percent, respectively. For the 1-year-out prediction, this means that the methodology used by the National Center for Education Statistics (NCES) has produced projections that have, on average, deviated from actual observed values by 0.3 percent. For projections of public school enrollment in grades prekindergarten–8, the MAPEs for lead times of 1, 2, 5, and 10 years out were 0.3, 0.6, 1.4, and 3.3 percent, respectively, while the MAPEs for projections of public school enrollment in grades 9–12 were 0.4, 0.7, 1.3, and 2.3 percent, respectively, for the same lead times. An analysis of projection errors from the past 17 editions of *Projections of Education Statistics* indicates that the MAPEs for lead times of 1, 2, 5, and 10 years out for projections of private school enrollment in grades prekindergarten–12 were 2.8, 5.5, 7.3, and 17.3 percent, respectively. For projections of private school enrollment in grades prekindergarten–8, the MAPEs for lead times of 1, 2, 5, and 10 years out were 3.1, 5.8, 8.3, and 21.5 percent, respectively, while the MAPEs for projections of private school enrollment in grades 9–12 were 2.9, 4.2, 4.1, and 6.8 percent, respectively, for the same lead times. For more information, see table A-2 in appendix A.

Figure 1. Actual and projected numbers for enrollment in elementary and secondary schools, by grade level: Fall 2003 through fall 2028



NOTE: PreK = prekindergarten. Enrollment numbers for prekindergarten through 12th grade and prekindergarten through 8th grade include private nursery and prekindergarten enrollment in schools that offer kindergarten or higher grades. Since the biennial Private School Universe Survey (PSS) is collected in the fall of odd-numbered years, private school numbers for alternate years are estimated based on data from the PSS. Some data have been revised from previously published figures. Mean absolute percentage errors of selected education statistics can be found in table A-2, appendix A.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2003–04 through 2016–17; Private School Universe Survey (PSS), selected years 2003–04 through 2015–16; and National Elementary and Secondary Enrollment Projection Model, 1972 through 2028. (This figure was prepared April 2019.)

Total elementary and secondary enrollment

- ▲ increased 3 percent between 2003 and 2016 (54.6 million versus 56.4 million); and
- ▲ is projected to increase 2 percent between 2016 and 2028 to 57.4 million.

Enrollment in prekindergarten through grade 8

- ▲ increased 2 percent between 2003 and 2016 (39.0 million versus 39.8 million); and
- ▲ is projected to increase 2 percent between 2016 and 2028 to 40.5 million.

Enrollment in grades 9–12

- ▲ was 6 percent higher in 2016 than in 2003 (16.6 million versus 15.7 million); and
- ▲ is projected to be 1 percent higher in 2028 (16.9 million) than in 2016.

For more information:
Tables 1 and 2

Enrollment by control of school

Enrollment in public elementary and secondary schools

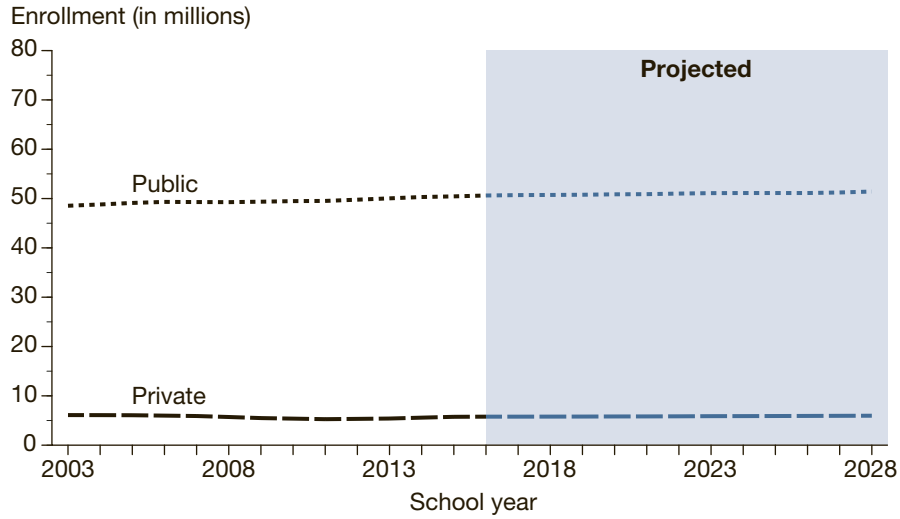
- ▲ increased 4 percent between 2003 and 2016 (48.5 million versus 50.6 million); and
- ▲ is projected to increase 2 percent between 2016 and 2028 to 51.4 million.

Enrollment in private elementary and secondary schools

- ▼ decreased 5 percent between 2003 and 2016 (6.1 million versus 5.8 million); and
- ▲ is projected to increase by 3 percent between 2016 and 2028 to 6.0 million.

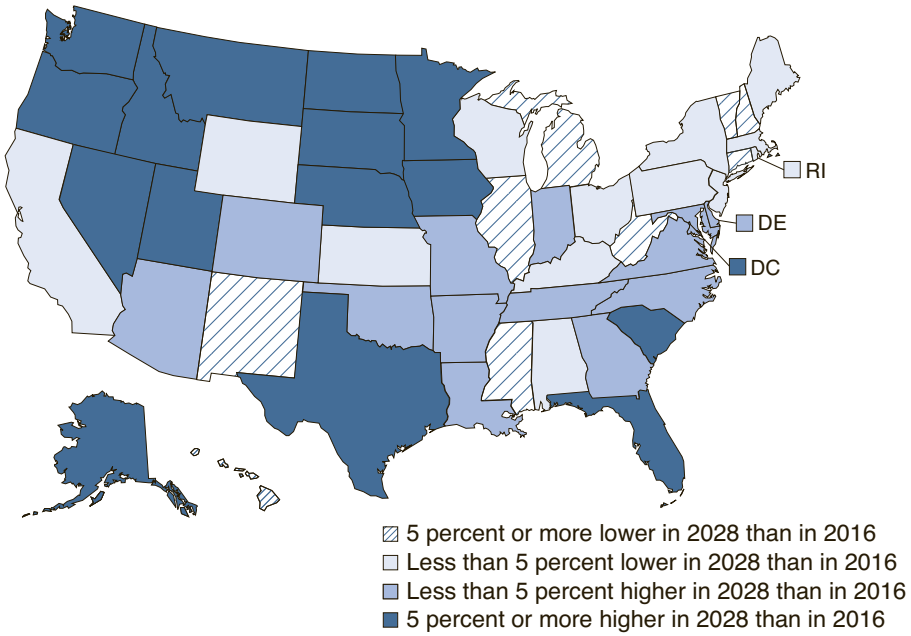
For more information:
Table 1

Figure 2. Actual and projected numbers for enrollment in elementary and secondary schools, by control of school: Fall 2003 through fall 2028



NOTE: Private school numbers include private nursery and prekindergarten enrollment in schools that offer kindergarten or higher grades. Since the biennial Private School Universe Survey (PSS) is collected in the fall of odd-numbered years, private school numbers for alternate years are estimated based on data from the PSS. Some data have been revised from previously published figures. Mean absolute percentage errors of selected education statistics can be found in table A-2, appendix A.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2003–04 through 2016–17; Private School Universe Survey (PSS), selected years 2003–04 through 2015–16; and National Elementary and Secondary Enrollment Projection Model, 1972 through 2028. (This figure was prepared April 2019.)

Figure 3. Projected percentage change in enrollment in public elementary and secondary schools, by state: Fall 2016 and fall 2028



NOTE: Mean absolute percentage errors of enrollment in public elementary and secondary schools by state and region can be found in table A-7, appendix A. Calculations are based on unrounded numbers.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2016–17; and State Public Elementary and Secondary Enrollment Projection Model, 1980 through 2028. (This figure was prepared April 2019.)

Enrollment by state

The expected 2 percent national increase in public school enrollment between 2016 and 2028 plays out differently among the states.

- ▼ Enrollments are projected to be lower in 2028 than in 2016 for 22 states, with projected enrollments
  - 5 percent or more lower in 9 states; and
  - less than 5 percent lower in 13 states.
- ▲ Enrollments are projected to be higher in 2028 than in 2016 for 28 states and the District of Columbia, with projected enrollments
  - less than 5 percent higher in 13 states; and
  - 5 percent or more higher in 15 states and the District of Columbia.

For more information: Tables 3 through 5

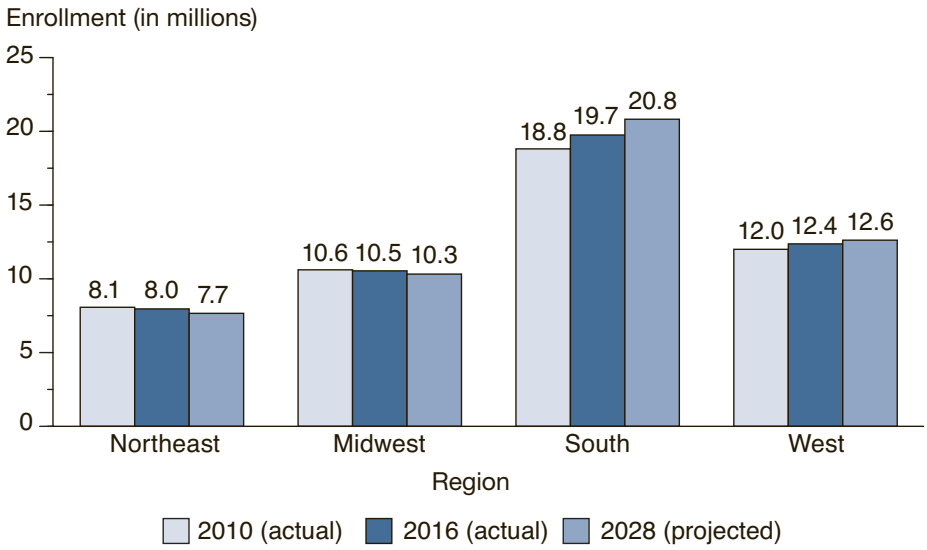
Enrollment by region

Public elementary and secondary enrollment is projected to

- ▼ decrease 4 percent between 2016 and 2028 for students in the Northeast;
- ▼ decrease 2 percent between 2016 and 2028 for students in the Midwest;
- ▲ increase 5 percent between 2016 and 2028 for students in the South; and
- ▲ increase 2 percent between 2016 and 2028 for students in the West.

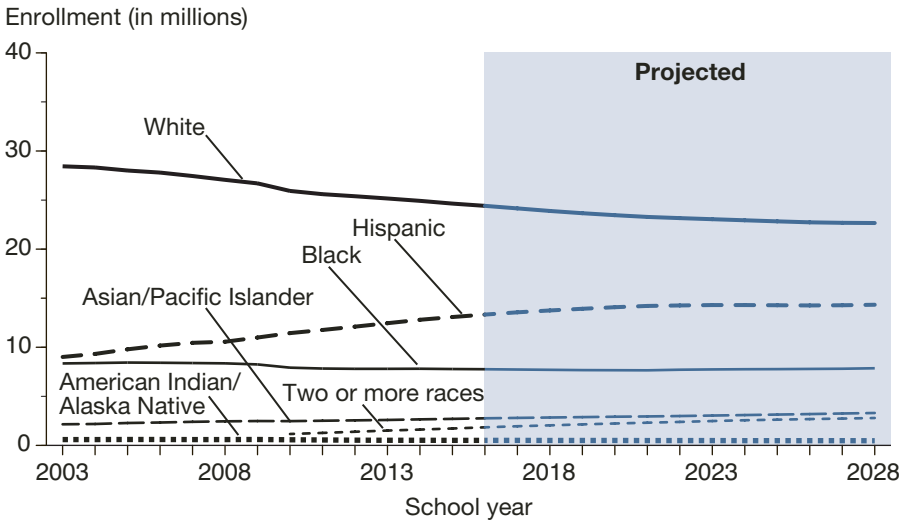
For more information:
Tables 3 through 5

Figure 4. Actual and projected numbers for enrollment in public elementary and secondary schools, by region: Fall 2010, fall 2016, and fall 2028



NOTE: Calculations are based on unrounded numbers. See the glossary for a list of the states in each region. Mean absolute percentage errors of enrollment in public elementary and secondary schools by state and region can be found in table A-7, appendix A. Although rounded numbers are displayed, the figures are based on unrounded estimates. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2010–11 and 2016–17; and State Public Elementary and Secondary Enrollment Projection Model, 1980 through 2028. (This figure was prepared April 2019.)

Figure 5. Actual and projected numbers for enrollment in public elementary and secondary schools, by race/ethnicity: Fall 2003 through fall 2028



NOTE: Race categories exclude persons of Hispanic ethnicity. Enrollment data for students not reported by race/ethnicity were prorated by state and grade to match state totals. Data on students of Two or more races were not collected separately prior to 2008 and data on students of Two or more races from 2008 and 2009 were not reported by all states. Only in 2010 and later years were those data available for all 50 states and the District of Columbia. Total counts of ungraded students were prorated to prekindergarten through grade 8 and grades 9 through 12 based on prior reports. Some data have been revised from previously published figures. Mean absolute percentage errors of selected education statistics can be found in table A-2, appendix A.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2003–04 through 2016–17; and National Public Elementary and Secondary Enrollment by Race/Ethnicity Projection Model, 1994 through 2028. (This figure was prepared April 2019.)

Enrollment by race/ethnicity

Enrollment in public elementary and secondary schools is projected to

- ▼ decrease 7 percent between 2016 and 2028 for students who are White;
- ▲ increase 1 percent between 2016 and 2028 for students who are Black;
- ▲ increase 8 percent between 2016 and 2028 for students who are Hispanic;
- ▲ increase 20 percent between 2016 and 2028 for students who are Asian/Pacific Islander;
- ▼ decrease 7 percent between 2016 and 2028 for students who are American Indian/Alaska Native; and
- ▲ increase 51 percent between 2016 and 2028 for students who are of Two or more races. (The line for this racial/ethnic group in figure 5 begins in 2010 when data for that group became available for all 50 states and the District of Columbia.)

For more information: Tables 6 and 7

Section 2
Elementary and Secondary Teachers

INTRODUCTION

Between fall 2016, the last year of actual public school data, and fall 2028, the number of teachers in elementary and secondary schools is projected to increase 7 percent (table 8). The increase is projected to occur in both public and private schools. Both public and private schools are projected to experience a decline in pupil/teacher ratios. The annual number of new teacher hires is projected to be higher in 2028 than in 2016 in both public and private schools.

Factors affecting the projections

The projections of the number of elementary and secondary teachers are related to projected levels of enrollments and education revenue receipts from state sources per capita. For more details, see appendixes A.0 and A.2.

Factors that were not considered

The projections do not take into account possible changes in the number of teachers due to the effects of government policies.

About pupil/teacher ratios

The overall elementary and secondary pupil/teacher ratio and pupil/teacher ratios for public and private schools were computed based on elementary and secondary enrollment and the number of classroom teachers by control of school.

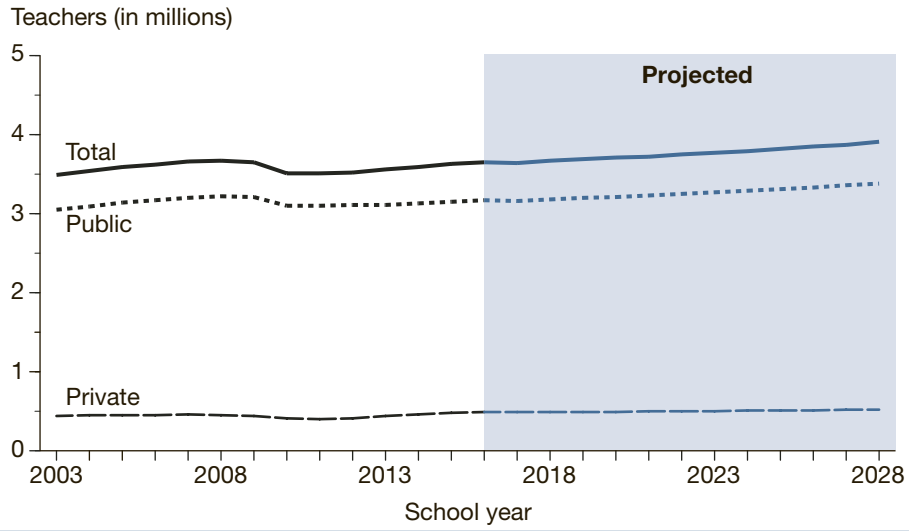
About new teacher hires

A teacher is considered to be a new teacher hire for a certain control of school (public or private) for a given year if the teacher teaches in that control that year but had not taught in that control in the previous year. A teacher who moves from teaching in one control of school to the other control is considered a new teacher hire, but a teacher who moves from one school to another school in the same control is not considered a new teacher hire.

Accuracy of Projections

An analysis of projection errors from the past 28 editions of *Projections of Education Statistics* that included projections of teachers indicates that the mean absolute percentage errors (MAPEs) for projections of classroom teachers in public elementary and secondary schools were 0.7 percent for 1 year out, 1.4 percent for 2 years out, 3.0 percent for 5 years out, and 6.5 percent for 10 years out. For the 1-year-out prediction, this means that one would expect the projection to be within 0.7 percent of the actual value, on average. For more information on the MAPEs of different National Center for Education Statistics (NCES) projection series, see table A-2 in appendix A.

Figure 6. Actual and projected numbers for elementary and secondary teachers, by control of school: Fall 2003 through fall 2028



NOTE: Since the biennial Private School Universe Survey (PSS) is collected in the fall of odd-numbered years, private school numbers for alternate years are estimated based on data from the PSS. Data for teachers are expressed in full-time equivalents (FTE). Counts of private school teachers include prekindergarten through grade 12 in schools offering kindergarten or higher grades. Counts of public school teachers include prekindergarten through grade 12. Some data have been revised from previously published figures. Mean absolute percentage errors of selected education statistics can be found in table A-2, appendix A.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2003–04 through 2016–17; Private School Universe Survey (PSS), selected years, 2003–04 through 2015–16; Elementary and Secondary Teacher Projection Model, 1973 through 2028. (This figure was prepared April 2019.)

Number of teachers

The total number of elementary and secondary teachers

- ▲ was 5 percent higher in 2016 than in 2003 (3.7 million versus 3.5 million); and
- ▲ is projected to increase 7 percent between 2016 and 2028 to 3.9 million.

The number of teachers in public elementary and secondary schools

- ▲ was 4 percent higher in 2016 than in 2003 (3.2 million versus 3.0 million); and
- ▲ is projected to increase 7 percent between 2016 and 2028 to 3.4 million.

The number of teachers in private elementary and secondary schools

- ▲ was 10 percent higher in 2016 than in 2003 (485,000 versus 441,000); and
- ▲ is projected to increase by 8 percent between 2016 and 2028 to 522,000.

For more information:
Table 8

Pupil/teacher ratios

The pupil/teacher ratio in all elementary and secondary schools

- ▼ was lower in 2016 than in 2003 (15.4 versus 15.7); and
- ▼ is projected to decrease to 14.7 in 2028.

The pupil/teacher ratio in public elementary and secondary schools

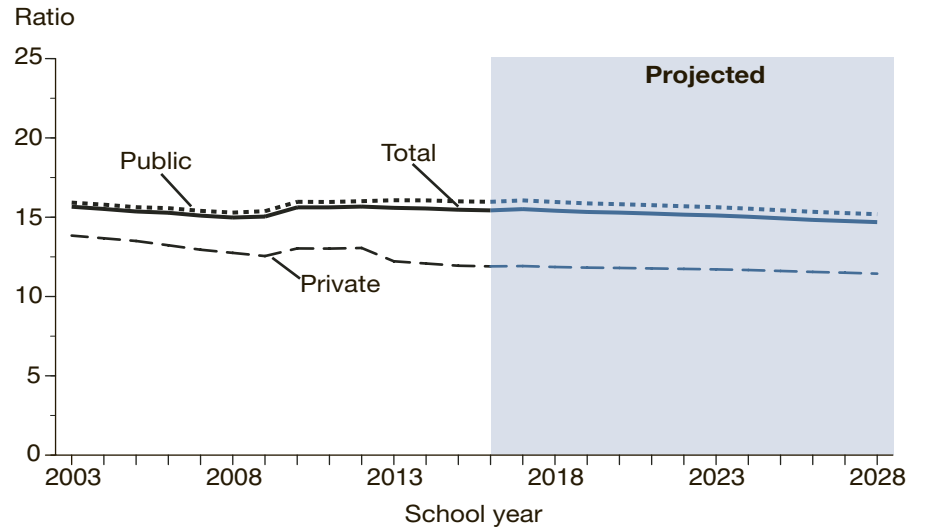
- ▲ was higher in 2016 than in 2003 (16.0 versus 15.9); and
- ▼ is projected to decrease to 15.2 in 2028.

The pupil/teacher ratio in private elementary and secondary schools

- ▼ decreased from 13.8 to 11.9 between 2003 and 2016; and
- ▼ is projected to decrease to 11.4 in 2028.

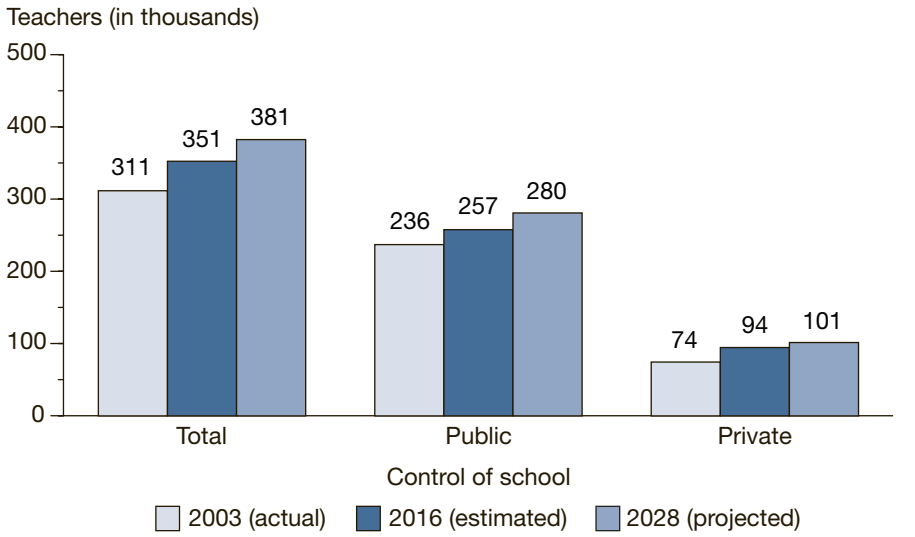
For more information:
Table 8

Figure 7. Actual and projected numbers for the pupil/teacher ratios in elementary and secondary schools, by control of school: Fall 2003 through fall 2028



NOTE: Since the biennial Private School Universe Survey (PSS) is collected in the fall of odd-numbered years, private school numbers for alternate years are estimated based on data from the PSS. Data for teachers are expressed in full-time equivalents (FTE). Counts of private school teachers and enrollment include prekindergarten through grade 12 in schools offering kindergarten or higher grades. Counts of public school teachers and enrollment include prekindergarten through grade 12. Some data have been revised from previously published figures. Mean absolute percentage errors of selected education statistics can be found in table A-2, appendix A.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2003–04 through 2016–17; Private School Universe Survey (PSS), selected years, 2003–04 through 2015–16; National Elementary and Secondary Enrollment Projection Model, 1972 through 2028; and Elementary and Secondary Teacher Projection Model, 1973 through 2028. (This figure was prepared April 2019.)

Figure 8. Actual and projected numbers for elementary and secondary new teacher hires, by control of school: Fall 2003, fall 2016, and fall 2028



NOTE: Data for teachers are expressed in full-time equivalents (FTE). A teacher is considered to be a new hire for a public or private school if the teacher had not taught in that control of school in the previous year. A teacher who moves from a public to private or a private to public school is considered a new teacher hire, but a teacher who moves from one public school to another public school or one private school to another private school is not considered a new teacher hire. For more information about the New Teacher Hires Model, see appendix A.2. Calculations are based on unrounded numbers. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2003–04 and 2015–16; Private School Universe Survey (PSS), 2003–04 and 2015–16; Schools and Staffing Survey (SASS), "Public School Teacher Data File," 2003–04; "Private School Teacher Data File," 2003–04; National Teacher Principal Survey (NTPS) 2015–16; Elementary and Secondary Teacher Projection Model, 1973 through 2028, and New Teacher Hires Projection Model, 1988 through 2028. (This figure was prepared April 2019.)

New teacher hires

The total number of new teacher hires

- ■ was not measurably different in 2016 (351,000) than in 2003; and
- ▲ is projected to increase 9 percent between 2016 and 2028, to 381,000.

The number of new teacher hires in public schools

- ■ was not measurably different in 2016 (257,000) than in 2003; and
- ▲ is projected to increase 9 percent between 2016 and 2028, to 280,000.

The number of new teacher hires in private schools

- ▲ was 27 percent higher in 2016 than in 2003 (94,000 versus 74,000); and
- ▲ is projected to increase 7 percent between 2016 and 2028, to 101,000.

For more information:
Table 8

Section 3
High School Graduates

INTRODUCTION

The number of high school graduates increased nationally by 14 percent between 2003–04 and 2012–13, the last year of actual data for public schools (table 9). The number of high school graduates is projected to be 7 percent higher in 2028–29 than in 2012–13. The numbers of both public and private high school graduates are projected to be higher in 2028–29 than in 2012–13. The numbers of public high school graduates are projected to be higher in 2028–29 than in 2012–13 in the South and West and lower in the Midwest and Northeast (table 10).

Factors affecting the projections

The projections of high school graduates are related to projections of 12th-graders and the historical relationship between the number of 12th-graders and the number of high school graduates. The methodology implicitly includes the net effect of factors such as dropouts, transfers to and from public schools, and state-level migration. For more details, see appendixes A.0 and A.3.

Factors that were not considered

The projections do not assume changes or attitudes that may affect the high school graduate levels. For example, they do not account for changes in policies influencing graduation requirements.

About high school graduates

A high school graduate is defined as an individual who has received formal recognition from school authorities, by the granting of a diploma, for completing a prescribed course of study. This definition does not include other high school completers or high school equivalency recipients.

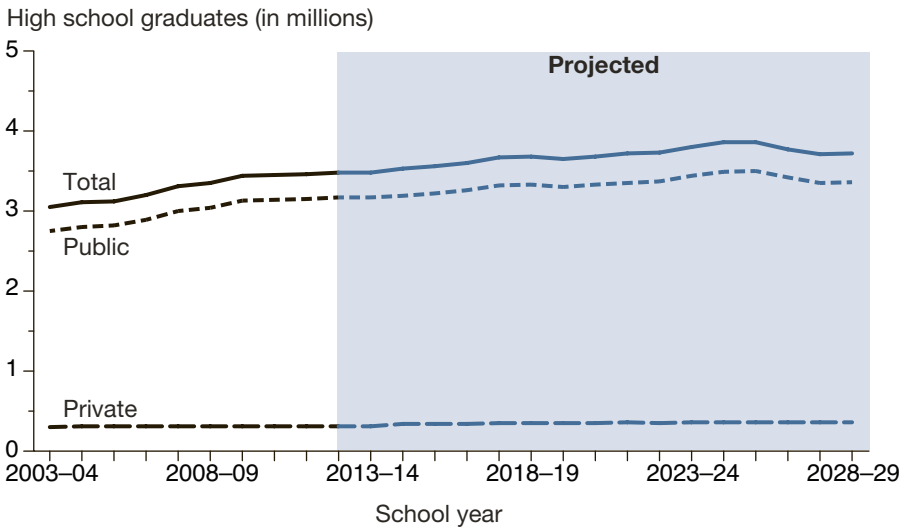
High school graduates of Two or more races

This is the sixth edition of *Projections of Education Statistics* to include actual and projected numbers for high school graduates of Two or more races. Collection of high school graduate data for this racial/ethnic group began in 2008–09. The actual values from 2008–09 through 2012–13 and all the projected values for high school graduates of the other racial/ethnic groups, except Hispanics, are lower than they would have been if this racial/ethnic category had not been added.

Accuracy of Projections

For National Center for Education Statistics (NCES) projections of public high school graduates produced over the last 28 editions, the mean absolute percentage errors (MAPEs) for lead times of 1, 2, 5, and 10 years out were 1.0, 1.1, 2.5, and 5.1, respectively. For the 1-year-out prediction, this means that one would expect the projection to be within 1.0 percent of the actual value, on average. For NCES projections of private high school graduates produced over the last 17 editions, the MAPEs for lead times of 1, 2, 5, and 10 years out were 3.0, 2.5, 4.9, and 7.7 percent, respectively. For more information, see table A-2 in appendix A.

Figure 9. Actual and projected numbers for high school graduates, by control of school: School years 2003–04 through 2028–29



NOTE: The private school data for 2014–15 are an actual number. Since the biennial Private School Universe Survey (PSS) is collected in the fall of odd-numbered years and the numbers collected for high school graduates are for the preceding year, private school numbers for odd years are estimated based on data from the PSS. Includes graduates of regular day school programs. Excludes graduates of other programs, when separately reported, and recipients of high school equivalency certificates. Some data have been revised from previously published figures. Mean absolute percentage errors of selected education statistics can be found in table A-2, appendix A. SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2004–05 through 2005–06; "State Dropout and Completion Data File," 2005–06 through 2012–13; Private School Universe Survey (PSS), selected years, 2004–05 through 2015–16; and National High School Graduates Projection Model, 1972–73 through 2028–29. (This figure was prepared April 2019.)

The total number of high school graduates

- ▲ increased 14 percent between 2003–04 and 2012–13 (3.1 million versus 3.5 million); and
- ▲ is projected to increase 7 percent between 2012–13 and 2028–29 to 3.7 million.

The number of public high school graduates

- ▲ increased 15 percent between 2003–04 and 2012–13 (2.8 million versus 3.2 million); and
- ▲ is projected to increase 6 percent between 2012–13 and 2028–29 to 3.4 million.

The number of private high school graduates

- ▲ was 3 percent higher in 2012–13 than in 2003–04 (309,000 versus 301,000); and
- ▲ is projected to increase 17 percent between 2012–13 and 2028–29 to 360,000.

For more information:
Table 9

STATE AND REGIONAL (PUBLIC SCHOOL DATA)

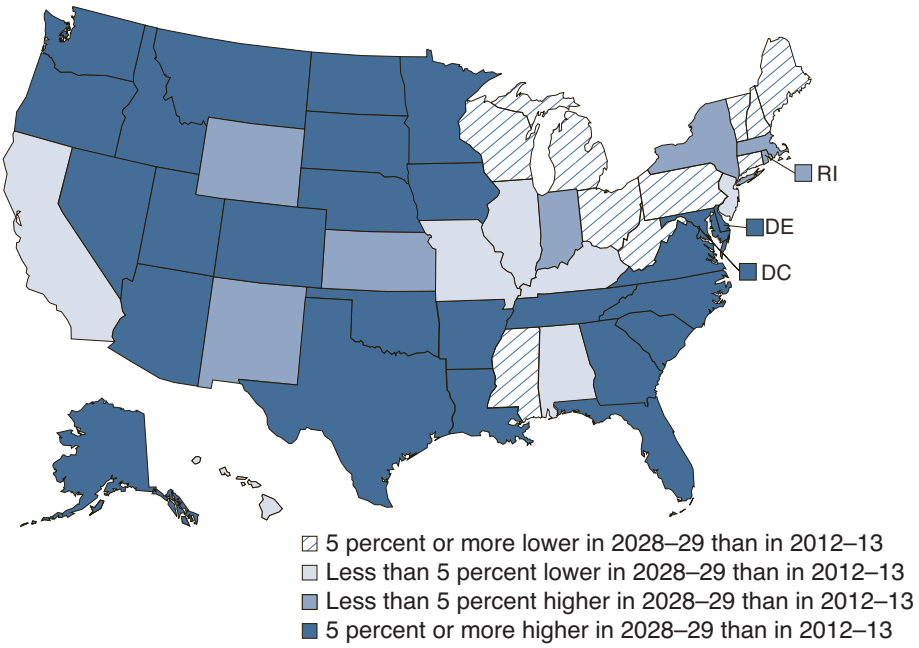
High school graduates by state

The number of public high school graduates is projected to be higher in 2028–29 than in 2012–13. This plays out differently among the states.

- ▼ High school graduates are projected to be lower in 2028–29 than in 2012–13 for 17 states, with projected high school graduates
  - less than 5 percent lower in 7 states; and
  - 5 percent or more lower in 10 states.
- ▲ High school graduates are projected to be higher in 2028–29 than in 2012–13 for 33 states and the District of Columbia, with projected high school graduates
  - 5 percent or more higher in 26 states and the District of Columbia; and
  - less than 5 percent higher in 7 states.

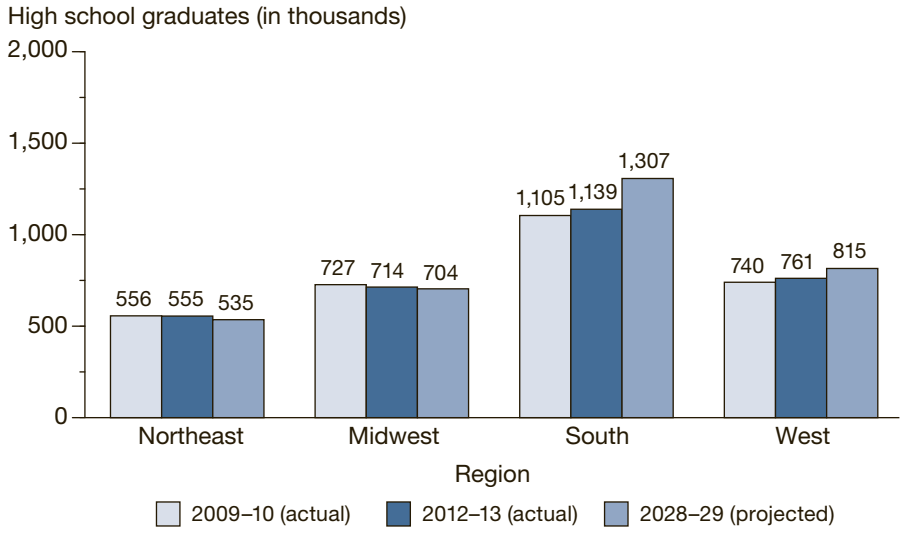
For more information:
Table 10

Figure 10. Projected percentage change in the number of public high school graduates, by state: School years 2012–13 and 2028–29



NOTE: Includes graduates of regular day school programs. Excludes graduates of other programs, when separately reported, and recipients of high school equivalency certificates. Calculations are based on unrounded numbers. Mean absolute percentage errors of public high school graduates by state and region can be found in table A-14, appendix A.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Dropout and Completion Data File," 2012–13; and State Public High School Graduates Projection Model, 1980–81 through 2028–29. (This figure was prepared April 2019.)

Figure 11. Actual and projected numbers for public high school graduates, by region: School years 2009–10, 2012–13, and 2028–29



NOTE: Includes graduates of regular day school programs. Excludes graduates of other programs, when separately reported, and recipients of high school equivalency certificates. See the glossary for a list of states in each region. Mean absolute percentage errors of public high school graduates by state and region can be found in table A-14, appendix A. Calculations are based on unrounded numbers. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2009–10; "State Dropout and Completion Data File," 2012–13; and State Public High School Graduates Projection Model, 1980–81 through 2028–29. (This figure was prepared April 2019.)

High school graduates by region

The number of public high school graduates is projected to

- ▼ be 4 percent lower in 2028–29 than in 2012–13 in the Northeast;
- ▼ be 1 percent lower in 2028–29 than in 2012–13 in the Midwest;
- ▲ increase 15 percent between 2012–13 and 2028–29 in the South; and
- ▲ increase 7 percent between 2012–13 and 2028–29 in the West.

For more information:
Table 10

RACE/ETHNICITY (PUBLIC SCHOOL DATA)

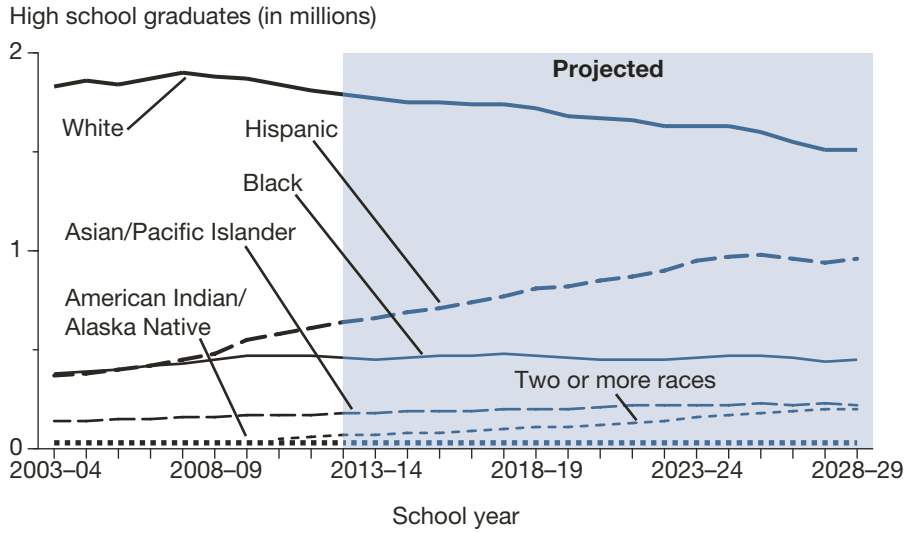
High school graduates by race/ethnicity

The number of public high school graduates is projected to

- ▼ decrease 15 percent between 2012–13 and 2028–29 (1,791,000 versus 1,514,000) for students who are White;
- ▼ be 3 percent lower in 2028–29 than in 2012–13 (448,000 versus 462,000) for students who are Black;
- ▲ increase 49 percent between 2012–13 and 2028–29 (640,000 versus 955,000) for students who are Hispanic;
- ▲ increase 23 percent between 2012–13 and 2028–29 (179,000 versus 221,000) for students who are Asian/Pacific Islander;
- ▼ decrease 11 percent between 2012–13 and 2028–29 (31,000 versus 28,000) for students who are American Indian/ Alaska Native; and
- ▲ increase 199 percent between 2012–13 and 2028–29 (66,000 versus 196,000) for students who are of Two or more races.

For more information:
Table 11

Figure 12. Actual and projected numbers for public high school graduates, by race/ethnicity: School years 2003–04 through 2028–29



NOTE: Race categories exclude persons of Hispanic ethnicity. Data on students of Two or more races were not collected separately prior to 2007–08, and data on students of Two or more races from 2007–08 through 2009–10 were not reported by all states. Therefore, the data are not comparable to figures for 2010–11 and later years. Mean absolute percentage errors of selected education statistics can be found in table A-2, appendix A. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2003–04 through 2009–10; "State Dropout and Completion Data File," 2010–11 through 2012–13; and National Public High School Graduates by Race/Ethnicity Projection Model, 1995–96 through 2028–29. (This figure was prepared April 2019.)

Section 4
Expenditures for Public Elementary and Secondary Education

INTRODUCTION

Current expenditures (e.g., instruction and support services) for public elementary and secondary education are projected to increase 13 percent in constant dollars (adjusted for inflation) between school years 2015–16, the last year of actual data, and 2028–29 (table 12).

Factors affecting the projections

The projections of current expenditures are related to projections of economic growth as measured by disposable income per capita and assistance by state governments to local governments. For more details, see appendixes A.0 and A.4.

Factors that were not considered

Many factors that may affect future school expenditures were not considered in the production of these projections. Such factors include policy initiatives as well as potential changes in the age distribution of elementary and secondary teachers as older teachers retire and are replaced by younger teachers, or as older teachers put off retirement for various reasons.

About constant dollars and current dollars

Throughout this section, projections of current expenditures are presented in constant 2017–18 dollars. The reference tables, later in this report, present these data both in constant 2017–18 dollars and in current dollars. The projections were developed in constant dollars and then placed in current dollars using projections for the Consumer Price Index (CPI) (table B-5 in appendix B).

Accuracy of Projections

An analysis of projection errors from similar models used in the past 28 editions of *Projections of Education Statistics* that contained expenditure projections indicates that mean absolute percentage errors (MAPEs) for total current expenditures in constant dollars were 1.7 percent for 1 year out, 2.6 percent for 2 years out, 3.1 percent for 5 years out, and 7.2 percent for 10 years out. For the 1-year-out prediction, this means that one would expect the projection to be within 1.7 percent of the actual value, on average. MAPEs for current expenditures per pupil in fall enrollment in constant dollars were 1.7 percent for 1 year out, 2.6 percent for 2 years out, 3.3 percent for 5 years out, and 7.5 percent for 10 years out. See appendix A for further discussion of the accuracy of recent projections of current expenditures, and see table A-2 in appendix A for the MAPEs of these projections.

CURRENT EXPENDITURES

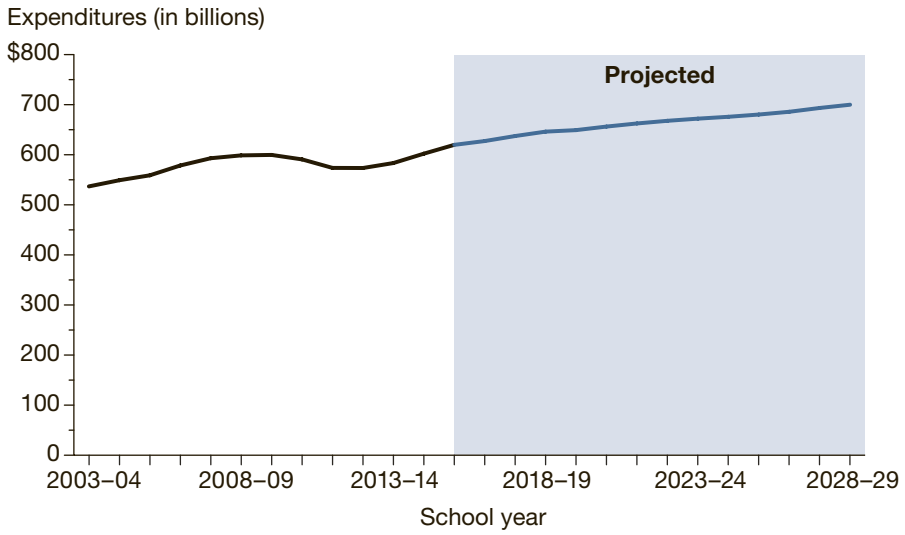
Current expenditures

Current expenditures in constant 2017–18 dollars

- increased 15 percent from 2003–04 to 2015–16 ($538 billion versus $621 billion); and
- are projected to increase 13 percent, to $701 billion, from 2015–16 to 2028–29.

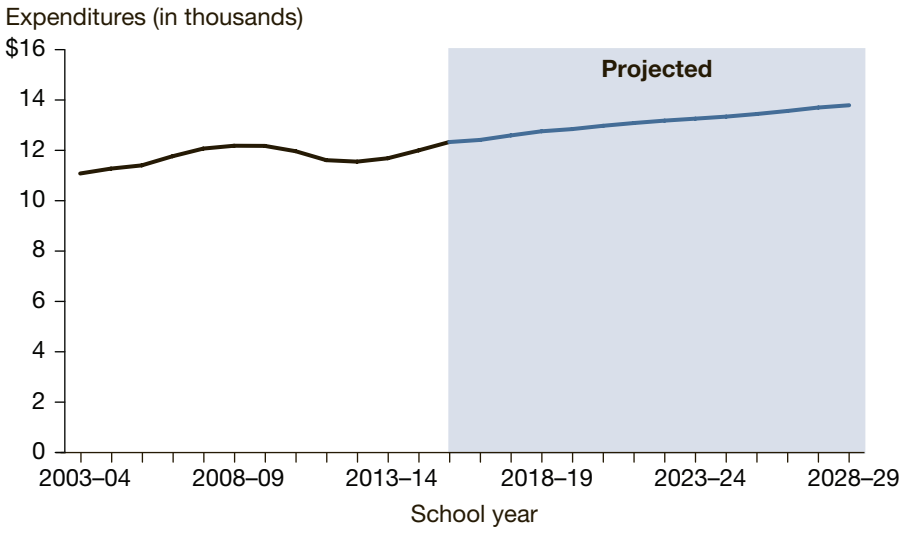
For more information: Table 12

Figure 13. Actual and projected current expenditures for public elementary and secondary schools (in constant 2017–18 dollars): School years 2003–04 through 2028–29



NOTE: Numbers were placed in constant dollars using the Consumer Price Index (CPI) for all urban consumers, Bureau of Labor Statistics, U.S. Department of Labor. For more detail about CPI, see table B-5 in appendix B. Current expenditures include instruction, support services, food services, and enterprise operations. Some data have been revised from previously published figures. Mean absolute percentage errors of selected education statistics can be found in table A-2, appendix A.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2003–04 through 2015–16; Public Elementary and Secondary School Current Expenditures Projection Model, 1969–70 through 2028–29. (This figure was prepared April 2019.)

Figure 14. Actual and projected current expenditures per pupil in fall enrollment in public elementary and secondary schools (in constant 2017–18 dollars): School years 2003–04 through 2028–29



NOTE: Numbers were placed in constant dollars using the Consumer Price Index (CPI) for all urban consumers, Bureau of Labor Statistics, U.S. Department of Labor. For more detail about CPI, see table B-5 in appendix B. Current expenditures include instruction, support services, food services, and enterprise operations. Some data have been revised from previously published figures. Mean absolute percentage errors of selected education statistics can be found in table A-2, appendix A.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2003–04 through 2016–17; "National Public Education Financial Survey," 2003–04 through 2015–16; National Elementary and Secondary Enrollment Projection Model, 1972 through 2028; and Elementary and Secondary School Current Expenditures Projection Model, 1969–70 through 2028–29. (This figure was prepared April 2019.)

Current expenditures per pupil

Current expenditures per pupil in fall enrollment in constant 2017–18 dollars

- ▲ increased 11 percent from 2003–04 to 2015–16 ($11,100 versus $12,300); and
- ▲ are projected to increase 12 percent, to $13,800, from 2015–16 to 2028–29.

For more information: Table 12

Section 5
Enrollment in Degree-Granting Postsecondary Institutions

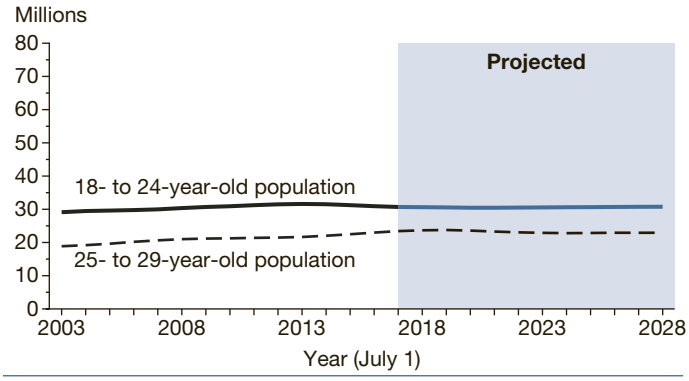
INTRODUCTION

Total enrollment in degree-granting postsecondary institutions is expected to increase 3 percent between fall 2017, the last year of actual data, and fall 2028 (table 13). Degree-granting institutions are postsecondary institutions that provide study beyond secondary school and offer programs terminating in an associate's, baccalaureate, or higher degree and participate in federal financial aid programs. Differential growth is expected by student characteristics such as age, sex, and attendance status (part-time or full-time). Enrollment is expected to increase in both public and private degree-granting postsecondary institutions.

Factors affecting the projections

The projections of enrollment levels are related to projections of college-age populations, disposable income, and unemployment rates. For more details, see appendixes A.0 and A.5. An important factor in the enrollment projections is the expected change in the population of 18- to 29-year-olds from 2003 through 2028 (table B-3 in appendix B).

Figure 15. Actual and projected population numbers for 18- to 24-year-olds and 25- to 29-year-olds: 2003 through 2028



NOTE: Some data have been revised from previously published figures. Projections are from the U.S. Census Bureau's 2017 National Population Projections, ratio-adjusted to line up with the most recent historical estimate.
SOURCE: U.S. Department of Commerce, Census Bureau, Population Estimates, July 19, 2018 from https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/; and Population Projections, retrieved October 10, 2018, from https://www.census.gov/data/datasets/2017/demo/popproj/2017-popproj.html.
(This figure was prepared May 2019.)

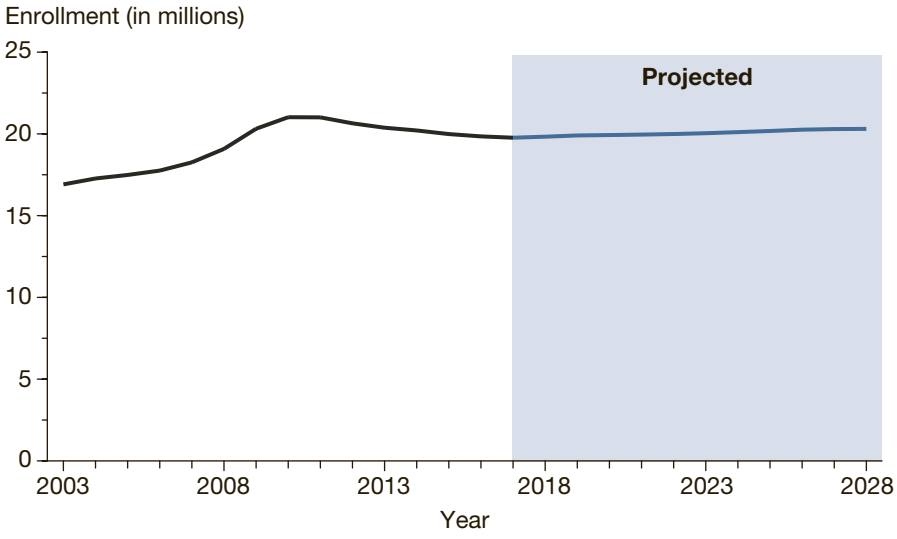
Factors that were not considered

The enrollment projections do not take into account such factors as the cost of a college education, the economic value of an education, and the impact of distance learning due to technological changes. These factors may produce changes in enrollment levels. The racial/ethnic backgrounds of nonresident aliens are not known.

Accuracy of Projections

No mean absolute percentage errors were calculated for enrollments in degree-granting postsecondary institutions, as, beginning with *Projections of Education Statistics to 2027*, enrollment projections were calculated using a new model. For information concerning the accuracy of the previous models used to produce projections of enrollment in degree-granting postsecondary institutions, see page 125 of *Projections of Education Statistics to 2026*.

Figure 16. Actual and projected numbers for total enrollment in all degree-granting postsecondary institutions: Fall 2003 through fall 2028



NOTE: Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2004 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This figure was prepared April 2019.)

Total enrollment in degree-granting postsecondary institutions

- ▲ increased 17 percent from 2003 to 2017 (16.9 million versus 19.8 million); and
- ▲ is projected to increase 3 percent, to 20.3 million, from 2017 to 2028.

For more information: Table 13

ENROLLMENT BY SELECTED CHARACTERISTICS AND CONTROL OF INSTITUTION

Enrollment by age of student

Enrollment in degree-granting postsecondary institutions of students who are 14 to 24 years old

- ▲ increased 32 percent between 2000 and 2017 (9.0 million versus 11.9 million; and
- ▲ is projected to increase 6 percent between 2017 and 2028 to 12.6 million.

Enrollment in degree-granting postsecondary institutions of students who are 25 to 34 years old

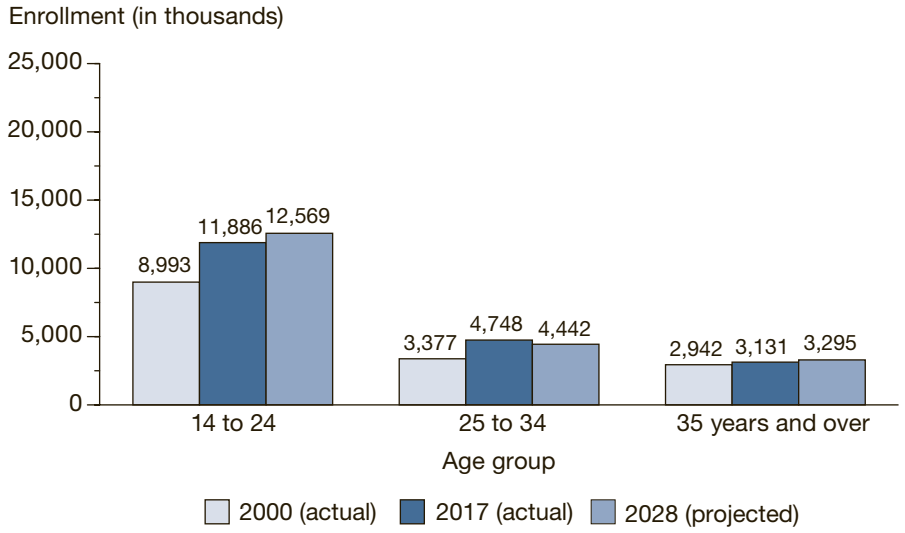
- ▲ increased 41 percent between 2000 and 2017 (3.4 million versus 4.7 million); and
- ▼ is projected to be 6 percent lower in 2028 (4.4 million) than in 2017.

Enrollment in degree-granting postsecondary institutions of students who are 35 years old and over

- ▲ was 6 percent higher in 2017 than in 2000 (3.1 million versus 2.9 million); and
- ▲ is projected to increase 5 percent between 2017 and 2028 (3.3 million).

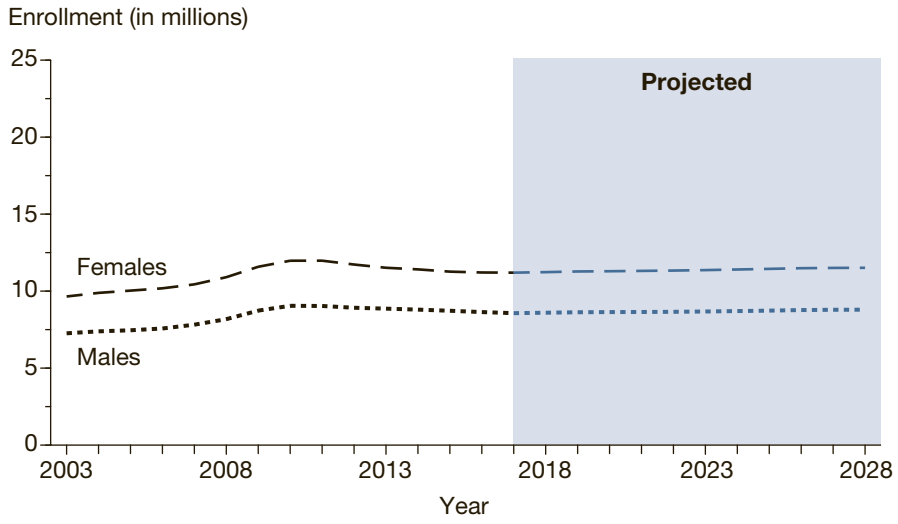
For more information: Table 15

Figure 17. Actual and projected numbers for total enrollment in all degree-granting postsecondary institutions, by age group: Fall 2000, fall 2017, and fall 2028



NOTE: Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Distributions by age are estimates based on samples of the civilian noninstitutional population from the U.S. Census Bureau's Current Population Survey. Calculations are based on unrounded numbers.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) Spring 2001 and Spring 2018, Fall Enrollment component; Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028; and U.S. Department of Commerce, Census Bureau, Current Population Reports, "Social and Economic Characteristics of Students," 2000 and 2017. (This figure was prepared April 2019.)

Figure 18. Actual and projected numbers for enrollment in all degree-granting postsecondary institutions, by sex: Fall 2003 through fall 2028



NOTE: Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2004 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028.
(This figure was prepared April 2019.)

Enrollment by sex of student

Enrollment of males in degree-granting postsecondary institutions

- ▲ increased 18 percent between 2003 and 2017 (7.3 million versus 8.6 million); and
- ▲ is projected to increase 3 percent between 2017 and 2028 to 8.8 million.

Enrollment of females in degree-granting postsecondary institutions

- ▲ increased 16 percent between 2003 and 2017 (9.7 million versus 11.2 million); and
- ▲ is projected to increase 3 percent between 2017 and 2028 to 11.5 million.

For more information:
Tables 13 and 15

Enrollment by attendance status

Enrollment of full-time students in degree-granting postsecondary institutions

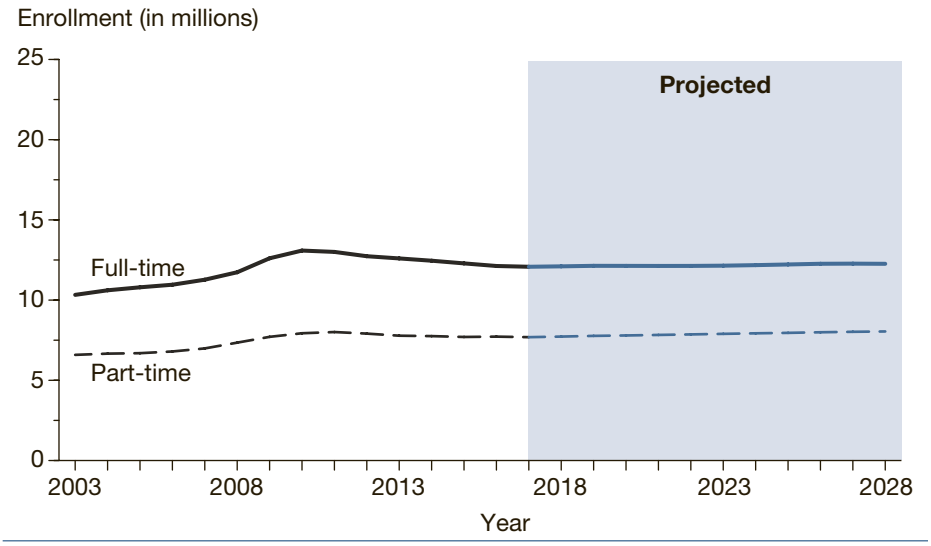
- ▲ increased 17 percent between 2003 and 2017 (10.3 million versus 12.1 million); and
- ▲ is projected to increase 2 percent between 2017 and 2028 to 12.3 million.

Enrollment of part-time students in degree-granting postsecondary institutions

- ▲ increased 17 percent between 2003 and 2017 (6.6 million versus 7.7 million); and
- ▲ is projected to increase 5 percent between 2017 and 2028 to 8.0 million.

For more information: Tables 13–15

Figure 19. Actual and projected numbers for enrollment in all degree-granting postsecondary institutions, by attendance status: Fall 2003 through fall 2028



NOTE: Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Some data have been revised from previously published figures. SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2004 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This figure was prepared April 2019.)

Enrollment by level of student

Enrollment of undergraduate students in degree-granting postsecondary institutions

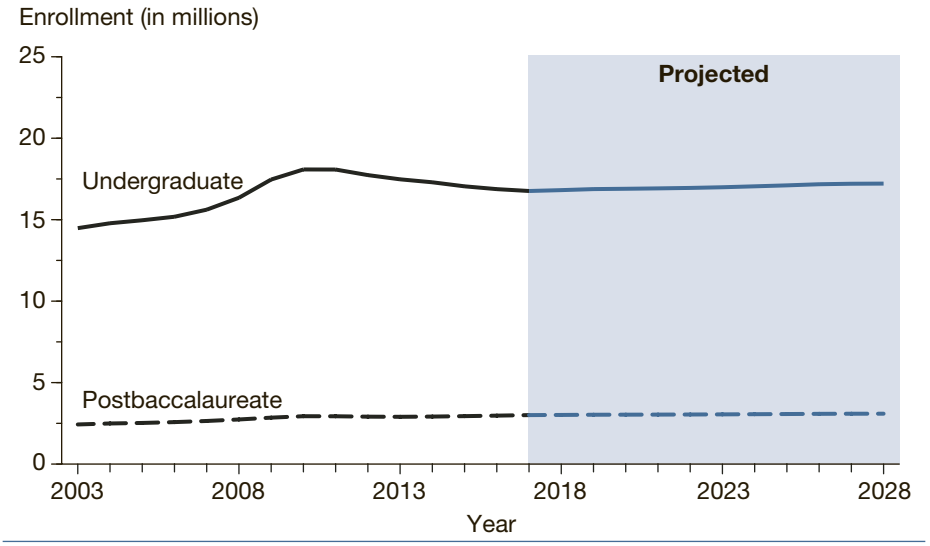
- ▲ increased 16 percent between 2003 and 2017 (14.5 million versus 16.8 million); and
- ▲ is projected to increase 3 percent between 2017 and 2028 to 17.2 million.

Enrollment of postbaccalaureate students in degree-granting postsecondary institutions

- ▲ increased 24 percent between 2003 and 2017 (2.4 million versus 3.0 million); and
- ▲ is projected to increase 3 percent between 2017 and 2028 to 3.1 million.

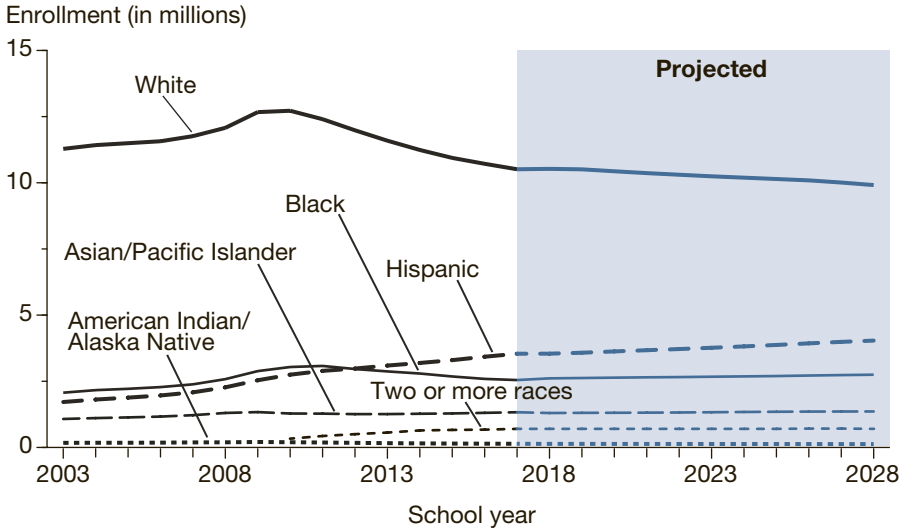
For more information: Tables 16–17

Figure 20. Actual and projected numbers for enrollment in all degree-granting postsecondary institutions, by level of enrollment: Fall 2003 through fall 2028



NOTE: Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Some data have been revised from previously published figures. SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2004 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This figure was prepared April 2019.)

Figure 21. Actual and projected numbers for enrollment of U.S. residents in all degree-granting postsecondary institutions, by race/ethnicity: Fall 2003 through fall 2028



NOTE: Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Race categories exclude persons of Hispanic ethnicity. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2004 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model, 1980 through 2028. (This figure was prepared April 2019.)

Enrollment by race/ethnicity

Enrollment of U.S. residents is projected to

- ▼ decrease 6 percent for students who are White between 2017 and 2028 (10.5 million versus 9.9 million);
- ▲ increase 8 percent for students who are Black between 2017 and 2028 (2.5 million versus 2.7 million);
- ▲ increase 14 percent for students who are Hispanic between 2017 and 2028 (3.5 million versus 4.0 million);
- ▲ increase 2 percent for students who are Asian/Pacific Islander between 2017 and 2028 (1.3 million versus 1.4 million);
- ▼ decrease 9 percent for students who are American Indian/Alaska Native between 2017 and 2028 (138,000 versus 125,000); and
- ▲ increase 1 percent for students who are of Two or more races between 2017 and 2028 (700,000 and 705,000).

For more information:
Table 19

Enrollment in public and private institutions

Enrollment in public degree-granting postsecondary institutions

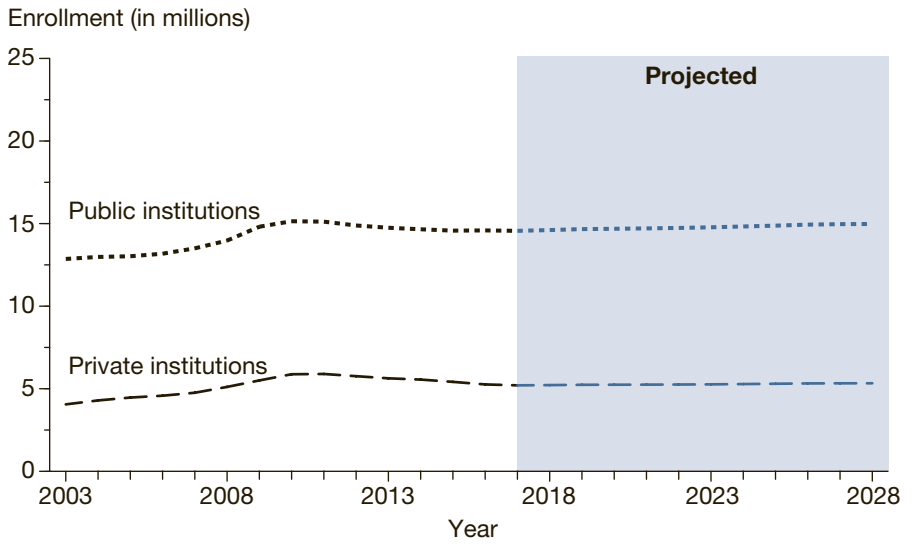
- ▲ increased 13 percent between 2003 and 2017 (12.9 million versus 14.6 million); and
- ▲ is projected to increase 3 percent between 2017 and 2028 to 15.0 million.

Enrollment in private degree-granting postsecondary institutions

- ▲ increased 28 percent between 2003 and 2017 (4.1 million versus 5.2 million); and
- ▲ is projected to increase 2 percent between 2017 and 2028 to 5.3 million.

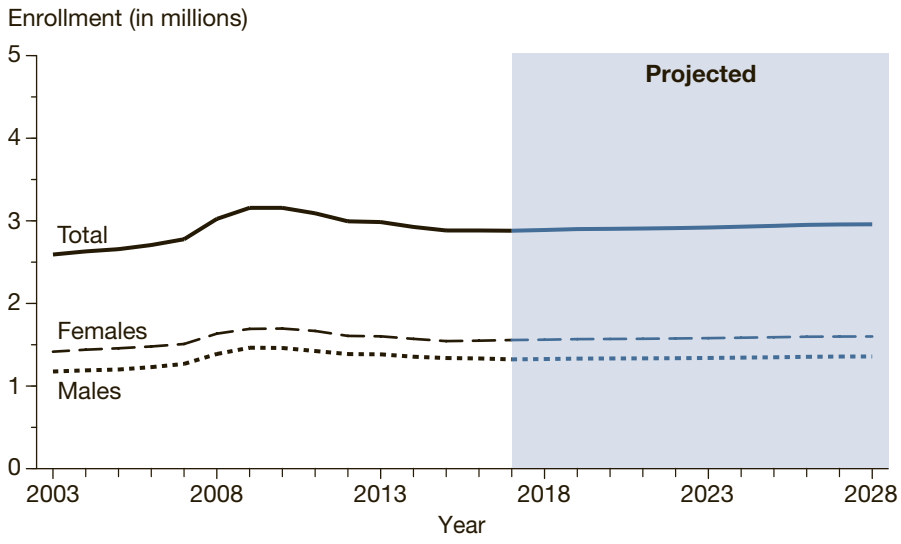
For more information:
Table 13

Figure 22. Actual and projected numbers for enrollment in all degree-granting postsecondary institutions, by control of institution: Fall 2003 through fall 2028



NOTE: Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2004 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This figure was prepared April 2019.)

Figure 23. Actual and projected numbers for total first-time degree/certificate-seeking students in degree-granting postsecondary institutions, by sex: Fall 2003 through fall 2028



NOTE: Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2004 through Spring 2018, Fall Enrollment component; and First-Time Freshmen Projection Model, 1980 through 2028. (This figure was prepared April 2019.)

First-time freshmen fall enrollment

Total first-time freshmen fall enrollment in all degree-granting postsecondary institutions

- ▲ increased 11 percent from 2003 to 2017 (2.59 million versus 2.88 million); and
- ▲ is projected to increase 3 percent between 2017 and 2028 to 2.96 million.

First-time freshmen fall enrollment of males in all degree-granting postsecondary institutions

- ▲ increased 13 percent from 2003 to 2017 (1.18 million versus 1.32 million); and
- ▲ is projected to increase 3 percent between 2017 and 2028 to 1.36 million.

First-time freshmen fall enrollment of females in all degree-granting postsecondary institutions

- ▲ was 10 percent higher in 2017 than in 2003 (1.56 million versus 1.42 million); and
- ▲ is projected to increase 3 percent between 2017 and 2028 to 1.60 million.

For more information:
Table 18

FULL-TIME-EQUIVALENT ENROLLMENT, BY CONTROL OF INSTITUTION

Full-time-equivalent fall enrollment

Total full-time-equivalent fall enrollment in degree-granting postsecondary institutions

- ▲ increased 17 percent between 2003 and 2017 (12.7 million versus 14.9 million); and
- ▲ is projected to increase 2 percent between 2017 and 2028 to 15.2 million.

Full-time-equivalent fall enrollment in public degree-granting postsecondary institutions

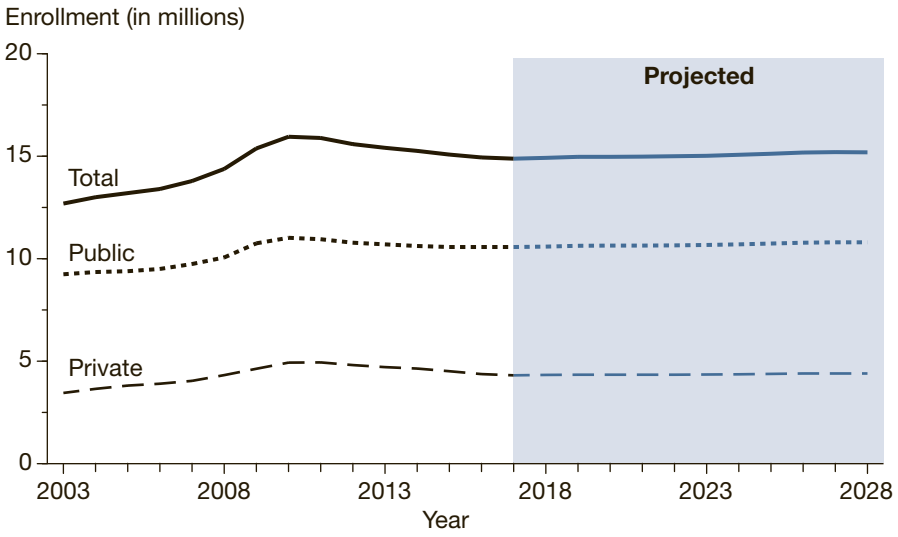
- ▲ increased 14 percent between 2003 and 2017 (9.2 million versus 10.6 million); and
- ▲ is projected to increase 2 percent between 2017 and 2028 to 10.8 million.

Full-time-equivalent fall enrollment in private degree-granting postsecondary institutions

- ▲ increased 25 percent between 2003 and 2017 (3.4 million versus 4.3 million); and
- ▲ is projected to increase 2 percent between 2017 and 2028 to 4.4 million.

For more information: Table 20

Figure 24. Actual and projected numbers for full-time-equivalent fall enrollment in degree-granting postsecondary institutions, by control: Fall 2003 through fall 2028



NOTE: Full-time-equivalent fall enrollment is the full-time enrollment, plus the full-time-equivalent of the part-time students. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2004 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This figure was prepared April 2019.)

Section 6
Postsecondary Degrees Conferred

INTRODUCTION

Long-term growth in enrollment in degree-granting postsecondary institutions has been reflected by increases in the numbers of associate's, bachelor's, master's, and doctor's degrees conferred (tables 13 and 21). Increases in the number of degrees conferred are expected to continue between academic year 2016–17, the last year of actual data, and academic year 2028–29. During that period, the number of associate's degrees is projected to increase 1 percent, the number of bachelor's degrees is projected to increase 3 percent, and the numbers of master's degrees and doctor's degrees are each projected to increase 4 percent.

Factors affecting the projections

The projections of the number of degrees conferred are related to projections of the college-age populations developed by the Census Bureau and college enrollments from this report. For more details, see appendixes A.0 and A.6.

Factors that were not considered

Some factors that may affect future numbers of degrees, such as choice of degree and labor force requirements, were not included in the projection models.

Changes in degree classifications

The National Center for Education Statistics (NCES) no longer uses the first-professional degree classification. Beginning with academic year 2009–10, most degrees formerly classified as first-professional—such as M.D., D.D.S., and law degrees—are classified as doctor's degrees. However, master's of divinity degrees are now classified as master's degrees. This is the eighth edition of *Projections of Education Statistics* to use these new classifications. With this change, the actual numbers of master's and doctor's degrees conferred are higher than the actual numbers in *Projections of Education Statistics to 2020* and earlier editions of this report. The revisions of actual numbers are reflected in the projections.

Accuracy of Projections

No mean absolute percentage errors were calculated for degrees conferred because this is the second edition of *Projections of Education Statistics* to use the current models. For information concerning the accuracy of the previous models used to produce projections of postsecondary degrees conferred, see page 125 of *Projections of Education Statistics to 2026*.

DEGREES, BY LEVEL OF DEGREE AND SEX OF RECIPIENT

Associate's degrees

The total number of associate's degrees

- ▲ increased 51 percent between 2003–04 and 2016–17 (665,000 versus 1.01 million); and
- ▲ is projected to increase 1 percent between 2016–17 and 2028–29 to 1.02 million.

The number of associate's degrees awarded to males

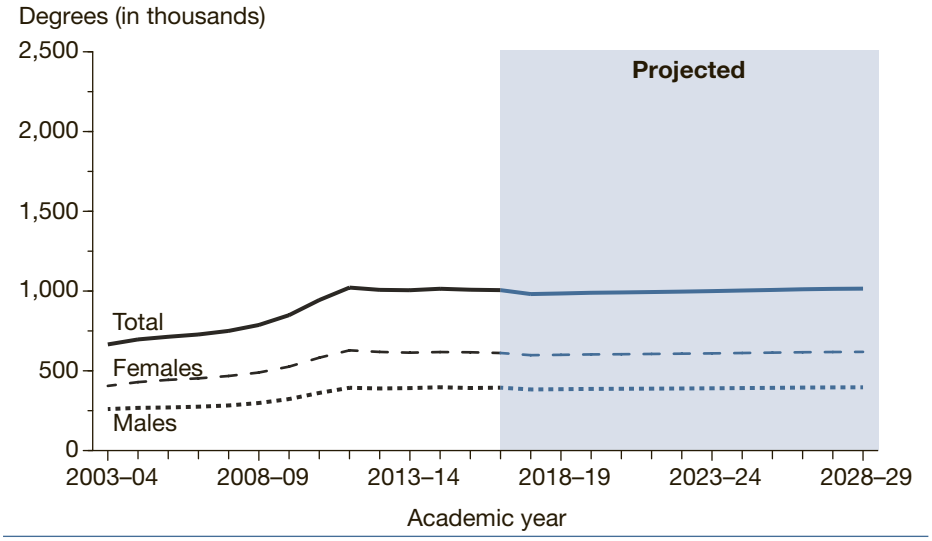
- ▲ increased 52 percent between 2003–04 and 2016–17 (260,000 versus 394,000); and
- ▲ is projected to increase 1 percent between 2016–17 and 2028–29 to 396,000.

The number of associate's degrees awarded to females

- ▲ increased 51 percent between 2003–04 and 2016–17 (405,000 versus 611,000); and
- ▲ is projected to increase 1 percent between 2016–17 and 2028–29 to 619,000.

For more information:
Table 21

Figure 25. Actual and projected numbers for associate's degrees conferred by degree-granting postsecondary institutions, by sex of recipient: Academic years 2003–04 through 2028–29



NOTE: Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall 2004 through Fall 2017, Completions component; and Degrees Conferred Projection Model, 1980–81 through 2028–29. (This figure was prepared April 2019.)

Bachelor's degrees

The total number of bachelor's degrees

- ▲ increased 40 percent between 2003–04 and 2016–17 (1.40 million versus 1.96 million); and
- ▲ is projected to increase 3 percent between 2016–17 and 2028–29 to 2.01 million.

The number of bachelor's degrees awarded to males

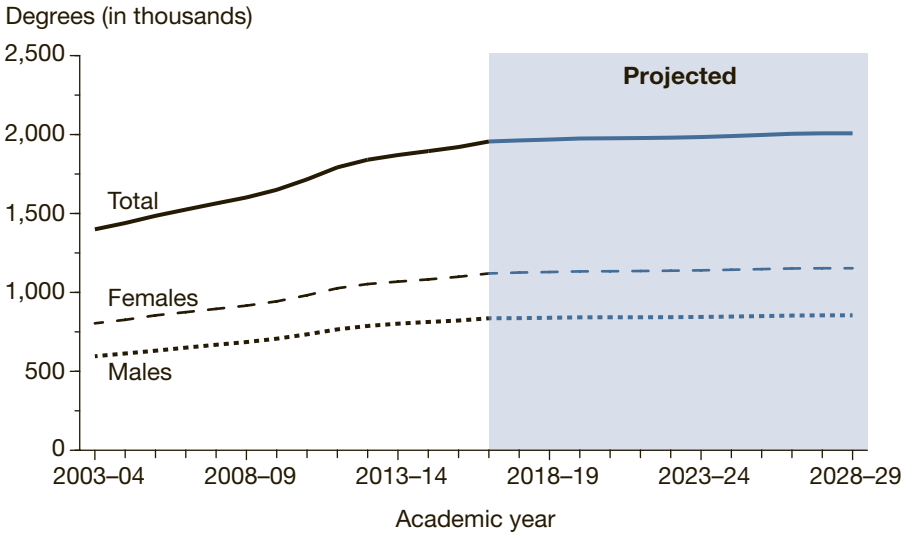
- ▲ increased 40 percent between 2003–04 and 2016–17 (595,000 versus 836,000); and
- ▲ is projected to increase 2 percent between 2016–17 and 2028–29 to 855,000.

The number of bachelor's degrees awarded to females

- ▲ increased 39 percent between 2003–04 and 2016–17 (804,000 versus 1.12 million); and
- ▲ is projected to be 3 percent higher in 2028–29 (1.15 million) than in 2016–17.

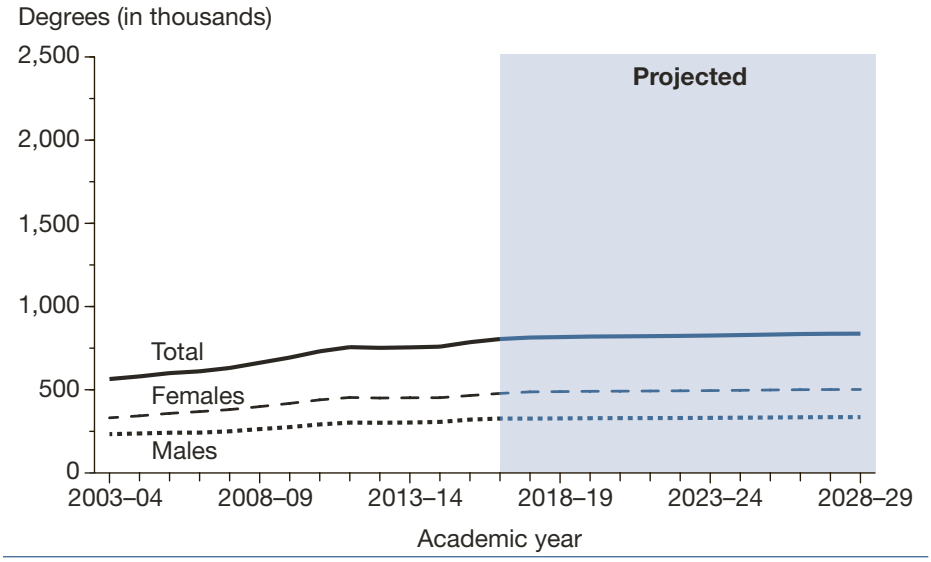
For more information:
Table 21

Figure 26. Actual and projected numbers for bachelor's degrees conferred by degree-granting postsecondary institutions, by sex of recipient: Academic years 2003–04 through 2028–29



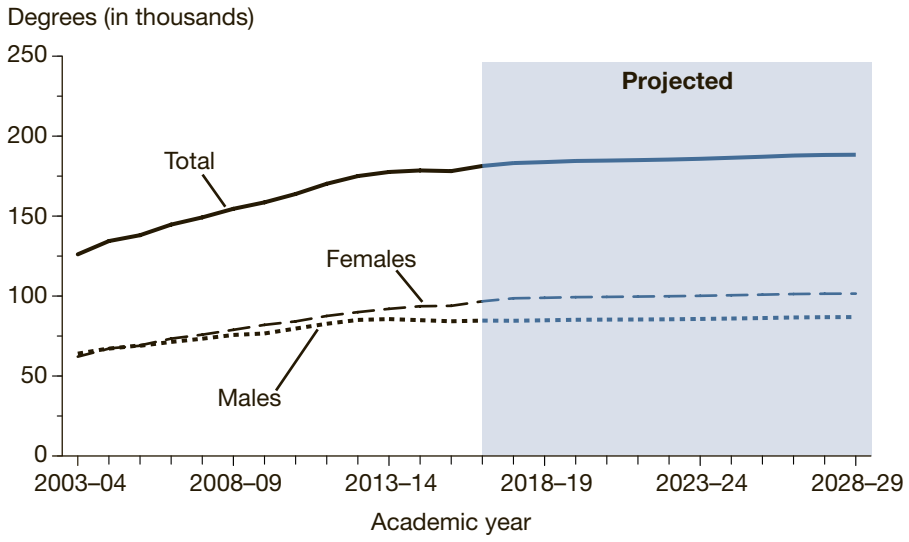
NOTE: Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall 2004 through Fall 2017, Completions component; and Degrees Conferred Projection Model, 1980–81 through 2028–29. (This figure was prepared April 2019.)

Figure 27. Actual and projected numbers for master's degrees conferred by degree-granting postsecondary institutions, by sex of recipient: Academic years 2003–04 through 2028–29



NOTE: Includes some degrees formerly classified as first-professional, such as divinity degrees (M.Div. and M.H.L./Rav). Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) Fall 2004 through Fall 2017, Completions component; and Degrees Conferred Projection Model, 1980–81 through 2028–29. (This figure was prepared April 2019.)

Figure 28. Actual and projected numbers for doctor's degrees conferred by degree-granting postsecondary institutions, by sex of recipient: Academic years 2003–04 through 2028–29



NOTE: Doctor's degrees include Ph.D., Ed.D., and comparable degrees at the doctoral level. Includes most degrees formerly classified as first-professional, such as M.D., D.D.S., and law degrees. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) Fall 2004 through Fall 2017, Completions component; and Degrees Conferred Projection Model, 1980–81 through 2028–29. (This figure was prepared April 2019.)

Master's degrees

The total number of master's degrees

- ▲ increased 43 percent between 2003–04 and 2016–17 (564,000 versus 805,000); and
- ▲ is projected to increase 4 percent between 2016–17 and 2028–29 to 837,000.

The number of master's degrees awarded to males

- ▲ increased 40 percent between 2003–04 and 2016–17 (233,000 versus 327,000); and
- ▲ is projected to increase 3 percent between 2016–17 and 2028–29 to 335,000.

The number of master's degrees awarded to females

- ▲ increased 44 percent between 2003–04 and 2016–17 (331,000 versus 478,000); and
- ▲ is projected to increase 5 percent between 2016–17 and 2028–29 to 502,000.

For more information:
Table 21

Doctor's degrees

The total number of doctor's degrees

- ▲ increased 44 percent between 2003–04 and 2016–17 (126,000 versus 181,000); and
- ▲ is projected to increase 4 percent between 2016–17 and 2028–29 to 188,000.

The number of doctor's degrees awarded to males

- ▲ increased 32 percent between 2003–04 and 2016–17 (64,000 versus 85,000); and
- ▲ is projected to increase 3 percent between 2016–17 and 2028–29 to 87,000.

The number of doctor's degrees awarded to females

- ▲ increased 56 percent between 2003–04 and 2016–17 (62,000 versus 97,000); and
- ▲ is projected to increase 5 percent between 2016–17 and 2028–29 to 102,000.

For more information:
Table 21

Reference Tables

Table 1. Enrollment in elementary, secondary, and degree-granting postsecondary institutions, by level and control of institution: Selected years, 1869–70 through fall 2028

[In thousands]

Year	Total enrollment, all levels	Elementary and secondary, total	Public elementary and secondary schools			Private elementary and secondary schools[1]			Degree-granting postsecondary institutions[2]		
			Total	Prekindergarten through grade 8	Grades 9 through 12	Total	Prekindergarten through grade 8	Grades 9 through 12	Total	Public	Private
1	2	3	4	5	6	7	8	9	10	11	12
1869–70	—	—	6,872	6,792	80	—	—	—	52	—	—
1879–80	—	—	9,868	9,757	110	—	—	—	116	—	—
1889–90	14,491	14,334	12,723	12,520	203	1,611	1,516	95	157	—	—
1899–1900	17,092	16,855	15,503	14,984	519	1,352	1,241	111	238	—	—
1909–10	19,728	19,372	17,814	16,899	915	1,558	1,441	117	355	—	—
1919–20	23,876	23,278	21,578	19,378	2,200	1,699	1,486	214	598	—	—
1929–30	29,430	28,329	25,678	21,279	4,399	2,651	2,310	341	1,101	—	—
1939–40	29,539	28,045	25,434	18,832	6,601	2,611	2,153	458	1,494	797	698
1949–50	31,151	28,492	25,111	19,387	5,725	3,380	2,708	672	2,659	1,355	1,304
Fall 1959	44,497	40,857	35,182	26,911	8,271	5,675	4,640	1,035	3,640	2,181	1,459
Fall 1969	59,055	51,050	45,550	32,513	13,037	5,500[3]	4,200[3]	1,300[3]	8,005	5,897	2,108
Fall 1985	57,226	44,979	39,422	27,034	12,388	5,557	4,195	1,362	12,247	9,479	2,768
Fall 1990	60,683	46,864	41,217	29,876	11,341	5,648[3]	4,512[3]	1,136[3]	13,819	10,845	2,974
Fall 1991	62,087	47,728	42,047	30,503	11,544	5,681	4,550	1,131	14,359	11,310	3,049
Fall 1992	63,181	48,694	42,823	31,086	11,737	5,870[3]	4,746[3]	1,125[3]	14,487	11,385	3,103
Fall 1993	63,837	49,532	43,465	31,502	11,963	6,067	4,950	1,118	14,305	11,189	3,116
Fall 1994	64,385	50,106	44,111	31,896	12,215	5,994[3]	4,856[3]	1,138[3]	14,279	11,134	3,145
Fall 1995	65,020	50,759	44,840	32,338	12,502	5,918	4,756	1,163	14,262	11,092	3,169
Fall 1996	65,911	51,544	45,611	32,762	12,849	5,933[3]	4,755[3]	1,178[3]	14,368	11,120	3,247
Fall 1997	66,574	52,071	46,127	33,071	13,056	5,944	4,759	1,185	14,502	11,196	3,306
Fall 1998	67,033	52,526	46,539	33,344	13,195	5,988[3]	4,776[3]	1,212[3]	14,507	11,138	3,369
Fall 1999	67,725	52,875	46,857	33,486	13,371	6,018	4,789	1,229	14,850	11,376	3,474
Fall 2000	68,685	53,373	47,204	33,686	13,517	6,169[3]	4,906[3]	1,264[3]	15,312	11,753	3,560
Fall 2001	69,920	53,992	47,672	33,936	13,736	6,320	5,023	1,296	15,928	12,233	3,695
Fall 2002	71,015	54,403	48,183	34,114	14,069	6,220[3]	4,915[3]	1,306[3]	16,612	12,752	3,860
Fall 2003	71,551	54,639	48,540	34,201	14,339	6,099	4,788	1,311	16,911	12,859	4,053
Fall 2004	72,154	54,882	48,795	34,178	14,618	6,087[3]	4,756[3]	1,331[3]	17,272	12,980	4,292
Fall 2005	72,674	55,187	49,113	34,204	14,909	6,073	4,724	1,349	17,487	13,022	4,466
Fall 2006	73,061	55,307	49,316	34,235	15,081	5,991[3]	4,631[3]	1,360[3]	17,754	13,175	4,579
Fall 2007	73,459	55,201	49,291	34,204	15,086	5,910	4,546	1,364	18,258	13,501	4,757
Fall 2008	74,055	54,973	49,266	34,286	14,980	5,707[3]	4,365[3]	1,342[3]	19,082	13,971	5,111
Fall 2009	75,163	54,849	49,361	34,409	14,952	5,488	4,179	1,309	20,314	14,811	5,503
Fall 2010	75,886	54,867	49,484	34,625	14,860	5,382[3]	4,084[3]	1,299[3]	21,019	15,142	5,877
Fall 2011	75,800	54,790	49,522	34,773	14,749	5,268	3,977	1,291	21,011	15,116	5,894
Fall 2012	75,748	55,104	49,771	35,018	14,753	5,333[3]	4,031[3]	1,302[3]	20,644	14,885	5,760
Fall 2013	75,817	55,440	50,045	35,251	14,794	5,396	4,084	1,312	20,377	14,747	5,630
Fall 2014	76,097	55,888	50,313	35,370	14,943	5,575[3]	4,202[3]	1,373[3]	20,209	14,655	5,554
Fall 2015	76,177[4]	56,189[4]	50,438[4]	35,388[4]	15,050	5,751	4,304	1,446	19,988	14,573	5,415
Fall 2016	76,238[5]	56,391[5]	50,615[5]	35,477[5]	15,138	5,776	4,301[6]	1,474[6]	19,847	14,586	5,261
Fall 2017[6]	76,242	56,477	50,695	35,473	15,222	5,781	4,300	1,481	19,766	14,560	5,205
Fall 2018[6]	76,346	56,518	50,728	35,465	15,264	5,789	4,297	1,492	19,828	14,608	5,220
Fall 2019[6]	76,476	56,572	50,770	35,457	15,313	5,802	4,308	1,494	19,904	14,665	5,239
Fall 2020[6]	76,606	56,678	50,857	35,384	15,473	5,821	4,316	1,505	19,928	14,685	5,243
Fall 2021[6]	76,675	56,719	50,892	35,231	15,661	5,827	4,310	1,517	19,956	14,708	5,248
Fall 2022[6]	76,856	56,865	51,012	35,189	15,823	5,853	4,337	1,515	19,991	14,736	5,255
Fall 2023[6]	77,013	56,973	51,098	35,235	15,863	5,875	4,356	1,520	20,040	14,774	5,266
Fall 2024[6]	77,126	57,019	51,124	35,376	15,748	5,894	4,374	1,521	20,107	14,824	5,283
Fall 2025[6]	77,206	57,029	51,119	35,519	15,601	5,910	4,392	1,518	20,177	14,876	5,301
Fall 2026[6]	77,308	57,050	51,123	35,703	15,420	5,927	4,413	1,514	20,258	14,936	5,321
Fall 2027[6]	77,471	57,176	51,228	35,894	15,334	5,948	4,434	1,514	20,295	14,965	5,329
Fall 2028[6]	77,693	57,387	51,419	36,073	15,346	5,969	4,454	1,515	20,305	14,975	5,330

—Not available.
[1]Beginning in fall 1985, data include estimates for an expanded universe of private schools. Therefore, direct comparisons with earlier years should be avoided.
[2]Data for 1869–70 through 1949–50 include resident degree-credit students enrolled at any time during the academic year. Beginning in 1959, data include all resident and extension students enrolled at the beginning of the fall term.
[3]Estimated.
[4]Includes imputations for public school prekindergarten enrollment in California and Oregon.
[5]Includes imputations for public school prekindergarten enrollment in California.
[6]Projected data. Fall 2017 data for degree-granting institutions are actual.
NOTE: Data for 1869–70 through 1949–50 reflect enrollment for the entire school year. Elementary and secondary enrollment includes students in local public school systems and in most private schools (religiously affiliated and nonsectarian), but generally excludes homeschooled children and students in subcollegiate departments of colleges and in federal schools. Excludes preprimary students in private schools that do not offer kindergarten or higher grades. Postsecondary data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Annual Report of the Commissioner of Education*, 1870 to 1910; *Biennial Survey of Education in the United States*, 1919–20 through 1949–50; *Statistics of Public Elementary and Secondary School Systems*, 1959 through 1979; *Statistics of Nonpublic Elementary and Secondary Schools*, 1959 through 1980; 1985–86 Private School Survey; Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary and Secondary Education," 1985–86 through 2016–17; Private School Universe Survey (PSS), 1991–92 through 2015–16; National Elementary and Secondary Enrollment Projection Model, 1972 through 2028; Opening (Fall) Enrollment in Higher Education, 1959; Higher Education General Information Survey (HEGIS), "Fall Enrollment in Institutions of Higher Education" surveys, 1969 and 1985; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:90–99); IPEDS Spring 2001 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This table was prepared March 2019.)

Table 2. Enrollment in public elementary and secondary schools, by level and grade: Selected years, fall 1980 through fall 2028

[In thousands]

Year	All grades	Elementary												Secondary					
		Total	Pre-kindergarten	Kindergarten	1st grade	2nd grade	3rd grade	4th grade	5th grade	6th grade	7th grade	8th grade	Ungraded	Total	9th grade	10th grade	11th grade	12th grade	Ungraded[1]
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1980	40,877	27,647	96	2,593	2,894	2,800	2,893	3,107	3,130	3,038	3,085	3,086	924	13,231	3,377	3,368	3,195	2,925	366
1985	39,422	27,034	151	3,041	3,239	2,941	2,895	2,771	2,776	2,789	2,938	2,982	511	12,388	3,439	3,230	2,866	2,550	303
1990	41,217	29,876	303	3,306	3,499	3,327	3,297	3,248	3,197	3,110	3,067	2,979	541	11,341	3,169	2,896	2,612	2,381	284
1991	42,047	30,503	375	3,311	3,556	3,360	3,334	3,315	3,268	3,239	3,181	3,020	542	11,544	3,313	2,915	2,645	2,392	278
1992	42,823	31,086	505	3,313	3,542	3,431	3,361	3,342	3,325	3,303	3,299	3,129	536	11,737	3,352	3,027	2,656	2,431	272
1993	43,465	31,502	545	3,377	3,529	3,429	3,437	3,361	3,350	3,356	3,355	3,249	513	11,963	3,487	3,050	2,751	2,424	250
1994	44,111	31,896	603	3,444	3,593	3,440	3,439	3,426	3,372	3,381	3,404	3,302	492	12,215	3,604	3,131	2,748	2,488	244
1995	44,840	32,338	637	3,536	3,671	3,507	3,445	3,431	3,438	3,395	3,422	3,356	500	12,502	3,704	3,237	2,826	2,487	247
1996	45,611	32,762	670	3,532	3,770	3,600	3,524	3,454	3,453	3,494	3,464	3,403	399	12,849	3,801	3,323	2,930	2,586	208
1997	46,127	33,071	695	3,503	3,755	3,689	3,597	3,507	3,458	3,492	3,520	3,415	440	13,056	3,819	3,376	2,972	2,673	216
1998	46,539	33,344	729	3,443	3,727	3,681	3,696	3,592	3,520	3,497	3,530	3,480	449	13,195	3,856	3,382	3,021	2,722	214
1999	46,857	33,486	751	3,397	3,684	3,656	3,691	3,686	3,604	3,564	3,541	3,497	415	13,371	3,935	3,415	3,034	2,782	205
2000	47,204	33,686	776	3,382	3,636	3,634	3,676	3,711	3,707	3,663	3,629	3,538	334	13,517	3,963	3,491	3,083	2,803	177
2001	47,672	33,936	865	3,379	3,614	3,593	3,653	3,695	3,727	3,769	3,720	3,616	304	13,736	4,012	3,528	3,174	2,863	159
2002	48,183	34,114	915	3,434	3,594	3,565	3,623	3,669	3,711	3,788	3,821	3,709	285	14,069	4,105	3,584	3,229	2,990	161
2003	48,540	34,201	950	3,503	3,613	3,544	3,611	3,619	3,685	3,772	3,841	3,809	255	14,339	4,190	3,675	3,277	3,046	150
2004	48,795	34,178	990	3,544	3,663	3,560	3,580	3,612	3,635	3,735	3,818	3,825	215	14,618	4,281	3,750	3,369	3,094	122
2005	49,113	34,204	1,036	3,619	3,691	3,606	3,586	3,578	3,633	3,670	3,777	3,802	205	14,909	4,287	3,866	3,454	3,180	121
2006	49,316	34,235	1,084	3,631	3,751	3,641	3,627	3,586	3,602	3,660	3,716	3,766	170	15,081	4,260	3,882	3,551	3,277	110
2007	49,291	34,204	1,081	3,609	3,750	3,704	3,659	3,624	3,600	3,628	3,700	3,709	139	15,086	4,200	3,863	3,557	3,375	92
2008	49,266	34,286	1,180	3,640	3,708	3,699	3,708	3,647	3,629	3,614	3,653	3,692	117	14,980	4,123	3,822	3,548	3,400	87
2009	49,361	34,409	1,223	3,678	3,729	3,665	3,707	3,701	3,652	3,644	3,641	3,651	119	14,952	4,080	3,809	3,541	3,432	90
2010	49,484	34,625	1,279	3,682	3,754	3,701	3,686	3,711	3,718	3,682	3,676	3,659	77	14,860	4,008	3,800	3,538	3,472	42
2011	49,522	34,773	1,291	3,746	3,773	3,713	3,703	3,672	3,699	3,724	3,696	3,679	77	14,749	3,957	3,751	3,546	3,452	43
2012	49,771	35,018	1,307	3,831	3,824	3,729	3,719	3,690	3,673	3,723	3,746	3,699	76	14,753	3,975	3,730	3,528	3,477	43
2013	50,045	35,251	1,328	3,834	3,885	3,791	3,738	3,708	3,697	3,684	3,748	3,753	85	14,794	3,980	3,761	3,526	3,476	52
2014	50,313	35,370	1,369	3,772	3,863	3,857	3,806	3,719	3,719	3,710	3,710	3,757	87	14,943	4,033	3,794	3,568	3,496	52
2015[2]	50,438	35,388	1,402	3,713	3,768	3,842	3,869	3,793	3,733	3,731	3,732	3,719	87	15,050	4,019	3,846	3,598	3,537	49
2016[3]	50,615	35,477	1,426	3,699	3,694	3,761	3,874	3,858	3,814	3,754	3,761	3,749	88	15,138	3,986	3,860	3,669	3,571	52
	Projected																		
2017	50,695	35,473	1,415	3,670	3,709	3,686	3,784	3,864	3,870	3,831	3,782	3,775	88	15,222	4,019	3,828	3,682	3,642	52
2018	50,728	35,465	1,417	3,678	3,680	3,700	3,709	3,774	3,876	3,888	3,859	3,796	88	15,264	4,047	3,859	3,652	3,655	52
2019	50,770	35,457	1,425	3,697	3,684	3,672	3,724	3,699	3,786	3,893	3,916	3,874	88	15,313	4,069	3,886	3,681	3,625	51
2020	50,857	35,384	1,430	3,712	3,704	3,676	3,695	3,714	3,710	3,803	3,922	3,931	88	15,473	4,153	3,907	3,707	3,654	51
2021	50,892	35,231	1,426	3,700	3,718	3,696	3,699	3,685	3,725	3,727	3,831	3,937	87	15,661	4,214	3,988	3,728	3,680	52
2022	51,012	35,189	1,457	3,782	3,706	3,710	3,719	3,689	3,696	3,742	3,755	3,846	87	15,823	4,220	4,047	3,804	3,700	52
2023	51,098	35,235	1,465	3,802	3,788	3,698	3,733	3,709	3,700	3,713	3,770	3,769	88	15,863	4,122	4,052	3,860	3,776	52
2024	51,124	35,376	1,473	3,821	3,809	3,780	3,721	3,723	3,720	3,717	3,740	3,784	88	15,748	4,040	3,958	3,866	3,832	52
2025	51,119	35,519	1,479	3,837	3,828	3,800	3,804	3,712	3,735	3,737	3,745	3,754	88	15,601	4,056	3,879	3,776	3,837	52
2026	51,123	35,703	1,484	3,851	3,844	3,819	3,824	3,794	3,723	3,752	3,765	3,759	89	15,420	4,025	3,895	3,701	3,748	51
2027	51,228	35,894	1,488	3,862	3,858	3,836	3,843	3,814	3,805	3,740	3,779	3,779	89	15,334	4,029	3,865	3,716	3,674	51
2028	51,419	36,073	1,492	3,871	3,869	3,850	3,860	3,833	3,826	3,823	3,767	3,794	90	15,346	4,051	3,869	3,687	3,688	51

[1]Includes students reported as being enrolled in grade 13.
[2]The prekindergarten, elementary total, and "all grades" counts include imputations for prekindergarten enrollment in California and Oregon.
[3]The prekindergarten, elementary total, and "all grades" counts include imputations for prekindergarten enrollment in California.
NOTE: Due to changes in reporting and imputation practices, prekindergarten enrollment for years prior to 1992 represent an undercount compared to later years. The total ungraded counts of students were prorated to the elementary and secondary levels based on prior reports. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of Public Elementary and Secondary School Systems*, 1980–81; Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1985–86 through 2016–17; and National Elementary and Secondary Enrollment Projection Model, 1972 through 2028. (This table was prepared March 2019.)

Table 3. Enrollment in public elementary and secondary schools, by region, state, and jurisdiction: Selected years, fall 1990 through fall 2028

Region, state, and jurisdiction	Actual total enrollment													Percent change in total enrollment, 2011 to 2016	Projected total enrollment						Percent change in total enrollment, 2016 to 2028
	Fall 1990	Fall 2000	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015[1]	Fall 2016[2]		Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2028	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
United States	**41,216,683**	**47,203,539**	**49,315,842**	**49,290,559**	**49,265,572**	**49,360,982**	**49,484,181**	**49,521,669**	**49,771,118**	**50,044,522**	**50,312,581**	**50,438,043**	**50,615,189**	**2.2**	**50,695,200**	**50,728,400**	**50,770,000**	**50,857,100**	**50,891,900**	**51,418,700**	**1.6**
Region																					
Northeast	7,281,763	8,222,127	8,257,889	8,122,022	8,052,985	8,092,029	8,071,335	7,953,981	7,959,128	7,961,243	7,979,856	7,933,762	7,959,304	0.1	7,928,200	7,896,100	7,870,000	7,852,100	7,823,000	7,663,700	-3.7
Midwest	9,943,761	10,729,987	10,819,248	10,770,210	10,742,973	10,672,171	10,609,604	10,573,792	10,559,230	10,572,920	10,560,539	10,555,579	10,538,947	-0.3	10,514,400	10,485,600	10,457,400	10,443,900	10,417,300	10,316,100	-2.1
South	14,807,016	17,007,261	18,293,633	18,422,773	18,490,770	18,651,889	18,805,000	18,955,932	19,128,376	19,298,714	19,506,193	19,641,472	19,749,816	4.2	19,845,300	19,914,100	19,987,400	20,080,900	20,166,800	20,815,500	5.4
West	9,184,143	11,244,164	11,945,072	11,975,554	11,978,844	11,944,893	11,998,242	12,037,964	12,124,384	12,211,645	12,265,993	12,307,230	12,367,122	2.7	12,407,400	12,432,600	12,455,300	12,480,200	12,484,700	12,623,400	2.1
State																					
Alabama	721,806	739,992	743,632	742,919	745,668	748,889	755,552	744,621	744,637	746,204	744,164	743,789	744,930	#	739,400	734,200	732,200	732,300	732,700	740,900	-0.5
Alaska	113,903	133,356	132,608	131,029	130,662	131,661	132,104	131,167	131,489	130,944	131,176	132,477	132,737	1.2	133,700	134,300	135,100	136,200	137,400	144,400	8.8
Arizona	639,853	877,696	1,068,249	1,087,447	1,087,817	1,077,831	1,071,751	1,080,319	1,089,384	1,102,445	1,111,695	1,109,040	1,123,137	4.0	1,127,400	1,131,700	1,135,000	1,140,200	1,143,300	1,172,900	4.4
Arkansas	436,286	449,959	476,409	479,016	478,965	480,559	482,114	483,114	486,157	489,979	490,917	492,132	493,447	2.1	493,700	494,000	494,600	495,200	496,400	510,700	3.5
California	4,950,474	6,140,814	6,406,750	6,343,471	6,322,528	6,263,438	6,289,578	6,287,834	6,299,451	6,312,623	6,312,161	6,305,347	6,309,138	0.3	6,307,600	6,293,000	6,277,900	6,261,100	6,232,500	6,137,800	-2.7
Colorado	574,213	724,508	794,026	801,867	818,443	832,368	843,316	854,265	863,561	876,999	889,006	899,112	905,019	5.9	909,900	913,500	916,600	919,500	920,600	948,400	4.8
Connecticut	469,123	562,179	575,100	570,626	567,198	563,968	560,546	554,437	550,954	546,200	542,678	537,933	535,118	-3.5	528,100	521,400	514,600	508,800	501,700	471,100	-12.0
Delaware	99,658	114,676	122,254	122,574	125,430	126,801	129,403	128,946	129,026	131,687	134,042	134,847	136,264	5.7	137,400	138,300	139,100	139,800	140,300	141,000	3.5
District of Columbia	80,694	68,925	72,850	78,422	68,681	69,433	71,284	73,911	76,140	78,153	80,958	84,024	85,850	16.2	86,400	89,100	91,900	94,500	97,000	105,300	22.6
Florida	1,861,592	2,434,821	2,671,513	2,666,811	2,631,020	2,634,522	2,643,347	2,668,156	2,692,162	2,720,744	2,756,944	2,792,234	2,816,791	5.6	2,842,300	2,863,200	2,883,600	2,911,400	2,938,000	3,119,600	10.8
Georgia	1,151,687	1,444,937	1,629,157	1,649,589	1,655,792	1,667,685	1,677,067	1,685,016	1,703,332	1,723,909	1,744,437	1,757,237	1,764,346	4.7	1,769,500	1,772,800	1,776,000	1,781,000	1,785,900	1,814,200	2.8
Hawaii	171,708	184,360	180,728	179,897	179,478	180,196	179,601	182,706	184,760	186,825	182,384	181,995	181,550	-0.6	181,600	180,700	180,300	179,600	178,700	171,800	-5.4
Idaho	220,840	245,117	267,380	272,119	275,051	276,299	275,859	279,873	284,834	296,476	290,885	292,277	297,200	6.2	299,700	302,500	304,900	307,600	309,800	324,300	9.1
Illinois	1,821,407	2,048,792	2,118,276	2,112,805	2,119,707	2,104,175	2,091,654	2,083,097	2,072,880	2,066,990	2,050,239	2,041,779	2,026,718	-2.7	2,023,500	2,015,100	2,006,500	2,001,000	1,988,300	1,894,300	-6.5
Indiana	954,525	989,267	1,045,940	1,046,764	1,046,147	1,046,661	1,047,232	1,040,765	1,041,369	1,047,385	1,046,269	1,046,757	1,049,547	0.8	1,048,000	1,046,500	1,042,900	1,042,400	1,042,900	1,057,300	0.7
Iowa	483,652	495,080	483,122	485,115	487,559	491,842	495,775	495,870	499,825	502,964	505,311	508,014	509,831	2.8	511,700	514,000	516,700	519,500	521,500	535,400	5.0
Kansas	437,034	470,610	469,506	468,295	471,060	474,489	483,701	486,108	489,043	496,440	497,275	495,884	494,347	1.7	494,100	493,500	493,000	492,600	491,800	490,600	-0.8
Kentucky	636,401	665,850	683,152	666,225	670,030	680,089	673,128	681,987	685,167	677,389	688,640	686,598	684,017	0.3	682,400	680,000	678,100	677,200	676,200	682,200	-0.3
Louisiana	784,757	743,089	675,851	681,038	684,873	690,915	696,558	703,390	710,903	711,491	716,800	718,711	716,293	1.8	715,900	713,100	711,200	711,300	711,700	718,400	0.3
Maine	215,149	207,037	193,986	196,245	192,935	189,225	189,077	188,969	185,739	183,995	182,470	181,613	180,512	-4.5	179,100	177,900	176,700	175,900	175,100	171,600	-5.0
Maryland	715,176	852,920	851,640	845,700	843,861	848,412	852,211	854,086	859,638	866,169	874,514	879,601	886,221	3.8	893,500	898,900	904,700	909,000	911,900	914,100	3.1
Massachusetts	834,314	975,150	968,661	962,958	958,910	957,053	955,563	953,369	954,773	955,739	955,844	964,026	964,514	1.2	963,300	961,000	958,200	955,500	952,000	939,400	-2.6
Michigan	1,584,431	1,720,626	1,722,656	1,692,739	1,659,921	1,649,082	1,587,067	1,573,537	1,555,370	1,548,841	1,537,922	1,536,231	1,528,666	-2.9	1,511,400	1,493,500	1,478,300	1,465,100	1,451,500	1,400,700	-8.4
Minnesota	756,374	854,340	840,565	837,578	836,048	837,053	838,037	839,738	845,404	850,973	857,235	864,384	875,021	4.2	885,000	891,100	896,300	902,900	907,100	924,000	5.6
Mississippi	502,417	497,871	495,026	494,122	491,962	492,481	490,526	490,619	493,650	492,586	490,917	487,200	483,150	-1.5	478,600	473,400	469,000	465,400	462,400	441,600	-8.6
Missouri	816,558	912,744	920,353	917,188	917,871	917,982	918,710	916,584	917,900	918,288	917,785	919,234	915,040	-0.2	914,300	912,600	911,300	911,300	910,700	915,100	#
Montana	152,974	154,875	144,418	142,823	141,899	141,807	141,693	142,349	142,908	144,129	144,532	145,319	146,375	2.8	147,400	149,000	150,400	151,700	152,900	160,600	9.7
Nebraska	274,081	286,199	287,580	291,244	292,590	295,368	298,500	301,296	303,505	307,677	312,635	316,014	319,194	5.9	323,300	326,100	328,800	331,100	332,700	344,900	8.1
Nevada	201,316	340,706	424,766	429,362	433,371	428,947	437,149	439,634	445,707	451,831	459,189	467,527	473,744	7.8	479,300	485,400	490,900	496,000	501,000	527,800	11.4
New Hampshire	172,785	208,461	203,572	200,772	197,934	197,140	194,711	191,900	188,974	186,310	184,670	182,425	180,888	-5.7	178,600	176,300	174,200	172,000	170,000	161,000	-11.0
New Jersey	1,089,646	1,313,405	1,388,850	1,382,348	1,381,420	1,396,029	1,402,548	1,356,431	1,372,203	1,370,295	1,400,579	1,408,845	1,410,421	4.0	1,405,600	1,400,900	1,397,100	1,394,100	1,388,200	1,356,200	-3.8
New Mexico	301,881	320,306	328,220	329,040	330,245	334,419	338,122	337,225	338,220	339,244	340,365	335,694	336,263	-0.3	334,900	332,500	330,100	327,200	324,500	306,100	-9.0
New York	2,598,337	2,882,188	2,809,649	2,765,435	2,740,592	2,766,052	2,734,955	2,704,718	2,710,703	2,732,770	2,741,185	2,711,626	2,729,776	0.9	2,723,500	2,715,500	2,710,400	2,708,900	2,703,300	2,649,700	-2.9
North Carolina	1,086,871	1,293,638	1,444,481	1,489,492	1,488,645	1,483,397	1,490,605	1,507,864	1,518,465	1,530,857	1,548,895	1,544,934	1,550,062	2.8	1,554,200	1,554,500	1,555,100	1,559,300	1,563,300	1,612,600	4.0
North Dakota	117,825	109,201	96,670	95,059	94,728	95,073	96,323	97,646	101,111	103,947	106,586	108,644	109,706	12.4	108,700	110,700	112,600	114,600	116,400	127,400	16.1
Ohio	1,771,089	1,835,049	1,836,722	1,827,184	1,817,163	1,764,297	1,754,191	1,740,030	1,729,916	1,724,111	1,724,810	1,716,585	1,710,143	-1.7	1,695,900	1,686,500	1,676,400	1,669,000	1,661,500	1,637,400	-4.3
Oklahoma	579,087	623,110	639,391	642,065	645,108	654,802	659,911	666,120	673,483	681,848	688,511	692,878	693,903	4.2	697,000	698,400	700,100	702,100	703,400	721,600	4.0
Oregon	472,394	546,231	562,574	565,586	575,393	582,839	570,720	568,208	587,564	593,000	601,318	608,825	606,277	6.7	609,800	613,600	617,600	622,600	626,500	650,600	7.3
Pennsylvania	1,667,834	1,814,311	1,871,060	1,801,971	1,775,029	1,785,993	1,793,284	1,771,395	1,763,677	1,755,236	1,743,160	1,717,414	1,727,497	-2.5	1,721,000	1,715,200	1,712,300	1,712,000	1,709,400	1,698,600	-1.7
Rhode Island	138,813	157,347	151,612	147,629	145,342	145,118	143,793	142,854	142,481	142,008	141,959	142,014	142,150	-0.5	142,200	142,100	141,300	140,400	139,500	135,700	-4.5

See notes at end of table.

Table 3. Enrollment in public elementary and secondary schools, by region, state, and jurisdiction: Selected years, fall 1990 through fall 2028—Continued

Region, state, and jurisdiction	Actual total enrollment													Percent change in total enrollment, 2011 to 2016	Projected total enrollment						Percent change in total enrollment, 2016 to 2028
	Fall 1990	Fall 2000	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015[1]	Fall 2016[2]		Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2028	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
South Carolina	622,112	677,411	708,021	712,317	718,113	723,143	725,838	727,186	735,998	745,657	756,523	763,533	771,250	6.1	776,700	781,600	786,900	792,700	798,300	822,000	6.6
South Dakota	129,164	128,603	121,158	121,606	126,429	123,713	126,128	128,016	130,471	130,890	133,040	134,253	136,302	6.5	137,600	139,100	140,800	142,400	143,900	151,000	10.8
Tennessee	824,595	909,161	978,368	964,259	971,950	972,549	987,422	999,693	993,496	993,556	995,475	1,001,235	1,001,562	0.2	1,002,200	1,001,300	1,002,000	1,004,700	1,007,600	1,044,400	4.3
Texas	3,382,887	4,059,619	4,599,509	4,674,832	4,752,148	4,850,210	4,935,715	5,000,470	5,077,659	5,153,702	5,233,765	5,301,477	5,360,849	7.2	5,414,700	5,462,600	5,506,400	5,549,800	5,587,800	5,861,300	9.3
Utah	446,652	481,485	523,386	576,244	559,778	571,586	585,552	598,832	613,279	625,461	635,577	647,870	659,801	10.2	667,400	674,600	681,600	688,000	693,000	732,400	11.0
Vermont	95,762	102,049	95,399	94,038	93,625	91,451	96,858	89,908	89,624	88,690	87,311	87,866	88,428	-1.6	86,700	85,900	85,100	84,500	83,800	80,400	-9.0
Virginia	998,601	1,144,915	1,220,440	1,230,857	1,235,795	1,245,340	1,251,440	1,257,883	1,265,419	1,273,825	1,280,381	1,283,590	1,287,026	2.3	1,290,400	1,291,200	1,292,100	1,293,600	1,295,100	1,316,200	2.3
Washington	839,709	1,004,770	1,026,774	1,030,247	1,037,018	1,035,347	1,043,788	1,045,453	1,051,694	1,058,936	1,073,638	1,087,030	1,101,711	5.4	1,115,200	1,128,400	1,141,700	1,157,300	1,171,600	1,253,600	13.8
West Virginia	322,389	286,367	281,939	282,535	282,729	282,662	282,879	282,870	283,044	280,958	280,310	277,452	273,855	-3.2	271,000	267,500	264,500	261,500	258,900	249,500	-8.9
Wisconsin	797,621	879,476	876,700	874,633	873,750	872,436	872,286	871,105	872,436	874,414	871,432	867,800	864,432	-0.8	860,700	856,900	853,700	851,800	848,900	837,900	-3.1
Wyoming	98,226	89,940	85,193	86,422	87,161	88,155	89,009	90,099	91,533	92,732	94,067	94,717	94,170	4.5	93,700	93,500	93,300	93,200	92,900	92,800	-1.4
Jurisdiction																					
Bureau of Indian Education	—	46,938	—	—	40,927	41,351	41,962	—	—	—	—	—	45,399	—	—	—	—	—	—	—	—
DoDEA[3]	—	107,755	87,522	84,795	84,781	—	—	—	—	—	—	74,970	—	—	—	—	—	—	—	—	—
Other jurisdictions																					
American Samoa	12,463	15,702	16,400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	26,391	32,473	—	—	—	—	31,618	31,243	31,186	33,414	31,144	30,821	30,758	-1.6	—	—	—	—	—	—	—
Northern Marianas	6,449	10,004	11,695	11,299	10,913	10,961	11,105	11,011	10,646	10,638	—	—	—	—	—	—	—	—	—	—	—
Puerto Rico	644,734	612,725	544,138	526,565	503,635	493,393	473,735	452,740	434,609	423,934	410,950	379,818	365,181	-19.3	—	—	—	—	—	—	—
U.S. Virgin Islands	21,750	19,459	16,284	15,903	15,768	15,493	15,495	15,711	15,192	14,953	14,241	13,805	13,194	-16.0	—	—	—	—	—	—	—

—Not available.
#Rounds to zero.
[1]Includes imputations for prekindergarten enrollment in California and Oregon.
[2]Includes imputations for prekindergarten enrollment in California.
[3]DoDEA = Department of Defense Education Activity. Includes both domestic and overseas schools.

NOTE: Detail may not sum to totals because of rounding. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1990–91 through 2016–17; and State Public Elementary and Secondary Enrollment Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table 4. Public school enrollment in prekindergarten through grade 8, by region, state, and jurisdiction: Selected years, fall 1990 through fall 2028

Region, state, and jurisdiction	Actual total enrollment													Percent change in total enrollment, 2010 to 2015	Projected total enrollment						Percent change in total enrollment, 2015 to 2027
	Fall 1990	Fall 2000	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015[1]		Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2027	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
United States	**29,875,914**	**33,686,421**	**34,203,962**	**34,234,751**	**34,204,081**	**34,285,564**	**34,409,260**	**34,624,530**	**34,772,751**	**35,017,893**	**35,250,792**	**35,369,694**	**35,387,986**	**2.2**	**35,503,500**	**35,551,300**	**35,605,600**	**35,682,600**	**35,716,900**	**36,667,800**	**3.6**
Region																					
Northeast	5,188,795	5,839,970	5,622,955	5,573,729	5,504,400	5,476,224	5,494,080	5,540,276	5,479,174	5,493,308	5,502,015	5,519,184	5,486,906	-1.0	5,471,800	5,443,300	5,416,900	5,398,700	5,378,500	5,325,700	-2.9
Midwest	7,129,501	7,523,246	7,425,308	7,404,578	7,359,028	7,373,391	7,361,959	7,349,334	7,358,792	7,368,484	7,394,141	7,374,598	7,361,263	0.2	7,350,300	7,326,500	7,300,800	7,288,500	7,268,000	7,304,500	-0.8
South	10,858,800	12,314,176	12,881,836	12,989,696	13,085,045	13,166,980	13,300,643	13,434,553	13,578,211	13,711,284	13,830,129	13,917,451	13,951,194	3.8	14,072,100	14,173,700	14,284,300	14,397,800	14,493,200	15,223,500	9.1
West	6,698,818	8,009,029	8,273,863	8,266,748	8,255,608	8,268,969	8,252,578	8,300,367	8,356,574	8,444,817	8,524,507	8,558,461	8,588,623	3.5	8,609,400	8,607,800	8,603,600	8,597,600	8,577,200	8,814,100	2.6
State																					
Alabama	527,097	538,634	529,347	528,664	525,978	528,078	529,394	533,612	527,006	527,434	527,499	523,096	521,607	-2.2	521,300	522,100	523,400	524,900	526,700	537,700	3.1
Alaska	85,297	94,442	91,225	90,167	88,980	89,263	90,824	91,990	92,057	93,069	92,714	92,745	93,789	2.0	95,500	96,800	98,000	99,300	100,200	106,100	13.1
Arizona	479,046	640,564	739,535	759,656	771,056	771,749	760,420	751,992	759,494	767,734	775,280	780,123	775,446	3.1	782,600	788,800	794,900	800,100	803,700	846,900	9.2
Arkansas	313,505	318,023	335,746	336,552	339,920	341,603	344,209	345,808	346,022	347,631	349,709	349,174	349,817	1.2	349,700	349,700	350,100	351,300	353,000	364,500	4.2
California	3,613,734	4,407,035	4,465,615	4,410,105	4,328,968	4,306,258	4,264,022	4,293,968	4,308,447	4,331,807	4,357,989	4,360,241	4,361,930	1.6	4,340,700	4,302,700	4,262,200	4,219,700	4,169,300	4,160,600	-4.6
Colorado	419,910	516,566	549,875	559,041	565,726	580,304	591,378	601,077	610,854	617,510	627,619	634,363	638,203	6.2	642,000	643,800	646,300	649,400	652,200	693,600	8.7
Connecticut	347,396	406,445	399,705	398,063	394,034	392,218	389,964	387,475	383,377	380,709	377,162	374,888	370,877	-4.3	366,400	360,100	354,700	349,700	345,400	330,400	-10.9
Delaware	72,606	80,801	84,639	84,996	85,019	86,811	87,710	90,279	90,624	91,004	93,204	94,696	95,002	5.2	96,100	96,900	97,600	98,100	98,300	99,500	4.8
District of Columbia	61,282	53,692	55,646	52,391	55,836	50,779	51,656	53,548	56,195	58,273	60,379	62,997	64,955	21.3	66,600	69,400	72,100	74,500	76,500	81,400	25.3
Florida	1,369,934	1,759,902	1,873,395	1,866,562	1,855,859	1,849,295	1,850,901	1,858,498	1,876,102	1,892,560	1,913,710	1,933,695	1,952,461	5.1	1,986,300	2,018,000	2,049,400	2,080,700	2,101,900	2,279,600	16.8
Georgia	849,082	1,059,983	1,145,446	1,166,508	1,178,577	1,185,684	1,194,751	1,202,479	1,211,250	1,222,289	1,233,877	1,242,832	1,243,372	3.4	1,250,000	1,256,900	1,263,500	1,269,800	1,274,200	1,311,200	5.5
Hawaii	122,840	132,293	127,472	126,008	125,556	125,910	127,477	127,525	131,005	133,590	135,925	131,307	131,593	3.2	132,700	133,300	133,700	133,900	134,200	137,200	4.3
Idaho	160,091	170,421	182,829	187,005	191,171	193,554	194,728	194,144	198,064	202,203	209,333	205,460	205,857	6.0	206,500	207,200	207,700	207,800	208,300	217,700	5.8
Illinois	1,309,516	1,473,933	1,480,320	1,477,679	1,472,909	1,479,195	1,463,713	1,454,793	1,453,156	1,448,201	1,445,459	1,428,964	1,422,487	-2.2	1,418,100	1,406,300	1,393,400	1,380,300	1,364,900	1,308,300	-8.0
Indiana	675,804	703,261	724,467	730,108	729,550	730,021	730,599	729,414	724,605	725,040	731,035	729,804	725,444	-0.5	723,600	723,100	721,600	722,400	721,900	742,600	2.4
Iowa	344,804	333,750	326,160	326,218	329,504	335,566	341,333	348,112	350,152	355,041	357,953	359,449	361,206	3.8	362,700	363,800	365,600	367,500	368,900	382,800	6.0
Kansas	319,648	323,157	320,513	326,201	326,771	331,079	332,997	342,927	347,129	349,695	355,929	355,305	352,910	2.9	353,200	352,400	351,800	351,500	350,800	354,200	0.4
Kentucky	459,200	471,429	487,429	487,165	469,373	472,204	484,466	480,334	488,456	491,065	485,001	491,766	487,634	1.5	488,700	488,400	488,600	489,200	489,500	507,100	4.0
Louisiana	586,202	546,579	482,082	492,116	499,549	504,213	509,883	512,266	518,802	524,792	523,310	522,009	520,134	1.5	522,400	523,400	523,600	523,500	525,600	539,200	3.7
Maine	155,203	145,701	133,491	132,338	130,742	129,324	128,646	128,929	130,046	127,924	127,071	126,109	125,340	-2.8	124,400	123,400	122,400	121,400	120,700	120,100	-4.2
Maryland	526,744	609,043	588,571	579,065	576,479	576,473	581,785	588,156	594,216	602,802	612,580	620,442	626,505	6.5	633,100	637,700	641,800	645,800	648,400	651,900	4.1
Massachusetts	604,234	702,575	675,398	670,628	666,926	666,538	666,551	666,402	666,314	667,267	668,261	666,910	669,129	0.4	667,200	663,600	660,000	657,900	656,100	654,600	-2.2
Michigan	1,144,878	1,222,482	1,191,397	1,170,558	1,136,823	1,118,569	1,114,611	1,075,584	1,070,873	1,061,930	1,060,065	1,051,722	1,052,418	-2.2	1,040,600	1,029,000	1,017,100	1,008,700	1,000,100	990,200	-5.9
Minnesota	545,556	577,766	557,757	558,445	558,180	560,184	564,661	569,963	575,544	583,363	589,564	594,161	598,675	5.0	605,500	609,000	611,200	614,200	616,000	629,800	5.2
Mississippi	371,641	363,873	358,030	356,382	353,512	351,807	351,652	350,885	352,999	356,364	356,432	352,884	348,569	-0.7	346,300	344,400	342,300	340,700	339,600	328,200	-5.8
Missouri	588,070	644,766	635,142	634,275	631,746	635,411	638,082	642,991	645,376	647,530	649,061	648,864	649,885	1.1	650,800	650,200	649,900	650,100	650,000	664,500	2.2
Montana	111,169	105,226	97,770	97,021	96,354	96,869	97,868	98,491	99,725	100,819	101,991	102,716	103,497	5.1	104,400	105,400	106,300	107,300	107,900	114,100	10.3
Nebraska	198,080	195,486	195,055	195,769	200,095	202,912	206,860	210,292	213,504	215,432	219,122	222,671	224,364	6.7	225,500	226,200	226,800	228,100	229,100	238,900	6.5
Nevada	149,881	250,720	295,989	302,953	307,573	308,328	305,512	307,297	309,360	313,730	319,240	324,518	330,593	7.6	334,500	339,800	345,300	349,800	353,200	372,400	12.7
New Hampshire	126,301	147,121	138,584	136,188	134,359	132,995	132,768	131,576	129,632	128,169	126,933	125,845	124,305	-5.5	122,800	121,300	119,600	118,400	117,100	113,600	-8.6
New Jersey	783,422	967,533	970,592	963,418	954,418	956,765	968,332	981,255	947,576	956,070	956,379	982,202	989,332	0.8	987,500	982,400	976,700	973,400	969,200	955,300	-3.4
New Mexico	208,087	224,879	229,552	230,091	229,718	231,415	235,343	239,345	239,481	240,978	241,528	241,105	238,896	-0.2	238,400	237,200	235,700	234,200	232,600	226,400	-5.2
New York	1,827,418	2,028,906	1,909,028	1,887,284	1,856,315	1,843,080	1,847,003	1,869,150	1,857,574	1,868,561	1,884,845	1,889,428	1,870,048	#	1,873,000	1,871,000	1,870,500	1,869,800	1,866,600	1,842,200	-1.5
North Carolina	783,132	945,470	1,003,118	1,027,067	1,072,324	1,058,926	1,053,801	1,058,409	1,074,063	1,080,090	1,089,594	1,092,368	1,080,536	2.1	1,087,600	1,091,000	1,103,300	1,109,600	1,113,900	1,155,200	6.9
North Dakota	84,943	72,421	65,638	64,395	63,492	63,955	64,576	66,035	67,888	70,995	73,527	76,165	77,969	18.1	78,500	80,400	82,200	84,200	85,900	98,000	25.7

See notes at end of table.

Table 4. Public school enrollment in prekindergarten through grade 8, by region, state, and jurisdiction: Selected years, fall 1990 through fall 2028—Continued

Region, state, and jurisdiction	Actual total enrollment													Percent change in total enrollment, 2010 to 2015	Projected total enrollment						Percent change in total enrollment, 2015 to 2027
	Fall 1990	Fall 2000	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015[1]		Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2027	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Ohio	1,257,580	1,293,646	1,261,331	1,253,193	1,241,322	1,239,494	1,225,346	1,222,808	1,217,226	1,211,299	1,208,500	1,204,872	1,194,990	-2.3	1,190,600	1,185,700	1,182,000	1,182,500	1,181,100	1,185,600	-0.8
Oklahoma	424,899	445,402	456,954	459,944	462,629	467,960	476,962	483,464	490,196	496,144	501,504	503,846	505,311	4.5	509,200	511,700	514,800	520,600	524,400	549,100	8.7
Oregon	340,243	379,264	379,680	380,576	383,598	395,421	404,451	392,601	391,310	409,325	414,405	421,561	427,227	8.8	431,300	435,300	439,400	444,400	448,500	472,600	10.6
Pennsylvania	1,172,164	1,257,824	1,227,625	1,220,074	1,205,351	1,194,327	1,200,446	1,209,766	1,204,850	1,204,732	1,201,169	1,193,762	1,176,868	-2.7	1,171,300	1,163,800	1,156,800	1,153,400	1,149,900	1,158,200	-1.6
Rhode Island	101,797	113,545	103,870	101,996	99,159	97,983	98,184	97,734	97,659	97,809	98,738	99,067	99,143	1.4	98,500	97,700	96,700	96,000	95,300	94,300	-4.8
South Carolina	452,033	493,226	498,030	501,273	504,566	507,602	512,124	515,581	519,389	527,350	533,822	539,800	542,753	5.3	550,400	557,500	564,900	571,900	577,300	601,300	10.8
South Dakota	95,165	87,838	83,530	83,137	83,424	87,477	85,745	87,936	90,529	93,204	94,251	95,739	97,011	10.3	98,100	99,200	100,200	100,900	101,600	107,500	10.8
Tennessee	598,111	668,123	676,576	691,971	681,751	684,549	686,668	701,707	712,749	711,525	709,668	707,067	709,394	1.1	709,100	709,900	711,600	713,700	714,900	753,400	6.2
Texas	2,510,955	2,943,047	3,268,339	3,319,782	3,374,684	3,446,511	3,520,348	3,586,609	3,636,852	3,690,146	3,742,266	3,783,324	3,809,025	6.2	3,860,400	3,903,000	3,945,700	3,991,700	4,037,100	4,340,700	14.0
Utah	324,982	333,104	357,644	371,272	410,258	404,469	413,343	424,979	434,536	444,202	451,332	456,667	463,567	9.1	469,000	472,700	476,100	480,000	483,100	515,300	11.2
Vermont	70,860	70,320	64,662	63,740	63,096	62,994	62,186	67,989	62,146	62,067	61,457	60,973	61,864	-9.0	60,600	59,900	59,300	58,700	58,200	57,000	-7.9
Virginia	728,280	815,748	841,299	841,685	850,444	855,008	864,020	871,446	881,225	889,444	896,573	897,688	896,809	2.9	899,000	899,800	899,400	900,700	901,500	932,200	3.9
Washington	612,597	694,367	699,482	694,858	697,407	704,794	705,387	714,172	718,184	724,560	730,868	740,320	750,222	5.0	763,300	776,000	788,700	802,100	814,300	877,900	17.0
West Virginia	224,097	201,201	197,189	197,573	198,545	199,477	200,313	201,472	202,065	202,371	201,001	199,767	197,310	-2.1	195,900	194,000	192,200	191,100	190,600	191,400	-3.0
Wisconsin	565,457	594,740	583,998	584,600	585,212	589,528	593,436	598,479	602,810	606,754	609,675	606,882	603,904	0.9	603,200	601,200	599,000	598,100	597,600	602,100	-0.3
Wyoming	70,941	60,148	57,195	57,995	59,243	60,635	61,825	62,786	64,057	65,290	66,283	67,335	67,803	8.0	68,500	68,900	69,400	69,700	69,900	73,200	8.0
Jurisdiction																					
Bureau of Indian Education	—	35,746	36,133	—	—	30,612	31,381	31,985	—	—	—	—	—	—	—	—	—	—	—	—	—
DoD, education activities	—	89,996	74,249	71,641	69,225	69,186	—	—	—	—	—	—	61,355	—	—	—	—	—	—	—	—
Other jurisdictions																					
American Samoa	9,390	11,895	11,766	11,763	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	19,276	23,698	21,946	—	—	—	—	21,561	21,223	21,166	23,301	21,112	20,765	-3.7	—	—	—	—	—	—	—
Northern Marianas	4,918	7,809	8,427	8,504	8,140	7,816	7,743	7,688	7,703	7,396	7,340	—	—	—	—	—	—	—	—	—	—
Puerto Rico	480,356	445,524	399,447	382,647	372,514	355,115	347,638	334,613	318,924	305,048	294,976	284,246	261,667	-21.8	—	—	—	—	—	—	—
U.S. Virgin Islands	16,249	13,910	11,728	11,237	10,770	10,567	10,409	10,518	10,576	10,302	10,283	9,724	9,503	-9.7	—	—	—	—	—	—	—

—Not available.
#Rounds to zero.
[1]Includes imputations for prekindergarten enrollment in California and Oregon.
NOTE: DoD = Department of Defense. The total ungraded counts of students were prorated to the elementary level (prekindergarten through grade 8) and the secondary level (grades 9 through 12) based on prior reports. Detail may not sum to totals because of rounding. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1990–91 through 2015–16; and State Public Elementary and Secondary Enrollment Projection Model, 1980 through 2027. (This table was prepared January 2018.)

Table 5. Public school enrollment in grades 9 through 12, by region, state, and jurisdiction: Selected years, fall 1990 through fall 2028

Region, state, and jurisdiction	Actual total enrollment													Percent change in total enrollment, 2010 to 2015	Projected total enrollment						Percent change in total enrollment, 2015 to 2027
	Fall 1990	Fall 2000	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015		Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2027	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
United States	**11,340,769**	**13,517,118**	**14,909,336**	**15,081,091**	**15,086,478**	**14,980,008**	**14,951,722**	**14,859,651**	**14,748,918**	**14,753,225**	**14,793,730**	**14,942,887**	**15,050,057**	**1.3**	**15,076,000**	**15,097,400**	**15,095,200**	**15,120,000**	**15,254,200**	**15,391,300**	**2.3**
Region																					
Northeast	2,092,968	2,382,157	2,617,205	2,684,160	2,617,622	2,576,761	2,597,949	2,531,059	2,474,807	2,465,820	2,459,228	2,460,672	2,446,856	-3.3	2,421,900	2,404,700	2,388,500	2,373,700	2,373,000	2,302,000	-5.9
Midwest	2,814,260	3,206,741	3,393,507	3,414,670	3,411,182	3,369,582	3,310,212	3,260,270	3,215,000	3,190,746	3,178,779	3,185,941	3,194,316	-2.0	3,183,300	3,175,300	3,171,600	3,163,300	3,177,700	3,100,400	-2.9
South	3,948,216	4,693,085	5,221,330	5,303,937	5,337,728	5,323,790	5,351,246	5,370,447	5,377,721	5,417,092	5,468,585	5,588,742	5,690,278	6.0	5,745,300	5,774,300	5,780,900	5,801,100	5,869,300	6,202,800	9.0
West	2,485,325	3,235,135	3,677,294	3,678,324	3,719,946	3,709,875	3,692,315	3,697,875	3,681,390	3,679,567	3,687,138	3,707,532	3,718,607	0.6	3,725,600	3,743,000	3,754,200	3,781,900	3,834,200	3,786,200	1.8
State																					
Alabama	194,709	201,358	212,414	214,968	216,941	217,590	219,495	221,940	217,615	217,203	218,705	221,068	222,182	0.1	218,500	212,800	208,500	206,200	205,300	209,000	-5.9
Alaska	28,606	38,914	42,063	42,441	42,049	41,399	40,837	40,114	39,110	38,420	38,230	38,431	38,688	-3.6	38,700	38,600	38,400	38,500	39,200	43,600	12.7
Arizona	160,807	237,132	354,919	308,593	316,391	316,068	317,411	319,759	320,825	321,650	327,165	331,572	333,594	4.3	333,700	332,900	332,600	335,300	341,000	356,600	6.9
Arkansas	122,781	131,936	138,460	139,857	139,096	137,362	136,350	136,306	137,092	138,526	140,270	141,743	142,315	4.4	143,100	142,500	141,600	140,600	139,500	142,400	#
California	1,336,740	1,733,779	1,971,587	1,996,645	2,014,503	2,016,270	1,999,416	1,995,610	1,979,387	1,967,644	1,954,634	1,951,920	1,943,417	-2.6	1,938,700	1,944,100	1,943,000	1,953,600	1,976,900	1,818,300	-6.4
Colorado	154,303	207,942	229,951	234,985	236,141	238,139	240,990	242,239	243,411	246,051	249,380	254,643	260,909	7.7	266,000	271,900	275,700	278,800	282,500	289,200	10.9
Connecticut	121,727	155,734	175,354	177,037	176,592	174,980	174,004	173,071	171,060	170,245	169,038	167,790	167,056	-3.5	164,500	163,200	161,100	159,600	158,100	141,700	-15.2
Delaware	27,052	33,875	36,298	37,258	37,555	38,619	39,091	39,124	38,322	38,022	38,483	39,346	39,845	1.8	40,300	40,800	40,800	41,500	42,400	44,600	11.8
District of Columbia	19,412	15,233	21,230	20,459	22,586	17,902	17,777	17,736	17,716	17,867	17,774	17,961	19,069	7.5	17,800	17,800	17,900	18,400	19,300	26,200	37.3
Florida	491,658	674,919	801,629	804,951	810,952	781,725	783,621	784,849	792,054	799,602	807,034	823,249	839,773	7.0	850,300	855,400	860,800	867,500	892,100	987,100	17.5
Georgia	302,605	384,954	453,015	462,649	471,012	470,108	472,934	474,588	473,766	481,043	490,032	501,605	513,865	8.3	520,800	521,800	521,400	522,300	527,600	546,600	6.4
Hawaii	48,868	52,067	55,346	54,720	54,341	53,568	52,719	52,076	51,701	51,170	50,900	51,077	50,402	-3.2	50,400	50,800	51,100	52,200	52,800	54,000	7.2
Idaho	60,749	74,696	79,153	80,375	80,948	81,497	81,571	81,715	81,809	82,631	87,143	85,425	86,420	5.8	87,400	87,900	88,700	89,700	90,500	91,100	5.5
Illinois	511,891	574,859	631,386	640,597	639,896	640,512	640,462	636,861	629,941	624,679	621,531	621,275	619,292	-2.8	618,800	621,300	624,100	629,000	634,500	591,200	-4.5
Indiana	278,721	286,006	310,607	315,832	317,214	316,126	316,062	317,818	316,160	316,329	316,350	316,465	321,313	1.1	322,200	318,700	316,900	311,800	312,200	308,700	-3.9
Iowa	138,848	161,330	157,322	156,904	155,611	151,993	150,509	147,663	145,718	144,784	145,011	145,862	146,808	-0.6	147,600	148,500	148,800	149,900	151,900	155,500	5.9
Kansas	117,386	147,453	147,012	143,305	141,524	139,981	141,492	140,774	138,979	139,348	140,511	141,970	142,974	1.6	142,900	143,100	142,900	142,700	143,700	142,300	-0.5
Kentucky	177,201	194,421	192,449	195,987	196,852	197,826	195,623	192,794	193,531	194,102	192,388	196,874	198,964	3.2	198,900	198,700	198,000	197,500	199,300	199,400	0.2
Louisiana	198,555	196,510	172,444	183,735	181,489	180,660	181,032	184,292	184,588	186,111	188,181	194,791	198,577	7.8	200,600	200,600	200,400	201,400	200,900	203,800	2.6
Maine	59,946	61,336	62,007	61,648	65,503	63,611	60,579	60,148	58,923	57,815	56,924	56,361	56,273	-6.4	55,400	54,700	54,300	54,100	54,000	50,600	-10.0
Maryland	188,432	243,877	271,449	272,575	269,221	267,388	266,627	264,055	259,870	256,836	253,589	254,072	253,096	-4.2	255,000	257,800	259,400	263,200	266,700	282,000	11.4
Massachusetts	230,080	272,575	296,511	298,033	296,032	292,372	290,502	289,161	287,055	287,506	287,478	288,934	294,897	2.0	296,300	297,300	297,900	296,800	296,300	287,000	-2.7
Michigan	439,553	498,144	550,885	552,098	555,916	541,352	534,471	511,483	502,664	493,440	488,776	486,200	483,813	-5.4	479,500	473,500	468,900	461,500	458,400	420,400	-13.1
Minnesota	210,818	276,574	281,486	282,120	279,398	275,864	272,392	268,074	264,194	262,041	261,409	263,074	265,709	-0.9	268,400	271,100	275,000	277,900	283,200	292,900	10.2
Mississippi	130,776	133,998	136,924	138,644	140,610	140,155	140,829	139,641	137,620	137,286	136,154	138,033	138,631	-0.7	137,800	135,900	133,500	131,800	130,200	127,000	-8.4
Missouri	228,488	267,978	282,563	286,078	285,442	282,460	279,900	275,719	271,208	270,370	269,227	268,921	269,349	-2.3	268,000	267,100	266,200	266,200	267,700	266,000	-1.2
Montana	41,805	49,649	47,646	47,397	46,469	45,030	43,939	43,202	42,624	42,089	42,138	41,816	41,822	-3.2	42,100	42,400	43,000	43,400	44,200	46,700	11.6
Nebraska	76,001	90,713	91,591	91,811	91,149	89,678	88,508	88,208	87,792	88,073	88,555	89,964	91,650	3.9	93,200	94,900	96,200	97,100	98,200	100,200	9.4
Nevada	51,435	89,986	116,406	121,813	121,789	125,043	123,435	129,852	130,274	131,977	132,591	134,671	136,934	5.5	139,200	140,800	142,200	144,200	147,100	162,300	18.5
New Hampshire	46,484	61,340	67,183	67,384	66,413	64,939	64,372	63,135	62,268	60,805	59,377	58,825	58,120	-7.9	57,300	56,600	56,100	55,400	54,800	50,100	-13.8
New Jersey	306,224	345,872	425,010	425,432	427,930	424,655	427,697	421,293	408,855	416,133	413,916	418,377	419,513	-0.4	415,300	412,700	412,500	411,100	412,300	399,700	-4.7
New Mexico	93,794	95,427	97,206	98,129	99,322	98,830	99,076	98,777	97,744	97,242	97,716	99,260	96,798	-2.0	95,300	93,700	92,900	93,100	93,400	90,400	-6.7
New York	770,919	853,282	906,553	922,365	909,120	897,512	919,049	865,805	847,144	842,142	847,925	851,757	841,578	-2.8	834,500	829,100	820,400	817,300	819,900	819,500	-2.6
North Carolina	303,739	348,168	413,318	417,414	417,168	429,719	429,596	432,196	433,801	438,375	441,263	456,527	464,398	7.5	468,600	471,000	461,900	460,000	463,300	485,400	4.5
North Dakota	32,882	36,780	32,645	32,275	31,567	30,773	30,497	30,288	29,758	30,116	30,420	30,421	30,675	1.3	30,100	30,700	31,700	32,500	33,800	40,100	30.6

See notes at end of table.

Table 5. Public school enrollment in grades 9 through 12, by region, state, and jurisdiction: Selected years, fall 1990 through fall 2028—Continued

Region, state, and jurisdiction	Actual total enrollment													Percent change in total enrollment, 2011 to 2016	Projected total enrollment						Percent change in total enrollment, 2016 to 2028
	Fall 1990	Fall 2000	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2016		Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2028	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
South Carolina	170,079	184,185	206,748	207,751	210,511	211,019	210,257	207,797	208,648	211,835	216,723	220,780	223,322	7.5	224,800	225,400	227,100	230,900	237,900	242,100	8.4
South Dakota	33,999	40,765	38,021	38,182	38,952	37,968	38,192	37,487	37,267	36,639	37,301	37,242	37,590	0.3	38,000	38,600	39,800	40,900	42,100	43,400	15.3
Tennessee	226,484	241,038	286,397	282,508	287,401	285,881	285,715	286,944	281,971	283,888	288,408	291,841	293,535	2.3	294,000	292,100	291,700	294,700	299,200	293,600	#
Texas	871,932	1,116,572	1,279,727	1,300,148	1,305,637	1,329,862	1,349,106	1,363,618	1,387,513	1,411,436	1,450,441	1,492,452	1,525,178	11.8	1,557,100	1,583,200	1,607,300	1,631,300	1,665,100	1,692,200	10.9
Utah	121,670	148,381	152,114	165,986	155,309	158,243	160,573	164,296	169,077	174,129	178,910	184,303	188,588	14.8	193,200	197,600	201,700	206,200	210,800	214,200	13.6
Vermont	24,902	31,729	31,659	30,942	30,631	29,265	28,869	27,762	27,557	27,233	26,338	26,002	25,573	-7.9	25,200	25,000	24,900	24,800	25,000	23,100	-9.8
Virginia	270,321	329,167	378,755	380,413	380,787	381,320	379,994	376,658	375,975	377,252	382,693	386,781	389,330	3.4	392,500	394,600	396,200	399,400	405,000	395,100	1.5
Washington	227,112	310,403	331,916	332,840	332,224	329,960	329,616	327,269	327,134	328,068	333,318	336,808	339,349	3.7	342,700	345,500	348,600	355,800	365,300	393,900	16.1
West Virginia	98,292	85,166	84,366	83,990	83,252	82,349	81,407	80,805	80,673	79,957	80,543	80,142	79,442	-1.7	78,700	78,100	77,300	76,100	75,900	68,500	-13.8
Wisconsin	232,164	284,736	292,100	289,421	284,222	279,000	273,807	268,295	265,682	264,739	264,550	263,896	262,681	-2.1	262,400	262,300	262,000	263,000	265,000	249,800	-4.9
Wyoming	27,285	29,792	27,198	27,179	26,526	26,330	26,223	26,042	26,243	26,449	26,732	26,914	26,924	3.4	27,300	27,400	27,900	28,400	28,800	26,200	-2.6
Jurisdiction																					
Bureau of Indian Education	—	11,192	—	—	10,315	9,970	9,977	—	—	—	—	—	11,267	—	—	—	—	—	—	—	—
DoDEA[1]	—	17,759	15,881	15,570	15,595	—	—	—	—	—	—	13,615	—	—	—	—	—	—	—	—	—
Other jurisdictions																					
American Samoa	3,073	3,807	4,637	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	7,115	8,775	—	—	—	—	10,057	10,020	10,020	10,113	10,032	10,056	10,137	1.2	—	—	—	—	—	—	—
Northern Marianas	1,531	2,195	3,191	3,159	3,097	3,218	3,417	3,308	3,250	3,298	—	—	—	—	—	—	—	—	—	—	—
Puerto Rico	164,378	167,201	161,491	154,051	148,520	145,755	139,122	133,816	129,561	128,958	126,704	118,151	113,984	-14.8	—	—	—	—	—	—	—
U.S. Virgin Islands	5,501	5,549	5,047	5,133	5,201	5,084	4,977	5,135	4,890	4,670	4,517	4,302	4,157	-19.0	—	—	—	—	—	—	—

#Rounds to zero.
—Not available.
[1]DoDEA = Department of Defense Education Activity. Includes both domestic and overseas schools.
NOTE: The total ungraded counts of students were prorated to the elementary level (prekindergarten through grade 8) and the secondary level (grades 9 through 12) based on prior reports. In addition to students in grades 9 through 12 and ungraded secondary students, this table includes a small number of students reported as being enrolled in grade 13. Detail may not sum to totals because of rounding. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1990–91 through 2016–17; and State Public Elementary and Secondary Enrollment Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table 6. Enrollment and percentage distribution of enrollment in public elementary and secondary schools, by race/ethnicity and region: Selected years, fall 1995 through fall 2028

	Enrollment (in thousands)								Percentage distribution							
Region and year	Total	White	Black	Hispanic	Asian	Pacific Islander	American Indian/ Alaska Native	Two or more races	Total	White	Black	Hispanic	Asian	Pacific Islander	American Indian/ Alaska Native	Two or more races
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
United States																
1995	44,840	29,044	7,551	6,072	1,668[1]	—	505	—	100.0	64.8	16.8	13.5	3.7[1]	—	1.1	—
2000	47,204	28,878	8,100	7,726	1,950[1]	—	550	—	100.0	61.2	17.2	16.4	4.1[1]	—	1.2	—
2001	47,672	28,735	8,177	8,169	2,028[1]	—	564	—	100.0	60.3	17.2	17.1	4.3[1]	—	1.2	—
2002	48,183	28,618	8,299	8,594	2,088[1]	—	583	—	100.0	59.4	17.2	17.8	4.3[1]	—	1.2	—
2003	48,540	28,442	8,349	9,011	2,145[1]	—	593	—	100.0	58.6	17.2	18.6	4.4[1]	—	1.2	—
2004	48,795	28,318	8,386	9,317	2,183[1]	—	591	—	100.0	58.0	17.2	19.1	4.5[1]	—	1.2	—
2005	49,113	28,005	8,445	9,787	2,279[1]	—	598	—	100.0	57.0	17.2	19.9	4.6[1]	—	1.2	—
2006	49,316	27,801	8,422	10,166	2,332[1]	—	595	—	100.0	56.4	17.1	20.6	4.7[1]	—	1.2	—
2007	49,291	27,454	8,392	10,454	2,396[1]	—	594	—	100.0	55.7	17.0	21.2	4.9[1]	—	1.2	—
2008	49,266	27,057	8,358	10,563	2,405	46	589	247[2]	100.0	54.9	17.0	21.4	4.9	0.1	1.2	0.5[2]
2009	49,361	26,702	8,245	10,991	2,435	49	601	338[2]	100.0	54.1	16.7	22.3	4.9	0.1	1.2	0.7[2]
2010	49,484	25,933	7,917	11,439	2,296	171	566	1,164	100.0	52.4	16.0	23.1	4.6	0.3	1.1	2.4
2011	49,522	25,602	7,827	11,759	2,334	179	547	1,272	100.0	51.7	15.8	23.7	4.7	0.4	1.1	2.6
2012	49,771	25,386	7,803	12,104	2,372	180	534	1,393	100.0	51.0	15.7	24.3	4.8	0.4	1.1	2.8
2013	50,045	25,160	7,805	12,452	2,417	176	523	1,511	100.0	50.3	15.6	24.9	4.8	0.4	1.0	3.0
2014	50,313	24,923	7,807	12,805	2,470	176	519	1,612	100.0	49.5	15.5	25.4	4.9	0.3	1.0	3.2
2015[3]	50,438	24,644	7,784	13,080	2,521	177	510	1,723	100.0	48.9	15.4	25.9	5.0	0.4	1.0	3.4
2016[4]	50,615	24,413	7,765	13,329	2,571	184	511	1,842	100.0	48.2	15.3	26.3	5.1	0.4	1.0	3.6
2017[5]	50,695	24,149	7,734	13,561	2,616	183	507	1,946	100.0	47.6	15.3	26.7	5.2	0.4	1.0	3.8
2018[5]	50,728	23,888	7,698	13,752	2,660	184	504	2,043	100.0	47.1	15.2	27.1	5.2	0.4	1.0	4.0
2019[5]	50,770	23,659	7,672	13,921	2,696	184	501	2,136	100.0	46.6	15.1	27.4	5.3	0.4	1.0	4.2
2020[5]	50,857	23,462	7,663	14,084	2,738	185	498	2,227	100.0	46.1	15.1	27.7	5.4	0.4	1.0	4.4
2021[5]	50,892	23,277	7,654	14,207	2,764	185	494	2,311	100.0	45.7	15.0	27.9	5.4	0.4	1.0	4.5
2022[5]	51,012	23,163	7,707	14,263	2,812	182	490	2,394	100.0	45.4	15.1	28.0	5.5	0.4	1.0	4.7
2023[5]	51,098	23,051	7,741	14,298	2,858	180	487	2,483	100.0	45.1	15.1	28.0	5.6	0.4	1.0	4.9
2024[5]	51,124	22,940	7,760	14,296	2,908	179	483	2,557	100.0	44.9	15.2	28.0	5.7	0.3	0.9	5.0
2025[5]	51,119	22,828	7,775	14,279	2,959	178	480	2,621	100.0	44.7	15.2	27.9	5.8	0.3	0.9	5.1
2026[5]	51,123	22,734	7,787	14,261	3,010	177	477	2,677	100.0	44.5	15.2	27.9	5.9	0.3	0.9	5.2
2027[5]	51,228	22,684	7,811	14,277	3,069	177	475	2,734	100.0	44.3	15.2	27.9	6.0	0.3	0.9	5.3
2028[5]	51,419	22,662	7,857	14,334	3,126	177	474	2,788	100.0	44.1	15.3	27.9	6.1	0.3	0.9	5.4
Northeast																
1995	7,894	5,497	1,202	878	295[1]	—	21	—	100.0	69.6	15.2	11.1	3.7[1]	—	0.3	—
2000	8,222	5,545	1,270	1,023	361[1]	—	24	—	100.0	67.4	15.4	12.4	4.4[1]	—	0.3	—
2005	8,240	5,317	1,282	1,189	425[1]	—	27	—	100.0	64.5	15.6	14.4	5.2[1]	—	0.3	—
2010	8,071	4,876	1,208	1,364	494	6	27	96	100.0	60.4	15.0	16.9	6.1	0.1	0.3	1.2
2013	7,961	4,593	1,158	1,492	526	6	28	158	100.0	57.7	14.5	18.7	6.6	0.1	0.3	2.0
2014	7,980	4,507	1,155	1,566	538	7	28	179	100.0	56.5	14.5	19.6	6.7	0.1	0.4	2.2
2015[3]	7,934	4,409	1,136	1,610	547	7	29	197	100.0	55.6	14.3	20.3	6.9	0.1	0.4	2.5
2016[4]	7,959	4,345	1,132	1,668	558	13	30	214	100.0	54.6	14.2	21.0	7.0	0.2	0.4	2.7
Midwest																
1995	10,512	8,335	1,450	438	197[1]	—	92	—	100.0	79.3	13.8	4.2	1.9[1]	—	0.9	—
2000	10,730	8,208	1,581	610	239[1]	—	92	—	100.0	76.5	14.7	5.7	2.2[1]	—	0.9	—
2005	10,819	7,950	1,654	836	283[1]	—	96	—	100.0	73.5	15.3	7.7	2.6[1]	—	0.9	—
2010	10,610	7,327	1,505	1,077	303	9	94	294	100.0	69.1	14.2	10.2	2.9	0.1	0.9	2.8
2013	10,573	7,111	1,464	1,212	330	11	87	358	100.0	67.3	13.8	11.5	3.1	0.1	0.8	3.4
2014	10,561	7,037	1,459	1,249	338	11	86	380	100.0	66.6	13.8	11.8	3.2	0.1	0.8	3.6
2015[3]	10,556	6,968	1,458	1,284	348	12	84	400	100.0	66.0	13.8	12.2	3.3	0.1	0.8	3.8
2016[4]	10,539	6,893	1,449	1,312	360	12	86	426	100.0	65.4	13.8	12.4	3.4	0.1	0.8	4.0
South																
1995	16,118	9,565	4,236	1,890	280[1]	—	148	—	100.0	59.3	26.3	11.7	1.7[1]	—	0.9	—
2000	17,007	9,501	4,516	2,468	352[1]	—	170	—	100.0	55.9	26.6	14.5	2.1[1]	—	1.0	—
2005	18,103	9,381	4,738	3,334	456[1]	—	194	—	100.0	51.8	26.2	18.4	2.5[1]	—	1.1	—
2010	18,805	8,869	4,545	4,206	533	22	207	424	100.0	47.2	24.2	22.4	2.8	0.1	1.1	2.3
2013	19,299	8,722	4,561	4,671	588	26	185	546	100.0	45.2	23.6	24.2	3.0	0.1	1.0	2.8
2014	19,506	8,681	4,577	4,846	613	28	184	579	100.0	44.5	23.5	24.8	3.1	0.1	0.9	3.0
2015[3]	19,641	8,601	4,583	4,994	637	29	181	615	100.0	43.8	23.3	25.4	3.2	0.1	0.9	3.1
2016[4]	19,750	8,513	4,571	5,142	665	30	177	652	100.0	43.1	23.1	26.0	3.4	0.2	0.9	3.3
West																
1995	10,316	5,648	662	2,866	896[1]	—	244	—	100.0	54.7	6.4	27.8	8.7[1]	—	2.4	—
2000	11,244	5,624	733	3,625	998[1]	—	264	—	100.0	50.0	6.5	32.2	8.9[1]	—	2.4	—
2005	11,951	5,356	771	4,428	1,115[1]	—	281	—	100.0	44.8	6.5	37.1	9.3[1]	—	2.4	—
2010	11,998	4,861	659	4,792	966	133	237	349	100.0	40.5	5.5	39.9	8.1	1.1	2.0	2.9
2013	12,212	4,733	623	5,077	973	133	224	449	100.0	38.8	5.1	41.6	8.0	1.1	1.8	3.7
2014	12,266	4,698	616	5,144	982	130	221	475	100.0	38.3	5.0	41.9	8.0	1.1	1.8	3.9
2015[3]	12,307	4,665	606	5,192	988	129	216	511	100.0	37.9	4.9	42.2	8.0	1.1	1.8	4.2
2016[4]	12,367	4,662	612	5,208	989	128	217	550	100.0	37.7	5.0	42.1	8.0	1.0	1.8	4.4

—Not available.
[1]Includes Pacific Islanders.
[2]For this year, data on Pacific Islanders and students of Two or more races were reported by only a small number of states. Therefore, the data are not comparable to figures for 2010 and later years.
[3]Includes imputations for prekindergarten enrollment in California and Oregon.
[4]Includes imputations for prekindergarten enrollment in California.
[5]Projected.

NOTE: Race categories exclude persons of Hispanic ethnicity. Enrollment data for students not reported by race/ethnicity were prorated by state and grade to match state totals. Prior to 2008, data on students of Two or more races were not collected. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary and Secondary Education," 1995–96 through 2016–17; and National Elementary and Secondary Enrollment by Race/Ethnicity Projection Model, 1972 through 2028. (This table was prepared March 2019.)

Table 7. Enrollment and percentage distribution of enrollment in public elementary and secondary schools, by race/ethnicity and level of education: Fall 1999 through fall 2028

Level of education and year	Enrollment (in thousands)									Percentage distribution								
					Asian/Pacific Islander			American Indian/ Alaska Native	Two or more races					Asian/Pacific Islander			American Indian/ Alaska Native	Two or more races
	Total	White	Black	His-panic	Total	Asian	Pacific Islander			Total	White	Black	His-panic	Total	Asian	Pacific Islander		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Total																		
1999	46,857	29,035	8,066	7,327	1,887	—	—	542	—	100.0	62.0	17.2	15.6	4.0	†	†	1.2	†
2000	47,204	28,878	8,100	7,726	1,950	—	—	550	—	100.0	61.2	17.2	16.4	4.1	†	†	1.2	†
2001	47,672	28,735	8,177	8,169	2,028	—	—	564	—	100.0	60.3	17.2	17.1	4.3	†	†	1.2	†
2002	48,183	28,618	8,299	8,594	2,088	—	—	583	—	100.0	59.4	17.2	17.8	4.3	†	†	1.2	†
2003	48,540	28,442	8,349	9,011	2,145	—	—	593	—	100.0	58.6	17.2	18.6	4.4	†	†	1.2	†
2004	48,795	28,318	8,386	9,317	2,183	—	—	591	—	100.0	58.0	17.2	19.1	4.5	†	†	1.2	†
2005	49,113	28,005	8,445	9,787	2,279	—	—	598	—	100.0	57.0	17.2	19.9	4.6	†	†	1.2	†
2006	49,316	27,801	8,422	10,166	2,332	—	—	595	—	100.0	56.4	17.1	20.6	4.7	†	†	1.2	†
2007	49,291	27,454	8,392	10,454	2,396	—	—	594	—	100.0	55.7	17.0	21.2	4.9	†	†	1.2	†
2008	49,266	27,057	8,358	10,563	2,451	2,405	46	589	247[1]	100.0	54.9	17.0	21.4	5.0	4.9	0.1	1.2	0.5[1]
2009	49,361	26,702	8,245	10,991	2,484	2,435	49	601	338[1]	100.0	54.1	16.7	22.3	5.0	4.9	0.1	1.2	0.7[1]
2010	49,484	25,933	7,917	11,439	2,466	2,296	171	566	1,164	100.0	52.4	16.0	23.1	5.0	4.6	0.3	1.1	2.4
2011	49,522	25,602	7,827	11,759	2,513	2,334	179	547	1,272	100.0	51.7	15.8	23.7	5.1	4.7	0.4	1.1	2.6
2012	49,771	25,386	7,803	12,104	2,552	2,372	180	534	1,393	100.0	51.0	15.7	24.3	5.1	4.8	0.4	1.1	2.8
2013	50,045	25,160	7,805	12,452	2,593	2,417	176	523	1,511	100.0	50.3	15.6	24.9	5.2	4.8	0.4	1.0	3.0
2014	50,313	24,923	7,807	12,805	2,646	2,470	176	519	1,612	100.0	49.5	15.5	25.4	5.3	4.9	0.3	1.0	3.2
2015[2]	50,438	24,644	7,784	13,080	2,697	2,521	177	510	1,723	100.0	48.9	15.4	25.9	5.3	5.0	0.4	1.0	3.4
2016[3]	50,615	24,413	7,765	13,329	2,756	2,571	184	511	1,842	100.0	48.2	15.3	26.3	5.4	5.1	0.4	1.0	3.6
2017[4]	50,695	24,149	7,734	13,561	2,799	2,616	183	507	1,946	100.0	47.6	15.3	26.7	5.5	5.2	0.4	1.0	3.8
2018[4]	50,728	23,888	7,698	13,752	2,844	2,660	184	504	2,043	100.0	47.1	15.2	27.1	5.6	5.2	0.4	1.0	4.0
2019[4]	50,770	23,659	7,672	13,921	2,881	2,696	184	501	2,136	100.0	46.6	15.1	27.4	5.7	5.3	0.4	1.0	4.2
2020[4]	50,857	23,462	7,663	14,084	2,923	2,738	185	498	2,227	100.0	46.1	15.1	27.7	5.7	5.4	0.4	1.0	4.4
2021[4]	50,892	23,277	7,654	14,207	2,949	2,764	185	494	2,311	100.0	45.7	15.0	27.9	5.8	5.4	0.4	1.0	4.5
2022[4]	51,012	23,163	7,707	14,263	2,994	2,812	182	490	2,394	100.0	45.4	15.1	28.0	5.9	5.5	0.4	1.0	4.7
2023[4]	51,098	23,051	7,741	14,298	3,039	2,858	180	487	2,483	100.0	45.1	15.1	28.0	5.9	5.6	0.4	1.0	4.9
2024[4]	51,124	22,940	7,760	14,296	3,087	2,908	179	483	2,557	100.0	44.9	15.2	28.0	6.0	5.7	0.3	0.9	5.0
2025[4]	51,119	22,828	7,775	14,279	3,137	2,959	178	480	2,621	100.0	44.7	15.2	27.9	6.1	5.8	0.3	0.9	5.1
2026[4]	51,123	22,734	7,787	14,261	3,187	3,010	177	477	2,677	100.0	44.5	15.2	27.9	6.2	5.9	0.3	0.9	5.2
2027[4]	51,228	22,684	7,811	14,277	3,246	3,069	177	475	2,734	100.0	44.3	15.2	27.9	6.3	6.0	0.3	0.9	5.3
2028[4]	51,419	22,662	7,857	14,334	3,303	3,126	177	474	2,788	100.0	44.1	15.3	27.9	6.4	6.1	0.3	0.9	5.4
Prekindergarten through grade 8																		
1999	33,486	20,327	5,952	5,512	1,303	—	—	391	—	100.0	60.7	17.8	16.5	3.9	†	†	1.2	†
2000	33,686	20,130	5,981	5,830	1,349	—	—	397	—	100.0	59.8	17.8	17.3	4.0	†	†	1.2	†
2001	33,936	19,960	6,004	6,159	1,409	—	—	405	—	100.0	58.8	17.7	18.1	4.2	†	†	1.2	†
2002	34,114	19,764	6,042	6,446	1,447	—	—	415	—	100.0	57.9	17.7	18.9	4.2	†	†	1.2	†
2003	34,201	19,558	6,015	6,729	1,483	—	—	415	—	100.0	57.2	17.6	19.7	4.3	†	†	1.2	†
2004	34,178	19,368	5,983	6,909	1,504	—	—	413	—	100.0	56.7	17.5	20.2	4.4	†	†	1.2	†
2005	34,204	19,051	5,954	7,216	1,569	—	—	412	—	100.0	55.7	17.4	21.1	4.6	†	†	1.2	†
2006	34,235	18,863	5,882	7,465	1,611	—	—	414	—	100.0	55.1	17.2	21.8	4.7	†	†	1.2	†
2007	34,204	18,679	5,821	7,632	1,660	—	—	412	—	100.0	54.6	17.0	22.3	4.9	†	†	1.2	†
2008	34,286	18,501	5,793	7,689	1,705	1,674	31	410	187[1]	100.0	54.0	16.9	22.4	5.0	4.9	0.1	1.2	0.5[1]
2009	34,409	18,316	5,713	7,977	1,730	1,697	33	419	254[1]	100.0	53.2	16.6	23.2	5.0	4.9	0.1	1.2	0.7[1]
2010	34,625	17,823	5,495	8,314	1,711	1,589	122	394	887	100.0	51.5	15.9	24.0	4.9	4.6	0.4	1.1	2.6
2011	34,773	17,654	5,470	8,558	1,744	1,616	128	384	963	100.0	50.8	15.7	24.6	5.0	4.6	0.4	1.1	2.8
2012	35,018	17,535	5,473	8,804	1,773	1,644	129	375	1,057	100.0	50.1	15.6	25.1	5.1	4.7	0.4	1.1	3.0
2013	35,251	17,390	5,483	9,054	1,809	1,683	126	367	1,148	100.0	49.3	15.6	25.7	5.1	4.8	0.4	1.0	3.3
2014	35,370	17,193	5,471	9,273	1,842	1,718	124	363	1,227	100.0	48.6	15.5	26.2	5.2	4.9	0.4	1.0	3.5
2015[2]	35,388	16,972	5,448	9,424	1,878	1,754	124	356	1,311	100.0	48.0	15.4	26.6	5.3	5.0	0.4	1.0	3.7
2016[3]	35,477	16,823	5,440	9,544	1,914	1,784	129	358	1,399	100.0	47.4	15.3	26.9	5.4	5.0	0.4	1.0	3.9
2017[4]	35,473	16,641	5,434	9,643	1,930	1,802	128	355	1,470	100.0	46.9	15.3	27.2	5.4	5.1	0.4	1.0	4.1
2018[4]	35,465	16,468	5,437	9,721	1,957	1,829	128	352	1,530	100.0	46.4	15.3	27.4	5.5	5.2	0.4	1.0	4.3
2019[4]	35,457	16,335	5,441	9,771	1,976	1,850	126	350	1,584	100.0	46.1	15.3	27.6	5.6	5.2	0.4	1.0	4.5
2020[4]	35,384	16,193	5,428	9,789	2,004	1,878	126	346	1,624	100.0	45.8	15.3	27.7	5.7	5.3	0.4	1.0	4.6
2021[4]	35,231	16,056	5,394	9,766	2,021	1,896	126	342	1,651	100.0	45.6	15.3	27.7	5.7	5.4	0.4	1.0	4.7
2022[4]	35,189	16,008	5,413	9,692	2,059	1,935	124	339	1,678	100.0	45.5	15.4	27.5	5.9	5.5	0.4	1.0	4.8
2023[4]	35,235	15,989	5,431	9,661	2,101	1,978	124	336	1,717	100.0	45.4	15.4	27.4	6.0	5.6	0.4	1.0	4.9
2024[4]	35,376	16,007	5,474	9,667	2,141	2,018	123	335	1,751	100.0	45.2	15.5	27.3	6.1	5.7	0.3	0.9	5.0
2025[4]	35,519	16,019	5,516	9,669	2,191	2,068	123	334	1,790	100.0	45.1	15.5	27.2	6.2	5.8	0.3	0.9	5.0
2026[4]	35,703	16,031	5,561	9,705	2,236	2,113	123	333	1,837	100.0	44.9	15.6	27.2	6.3	5.9	0.3	0.9	5.1
2027[4]	35,894	16,037	5,606	9,757	2,273	2,151	122	333	1,888	100.0	44.7	15.6	27.2	6.3	6.0	0.3	0.9	5.3
2028[4]	36,073	16,022	5,648	9,813	2,316	2,194	122	333	1,941	100.0	44.4	15.7	27.2	6.4	6.1	0.3	0.9	5.4

See notes at end of table.

Table 7. Enrollment and percentage distribution of enrollment in public elementary and secondary schools, by race/ethnicity and level of education: Fall 1999 through fall 2028—Continued

Level of education and year	Enrollment (in thousands)									Percentage distribution								
					Asian/Pacific Islander			American Indian/ Alaska Native	Two or more races					Asian/Pacific Islander			American Indian/ Alaska Native	Two or more races
	Total	White	Black	His-panic	Total	Asian	Pacific Islander			Total	White	Black	His-panic	Total	Asian	Pacific Islander		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Grades 9 through 12																		
1999	13,371	8,708	2,114	1,815	584	—	—	151	—	100.0	65.1	15.8	13.6	4.4	†	†	1.1	†
2000	13,517	8,747	2,119	1,896	601	—	—	153	—	100.0	64.7	15.7	14.0	4.4	†	†	1.1	†
2001	13,736	8,774	2,173	2,011	619	—	—	159	—	100.0	63.9	15.8	14.6	4.5	†	†	1.2	†
2002	14,069	8,854	2,257	2,148	642	—	—	168	—	100.0	62.9	16.0	15.3	4.6	†	†	1.2	†
2003	14,339	8,884	2,334	2,282	663	—	—	177	—	100.0	62.0	16.3	15.9	4.6	†	†	1.2	†
2004	14,618	8,950	2,403	2,408	679	—	—	178	—	100.0	61.2	16.4	16.5	4.6	†	†	1.2	†
2005	14,909	8,954	2,490	2,570	709	—	—	186	—	100.0	60.1	16.7	17.2	4.8	†	†	1.2	†
2006	15,081	8,938	2,540	2,701	720	—	—	181	—	100.0	59.3	16.8	17.9	4.8	†	†	1.2	†
2007	15,086	8,775	2,571	2,821	736	—	—	183	—	100.0	58.2	17.0	18.7	4.9	†	†	1.2	†
2008	14,980	8,556	2,565	2,874	746	731	15	179	59[1]	100.0	57.1	17.1	19.2	5.0	4.9	0.1	1.2	0.4[1]
2009	14,952	8,385	2,532	3,014	754	738	16	182	84[1]	100.0	56.1	16.9	20.2	5.0	4.9	0.1	1.2	0.6[1]
2010	14,860	8,109	2,422	3,125	755	707	49	171	277	100.0	54.6	16.3	21.0	5.1	4.8	0.3	1.2	1.9
2011	14,749	7,948	2,357	3,202	769	719	50	163	309	100.0	53.9	16.0	21.7	5.2	4.9	0.3	1.1	2.1
2012	14,753	7,851	2,330	3,300	779	727	51	158	335	100.0	53.2	15.8	22.4	5.3	4.9	0.3	1.1	2.3
2013	14,794	7,770	2,322	3,398	784	733	51	156	363	100.0	52.5	15.7	23.0	5.3	5.0	0.3	1.1	2.5
2014	14,943	7,730	2,336	3,532	804	753	52	156	385	100.0	51.7	15.6	23.6	5.4	5.0	0.3	1.0	2.6
2015	15,050	7,672	2,336	3,656	819	767	52	154	412	100.0	51.0	15.5	24.3	5.4	5.1	0.3	1.0	2.7
2016	15,138	7,590	2,324	3,786	842	787	55	153	443	100.0	50.1	15.4	25.0	5.6	5.2	0.4	1.0	2.9
2017[4]	15,222	7,508	2,300	3,917	869	813	56	152	476	100.0	49.3	15.1	25.7	5.7	5.3	0.4	1.0	3.1
2018[4]	15,264	7,420	2,261	4,031	887	830	57	151	513	100.0	48.6	14.8	26.4	5.8	5.4	0.4	1.0	3.4
2019[4]	15,313	7,324	2,231	4,149	904	846	58	151	552	100.0	47.8	14.6	27.1	5.9	5.5	0.4	1.0	3.6
2020[4]	15,473	7,269	2,235	4,294	919	861	59	152	603	100.0	47.0	14.4	27.8	5.9	5.6	0.4	1.0	3.9
2021[4]	15,661	7,221	2,259	4,441	928	869	59	152	660	100.0	46.1	14.4	28.4	5.9	5.5	0.4	1.0	4.2
2022[4]	15,823	7,156	2,294	4,571	935	876	59	151	716	100.0	45.2	14.5	28.9	5.9	5.5	0.4	1.0	4.5
2023[4]	15,863	7,062	2,310	4,637	937	881	57	151	766	100.0	44.5	14.6	29.2	5.9	5.6	0.4	1.0	4.8
2024[4]	15,748	6,933	2,286	4,630	946	890	56	148	806	100.0	44.0	14.5	29.4	6.0	5.6	0.4	0.9	5.1
2025[4]	15,601	6,809	2,259	4,610	946	891	55	146	830	100.0	43.6	14.5	29.6	6.1	5.7	0.4	0.9	5.3
2026[4]	15,420	6,704	2,226	4,556	951	897	54	144	840	100.0	43.5	14.4	29.5	6.2	5.8	0.3	0.9	5.4
2027[4]	15,334	6,647	2,206	4,520	973	918	55	142	846	100.0	43.3	14.4	29.5	6.3	6.0	0.4	0.9	5.5
2028[4]	15,346	6,640	2,210	4,521	987	932	55	142	847	100.0	43.3	14.4	29.5	6.4	6.1	0.4	0.9	5.5

—Not available.
†Not applicable.
[1]For this year, data on students of Two or more races were reported by only a small number of states. Therefore, the data are not comparable to figures for 2010 and later years.
[2]Includes imputations for prekindergarten enrollment in California and Oregon.
[3]Includes imputations for prekindergarten enrollment in California.
[4]Projected.
NOTE: Race categories exclude persons of Hispanic ethnicity. Enrollment data for students not reported by race/ethnicity were prorated by state and grade to match state totals. Prior to 2008, data on students of Two or more races were not collected. Total counts of ungraded students were prorated to prekindergarten through grade 8 and grades 9 through 12 based on prior reports. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary and Secondary Education," 1998–99 through 2016–17; and National Elementary and Secondary Enrollment by Race/Ethnicity Projection Model, 1972 through 2028. (This table was prepared March 2019.)

Table 8. Public and private elementary and secondary teachers, enrollment, pupil/teacher ratios, and new teacher hires: Selected years, fall 1955 through fall 2028

Year	Teachers (in thousands)			Enrollment (in thousands)			Pupil/teacher ratio			Number of new teacher hires (in thousands)[1]		
	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private
1	2	3	4	5	6	7	8	9	10	11	12	13
1955	1,286	1,141	145[2]	35,280	30,680	4,600[2]	27.4	26.9	31.7[2]	—	—	—
1960	1,600	1,408	192[2]	42,181	36,281	5,900[2]	26.4	25.8	30.7[2]	—	—	—
1965	1,933	1,710	223	48,473	42,173	6,300	25.1	24.7	28.3	—	—	—
1970	2,292	2,059	233	51,257	45,894	5,363	22.4	22.3	23.0	—	—	—
1975	2,453	2,198	255[2]	49,819	44,819	5,000[2]	20.3	20.4	19.6[2]	—	—	—
1976	2,457	2,189	268	49,478	44,311	5,167	20.1	20.2	19.3	—	—	—
1977	2,488	2,209	279	48,717	43,577	5,140	19.6	19.7	18.4	—	—	—
1978	2,479	2,207	272	47,637	42,551	5,086	19.2	19.3	18.7	—	—	—
1979	2,461	2,185	276[2]	46,651	41,651	5,000[2]	19.0	19.1	18.1[2]	—	—	—
1980	2,485	2,184	301	46,208	40,877	5,331	18.6	18.7	17.7	—	—	—
1981	2,440	2,127	313[2]	45,544	40,044	5,500[2]	18.7	18.8	17.6[2]	—	—	—
1982	2,458	2,133	325[2]	45,166	39,566	5,600[2]	18.4	18.6	17.2[2]	—	—	—
1983	2,476	2,139	337	44,967	39,252	5,715	18.2	18.4	17.0	—	—	—
1984	2,508	2,168	340[2]	44,908	39,208	5,700[2]	17.9	18.1	16.8[2]	—	—	—
1985	2,549	2,206	343	44,979	39,422	5,557	17.6	17.9	16.2	—	—	—
1986	2,592	2,244	348[2]	45,205	39,753	5,452[2]	17.4	17.7	15.7[2]	—	—	—
1987	2,631	2,279	352	45,488	40,008	5,479	17.3	17.6	15.6	—	—	—
1988	2,668	2,323	345[2]	45,430	40,189	5,242[2]	17.0	17.3	15.2[2]	—	—	—
1989	2,713	2,357	356	46,141	40,543	5,599	17.0	17.2	15.7	—	—	—
1990	2,759	2,398	361[2]	46,864	41,217	5,648[2]	17.0	17.2	15.6[2]	—	—	—
1991	2,797	2,432	365	47,728	42,047	5,681	17.1	17.3	15.6	—	—	—
1992	2,823	2,459	364[2]	48,694	42,823	5,870[2]	17.2	17.4	16.1[2]	—	—	—
1993	2,868	2,504	364	49,532	43,465	6,067	17.3	17.4	16.7	—	—	—
1994	2,922	2,552	370[2]	50,106	44,111	5,994[2]	17.1	17.3	16.2[2]	—	—	—
1995	2,974	2,598	376	50,759	44,840	5,918	17.1	17.3	15.7	—	—	—
1996	3,051	2,667	384[2]	51,544	45,611	5,933[2]	16.9	17.1	15.5[2]	—	—	—
1997	3,138	2,746	391	52,071	46,127	5,944	16.6	16.8	15.2	—	—	—
1998	3,230	2,830	400[2]	52,526	46,539	5,988[2]	16.3	16.4	15.0[2]	—	—	—
1999	3,319	2,911	408	52,875	46,857	6,018	15.9	16.1	14.7	305	222	83
2000	3,366	2,941	424[2]	53,373	47,204	6,169[2]	15.9	16.0	14.5[2]	—	—	—
2001	3,440	3,000	441	53,992	47,672	6,320	15.7	15.9	14.3	—	—	—
2002	3,476	3,034	442[2]	54,403	48,183	6,220[2]	15.7	15.9	14.1[2]	—	—	—
2003	3,490	3,049	441	54,639	48,540	6,099	15.7	15.9	13.8	311	236	74
2004	3,536	3,091	445[2]	54,882	48,795	6,087[2]	15.5	15.8	13.7[2]	—	—	—
2005	3,593	3,143	450	55,187	49,113	6,073	15.4	15.6	13.5	—	—	—
2006	3,622	3,166	456[2]	55,307	49,316	5,991[2]	15.3	15.6	13.2[2]	—	—	—
2007	3,656	3,200	456	55,201	49,291	5,910	15.1	15.4	13.0	327	246	80
2008	3,670	3,222	448[2]	54,973	49,266	5,707[2]	15.0	15.3	12.8[2]	—	—	—
2009	3,647	3,210	437	54,849	49,361	5,488	15.0	15.4	12.5	—	—	—
2010	3,512	3,099	413[2]	54,867	49,484	5,382[2]	15.6	16.0	13.0[2]	—	—	—
2011	3,508	3,103	405	54,790	49,522	5,268	15.6	16.0	13.0	241	173	68
2012	3,517	3,109	408[2]	55,104	49,771	5,333[2]	15.7	16.0	13.1[2]	—	—	—
2013	3,555	3,114	441	55,440	50,045	5,396	15.6	16.1	12.2	—	—	—
2014	3,594	3,132	461[2]	55,888	50,313	5,575[2]	15.6	16.1	12.1[2]	—	—	—
2015	3,633	3,151	482	56,189	50,438	5,751	15.5	16.0	11.9	325	218	107
2016	3,655	3,169	485	56,391	50,615	5,776	15.4	16.0	11.9	351	257	94
2017[3]	3,641	3,156	485	56,477	50,695	5,781	15.5	16.1	11.9	318	227	92
2018[3]	3,667	3,179	488	56,518	50,728	5,789	15.4	16.0	11.9	356	262	95
2019[3]	3,691	3,200	491	56,572	50,770	5,802	15.3	15.9	11.8	355	260	95
2020[3]	3,708	3,214	493	56,678	50,857	5,821	15.3	15.8	11.8	351	257	94
2021[3]	3,724	3,229	495	56,719	50,892	5,827	15.2	15.8	11.8	353	258	94
2022[3]	3,750	3,251	499	56,865	51,012	5,853	15.2	15.7	11.7	363	266	96
2023[3]	3,771	3,269	502	56,973	51,098	5,875	15.1	15.6	11.7	360	263	97
2024[3]	3,795	3,290	505	57,019	51,124	5,894	15.0	15.5	11.7	363	266	97
2025[3]	3,820	3,311	509	57,029	51,119	5,910	14.9	15.4	11.6	367	269	98
2026[3]	3,846	3,333	513	57,050	51,123	5,927	14.8	15.3	11.6	370	271	99
2027[3]	3,875	3,357	517	57,176	51,228	5,948	14.8	15.3	11.5	376	276	100
2028[3]	3,906	3,385	522	57,387	51,419	5,969	14.7	15.2	11.4	381	280	101

—Not available.

[1]A teacher is considered to be a new hire for a public or private school if the teacher had not taught in that control of school in the previous year. A teacher who moves from a public to private or a private to public school is considered a new teacher hire, but a teacher who moves from one public school to another public school or one private school to another private school is not considered a new teacher hire.

[2]Estimated.

[3]Projected.

NOTE: Data for teachers are expressed in full-time equivalents (FTE). Counts of private school teachers and enrollment include prekindergarten through grade 12 in schools offering kindergarten or higher grades. Counts of public school teachers and enrollment include prekindergarten through grade 12. The pupil/teacher ratio includes teachers for students with disabilities and other special teachers, while these teachers are generally excluded from class size calculations. Ratios for public schools reflect totals reported by states and differ from totals reported for schools or school districts. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of Public Elementary and Secondary Day Schools*, 1955–56 through 1980–81; *Statistics of Nonpublic Elementary and Secondary Schools*, 1955 through 1980; 1983–84, 1985–86, and 1987–88 Private School Survey; Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1981–82 2016–17; Private School Universe Survey (PSS), 1989–90 through 2015–16; Schools and Staffing Survey (SASS), "Public School Teacher Data File" and "Private School Teacher Data File," 1999–2000 through 2011–12; National Teacher and Principal Survey (NTPS), 2015–16; Elementary and Secondary Teacher Projection Model, 1973 through 2028; and New Teacher Hires Projection Model, 1988 through 2028. (This table was prepared April 2019.)

Table 9. High school graduates, by sex and control of school; public high school averaged freshman graduation rate (AFGR); and total graduates as a ratio of 17-year-old population: Selected years, 1869–70 through 2028–29

School year	High school graduates							Public school AFGR[3]	Population 17 years old[4]	Graduates as a ratio of 17-year-old population[5]
		Sex		Control						
				Public[2]						
	Total[1]	Males	Females	Total	Males	Females	Private, total			
1	2	3	4	5	6	7	8	9	10	11
1869–70	16,000	7,064	8,936	—	—	—	—	—	815,000	2.0
1879–80	23,634	10,605	13,029	—	—	—	—	—	946,026	2.5
1889–90	43,731	18,549	25,182	21,882	—	—	21,849[6]	—	1,259,177	3.5
1899–1900	94,883	38,075	56,808	61,737	—	—	33,146[6]	—	1,489,146	6.4
1909–10	156,429	63,676	92,753	111,363	—	—	45,066[6]	—	1,786,240	8.8
1919–20	311,266	123,684	187,582	230,902	—	—	80,364[6]	—	1,855,173	16.8
1929–30	666,904	300,376	366,528	591,719	—	—	75,185[6]	—	2,295,822	29.0
1939–40	1,221,475	578,718	642,757	1,143,246	538,273	604,973	78,229[6]	—	2,403,074	50.8
1949–50	1,199,700	570,700	629,000	1,063,444	505,394	558,050	136,256[6]	—	2,034,450	59.0
1959–60	1,858,023	895,000	963,000	1,627,050	791,426	835,624	230,973	—	2,672,000	69.5
1969–70	2,888,639	1,430,000	1,459,000	2,588,639	1,285,895	1,302,744	300,000[6]	78.7	3,757,000	76.9
1975–76	3,142,120	1,552,000	1,590,000	2,837,129	1,401,064	1,436,065	304,991	74.9	4,272,000	73.6
1979–80	3,042,214	1,503,000	1,539,000	2,747,678	—	—	294,536	71.5	4,262,000	71.4
1980–81	3,020,285	1,492,000	1,528,000	2,725,285	—	—	295,000[6]	72.2	4,212,000	71.7
1981–82	2,994,758	1,479,000	1,515,000	2,704,758	—	—	290,000[6]	72.9	4,134,000	72.4
1982–83	2,887,604	1,426,000	1,461,000	2,597,604	—	—	290,000[6]	73.8	3,962,000	72.9
1983–84	2,766,797	—	—	2,494,797	—	—	272,000[6]	74.5	3,784,000	73.1
1984–85	2,676,917	—	—	2,413,917	—	—	263,000[6]	74.2	3,699,000	72.4
1985–86	2,642,616	—	—	2,382,616	—	—	260,000[6]	74.3	3,670,000	72.0
1986–87	2,693,803	—	—	2,428,803	—	—	265,000[6]	74.3	3,754,000	71.8
1987–88	2,773,020	—	—	2,500,020	—	—	273,000[6]	74.2	3,849,000	72.0
1988–89	2,743,743	—	—	2,458,800	—	—	284,943	73.4	3,842,000	71.4
1989–90[7]	2,574,162	—	—	2,320,337	—	—	253,825[8]	73.6	3,505,000	73.4
1990–91	2,492,988	—	—	2,234,893	—	—	258,095	73.7	3,417,913	72.9
1991–92	2,480,399	—	—	2,226,016	—	—	254,383[8]	74.2	3,398,884	73.0
1992–93	2,480,519	—	—	2,233,241	—	—	247,278	73.8	3,449,143	71.9
1993–94	2,463,849	—	—	2,220,849	—	—	243,000[6]	73.1	3,442,521	71.6
1994–95	2,519,084	—	—	2,273,541	—	—	245,543	71.8	3,635,803	69.3
1995–96	2,518,109	—	—	2,273,109	—	—	245,000[6]	71.0	3,640,132	69.2
1996–97	2,611,988	—	—	2,358,403	—	—	253,585	71.3	3,792,207	68.9
1997–98	2,704,050	—	—	2,439,050	1,187,647	1,251,403	265,000[6]	71.3	4,008,416	67.5
1998–99	2,758,655	—	—	2,485,630	1,212,924	1,272,706	273,025	71.1	3,917,885	70.4
1999–2000	2,832,844	—	—	2,553,844	1,241,631	1,312,213	279,000[6]	71.7	4,056,639	69.8
2000–01	2,847,973	—	—	2,569,200	1,251,931	1,317,269	278,773	71.7	4,023,686	70.8
2001–02	2,906,534	—	—	2,621,534	1,275,813	1,345,721	285,000[6]	72.6	4,023,968	72.2
2002–03	3,015,735	—	—	2,719,947	1,330,973	1,388,974	295,788	73.9	4,125,087	73.1
2003–04[7,9]	3,054,438	—	—	2,753,438	1,347,800	1,405,638	301,000[6]	74.3	4,113,074	74.3
2004–05	3,106,499	—	—	2,799,250	1,369,749	1,429,501	307,249	74.7	4,120,073	75.4
2005–06[7]	3,122,544	—	—	2,815,544	1,376,458	1,439,086	307,000[6]	73.4	4,200,554	74.3
2006–07	3,199,650	—	—	2,893,045	1,414,069	1,478,976	306,605	73.9	4,297,239	74.5
2007–08	3,312,337	—	—	3,001,337	1,467,180	1,534,157	311,000[6]	74.7	4,436,955	74.7
2008–09[7]	3,347,828	—	—	3,039,015	1,490,317	1,548,698	308,813	75.5	4,336,950	77.2
2009–10	3,435,022	—	—	3,128,022	1,542,684[10]	1,585,338[10]	307,000[6]	78.2	4,311,831	79.8
2010–11	3,449,940	—	—	3,144,100	1,552,981	1,591,113	305,840	79.6	4,367,891	79.0
2011–12	3,455,405	—	—	3,149,185	1,558,489	1,590,694	306,220[6]	80.8	4,294,530	80.5
2012–13	3,478,027	—	—	3,169,257	1,569,675	1,599,579	308,770	81.9	4,256,553	81.7
2013–14[11]	3,479,930	—	—	3,168,450	—	—	311,480	83.1	4,185,547	83.1
2014–15[12]	3,530,250	—	—	3,187,000	—	—	343,250	—	4,171,850	84.6
2015–16[11]	3,563,750	—	—	3,224,140	—	—	339,620	—	4,206,222	84.7
2016–17[11]	3,599,700	—	—	3,255,320	—	—	344,380	—	4,221,958	85.3
2017–18[11]	3,672,200	—	—	3,319,760	—	—	352,440	—	4,297,191	85.5
2018–19[11]	3,683,540	—	—	3,331,520	—	—	352,020	—	4,230,390	87.1
2019–20[11]	3,650,460	—	—	3,303,890	—	—	346,580	—	—	—
2020–21[11]	3,682,230	—	—	3,330,840	—	—	351,390	—	—	—
2021–22[11]	3,717,110	—	—	3,354,240	—	—	362,870	—	—	—
2022–23[11]	3,726,140	—	—	3,372,640	—	—	353,500	—	—	—
2023–24[11]	3,799,480	—	—	3,441,920	—	—	357,560	—	—	—
2024–25[11]	3,855,370	—	—	3,492,860	—	—	362,520	—	—	—
2025–26[11]	3,859,130	—	—	3,497,750	—	—	361,380	—	—	—
2026–27[11]	3,774,260	—	—	3,416,680	—	—	357,580	—	—	—
2027–28[11]	3,707,210	—	—	3,348,520	—	—	358,690	—	—	—
2028–29[11]	3,722,010	—	—	3,361,890	—	—	360,120	—	—	—

—Not available.
[1]Includes graduates of public and private schools.
[2]Includes estimates for states not reporting counts of graduates by sex. Data for 1929–30 and preceding years are from *Statistics of Public High Schools* and exclude graduates from high schools that failed to report to the Office of Education.
[3]The averaged freshman graduation rate provides an estimate of the percentage of students who receive a regular diploma within 4 years of entering ninth grade. The rate uses aggregate student enrollment data to estimate the size of an incoming freshman class and aggregate counts of the number of diplomas awarded 4 years later. Averaged freshman graduation rates in this table are based on reported totals of enrollment by grade and high school graduates, rather than on details reported by race/ethnicity.
[4]Derived from Current Population Reports, Series P-25. For years 1869–70 through 1989–90, 17-year-old population is an estimate of the October 17-year-old population based on July data. Data for 1990–91 and later years are October resident population estimates prepared by the Census Bureau.
[5]Based on persons of all ages graduating from high school in a given year divided by the 17-year-old population in the same year. This ratio allows for comparisons over time but does not provide a measure of graduation rates for incoming freshmen who form a cohort (or class) that is scheduled to graduate 4 years later. The ratio of high school graduates to the 17-year-old population differs from measures such as the AFGR (shown in column 9), which are designed to estimate high school cohort graduation rates.
[6]Estimated.
[7]Includes imputations for nonreporting states.
[8]Projected by private schools responding to the Private School Universe Survey.
[9]Includes estimates for public schools in New York and Wisconsin. Without estimates for these two states, the averaged freshman graduation rate for the remaining 48 states and the District of Columbia is 75.0 percent.
[10]Includes estimate for Connecticut, which did not report graduates by sex.
[11]Projected by NCES.
[12]Public school data are projected by NCES; private school data are actual.
NOTE: Includes graduates of regular day school programs. Excludes graduates of other programs, when separately reported, and recipients of high school equivalency certificates. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding and adjustments to protect student privacy.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Annual Report of the Commissioner of Education*, 1870 through 1910; *Biennial Survey of Education in the United States*, 1919–20 through 1949–50; *Statistics of Public Elementary and Secondary School Systems*, 1958–59 through 1980–81; *Statistics of Nonpublic Elementary and Secondary Schools*, 1959 through 1980; Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1981–82 through 2009–10; "State Dropout and Completion Data File," 2005–06 through 2012–13; *Public School Graduates and Dropouts from the Common Core of Data*, 2007–08 and 2008–09; Private School Universe Survey (PSS), 1989 through 2015; and National High School Graduates Projection Model, 1972–73 through 2028–29. U.S. Department of Commerce, Census Bureau, Current Population Reports, Series P-25, Nos. 1000, 1022, 1045, 1057, 1059, 1092, and 1095; 2000 through 2009 Population Estimates, retrieved August 14, 2012, from https://www.census.gov/popest/data/national/asrh/2011/index.html; and 2010 through 2017 Population Estimates, retrieved November 8, 2018, from https://www.census.gov/data/tables/2017/demo/popest/nation-detail.html. (This table was prepared March 2019.)

Table 10. Public high school graduates, by region, state, and jurisdiction: Selected years, 1980–81 through 2028–29

Region, state, and jurisdiction	Actual data							Projected data				
	1980–81	1989–90	1999–2000	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18
1	2	3	4	5	6	7	8	9	10	11	12	13
United States	**2,725,285**	**2,320,337**[1]	**2,553,844**	**3,128,022**	**3,144,100**	**3,149,185**	**3,169,257**	**3,168,450**	**3,187,000**	**3,224,140**	**3,255,320**	**3,319,760**
Region												
Northeast	593,727	446,045	453,814	556,400	556,611	554,705	555,202	546,910	543,080	545,820	551,480	554,810
Midwest	784,071	616,700	648,020	726,844	718,779	716,072	713,662	705,550	708,240	714,040	719,240	723,280
South	868,068	796,385	861,498	1,104,770	1,119,414	1,121,400	1,138,965	1,145,570	1,162,950	1,189,220	1,211,650	1,252,210
West	479,419	461,207	590,512	740,008	749,296	757,008	761,428	770,420	772,720	775,060	772,950	789,460
State												
Alabama	44,894	40,485	37,819	43,166	46,035	45,394	44,233	44,540	45,420	46,070	47,560	48,260
Alaska	5,343	5,386	6,615	8,245	8,064	7,989	7,860	7,720	7,860	7,840	7,910	8,050
Arizona	28,416	32,103	38,304	61,145	64,472	63,208	62,208	66,700	67,200	67,120	68,770	69,560
Arkansas	29,577	26,475	27,335	28,276	28,205	28,419	28,928	29,610	30,350	30,290	30,750	31,020
California	242,172	236,291	309,866	404,987	410,467	418,664	422,125	424,080	422,830	419,190	411,710	420,500
Colorado	35,897	32,967	38,924	49,321	50,122	50,087	50,968	51,310	51,450	53,310	54,060	56,050
Connecticut	38,369	27,878	31,562	34,495	38,854	38,681	38,722	37,860	37,160	37,420	37,890	37,130
Delaware	7,349	5,550	6,108	8,133	8,043	8,247	8,070	8,240	8,390	8,480	8,690	8,930
District of Columbia[2]	4,848	3,626	2,695	3,602	3,477	3,860	3,961	3,880	3,990	4,510	4,430	4,200
Florida	88,755	88,934	106,708	156,130	155,493	151,964	158,029	158,440	163,740	166,540	170,820	176,160
Georgia	62,963	56,605	62,563	91,561	92,338	90,582	92,416	94,380	97,420	100,070	102,050	105,890
Hawaii	11,472	10,325	10,437	10,998	10,716	11,360	10,790	11,050	10,760	10,860	10,690	11,130
Idaho	12,679	11,971	16,170	17,793	17,525	17,568	17,198	19,120	18,050	18,230	19,130	19,280
Illinois	136,795	108,119	111,835	139,035	134,956	139,575	139,228	137,640	140,520	140,850	141,250	143,510
Indiana	73,381	60,012	57,012	64,551	66,133	65,667	66,595	67,560	66,750	66,720	68,970	69,640
Iowa	42,635	31,796	33,926	34,462	33,853	33,230	32,548	32,590	32,450	32,700	32,850	33,390
Kansas	29,397	25,367	29,102	31,642	31,370	31,898	31,922	32,150	31,900	32,790	32,900	33,470
Kentucky	41,714	38,005	36,830	42,664	43,031	42,642	42,888	42,400	42,530	43,280	43,280	44,330
Louisiana	46,199	36,053	38,430	36,573	35,844	36,675	37,508	38,180	37,720	38,790	39,380	41,970
Maine	15,554	13,839	12,211	14,069	13,653	13,473	13,170	12,730	12,560	12,790	12,640	12,470
Maryland	54,050	41,566	47,849	59,078	58,745	58,811	58,896	58,120	57,650	57,490	57,290	59,040
Massachusetts	74,831	55,941[3]	52,950	64,462	64,724	65,157	66,360	65,200	65,790	68,630	68,610	69,320
Michigan	124,372	93,807	97,679	110,682	106,017	105,446	104,210	102,520	102,020	100,800	101,570	102,440
Minnesota	64,166	49,087	57,372	59,667	59,357	57,501	58,255	56,370	56,800	56,640	57,250	58,370
Mississippi	28,083	25,182	24,232	25,478	27,321	26,158	26,502	26,650	26,260	26,770	26,900	28,050
Missouri	60,359	48,957	52,848	63,994	62,994	61,313	61,407	60,900	60,590	61,600	60,890	61,700
Montana	11,634	9,370	10,903	10,075	9,732	9,750	9,369	9,470	9,390	9,320	9,380	9,210
Nebraska	21,411	17,664	20,149	19,370	20,331	20,464	20,442	20,580	20,650	21,090	21,130	21,960
Nevada	9,069	9,477	14,551	20,956	21,182	21,891	23,038	22,720	23,040	23,190	23,780	24,170
New Hampshire	11,552	10,766	11,829	15,034	14,495	14,426	14,262	13,790	13,520	13,600	13,160	13,160
New Jersey	93,168	69,824	74,420	96,225	95,186	93,819	96,490	95,220	95,250	97,130	97,990	98,330
New Mexico	17,915	14,884	18,031	18,595	19,352	20,315	19,232	18,590	19,530	19,480	19,770	20,190
New York	198,465	143,318	141,731	183,826	182,759	180,806	180,351	178,810	179,110	178,260	181,790	185,630
North Carolina	69,395	64,782	62,140	88,704	89,892	93,977	94,339	96,210	97,020	98,970	101,710	105,280
North Dakota	9,924	7,690	8,606	7,155	7,156	6,942	6,900	6,960	7,040	7,020	6,940	6,570
Ohio	143,503	114,513	111,668	123,437	124,229	123,135	122,491	119,520	120,940	125,050	126,590	122,380
Oklahoma	38,875	35,606	37,646	38,503	37,744	37,305	37,033	37,260	38,420	39,690	40,230	41,170
Oregon	28,729	25,473	30,151	34,671	34,723	34,261	33,899	34,440	34,800	35,650	34,700	35,380
Pennsylvania	144,645	110,527	113,959	131,182	130,284	131,733	129,777	127,200	123,560	121,840	123,990	123,190
Rhode Island	10,719	7,825	8,477	9,908	9,724	9,751	9,579	9,730	9,900	10,050	9,390	9,660
South Carolina	38,347	32,483	31,617	40,438	40,708	41,442	42,246	41,720	42,650	43,840	45,090	46,640
South Dakota	10,385	7,650	9,278	8,162	8,248	8,196	8,239	7,960	8,140	8,080	8,160	8,280
Tennessee	50,648	46,094	41,568	62,408	61,862	62,454	61,323	60,970	62,010	63,480	63,710	66,310
Texas	171,665	172,480	212,925	280,894	290,470	292,531	301,390	304,360	309,280	318,660	327,690	339,950
Utah	19,886	21,196	32,501	31,481	30,888	31,157	33,186	33,400	34,070	35,400	36,560	37,690
Vermont	6,424	6,127	6,675	7,199	6,932	6,859	6,491	6,360	6,240	6,090	6,010	5,930
Virginia	67,126	60,605	65,596	81,511	82,895	83,336	83,279	83,100	82,680	84,640	84,720	87,490
Washington	50,046	45,941	57,597	66,046	66,453	65,205	66,066	66,240	68,200	69,770	70,840	72,500
West Virginia	23,580	21,854	19,437	17,651	17,311	17,603	17,924	17,510	17,460	17,640	17,370	17,540
Wisconsin	67,743	52,038	58,545	64,687	64,135	62,705	61,425	60,810	60,460	60,710	60,740	61,560
Wyoming	6,161	5,823	6,462	5,695	5,600	5,553	5,489	5,590	5,550	5,700	5,660	5,740
Jurisdiction												
Bureau of Indian Education	—	—	—	—	—	—	—	—	—	—	—	—
DoD, overseas	—	—	2,642	—	—	—	—	—	—	—	—	—
DoD, domestic	—	—	560	—	—	—	—	—	—	—	—	—
Other jurisdictions												
American Samoa	—	703	698	—	—	—	—	—	—	—	—	—
Guam	—	1,033	1,406	—	—	—	—	—	—	—	—	—
Northern Marianas	—	227	360	—	—	—	—	—	—	—	—	—
Puerto Rico	—	29,049	30,856	25,514	26,231	25,720	—	—	—	—	—	—
U.S. Virgin Islands	—	1,260	1,060	958	1,014	1,046	897	—	—	—	—	—

See notes at end of table.

Table 10. Public high school graduates, by region, state, and jurisdiction: Selected years, 1980–81 through 2028–29—Continued

Region, state, and jurisdiction	Projected data											
	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24	2024–25	2025–26	2026–27	2027–28	2028–29	Percent change, 2012–13 to 2028–29
1	14	15	16	17	18	19	20	21	22	23	24	25
United States	**3,331,520**	**3,303,890**	**3,330,840**	**3,354,240**	**3,372,640**	**3,441,920**	**3,492,860**	**3,497,750**	**3,416,680**	**3,348,520**	**3,361,890**	**6.1**
Region												
Northeast	548,330	540,460	545,870	546,630	543,610	549,770	558,550	554,750	544,040	534,770	535,430	-3.6
Midwest	724,260	712,420	719,140	726,350	719,070	732,220	742,610	740,420	722,430	703,170	704,090	-1.3
South	1,264,620	1,255,800	1,258,750	1,267,480	1,286,540	1,316,310	1,350,670	1,361,840	1,337,760	1,296,070	1,307,060	14.8
West	794,300	795,210	807,090	813,780	823,430	843,620	841,020	840,740	812,450	814,520	815,300	7.1
State												
Alabama	45,740	44,070	43,490	43,380	43,600	43,870	45,410	45,810	44,770	42,960	43,610	-1.4
Alaska	8,030	7,840	7,830	7,930	8,030	8,320	8,580	8,740	8,780	8,660	8,690	10.6
Arizona	70,710	69,610	71,070	70,940	72,200	74,230	76,480	77,540	75,780	72,450	72,560	16.6
Arkansas	31,060	31,320	30,800	30,960	30,940	30,780	32,990	33,030	32,140	31,350	31,460	8.7
California	420,780	421,890	427,540	430,350	434,120	444,030	429,550	425,400	408,150	418,160	416,950	-1.2
Colorado	57,030	57,760	59,150	59,290	59,790	61,090	61,990	62,170	60,930	59,170	59,040	15.8
Connecticut	37,040	35,980	36,640	35,810	35,670	35,220	35,550	34,450	33,720	32,860	32,610	-15.8
Delaware	9,010	9,080	9,260	9,280	9,500	9,880	9,920	10,240	10,060	9,740	9,800	21.4
District of Columbia[2]	4,290	4,270	4,320	4,310	4,630	4,970	5,520	5,550	5,550	5,640	6,020	51.9
Florida	179,520	175,370	176,380	179,930	182,780	192,590	190,040	197,900	192,690	187,880	190,410	20.5
Georgia	106,920	105,660	104,900	106,500	107,710	110,270	112,930	113,710	111,370	107,750	108,130	17.0
Hawaii	10,540	10,820	10,830	11,010	11,210	11,290	11,510	11,580	8,780	10,890	10,670	-1.1
Idaho	19,720	19,440	19,830	20,340	21,040	21,090	21,850	21,960	21,400	21,010	21,320	23.9
Illinois	142,800	139,490	144,730	146,850	144,610	147,870	152,340	149,530	146,040	138,960	138,790	-0.3
Indiana	71,980	69,520	68,320	69,820	68,920	70,120	70,340	71,660	69,740	68,530	68,580	3.0
Iowa	33,310	33,390	33,890	33,930	34,700	35,460	36,120	36,390	35,350	35,090	35,110	7.9
Kansas	33,410	33,330	33,490	33,680	33,660	34,200	34,870	34,670	33,910	33,560	33,500	5.0
Kentucky	44,420	43,760	43,830	43,840	43,930	44,930	45,890	45,440	44,540	42,610	42,660	-0.5
Louisiana	41,720	40,430	39,810	40,380	40,360	41,590	42,410	42,570	41,560	39,600	40,130	7.0
Maine	12,430	12,100	12,050	12,250	12,300	12,160	12,340	12,080	11,960	11,600	11,580	-12.1
Maryland	58,560	60,180	60,920	61,640	61,990	63,770	65,820	66,930	65,550	64,340	64,550	9.6
Massachusetts	69,810	69,790	70,020	70,360	69,700	70,020	71,160	71,310	69,390	67,880	68,390	3.1
Michigan	99,910	98,170	97,790	97,500	94,870	96,260	96,030	92,560	90,060	88,840	88,680	-14.9
Minnesota	59,350	58,510	60,360	61,810	61,920	63,460	65,100	65,520	64,560	63,320	63,910	9.7
Mississippi	27,390	26,680	25,990	26,300	26,180	25,950	28,040	27,280	26,330	24,560	24,850	-6.2
Missouri	61,770	60,750	60,800	61,170	61,590	62,280	63,600	63,560	61,920	60,470	60,440	-1.6
Montana	9,430	9,610	9,660	9,870	9,890	10,430	10,430	10,800	10,530	10,200	10,380	10.8
Nebraska	22,270	22,750	23,240	23,800	23,640	24,050	22,970	24,790	24,890	24,450	24,420	19.5
Nevada	24,880	25,150	25,190	25,410	26,270	27,270	28,460	28,610	27,590	27,520	27,770	20.5
New Hampshire	12,950	12,960	12,780	12,810	12,540	12,550	12,500	12,290	11,910	11,490	11,380	-20.2
New Jersey	97,120	96,210	97,920	98,540	97,370	98,540	100,920	99,270	97,620	96,130	96,020	-0.5
New Mexico	20,300	20,780	20,410	20,430	20,800	20,820	21,380	21,510	20,920	19,510	19,290	0.3
New York	182,480	179,160	180,970	180,070	180,320	183,830	186,510	185,690	183,510	180,560	181,140	0.4
North Carolina	107,590	104,770	104,820	97,640	104,440	107,090	110,400	110,430	108,930	105,400	106,280	12.7
North Dakota	6,800	6,850	7,050	7,330	7,450	7,910	8,140	8,240	8,270	8,000	8,190	18.7
Ohio	123,350	121,250	120,550	120,190	117,580	120,240	121,250	122,090	117,540	114,030	114,690	-6.4
Oklahoma	41,370	41,640	41,920	41,960	40,480	42,640	44,270	44,080	43,800	42,440	42,720	15.4
Oregon	35,610	35,190	35,790	36,200	36,320	37,570	38,690	38,920	37,850	37,360	37,620	11.0
Pennsylvania	120,390	118,130	119,550	120,570	119,610	121,370	123,220	123,420	120,520	118,990	119,130	-8.2
Rhode Island	10,240	10,390	10,250	10,510	10,300	10,420	10,540	10,390	9,990	9,780	9,740	1.7
South Carolina	46,890	46,620	46,480	47,070	48,120	49,580	52,080	52,000	51,900	49,310	50,000	18.4
South Dakota	8,190	8,380	8,500	8,820	9,200	9,350	9,610	9,660	9,470	9,380	9,470	14.9
Tennessee	65,660	64,430	64,190	64,540	65,250	67,010	68,260	67,850	65,050	64,230	64,670	5.5
Texas	349,360	352,500	357,190	363,530	370,780	374,490	387,420	390,110	387,360	374,920	377,680	25.3
Utah	38,350	39,140	40,300	41,230	41,670	42,770	44,030	44,070	43,120	42,500	42,650	28.5
Vermont	5,880	5,750	5,680	5,730	5,800	5,660	5,810	5,860	5,420	5,490	5,440	-16.2
Virginia	87,860	87,800	87,670	89,310	89,250	90,680	92,690	92,530	90,310	88,120	88,820	6.6
Washington	73,160	72,220	73,530	74,900	75,990	78,500	81,790	83,300	82,670	81,360	82,790	25.3
West Virginia	17,270	17,230	16,790	16,920	16,600	16,220	16,600	16,370	15,850	15,230	15,270	-14.8
Wisconsin	61,130	60,040	60,420	61,450	60,940	61,020	62,250	61,750	60,700	58,540	58,330	-5.0
Wyoming	5,770	5,770	5,950	5,880	6,130	6,200	6,290	6,170	5,960	5,720	5,590	1.8
Jurisdiction												
Bureau of Indian Education	—	—	—	—	—	—	—	—	—	—	—	—
DoDEA[4]	—	—	—	3,202	—	—	—	—	—	—	—	—
Other jurisdictions												
American Samoa	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	—	—	—	—	—	—	—	—	—	—	—
Northern Marianas	—	—	—	—	—	—	—	—	—	—	—	—
Puerto Rico	—	—	—	—	—	—	—	—	—	—	—	—
U.S. Virgin Islands	—	—	—	—	—	—	—	—	—	—	—	—

—Not available.
[1]U.S. total includes estimates for nonreporting states.
[2]Beginning in 1989–90, graduates from adult programs are excluded.
[3]Projected data from NCES 91-490, *Projections of Education Statistics to 2002*.
[4]DoDEA = Department of Defense Education Activity. Includes both domestic and overseas schools.
NOTE: Data include regular diploma recipients, but exclude students receiving a certificate of attendance and persons receiving high school equivalency certificates. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1981–82 through 2005–06; "State Dropout and Completion Data File," 2005–06 through 2012–13; and State High School Graduates Projection Model, 1980–81 through 2028–29. (This table was prepared March 2019.)

Table 11. Public high school graduates, by race/ethnicity: 1998–99 through 2028–29

Year	Number of high school graduates							Percentage distribution of graduates						
	Total	White	Black	Hispanic	Asian/ Pacific Islander	American Indian/ Alaska Native	Two or more races	Total	White	Black	Hispanic	Asian/ Pacific Islander	American Indian/ Alaska Native	Two or more races
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1998–99	2,485,630	1,749,561	325,708	270,836	115,216	24,309	—	100.0	70.4	13.1	10.9	4.6	1.0	†
1999–2000	2,553,844	1,778,370	338,116	289,139	122,344	25,875	—	100.0	69.6	13.2	11.3	4.8	1.0	†
2000–01	2,569,200	1,775,036	339,578	301,740	126,465	26,381	—	100.0	69.1	13.2	11.7	4.9	1.0	†
2001–02	2,621,534	1,796,110	348,969	317,197	132,182	27,076	—	100.0	68.5	13.3	12.1	5.0	1.0	†
2002–03	2,719,947	1,856,454	359,920	340,182	135,588	27,803	—	100.0	68.3	13.2	12.5	5.0	1.0	†
2003–04	2,753,438	1,829,177	383,443	374,492	137,496	28,830	—	100.0	66.4	13.9	13.6	5.0	1.0	†
2004–05	2,799,250	1,855,198	385,987	383,714	143,729	30,622	—	100.0	66.3	13.8	13.7	5.1	1.1	†
2005–06	2,815,544	1,838,765	399,406	396,820	150,925	29,628	—	100.0	65.3	14.2	14.1	5.4	1.1	†
2006–07	2,893,045	1,868,056	418,113	421,036	154,837	31,003	—	100.0	64.6	14.5	14.6	5.4	1.1	†
2007–08	3,001,337	1,898,367	429,840	448,887	159,410	32,036	32,797[1]	100.0	63.3	14.3	15.0	5.3	1.1	1.1[1]
2008–09	3,039,015	1,883,382	451,384	481,698	163,575	32,213	26,763[1]	100.0	62.0	14.9	15.9	5.4	1.1	0.9[1]
2009–10	3,128,022	1,871,980	472,261	545,518	167,840	34,131	36,292[1]	100.0	59.8	15.1	17.4	5.4	1.1	1.2[1]
2010–11	3,144,100	1,835,332	471,461	583,907	168,875	32,768	51,748	100.0	58.4	15.0	18.6	5.4	1.0	1.6
2011–12	3,149,185	1,807,528	467,932	608,726	173,835	32,450	58,703	100.0	57.4	14.9	19.3	5.5	1.0	1.9
2012–13	3,169,257	1,791,147	461,919	640,413	179,101	31,100	65,569	100.0	56.5	14.6	20.2	5.7	1.0	2.1
2013–14[2]	3,168,450	1,769,050	454,270	661,020	181,900	30,180	72,030	100.0	55.8	14.3	20.9	5.7	1.0	2.3
2014–15[2]	3,187,000	1,750,350	459,300	685,900	185,170	30,060	76,220	100.0	54.9	14.4	21.5	5.8	0.9	2.4
2015–16[2]	3,224,140	1,746,430	465,320	713,740	185,070	30,230	83,350	100.0	54.2	14.4	22.1	5.7	0.9	2.6
2016–17[2]	3,255,320	1,742,040	468,970	736,760	186,830	30,190	90,520	100.0	53.5	14.4	22.6	5.7	0.9	2.8
2017–18[2]	3,319,760	1,738,760	477,200	774,750	200,730	30,060	98,270	100.0	52.4	14.4	23.3	6.0	0.9	3.0
2018–19[2]	3,331,520	1,717,950	472,450	805,450	200,850	29,220	105,600	100.0	51.6	14.2	24.2	6.0	0.9	3.2
2019–20[2]	3,303,890	1,676,320	459,460	824,330	203,680	28,620	111,480	100.0	50.7	13.9	25.0	6.2	0.9	3.4
2020–21[2]	3,330,840	1,669,020	451,510	847,770	212,240	29,190	121,110	100.0	50.1	13.6	25.5	6.4	0.9	3.6
2021–22[2]	3,354,240	1,659,320	445,420	869,910	217,940	29,560	132,100	100.0	49.5	13.3	25.9	6.5	0.9	3.9
2022–23[2]	3,372,640	1,632,870	447,270	904,420	217,310	29,040	141,730	100.0	48.4	13.3	26.8	6.4	0.9	4.2
2023–24[2]	3,441,920	1,629,570	460,740	945,420	218,260	29,310	158,630	100.0	47.3	13.4	27.5	6.3	0.9	4.6
2024–25[2]	3,492,860	1,627,540	469,950	971,900	220,650	29,430	173,390	100.0	46.6	13.5	27.8	6.3	0.8	5.0
2025–26[2]	3,497,750	1,603,120	474,420	981,800	225,280	29,100	184,030	100.0	45.8	13.6	28.1	6.4	0.8	5.3
2026–27[2]	3,416,680	1,552,660	463,790	963,620	220,040	28,710	187,860	100.0	45.4	13.6	28.2	6.4	0.8	5.5
2027–28[2]	3,348,520	1,513,160	444,520	941,360	226,210	27,540	195,730	100.0	45.2	13.3	28.1	6.8	0.8	5.8
2028–29[2]	3,361,890	1,514,110	448,170	955,040	221,040	27,670	195,860	100.0	45.0	13.3	28.4	6.6	0.8	5.8

—Not available.
†Not applicable.
[1]Data on students of Two or more races were not reported by all states; therefore, the data are not comparable to figures for 2010–11 and later years.
[2]Projected.
NOTE: Race categories exclude persons of Hispanic ethnicity. Prior to 2007–08, data on students of Two or more races were not collected separately. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding and statistical methods used to prevent the identification of individual students.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1981–82 through 2005–06; "State Dropout and Completion Data File," 2005–06 through 2012–13; and National Public High School Graduates by Race/Ethnicity Projections Model, 1995–96 through 2028–29. (This table was prepared March 2019.)

Table 12. Current expenditures and current expenditures per pupil in public elementary and secondary schools: 1989–90 through 2028–29

School year	Current expenditures in unadjusted dollars[1]			Current expenditures in constant 2017–18 dollars[2]					
				Total current expenditures		Per pupil in fall enrollment		Per pupil in average daily attendance (ADA)	
	Total, in billions	Per pupil in fall enrollment	Per pupil in average daily attendance (ADA)	In billions	Annual percentage change	Per pupil enrolled	Annual percentage change	Per pupil in ADA	Annual percentage change
1	2	3	4	5	6	7	8	9	10
1989–90	$188.2	$4,643	$4,980	$367.8	3.8	$9,073	2.9	$9,731	2.3
1990–91	202.0	4,902	5,258	374.3	1.8	9,082	0.1	9,742	0.1
1991–92	211.2	5,023	5,421	379.2	1.3	9,018	-0.7	9,733	-0.1
1992–93	220.9	5,160	5,584	384.7	1.4	8,982	-0.4	9,721	-0.1
1993–94	231.5	5,327	5,767	392.9	2.1	9,040	0.6	9,787	0.7
1994–95	243.9	5,529	5,989	402.3	2.4	9,121	0.9	9,880	0.9
1995–96	255.1	5,689	6,147	409.7	1.8	9,137	0.2	9,872	-0.1
1996–97	270.2	5,923	6,393	421.9	3.0	9,249	1.2	9,982	1.1
1997–98	285.5	6,189	6,676	438.0	3.8	9,495	2.7	10,241	2.6
1998–99	302.9	6,508	7,013	456.7	4.3	9,814	3.4	10,576	3.3
1999–2000	323.9	6,912	7,394	474.7	3.9	10,131	3.2	10,837	2.5
2000–01	348.4	7,380	7,904	493.7	4.0	10,458	3.2	11,200	3.4
2001–02	368.4	7,727	8,259	513.0	3.9	10,760	2.9	11,500	2.7
2002–03	387.6	8,044	8,610	528.1	3.0	10,960	1.9	11,731	2.0
2003–04	403.4	8,310	8,900	537.9	1.8	11,081	1.1	11,867	1.2
2004–05	425.0	8,711	9,316	550.2	2.3	11,275	1.8	12,059	1.6
2005–06	449.1	9,145	9,778	560.0	1.8	11,403	1.1	12,193	1.1
2006–07	476.8	9,679	10,336	579.6	3.5	11,765	3.2	12,563	3.0
2007–08	506.9	10,298	10,982	594.1	2.5	12,070	2.6	12,871	2.5
2008–09	518.9	10,540	11,239	599.8	1.0	12,183	0.9	12,991	0.9
2009–10	524.7	10,636	11,427	600.7	0.1	12,177	-0.1	13,082	0.7
2010–11	527.3	10,663	11,433	591.8	-1.5	11,967	-1.7	12,832	-1.9
2011–12	527.2	10,648	11,362	574.8	-2.9	11,610	-3.0	12,389	-3.5
2012–13	535.8	10,771	11,509	574.6	#	11,552	-0.5	12,344	-0.4
2013–14	553.5	11,066	11,819	584.5	1.7	11,686	1.2	12,481	1.1
2014–15	575.3	11,445	12,224	603.2	3.2	11,998	2.7	12,816	2.7
2015–16	596.1	11,841	12,617	620.8	2.9	12,330	2.8	13,139	2.5
2016–17[3]	614.7	12,140	12,990	628.5	1.2	12,420	0.7	13,280	1.1
2017–18[3]	638.4	12,590	13,470	638.4	1.6	12,590	1.4	13,470	1.4
2018–19[3]	661.5	13,040	13,940	647.2	1.4	12,760	1.3	13,640	1.3
2019–20[3]	680.1	13,440	14,370	650.2	0.5	12,850	0.7	13,740	0.7
2020–21[3]	702.1	13,860	14,820	657.3	1.1	12,970	1.0	13,870	1.0
2021–22[3]	725.3	14,300	15,300	663.5	0.9	13,090	0.9	13,990	0.9
2022–23[3]	748.0	14,740	15,770	668.8	0.8	13,180	0.7	14,090	0.7
2023–24[3]	770.5	15,180	16,230	673.1	0.6	13,260	0.6	14,180	0.6
2024–25[3]	792.5	15,620	16,700	676.8	0.6	13,340	0.6	14,260	0.6
2025–26[3]	815.1	16,080	17,200	681.3	0.7	13,440	0.8	14,380	0.8
2026–27[3]	839.3	16,580	17,730	686.8	0.8	13,560	0.9	14,510	0.9
2027–28[3]	867.4	17,110	18,300	694.4	1.1	13,700	1.0	14,650	1.0
2028–29[3]	890.2	17,520	18,730	700.9	0.9	13,790	0.7	14,750	0.7

#Rounds to zero.
[1]Unadjusted (or "current") dollars have not been adjusted to compensate for inflation.
[2]Constant dollars based on the Consumer Price Index, prepared by the Bureau of Labor Statistics, U.S. Department of Labor, adjusted to a school-year basis.
[3]Projected.
NOTE: Current expenditures include instruction, support services, food services, and enterprise operations. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1989–90 through 2016–17; National Elementary and Secondary Enrollment Projection Model, 1972 through 2028; and Public Elementary and Secondary Education Current Expenditure Projection Model, 1973–74 through 2028–29. (This table was prepared April 2019.)

Table 13. Total fall enrollment in degree-granting postsecondary institutions, by attendance status, sex of student, and control of institution: Selected years, 1947 through 2028

Year	Total enrollment	Attendance status			Sex of student			Control of institution			
		Full-time	Part-time	Percent part-time	Male	Female	Percent female	Public	Private		
									Total	Nonprofit	For-profit
1	2	3	4	5	6	7	8	9	10	11	12
1947[1]	2,338,226	—	—	—	1,659,249	678,977	29.0	1,152,377	1,185,849	—	—
1948[1]	2,403,396	—	—	—	1,709,367	694,029	28.9	1,185,588	1,217,808	—	—
1949[1]	2,444,900	—	—	—	1,721,572	723,328	29.6	1,207,151	1,237,749	—	—
1950[1]	2,281,298	—	—	—	1,560,392	720,906	31.6	1,139,699	1,141,599	—	—
1951[1]	2,101,962	—	—	—	1,390,740	711,222	33.8	1,037,938	1,064,024	—	—
1952[1]	2,134,242	—	—	—	1,380,357	753,885	35.3	1,101,240	1,033,002	—	—
1953[1]	2,231,054	—	—	—	1,422,598	808,456	36.2	1,185,876	1,045,178	—	—
1954[1]	2,446,693	—	—	—	1,563,382	883,311	36.1	1,353,531	1,093,162	—	—
1955[1]	2,653,034	—	—	—	1,733,184	919,850	34.7	1,476,282	1,176,752	—	—
1956[1]	2,918,212	—	—	—	1,911,458	1,006,754	34.5	1,656,402	1,261,810	—	—
1957	3,323,783	—	—	—	2,170,765	1,153,018	34.7	1,972,673	1,351,110	—	—
1959	3,639,847	2,421,016	1,218,831[2]	33.5	2,332,617	1,307,230	35.9	2,180,982	1,458,865	—	—
1961	4,145,065	2,785,133	1,359,932[2]	32.8	2,585,821	1,559,244	37.6	2,561,447	1,583,618	—	—
1963	4,779,609	3,183,833	1,595,776[2]	33.4	2,961,540	1,818,069	38.0	3,081,279	1,698,330	—	—
1964	5,280,020	3,573,238	1,706,782[2]	32.3	3,248,713	2,031,307	38.5	3,467,708	1,812,312	—	—
1965	5,920,864	4,095,728	1,825,136[2]	30.8	3,630,020	2,290,844	38.7	3,969,596	1,951,268	—	—
1966	6,389,872	4,438,606	1,951,266[2]	30.5	3,856,216	2,533,656	39.7	4,348,917	2,040,955	—	—
1967	6,911,748	4,793,128	2,118,620[2]	30.7	4,132,800	2,778,948	40.2	4,816,028	2,095,720	2,074,041	21,679
1968	7,513,091	5,210,155	2,302,936	30.7	4,477,649	3,035,442	40.4	5,430,652	2,082,439	2,061,211	21,228
1969	8,004,660	5,498,883	2,505,777	31.3	4,746,201	3,258,459	40.7	5,896,868	2,107,792	2,087,653	20,139
1970	8,580,887	5,816,290	2,764,597	32.2	5,043,642	3,537,245	41.2	6,428,134	2,152,753	2,134,420	18,333
1971	8,948,644	6,077,232	2,871,412	32.1	5,207,004	3,741,640	41.8	6,804,309	2,144,335	2,121,913	22,422
1972	9,214,860	6,072,389	3,142,471	34.1	5,238,757	3,976,103	43.1	7,070,635	2,144,225	2,123,245	20,980
1973	9,602,123	6,189,493	3,412,630	35.5	5,371,052	4,231,071	44.1	7,419,516	2,182,607	2,148,784	33,823
1974	10,223,729	6,370,273	3,853,456	37.7	5,622,429	4,601,300	45.0	7,988,500	2,235,229	2,200,963	34,266
1975	11,184,859	6,841,334	4,343,525	38.8	6,148,997	5,035,862	45.0	8,834,508	2,350,351	2,311,448	38,903
1976	11,012,137	6,717,058	4,295,079	39.0	5,810,828	5,201,309	47.2	8,653,477	2,358,660	2,314,298	44,362
1977	11,285,787	6,792,925	4,492,862	39.8	5,789,016	5,496,771	48.7	8,846,993	2,438,794	2,386,652	52,142
1978	11,260,092	6,667,657	4,592,435	40.8	5,640,998	5,619,094	49.9	8,785,893	2,474,199	2,408,331	65,868
1979	11,569,899	6,794,039	4,775,860	41.3	5,682,877	5,887,022	50.9	9,036,822	2,533,077	2,461,773	71,304
1980	12,096,895	7,097,958	4,998,937	41.3	5,874,374	6,222,521	51.4	9,457,394	2,639,501	2,527,787	111,714[3]
1981	12,371,672	7,181,250	5,190,422	42.0	5,975,056	6,396,616	51.7	9,647,032	2,724,640	2,572,405	152,235[3]
1982	12,425,780	7,220,618	5,205,162	41.9	6,031,384	6,394,396	51.5	9,696,087	2,729,693	2,552,739	176,954[3]
1983	12,464,661	7,261,050	5,203,611	41.7	6,023,725	6,440,936	51.7	9,682,734	2,781,927	2,589,187	192,740
1984	12,241,940	7,098,388	5,143,552	42.0	5,863,574	6,378,366	52.1	9,477,370	2,764,570	2,574,419	190,151
1985	12,247,055	7,075,221	5,171,834	42.2	5,818,450	6,428,605	52.5	9,479,273	2,767,782	2,571,791	195,991
1986	12,503,511	7,119,550	5,383,961	43.1	5,884,515	6,618,996	52.9	9,713,893	2,789,618	2,572,479	217,139[4]
1987	12,766,642	7,231,085	5,535,557	43.4	5,932,056	6,834,586	53.5	9,973,254	2,793,388	2,602,350	191,038[4]
1988	13,055,337	7,436,768	5,618,569	43.0	6,001,896	7,053,441	54.0	10,161,388	2,893,949	2,673,567	220,382
1989	13,538,560	7,660,950	5,877,610	43.4	6,190,015	7,348,545	54.3	10,577,963	2,960,597	2,731,174	229,423
1990	13,818,637	7,820,985	5,997,652	43.4	6,283,909	7,534,728	54.5	10,844,717	2,973,920	2,760,227	213,693
1991	14,358,953	8,115,329	6,243,624	43.5	6,501,844	7,857,109	54.7	11,309,563	3,049,390	2,819,041	230,349
1992	14,487,359	8,162,118	6,325,241	43.7	6,523,989	7,963,370	55.0	11,384,567	3,102,792	2,872,523	230,269
1993	14,304,803	8,127,618	6,177,185	43.2	6,427,450	7,877,353	55.1	11,189,088	3,115,715	2,888,897	226,818
1994	14,278,790	8,137,776	6,141,014	43.0	6,371,898	7,906,892	55.4	11,133,680	3,145,110	2,910,107	235,003
1995	14,261,781	8,128,802	6,132,979	43.0	6,342,539	7,919,242	55.5	11,092,374	3,169,407	2,929,044	240,363
1996	14,367,520	8,302,953	6,064,567	42.2	6,352,825	8,014,695	55.8	11,120,499	3,247,021	2,942,556	304,465
1997	14,502,334	8,438,062	6,064,272	41.8	6,396,028	8,106,306	55.9	11,196,119	3,306,215	2,977,614	328,601
1998	14,506,967	8,563,338	5,943,629	41.0	6,369,265	8,137,702	56.1	11,137,769	3,369,198	3,004,925	364,273
1999	14,849,691	8,803,139	6,046,552	40.7	6,515,164	8,334,527	56.1	11,375,739	3,473,952	3,055,029	418,923
2000	15,312,289	9,009,600	6,302,689	41.2	6,721,769	8,590,520	56.1	11,752,786	3,559,503	3,109,419	450,084
2001	15,927,987	9,447,502	6,480,485	40.7	6,960,815	8,967,172	56.3	12,233,156	3,694,831	3,167,330	527,501
2002	16,611,711	9,946,359	6,665,352	40.1	7,202,116	9,409,595	56.6	12,751,993	3,859,718	3,265,476	594,242
2003	16,911,481	10,326,133	6,585,348	38.9	7,260,264	9,651,217	57.1	12,858,698	4,052,783	3,341,048	711,735
2004	17,272,044	10,610,177	6,661,867	38.6	7,387,262	9,884,782	57.2	12,980,112	4,291,932	3,411,685	880,247
2005	17,487,475	10,797,011	6,690,464	38.3	7,455,925	10,031,550	57.4	13,021,834	4,465,641	3,454,692	1,010,949
2006	17,754,230	10,957,538	6,796,692	38.3	7,572,265	10,181,965	57.3	13,175,350	4,578,880	3,512,929	1,065,951
2007	18,258,138	11,270,929	6,987,209	38.3	7,819,938	10,438,200	57.2	13,500,894	4,757,244	3,571,395	1,185,849
2008	19,081,686	11,734,636	7,347,050	38.5	8,177,714	10,903,972	57.1	13,970,862	5,110,824	3,660,827	1,449,997
2009	20,313,594	12,605,355	7,708,239	37.9	8,732,953	11,580,641	57.0	14,810,768	5,502,826	3,767,672	1,735,154
2010	21,019,438	13,087,182	7,932,256	37.7	9,045,759	11,973,679	57.0	15,142,171	5,877,267	3,854,482	2,022,785
2011	21,010,590	13,002,531	8,008,059	38.1	9,034,256	11,976,334	57.0	15,116,303	5,894,287	3,926,819	1,967,468
2012	20,644,478	12,734,404	7,910,074	38.3	8,919,006	11,725,472	56.8	14,884,667	5,759,811	3,951,388	1,808,423
2013	20,376,677	12,596,610	7,780,067	38.2	8,861,197	11,515,480	56.5	14,746,848	5,629,829	3,971,390	1,658,439
2014	20,209,092	12,454,464	7,754,628	38.4	8,797,530	11,411,562	56.5	14,654,660	5,554,432	3,997,249	1,557,183

See notes at end of table.

Table 13. Total fall enrollment in degree-granting postsecondary institutions, by attendance status, sex of student, and control of institution: Selected years, 1947 through 2028—Continued

Year	Total enrollment	Attendance status			Sex of student			Control of institution			
		Full-time	Part-time	Percent part-time	Male	Female	Percent female	Public	Private		
									Total	Nonprofit	For-profit
1	2	3	4	5	6	7	8	9	10	11	12
2015	19,988,204	12,287,512	7,700,692	38.5	8,723,819	11,264,385	56.4	14,572,843	5,415,361	4,065,891	1,349,470
2016	19,846,904	12,125,314	7,721,590	38.9	8,638,422	11,208,482	56.5	14,585,840	5,261,064	4,078,956	1,182,108
2017	19,765,598	12,077,304	7,688,294	38.9	8,567,632	11,197,966	56.7	14,560,155	5,205,443	4,106,477	1,098,966
2018[5]	19,828,000	12,103,000	7,725,000	39.0	8,596,000	11,232,000	56.6	14,608,000	5,220,000	—	—
2019[5]	19,904,000	12,135,000	7,768,000	39.0	8,628,000	11,276,000	56.7	14,665,000	5,239,000	—	—
2020[5]	19,928,000	12,133,000	7,795,000	39.1	8,637,000	11,291,000	56.7	14,685,000	5,243,000	—	—
2021[5]	19,956,000	12,129,000	7,828,000	39.2	8,644,000	11,312,000	56.7	14,708,000	5,248,000	—	—
2022[5]	19,991,000	12,131,000	7,860,000	39.3	8,656,000	11,335,000	56.7	14,736,000	5,255,000	—	—
2023[5]	20,040,000	12,145,000	7,895,000	39.4	8,676,000	11,364,000	56.7	14,774,000	5,266,000	—	—
2024[5]	20,107,000	12,178,000	7,929,000	39.4	8,703,000	11,404,000	56.7	14,824,000	5,283,000	—	—
2025[5]	20,177,000	12,220,000	7,957,000	39.4	8,733,000	11,444,000	56.7	14,876,000	5,301,000	—	—
2026[5]	20,258,000	12,264,000	7,994,000	39.5	8,770,000	11,488,000	56.7	14,936,000	5,321,000	—	—
2027[5]	20,295,000	12,272,000	8,023,000	39.5	8,788,000	11,507,000	56.7	14,965,000	5,329,000	—	—
2028[5]	20,305,000	12,261,000	8,044,000	39.6	8,792,000	11,513,000	56.7	14,975,000	5,330,000	—	—

—Not available.
[1]Degree-credit enrollment only.
[2]Includes part-time resident students and all extension students (students attending courses at sites separate from the primary reporting campus). In later years, part-time student enrollment was collected as a distinct category.
[3]Large increases are due to the addition of schools accredited by the Accrediting Commission of Career Schools and Colleges of Technology.
[4]Because of imputation techniques, data are not consistent with figures for other years.
[5]Projected.
NOTE: Data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Biennial Survey of Education in the United States; Opening Fall Enrollment in Higher Education*, 1963 through 1965; Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1966 through 1985; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:86–99); IPEDS Spring 2001 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This table was prepared March 2019.)

Table 14. Total fall enrollment in degree-granting postsecondary institutions, by level and control of institution, attendance status, and sex of student: Selected years, 1970 through 2028

Level and control of institution, attendance status, and sex of student	Actual													
	1970	1975	1980[1]	1985	1990	1995	2000	2005	2010	2013	2014	2015	2016	2017
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total	**8,580,887**	**11,184,859**	**12,096,895**	**12,247,055**	**13,818,637**	**14,261,781**	**15,312,289**	**17,487,475**	**21,019,438**	**20,376,677**	**20,209,092**	**19,988,204**	**19,846,904**	**19,765,598**
Full-time	5,816,290	6,841,334	7,097,958	7,075,221	7,820,985	8,128,802	9,009,600	10,797,011	13,087,182	12,596,610	12,454,464	12,287,512	12,125,314	12,077,304
Males	3,504,095	3,926,753	3,689,244	3,607,720	3,807,752	3,807,392	4,111,093	4,803,388	5,838,383	5,682,322	5,619,778	5,558,447	5,472,798	5,424,575
Females	2,312,195	2,914,581	3,408,714	3,467,501	4,013,233	4,321,410	4,898,507	5,993,623	7,248,799	6,914,288	6,834,686	6,729,065	6,652,516	6,652,729
Part-time	2,764,597	4,343,525	4,998,937	5,171,834	5,997,652	6,132,979	6,302,689	6,690,464	7,932,256	7,780,067	7,754,628	7,700,692	7,721,590	7,688,294
Males	1,539,547	2,222,244	2,185,130	2,210,730	2,476,157	2,535,147	2,610,676	2,652,537	3,207,376	3,178,875	3,177,752	3,165,372	3,165,624	3,143,057
Females	1,225,050	2,121,281	2,813,807	2,961,104	3,521,495	3,597,832	3,692,013	4,037,927	4,724,880	4,601,192	4,576,876	4,535,320	4,555,966	4,545,237
4-year	**6,261,502**	**7,214,740**	**7,570,608**	**7,715,978**	**8,578,554**	**8,769,252**	**9,363,858**	**10,999,420**	**13,335,841**	**13,406,033**	**13,494,414**	**13,488,743**	**13,754,486**	**13,823,640**
Full-time	4,587,379	5,080,256	5,344,163	5,384,614	5,937,023	6,151,755	6,792,551	8,150,209	9,721,803	9,760,336	9,793,357	9,776,828	9,815,967	9,849,327
Males	2,732,796	2,891,192	2,809,528	2,781,412	2,926,360	2,929,177	3,115,252	3,649,622	4,355,153	4,402,528	4,419,130	4,414,743	4,414,959	4,410,727
Females	1,854,583	2,189,064	2,534,635	2,603,202	3,010,663	3,222,578	3,677,299	4,500,587	5,366,650	5,357,808	5,374,227	5,362,085	5,401,008	5,438,600
Part-time	1,674,123	2,134,484	2,226,445	2,331,364	2,641,531	2,617,497	2,571,307	2,849,211	3,614,038	3,645,697	3,701,057	3,711,915	3,938,519	3,974,313
Males	936,189	1,092,461	1,017,813	1,034,804	1,124,780	1,084,753	1,047,917	1,125,935	1,424,721	1,460,229	1,484,380	1,491,001	1,586,069	1,593,843
Females	737,934	1,042,023	1,208,632	1,296,560	1,516,751	1,532,744	1,523,390	1,723,276	2,189,317	2,185,468	2,216,677	2,220,914	2,352,450	2,380,470
Public 4-year	4,232,722	4,998,142	5,128,612	5,209,540	5,848,242	5,814,545	6,055,398	6,837,605	7,924,108	8,120,437	8,257,108	8,348,539	8,742,931	8,853,477
Full-time	3,086,491	3,469,821	3,592,193	3,623,341	4,033,654	4,084,711	4,371,218	5,021,745	5,811,214	5,934,886	6,011,908	6,081,177	6,236,018	6,310,488
Males	1,813,584	1,947,823	1,873,397	1,863,689	1,982,369	1,951,140	2,008,618	2,295,456	2,707,307	2,772,514	2,806,792	2,833,998	2,894,232	2,911,737
Females	1,272,907	1,521,998	1,718,796	1,759,652	2,051,285	2,133,571	2,362,600	2,726,289	3,103,907	3,162,372	3,205,116	3,247,179	3,341,786	3,398,751
Part-time	1,146,231	1,528,321	1,536,419	1,586,199	1,814,588	1,729,834	1,684,180	1,815,860	2,112,894	2,185,551	2,245,200	2,267,362	2,506,913	2,542,989
Males	609,422	760,469	685,051	693,115	764,248	720,402	683,100	724,375	860,968	911,023	941,104	955,658	1,065,112	1,077,193
Females	536,809	767,852	851,368	893,084	1,050,340	1,009,432	1,001,080	1,091,485	1,251,926	1,274,528	1,304,096	1,311,704	1,441,801	1,465,796
Private 4-year	2,028,780	2,216,598	2,441,996	2,506,438	2,730,312	2,954,707	3,308,460	4,161,815	5,411,733	5,285,596	5,237,306	5,140,204	5,011,555	4,970,163
Full-time	1,500,888	1,610,435	1,751,970	1,761,273	1,903,369	2,067,044	2,421,333	3,128,464	3,910,589	3,825,450	3,781,449	3,695,651	3,579,949	3,538,839
Males	919,212	943,369	936,131	917,723	943,991	978,037	1,106,634	1,354,166	1,647,846	1,630,014	1,612,338	1,580,745	1,520,727	1,498,990
Females	581,676	667,066	815,839	843,550	959,378	1,089,007	1,314,699	1,774,298	2,262,743	2,195,436	2,169,111	2,114,906	2,059,222	2,039,849
Part-time	527,892	606,163	690,026	745,165	826,943	887,663	887,127	1,033,351	1,501,144	1,460,146	1,455,857	1,444,553	1,431,606	1,431,324
Males	326,767	331,992	332,762	341,689	360,532	364,351	364,817	401,560	563,753	549,206	543,276	535,343	520,957	516,650
Females	201,125	274,171	357,264	403,476	466,411	523,312	522,310	631,791	937,391	910,940	912,581	909,210	910,649	914,674
Nonprofit 4-year	2,021,121	2,198,451	2,413,693	2,463,000	2,671,069	2,853,890	3,050,575	3,411,170	3,821,799	3,939,199	3,966,873	4,015,882	4,028,401	4,058,087
Full-time	1,494,625	1,596,074	1,733,014	1,727,707	1,859,124	1,989,457	2,226,028	2,534,793	2,864,640	2,957,476	2,981,188	3,009,240	3,019,342	3,041,196
Males	914,020	930,842	921,253	894,080	915,100	931,956	996,113	1,109,075	1,259,638	1,301,864	1,313,286	1,320,947	1,318,323	1,318,203
Females	580,605	665,232	811,761	833,627	944,024	1,057,501	1,229,915	1,425,718	1,605,002	1,655,612	1,667,902	1,688,293	1,701,019	1,722,993
Part-time	526,496	602,377	680,679	735,293	811,945	864,433	824,547	876,377	957,159	981,723	985,685	1,006,642	1,009,059	1,016,891
Males	325,693	329,662	327,986	336,168	352,106	351,874	332,814	339,572	366,735	378,324	379,513	385,942	385,008	389,521
Females	200,803	272,715	352,693	399,125	459,839	512,559	491,733	536,805	590,424	603,399	606,172	620,700	624,051	627,370
For-profit 4-year	7,659	18,147	28,303	43,438	59,243	100,817	257,885	750,645	1,589,934	1,346,397	1,270,433	1,124,322	983,154	912,076
2-year	**2,319,385**	**3,970,119**	**4,526,287**	**4,531,077**	**5,240,083**	**5,492,529**	**5,948,431**	**6,488,055**	**7,683,597**	**6,970,644**	**6,714,678**	**6,499,461**	**6,092,418**	**5,941,958**
Full-time	1,228,911	1,761,078	1,753,795	1,690,607	1,883,962	1,977,047	2,217,049	2,646,802	3,365,379	2,836,274	2,661,107	2,510,684	2,309,347	2,227,977
Males	771,299	1,035,561	879,716	826,308	881,392	878,215	995,841	1,153,766	1,483,230	1,279,794	1,200,648	1,143,704	1,057,839	1,013,848
Females	457,612	725,517	874,079	864,299	1,002,570	1,098,832	1,221,208	1,493,036	1,882,149	1,556,480	1,460,459	1,366,980	1,251,508	1,214,129
Part-time	1,090,474	2,209,041	2,772,492	2,840,470	3,356,121	3,515,482	3,731,382	3,841,253	4,318,218	4,134,370	4,053,571	3,988,777	3,783,071	3,713,981
Males	603,358	1,129,783	1,167,317	1,175,926	1,351,377	1,450,394	1,562,759	1,526,602	1,782,655	1,718,646	1,693,372	1,674,371	1,579,555	1,549,214
Females	487,116	1,079,258	1,605,175	1,664,544	2,004,744	2,065,088	2,168,623	2,314,651	2,535,563	2,415,724	2,360,199	2,314,406	2,203,516	2,164,767
Public 2-year	2,195,412	3,836,366	4,328,782	4,269,733	4,996,475	5,277,829	5,697,388	6,184,229	7,218,063	6,626,411	6,397,552	6,224,304	5,842,909	5,706,678
Full-time	1,129,165	1,662,621	1,595,493	1,496,905	1,716,843	1,840,590	2,000,008	2,387,016	2,950,024	2,532,530	2,385,023	2,272,769	2,091,361	2,017,585
Males	720,440	988,701	811,871	742,673	810,664	818,605	891,282	1,055,029	1,340,820	1,177,901	1,107,410	1,062,633	983,567	946,208
Females	408,725	673,920	783,622	754,232	906,179	1,021,985	1,108,726	1,331,987	1,609,204	1,354,629	1,277,613	1,210,136	1,107,794	1,071,377
Part-time	1,066,247	2,173,745	2,733,289	2,772,828	3,279,632	3,437,239	3,697,380	3,797,213	4,268,039	4,093,881	4,012,529	3,951,535	3,751,548	3,689,093
Males	589,439	1,107,680	1,152,268	1,138,011	1,317,730	1,417,488	1,549,407	1,514,363	1,769,737	1,707,629	1,683,249	1,665,373	1,571,824	1,542,782
Females	476,808	1,066,065	1,581,021	1,634,817	1,961,902	2,019,751	2,147,973	2,282,850	2,498,302	2,386,252	2,329,280	2,286,162	2,179,724	2,146,311
Private 2-year	123,973	133,753	197,505	261,344	243,608	214,700	251,043	303,826	465,534	344,233	317,126	275,157	249,509	235,280
Full-time	99,746	98,457	158,302	193,702	167,119	136,457	217,041	259,786	415,355	303,744	276,084	237,915	217,986	210,392
Males	50,859	46,860	67,845	83,635	70,728	59,610	104,559	98,737	142,410	101,893	93,238	81,071	74,272	67,640
Females	48,887	51,597	90,457	110,067	96,391	76,847	112,482	161,049	272,945	201,851	182,846	156,844	143,714	142,752
Part-time	24,227	35,296	39,203	67,642	76,489	78,243	34,002	44,040	50,179	40,489	41,042	37,242	31,523	24,888
Males	13,919	22,103	15,049	37,915	33,647	32,906	13,352	12,239	12,918	11,017	10,123	8,998	7,731	6,432
Females	10,308	13,193	24,154	29,727	42,842	45,337	20,650	31,801	37,261	29,472	30,919	28,244	23,792	18,456
Nonprofit 2-year	113,299	112,997	114,094	108,791	89,158	75,154	58,844	43,522	32,683	32,191	30,376	50,009	50,555	48,390
Full-time	91,514	82,158	83,009	76,547	62,003	54,033	46,670	28,939	23,127	24,097	22,789	36,027	39,513	41,090
Males	46,030	40,548	34,968	30,878	25,946	23,265	21,950	12,086	9,944	9,478	9,074	11,972	11,950	10,793
Females	45,484	41,610	48,041	45,669	36,057	30,768	24,720	16,853	13,183	14,619	13,715	24,055	27,563	30,297
Part-time	21,785	30,839	31,085	32,244	27,155	21,121	12,174	14,583	9,556	8,094	7,587	13,982	11,042	7,300
Males	12,097	18,929	11,445	10,786	7,970	6,080	4,499	3,566	2,585	2,373	2,198	2,707	2,547	1,923
Females	9,688	11,910	19,640	21,458	19,185	15,041	7,675	11,017	6,971	5,721	5,389	11,275	8,495	5,377
For-profit 2-year	10,674	20,756	83,411	152,553	154,450	139,546	192,199	260,304	432,851	312,042	286,750	225,148	198,954	186,890

See notes at end of table.

Table 14. Total fall enrollment in degree-granting postsecondary institutions, by level and control of institution, attendance status, and sex of student: Selected years, 1970 through 2028—Continued

Level and control of institution, attendance status, and sex of student	Projected										
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1	16	17	18	19	20	21	22	23	24	25	26
Total	**19,828,000**	**19,904,000**	**19,928,000**	**19,956,000**	**19,991,000**	**20,040,000**	**20,107,000**	**20,177,000**	**20,258,000**	**20,295,000**	**20,305,000**
Full-time	12,103,000	12,135,000	12,133,000	12,129,000	12,131,000	12,145,000	12,178,000	12,220,000	12,264,000	12,272,000	12,261,000
Males	5,434,000	5,447,000	5,444,000	5,437,000	5,434,000	5,439,000	5,453,000	5,472,000	5,493,000	5,499,000	5,494,000
Females	6,669,000	6,689,000	6,689,000	6,691,000	6,696,000	6,706,000	6,725,000	6,748,000	6,770,000	6,773,000	6,767,000
Part-time	7,725,000	7,768,000	7,795,000	7,828,000	7,860,000	7,895,000	7,929,000	7,957,000	7,994,000	8,023,000	8,044,000
Males	3,163,000	3,181,000	3,193,000	3,207,000	3,222,000	3,237,000	3,250,000	3,261,000	3,276,000	3,289,000	3,298,000
Females	4,563,000	4,588,000	4,602,000	4,621,000	4,639,000	4,658,000	4,678,000	4,696,000	4,718,000	4,734,000	4,746,000
4-year	**13,864,000**	**13,912,000**	**13,924,000**	**13,938,000**	**13,956,000**	**13,985,000**	**14,030,000**	**14,079,000**	**14,134,000**	**14,155,000**	**14,157,000**
Full-time	9,870,000	9,897,000	9,895,000	9,891,000	9,893,000	9,904,000	9,932,000	9,966,000	10,001,000	10,008,000	9,999,000
Males	4,418,000	4,429,000	4,427,000	4,421,000	4,419,000	4,423,000	4,434,000	4,449,000	4,467,000	4,471,000	4,467,000
Females	5,452,000	5,468,000	5,468,000	5,470,000	5,474,000	5,482,000	5,498,000	5,517,000	5,535,000	5,537,000	5,532,000
Part-time	3,993,000	4,016,000	4,029,000	4,046,000	4,063,000	4,081,000	4,098,000	4,113,000	4,132,000	4,147,000	4,158,000
Males	1,604,000	1,613,000	1,619,000	1,626,000	1,634,000	1,641,000	1,648,000	1,653,000	1,661,000	1,668,000	1,673,000
Females	2,390,000	2,403,000	2,410,000	2,420,000	2,430,000	2,440,000	2,450,000	2,459,000	2,471,000	2,479,000	2,486,000
Public 4-year	8,879,000	8,910,000	8,918,000	8,926,000	8,938,000	8,957,000	8,986,000	9,017,000	9,052,000	9,066,000	9,067,000
Full-time	6,324,000	6,341,000	6,339,000	6,337,000	6,338,000	6,345,000	6,363,000	6,385,000	6,408,000	6,412,000	6,406,000
Males	2,917,000	2,924,000	2,922,000	2,919,000	2,917,000	2,920,000	2,927,000	2,937,000	2,949,000	2,952,000	2,949,000
Females	3,407,000	3,417,000	3,417,000	3,419,000	3,421,000	3,426,000	3,436,000	3,448,000	3,459,000	3,460,000	3,457,000
Part-time	2,555,000	2,570,000	2,578,000	2,589,000	2,600,000	2,612,000	2,623,000	2,632,000	2,644,000	2,654,000	2,661,000
Males	1,084,000	1,090,000	1,094,000	1,099,000	1,104,000	1,109,000	1,114,000	1,117,000	1,123,000	1,127,000	1,130,000
Females	1,471,000	1,479,000	1,484,000	1,490,000	1,496,000	1,502,000	1,509,000	1,514,000	1,521,000	1,527,000	1,531,000
Private 4-year	4,984,000	5,002,000	5,006,000	5,011,000	5,018,000	5,029,000	5,045,000	5,062,000	5,082,000	5,090,000	5,090,000
Full-time	3,546,000	3,556,000	3,555,000	3,554,000	3,555,000	3,559,000	3,569,000	3,581,000	3,594,000	3,596,000	3,593,000
Males	1,502,000	1,505,000	1,504,000	1,502,000	1,502,000	1,503,000	1,507,000	1,512,000	1,518,000	1,520,000	1,518,000
Females	2,045,000	2,051,000	2,051,000	2,052,000	2,053,000	2,056,000	2,062,000	2,069,000	2,076,000	2,077,000	2,075,000
Part-time	1,438,000	1,446,000	1,451,000	1,457,000	1,463,000	1,469,000	1,476,000	1,481,000	1,488,000	1,493,000	1,497,000
Males	520,000	523,000	525,000	527,000	530,000	532,000	534,000	536,000	539,000	541,000	542,000
Females	918,000	923,000	926,000	930,000	934,000	937,000	941,000	945,000	949,000	953,000	955,000
Nonprofit 4-year	—	—	—	—	—	—	—	—	—	—	—
Full-time	—	—	—	—	—	—	—	—	—	—	—
Males	—	—	—	—	—	—	—	—	—	—	—
Females	—	—	—	—	—	—	—	—	—	—	—
Part-time	—	—	—	—	—	—	—	—	—	—	—
Males	—	—	—	—	—	—	—	—	—	—	—
Females	—	—	—	—	—	—	—	—	—	—	—
For-profit 4-year	—	—	—	—	—	—	—	—	—	—	—
2-year	**5,965,000**	**5,991,000**	**6,004,000**	**6,019,000**	**6,035,000**	**6,054,000**	**6,077,000**	**6,098,000**	**6,124,000**	**6,140,000**	**6,148,000**
Full-time	2,233,000	2,239,000	2,238,000	2,237,000	2,238,000	2,240,000	2,247,000	2,254,000	2,262,000	2,264,000	2,262,000
Males	1,016,000	1,018,000	1,018,000	1,016,000	1,016,000	1,017,000	1,019,000	1,023,000	1,027,000	1,028,000	1,027,000
Females	1,217,000	1,221,000	1,221,000	1,221,000	1,222,000	1,224,000	1,227,000	1,232,000	1,236,000	1,236,000	1,235,000
Part-time	3,732,000	3,753,000	3,766,000	3,781,000	3,797,000	3,814,000	3,830,000	3,844,000	3,862,000	3,876,000	3,886,000
Males	1,559,000	1,568,000	1,574,000	1,581,000	1,588,000	1,596,000	1,602,000	1,607,000	1,615,000	1,621,000	1,626,000
Females	2,173,000	2,185,000	2,192,000	2,201,000	2,209,000	2,219,000	2,228,000	2,237,000	2,247,000	2,255,000	2,260,000
Public 2-year	5,729,000	5,755,000	5,767,000	5,782,000	5,798,000	5,817,000	5,839,000	5,859,000	5,884,000	5,900,000	5,908,000
Full-time	2,022,000	2,027,000	2,027,000	2,026,000	2,026,000	2,029,000	2,034,000	2,041,000	2,049,000	2,050,000	2,048,000
Males	948,000	950,000	950,000	948,000	948,000	949,000	951,000	954,000	958,000	959,000	958,000
Females	1,074,000	1,077,000	1,077,000	1,078,000	1,078,000	1,080,000	1,083,000	1,087,000	1,090,000	1,091,000	1,090,000
Part-time	3,707,000	3,728,000	3,740,000	3,756,000	3,772,000	3,789,000	3,805,000	3,818,000	3,836,000	3,850,000	3,860,000
Males	1,552,000	1,561,000	1,567,000	1,574,000	1,581,000	1,589,000	1,595,000	1,600,000	1,608,000	1,614,000	1,619,000
Females	2,155,000	2,166,000	2,173,000	2,182,000	2,191,000	2,200,000	2,209,000	2,218,000	2,228,000	2,235,000	2,241,000
Private 2-year	236,000	237,000	237,000	237,000	237,000	237,000	238,000	239,000	240,000	240,000	240,000
Full-time	211,000	211,000	211,000	211,000	211,000	212,000	212,000	213,000	214,000	214,000	214,000
Males	68,000	68,000	68,000	68,000	68,000	68,000	68,000	68,000	68,000	69,000	69,000
Females	143,000	144,000	144,000	144,000	144,000	144,000	144,000	145,000	145,000	145,000	145,000
Part-time	25,000	25,000	25,000	25,000	25,000	26,000	26,000	26,000	26,000	26,000	26,000
Males	6,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Females	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000
Nonprofit 2-year	—	—	—	—	—	—	—	—	—	—	—
Full-time	—	—	—	—	—	—	—	—	—	—	—
Males	—	—	—	—	—	—	—	—	—	—	—
Females	—	—	—	—	—	—	—	—	—	—	—
Part-time	—	—	—	—	—	—	—	—	—	—	—
Males	—	—	—	—	—	—	—	—	—	—	—
Females	—	—	—	—	—	—	—	—	—	—	—
For-profit 2-year	—	—	—	—	—	—	—	—	—	—	—

—Not available.

[1]Large increase in private 2-year institutions in 1980 is due to the addition of schools accredited by the Accrediting Commission of Career Schools and Colleges of Technology.

NOTE: Data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1970 through 1985; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:90–99); IPEDS Spring 2001 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This table was prepared March 2019.)

Table 15. Total fall enrollment in degree-granting postsecondary institutions, by attendance status, sex, and age: Selected years, 1970 through 2028

Attendance status, sex, and age	1970	1980	1990	2000	2005	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Projected 2018	2019	2020	2028
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
All students	**8,581**	**12,097**	**13,819**	**15,312**	**17,487**	**19,082**	**20,314**	**21,019**	**21,011**	**20,644**	**20,377**	**20,209**	**19,988**	**19,847**	**19,766**	**19,828**	**19,904**	**19,928**	**20,305**
14 to 17 years old	263	257	153	131	187	195	215	202	221	242	256	239	214	214	221	227	224	226	226
18 and 19 years old	2,579	2,852	2,777	3,258	3,444	3,808	4,009	4,057	3,956	3,782	3,720	3,720	3,732	3,738	3,749	4,028	4,055	3,996	3,978
20 and 21 years old	1,885	2,395	2,593	3,005	3,563	3,645	3,916	4,103	4,269	4,235	4,183	4,163	4,148	4,204	4,166	4,464	4,476	4,529	4,589
22 to 24 years old	1,469	1,947	2,202	2,600	3,114	3,440	3,571	3,759	3,793	3,951	3,964	3,910	3,785	3,736	3,750	3,764	3,731	3,719	3,776
25 to 29 years old	1,091	1,843	2,083	2,044	2,469	2,837	3,082	3,254	3,272	3,155	3,050	3,084	3,165	3,192	3,188	3,065	3,076	3,051	2,969
30 to 34 years old	527	1,227	1,384	1,333	1,438	1,607	1,735	1,805	1,788	1,684	1,606	1,586	1,600	1,589	1,560	1,388	1,413	1,441	1,473
35 years old and over	767	1,577	2,627	2,942	3,272	3,550	3,785	3,840	3,712	3,597	3,597	3,507	3,344	3,174	3,131	2,893	2,928	2,966	3,295
Males	**5,044**	**5,874**	**6,284**	**6,722**	**7,456**	**8,178**	**8,733**	**9,046**	**9,034**	**8,919**	**8,861**	**8,798**	**8,724**	**8,638**	**8,568**	**8,596**	**8,628**	**8,637**	**8,792**
14 to 17 years old	125	106	66	58	68	92	103	94	104	119	125	117	94	83	74	84	83	84	84
18 and 19 years old	1,355	1,368	1,298	1,464	1,523	1,702	1,795	1,820	1,782	1,707	1,661	1,673	1,684	1,688	1,666	1,731	1,742	1,714	1,707
20 and 21 years old	1,064	1,219	1,259	1,411	1,658	1,693	1,866	1,948	1,985	1,960	1,955	1,960	1,954	1,945	1,914	2,025	2,031	2,056	2,079
22 to 24 years old	1,004	1,075	1,129	1,222	1,410	1,553	1,599	1,723	1,769	1,864	1,846	1,789	1,746	1,739	1,731	1,761	1,743	1,736	1,759
25 to 29 years old	796	983	1,024	908	1,057	1,221	1,378	1,410	1,404	1,353	1,356	1,379	1,382	1,366	1,358	1,325	1,333	1,324	1,282
30 to 34 years old	333	564	605	581	591	690	707	731	700	661	634	643	655	670	660	613	625	638	657
35 years old and over	366	559	902	1,077	1,149	1,227	1,285	1,320	1,290	1,255	1,283	1,237	1,208	1,148	1,164	1,057	1,071	1,086	1,226
Females	**3,537**	**6,223**	**7,535**	**8,591**	**10,032**	**10,904**	**11,581**	**11,974**	**11,976**	**11,725**	**11,515**	**11,412**	**11,264**	**11,208**	**11,198**	**11,232**	**11,276**	**11,291**	**11,513**
14 to 17 years old	137	151	87	73	119	102	113	108	116	123	131	121	120	131	147	143	142	142	142
18 and 19 years old	1,224	1,484	1,479	1,794	1,920	2,107	2,214	2,237	2,173	2,074	2,059	2,047	2,049	2,050	2,082	2,297	2,313	2,282	2,271
20 and 21 years old	821	1,177	1,334	1,593	1,905	1,952	2,050	2,155	2,284	2,276	2,228	2,203	2,194	2,259	2,252	2,439	2,445	2,473	2,511
22 to 24 years old	464	871	1,073	1,378	1,704	1,887	1,972	2,036	2,024	2,087	2,118	2,122	2,038	1,997	2,019	2,002	1,988	1,983	2,017
25 to 29 years old	296	859	1,059	1,136	1,413	1,616	1,704	1,844	1,868	1,802	1,694	1,706	1,783	1,826	1,831	1,739	1,743	1,727	1,687
30 to 34 years old	194	663	779	752	847	917	1,028	1,074	1,088	1,022	972	943	945	919	900	775	788	803	816
35 years old and over	401	1,018	1,725	1,865	2,123	2,323	2,500	2,520	2,422	2,341	2,314	2,270	2,136	2,026	1,967	1,836	1,857	1,880	2,069
Full-time	**5,816**	**7,098**	**7,821**	**9,010**	**10,797**	**11,735**	**12,605**	**13,087**	**13,003**	**12,734**	**12,597**	**12,454**	**12,288**	**12,125**	**12,077**	**12,103**	**12,135**	**12,133**	**12,261**
14 to 17 years old	246	231	134	121	152	168	179	170	185	207	210	200	182	186	188	178	176	177	177
18 and 19 years old	2,374	2,544	2,471	2,823	3,026	3,356	3,481	3,496	3,351	3,226	3,199	3,174	3,188	3,161	3,206	3,314	3,335	3,285	3,272
20 and 21 years old	1,649	2,007	2,137	2,452	2,976	3,039	3,241	3,364	3,427	3,386	3,327	3,326	3,290	3,365	3,350	3,592	3,602	3,646	3,693
22 to 24 years old	904	1,181	1,405	1,714	2,122	2,345	2,511	2,585	2,580	2,603	2,650	2,597	2,568	2,502	2,500	2,401	2,382	2,374	2,411
25 to 29 years old	426	641	791	886	1,174	1,368	1,506	1,605	1,600	1,555	1,528	1,525	1,519	1,478	1,471	1,363	1,368	1,357	1,320
30 to 34 years old	113	272	383	418	547	571	657	745	763	711	664	626	601	583	558	519	528	539	550
35 years old and over	104	221	500	596	800	889	1,030	1,122	1,096	1,047	1,018	1,005	941	852	805	736	745	754	838
Males	**3,504**	**3,689**	**3,808**	**4,111**	**4,803**	**5,227**	**5,632**	**5,838**	**5,793**	**5,708**	**5,682**	**5,620**	**5,558**	**5,473**	**5,425**	**5,434**	**5,447**	**5,444**	**5,494**
14 to 17 years old	121	95	55	51	53	73	77	71	85	102	106	100	81	71	64	61	60	61	61
18 and 19 years old	1,261	1,219	1,171	1,252	1,339	1,514	1,570	1,574	1,510	1,461	1,423	1,402	1,414	1,416	1,427	1,438	1,447	1,423	1,417
20 and 21 years old	955	1,046	1,035	1,156	1,398	1,405	1,536	1,586	1,586	1,537	1,542	1,549	1,546	1,552	1,535	1,658	1,663	1,684	1,702
22 to 24 years old	686	717	768	834	982	1,104	1,169	1,215	1,217	1,254	1,270	1,236	1,208	1,173	1,160	1,134	1,123	1,119	1,134
25 to 29 years old	346	391	433	410	506	596	661	715	727	728	734	732	709	689	683	650	654	650	629
30 to 34 years old	77	142	171	186	225	248	279	301	299	278	257	242	251	253	251	221	226	231	238
35 years old and over	58	80	174	222	300	287	341	376	369	349	351	360	349	320	305	271	274	278	314
Females	**2,312**	**3,409**	**4,013**	**4,899**	**5,994**	**6,508**	**6,973**	**7,249**	**7,210**	**7,026**	**6,914**	**6,835**	**6,729**	**6,653**	**6,653**	**6,669**	**6,689**	**6,689**	**6,767**
14 to 17 years old	125	136	78	70	98	95	102	99	100	105	104	101	101	115	125	117	116	116	116
18 and 19 years old	1,113	1,325	1,300	1,571	1,687	1,841	1,911	1,922	1,842	1,765	1,776	1,773	1,774	1,745	1,779	1,876	1,889	1,863	1,854
20 and 21 years old	693	961	1,101	1,296	1,578	1,634	1,705	1,778	1,840	1,849	1,785	1,777	1,744	1,813	1,815	1,934	1,939	1,962	1,991
22 to 24 years old	218	464	638	880	1,140	1,241	1,343	1,370	1,364	1,349	1,380	1,362	1,359	1,329	1,339	1,267	1,259	1,256	1,278
25 to 29 years old	80	250	358	476	668	771	845	891	873	827	794	793	810	789	788	712	714	707	691
30 to 34 years old	37	130	212	232	322	322	378	444	464	433	408	384	350	330	307	298	302	308	313
35 years old and over	46	141	326	374	500	602	690	746	727	698	667	645	592	532	500	465	470	476	524
Part-time	**2,765**	**4,999**	**5,998**	**6,303**	**6,690**	**7,347**	**7,708**	**7,932**	**8,008**	**7,910**	**7,780**	**7,755**	**7,701**	**7,722**	**7,688**	**7,725**	**7,768**	**7,795**	**8,044**
14 to 17 years old	16	26	19	10	36	27	36	32	36	35	47	38	32	28	33	49	48	49	49
18 and 19 years old	205	308	306	435	417	453	528	561	604	556	521	546	545	577	543	714	720	710	706
20 and 21 years old	236	388	456	553	586	606	675	738	842	850	855	836	858	839	816	872	874	883	897
22 to 24 years old	564	765	796	886	992	1,095	1,059	1,174	1,212	1,348	1,314	1,313	1,217	1,235	1,250	1,362	1,350	1,344	1,365
25 to 29 years old	665	1,202	1,291	1,158	1,296	1,469	1,576	1,648	1,672	1,600	1,522	1,560	1,646	1,715	1,718	1,702	1,708	1,694	1,649
30 to 34 years old	414	954	1,001	915	891	1,036	1,079	1,060	1,025	973	942	960	1,000	1,006	1,002	869	885	902	922
35 years old and over	663	1,356	2,127	2,345	2,472	2,661	2,754	2,718	2,616	2,550	2,579	2,502	2,404	2,322	2,327	2,157	2,184	2,212	2,457
Males	**1,540**	**2,185**	**2,476**	**2,611**	**2,653**	**2,951**	**3,101**	**3,207**	**3,241**	**3,211**	**3,179**	**3,178**	**3,165**	**3,166**	**3,143**	**3,163**	**3,181**	**3,193**	**3,298**
14 to 17 years old	4	12	11	7	15	20	25	23	20	17	20	18	13	12	11	23	23	23	23
18 and 19 years old	94	149	127	212	184	188	226	245	273	246	239	271	270	272	239	293	296	291	289
20 and 21 years old	108	172	224	255	260	288	330	362	398	423	413	411	408	393	379	367	368	372	377
22 to 24 years old	318	359	361	388	428	449	430	508	552	610	576	553	538	566	571	627	620	617	625
25 to 29 years old	450	592	591	498	551	624	718	695	677	625	622	646	673	677	674	675	679	674	653
30 to 34 years old	257	422	435	395	365	442	428	430	401	383	377	401	405	417	409	391	399	408	420
35 years old and over	309	479	728	855	850	940	944	944	921	906	932	877	859	829	859	786	797	808	912
Females	**1,225**	**2,814**	**3,521**	**3,692**	**4,038**	**4,396**	**4,607**	**4,725**	**4,767**	**4,699**	**4,601**	**4,577**	**4,535**	**4,556**	**4,545**	**4,563**	**4,588**	**4,602**	**4,746**
14 to 17 years old	12	14	9	3	21	7	11	9	16	18	27	20	19	16	22	26	26	26	26
18 and 19 years old	112	159	179	223	233	265	303	316	332	310	283	274	275	305	303	421	425	419	417
20 and 21 years old	128	216	233	298	327	318	345	377	444	427	443	425	450	446	437	505	506	511	520
22 to 24 years old	246	407	435	497	564	646	629	666	660	738	738	760	679	668	679	735	729	727	740
25 to 29 years old	216	609	700	660	745	845	859	953	995	975	900	913	973	1,037	1,043	1,027	1,029	1,020	996
30 to 34 years old	158	532	567	520	526	595	651	630	624	589	565	559	595	589	593	478	485	495	503
35 years old and over	354	876	1,399	1,491	1,623	1,721	1,810	1,774	1,695	1,643	1,647	1,625	1,544	1,493	1,467	1,371	1,387	1,404	1,545

NOTE: Distributions by age are estimates based on samples of the civilian noninstitutionalized population from the U.S. Census Bureau's Current Population Survey. Data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1970 and 1980; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:90–99); IPEDS Spring 2001 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), October, selected years, 1970 through 2017. (This table was prepared March 2019.)

Table 16. Total undergraduate fall enrollment in degree-granting postsecondary institutions, by attendance status, sex of student, and control and level of institution: Selected years, 1970 through 2028

Level and year	Total	Full-time	Part-time	Males	Females	Males		Females		Public	Private		
						Full-time	Part-time	Full-time	Part-time		Total	Nonprofit	For-profit
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total, all levels													
1970	7,368,644	5,280,064	2,088,580	4,249,702	3,118,942	3,096,371	1,153,331	2,183,693	935,249	5,620,255	1,748,389	1,730,133	18,256
1975	9,679,455	6,168,396	3,511,059	5,257,005	4,422,450	3,459,328	1,797,677	2,709,068	1,713,382	7,826,032	1,853,423	1,814,844	38,579
1980	10,475,055	6,361,744	4,113,311	5,000,177	5,474,878	3,226,857	1,773,320	3,134,887	2,339,991	8,441,955	2,033,100	1,926,703	106,397
1985	10,596,674	6,319,592	4,277,082	4,962,080	5,634,594	3,156,446	1,805,634	3,163,146	2,471,448	8,477,125	2,119,549	1,928,996	190,553
1986	10,797,975	6,352,073	4,445,902	5,017,505	5,780,470	3,146,330	1,871,175	3,205,743	2,574,727	8,660,716	2,137,259	1,928,294	208,965
1987	11,046,235	6,462,549	4,583,686	5,068,457	5,977,778	3,163,676	1,904,781	3,298,873	2,678,905	8,918,589	2,127,646	1,939,942	187,704
1988	11,316,548	6,642,428	4,674,120	5,137,644	6,178,904	3,206,442	1,931,202	3,435,986	2,742,918	9,103,146	2,213,402	—	—
1989	11,742,531	6,840,696	4,901,835	5,310,990	6,431,541	3,278,647	2,032,343	3,562,049	2,869,492	9,487,742	2,254,789	—	—
1990	11,959,106	6,976,030	4,983,076	5,379,759	6,579,347	3,336,535	2,043,224	3,639,495	2,939,852	9,709,596	2,249,510	2,043,407	206,103
1991	12,439,287	7,221,412	5,217,875	5,571,003	6,868,284	3,435,526	2,135,477	3,785,886	3,082,398	10,147,957	2,291,330	2,072,354	218,976
1992	12,537,700	7,244,442	5,293,258	5,582,936	6,954,764	3,424,739	2,158,197	3,819,703	3,135,061	10,216,297	2,321,403	2,101,721	219,682
1993	12,323,959	7,179,482	5,144,477	5,483,682	6,840,277	3,381,997	2,101,685	3,797,485	3,042,792	10,011,787	2,312,172	2,099,197	212,975
1994	12,262,608	7,168,706	5,093,902	5,422,113	6,840,495	3,341,591	2,080,522	3,827,115	3,013,380	9,945,128	2,317,480	2,100,465	217,015
1995	12,231,719	7,145,268	5,086,451	5,401,130	6,830,589	3,296,610	2,104,520	3,848,658	2,981,931	9,903,626	2,328,093	2,104,693	223,400
1996	12,326,948	7,298,839	5,028,109	5,420,672	6,906,276	3,339,108	2,081,564	3,959,731	2,946,545	9,935,283	2,391,665	2,112,318	279,347
1997	12,450,587	7,418,598	5,031,989	5,468,532	6,982,055	3,379,597	2,088,935	4,039,001	2,943,054	10,007,479	2,443,108	2,139,824	303,284
1998	12,436,937	7,538,711	4,898,226	5,446,133	6,990,804	3,428,161	2,017,972	4,110,550	2,880,254	9,950,212	2,486,725	2,152,655	334,070
1999	12,739,445	7,753,548	4,985,897	5,584,234	7,155,211	3,524,586	2,059,648	4,228,962	2,926,249	10,174,228	2,565,217	2,185,290	379,927
2000	13,155,393	7,922,926	5,232,467	5,778,268	7,377,125	3,588,246	2,190,022	4,334,680	3,042,445	10,539,322	2,616,071	2,213,180	402,891
2001	13,715,610	8,327,640	5,387,970	6,004,431	7,711,179	3,768,630	2,235,801	4,559,010	3,152,169	10,985,871	2,729,739	2,257,718	472,021
2002	14,257,077	8,734,252	5,522,825	6,192,390	8,064,687	3,934,168	2,258,222	4,800,084	3,264,603	11,432,855	2,824,222	2,306,091	518,131
2003	14,480,364	9,045,253	5,435,111	6,227,372	8,252,992	4,048,682	2,178,690	4,996,571	3,256,421	11,523,103	2,957,261	2,346,673	610,588
2004	14,780,630	9,284,336	5,496,294	6,340,048	8,440,582	4,140,628	2,199,420	5,143,708	3,296,874	11,650,580	3,130,050	2,389,366	740,684
2005	14,963,964	9,446,430	5,517,534	6,408,871	8,555,093	4,200,863	2,208,008	5,245,567	3,309,526	11,697,730	3,266,234	2,418,368	847,866
2006	15,179,591	9,571,349	5,608,242	6,511,198	8,668,393	4,264,722	2,246,476	5,306,627	3,361,766	11,842,625	3,336,966	2,448,250	888,716
2007	15,613,540	9,841,973	5,771,567	6,731,561	8,881,979	4,397,402	2,334,159	5,444,571	3,437,408	12,147,744	3,465,796	2,470,463	995,333
2008	16,344,592	10,244,174	6,100,418	7,055,640	9,288,952	4,570,913	2,484,727	5,673,261	3,615,691	12,589,947	3,754,645	2,535,789	1,218,856
2009	17,464,179	11,038,275	6,425,904	7,563,176	9,901,003	4,942,120	2,621,056	6,096,155	3,804,848	13,386,375	4,077,804	2,595,171	1,482,633
2010	18,082,427	11,457,040	6,625,387	7,836,282	10,246,145	5,118,975	2,717,307	6,338,065	3,908,080	13,703,000	4,379,427	2,652,993	1,726,434
2011	18,077,303	11,365,175	6,712,128	7,822,992	10,254,311	5,070,553	2,752,439	6,294,622	3,959,689	13,694,899	4,382,404	2,718,923	1,663,481
2012	17,735,638	11,097,092	6,638,546	7,714,938	10,020,700	4,984,389	2,730,549	6,112,703	3,907,997	13,478,100	4,257,538	2,744,400	1,513,138
2013	17,476,304	10,939,276	6,537,028	7,660,140	9,816,164	4,950,210	2,709,930	5,989,066	3,827,098	13,348,292	4,128,012	2,755,463	1,372,549
2014	17,294,136	10,784,392	6,509,744	7,586,299	9,707,837	4,877,531	2,708,768	5,906,861	3,800,976	13,244,533	4,049,603	2,772,065	1,277,538
2015	17,046,673	10,603,030	6,443,643	7,502,254	9,544,419	4,809,098	2,693,156	5,793,932	3,750,487	13,150,823	3,895,850	2,822,122	1,073,728
2016	16,874,649	10,430,068	6,444,581	7,416,859	9,457,790	4,725,510	2,691,349	5,704,558	3,753,232	13,143,979	3,730,670	2,813,742	916,928
2017	16,760,331	10,370,665	6,389,666	7,347,438	9,412,893	4,683,665	2,663,773	5,687,000	3,725,893	13,100,953	3,659,378	2,817,017	842,361
2018[1]	16,813,000	10,393,000	6,421,000	7,372,000	9,441,000	4,692,000	2,680,000	5,701,000	3,740,000	13,144,000	3,669,000	—	—
2019[1]	16,877,000	10,421,000	6,456,000	7,399,000	9,478,000	4,703,000	2,696,000	5,718,000	3,761,000	13,195,000	3,682,000	—	—
2020[1]	16,897,000	10,418,000	6,478,000	7,407,000	9,490,000	4,701,000	2,706,000	5,718,000	3,772,000	13,213,000	3,684,000	—	—
2021[1]	16,920,000	10,415,000	6,506,000	7,412,000	9,508,000	4,695,000	2,718,000	5,720,000	3,788,000	13,234,000	3,686,000	—	—
2022[1]	16,949,000	10,416,000	6,533,000	7,422,000	9,527,000	4,692,000	2,730,000	5,724,000	3,803,000	13,259,000	3,690,000	—	—
2023[1]	16,990,000	10,428,000	6,562,000	7,440,000	9,551,000	4,696,000	2,743,000	5,732,000	3,818,000	13,293,000	3,697,000	—	—
2024[1]	17,047,000	10,457,000	6,590,000	7,463,000	9,584,000	4,708,000	2,755,000	5,749,000	3,835,000	13,338,000	3,709,000	—	—
2025[1]	17,106,000	10,493,000	6,613,000	7,488,000	9,618,000	4,725,000	2,763,000	5,769,000	3,850,000	13,385,000	3,722,000	—	—
2026[1]	17,175,000	10,531,000	6,644,000	7,520,000	9,655,000	4,743,000	2,777,000	5,788,000	3,867,000	13,439,000	3,736,000	—	—
2027[1]	17,206,000	10,538,000	6,668,000	7,536,000	9,670,000	4,748,000	2,788,000	5,790,000	3,880,000	13,465,000	3,741,000	—	—
2028[1]	17,214,000	10,528,000	6,686,000	7,539,000	9,675,000	4,744,000	2,795,000	5,785,000	3,890,000	13,474,000	3,740,000	—	—
2-year institutions[2]													
1970	2,318,956	1,228,909	1,090,047	1,374,426	944,530	771,298	603,128	457,611	486,919	2,194,983	123,973	113,299	10,674
1975	3,965,726	1,761,009	2,204,717	2,163,604	1,802,122	1,035,531	1,128,073	725,478	1,076,644	3,831,973	133,753	112,997	20,756
1980	4,525,097	1,753,637	2,771,460	2,046,642	2,478,455	879,619	1,167,023	874,018	1,604,437	4,327,592	197,505	114,094	83,411
1985	4,531,077	1,690,607	2,840,470	2,002,234	2,528,843	826,308	1,175,926	864,299	1,664,544	4,269,733	261,344	108,791	152,553
1986	4,679,548	1,696,261	2,983,287	2,060,932	2,618,616	824,551	1,236,381	871,710	1,746,906	4,413,691	265,857	101,498	164,359
1987	4,776,222	1,708,669	3,067,553	2,072,823	2,703,399	820,167	1,252,656	888,502	1,814,897	4,541,054	235,168	90,102	145,066
1988	4,875,155	1,743,592	3,131,563	2,089,689	2,785,466	818,593	1,271,096	924,999	1,860,467	4,615,487	259,668	—	—
1989	5,150,889	1,855,701	3,295,188	2,216,800	2,934,089	869,688	1,347,112	986,013	1,948,076	4,883,660	267,229	—	—
1990	5,240,083	1,883,962	3,356,121	2,232,769	3,007,314	881,392	1,351,377	1,002,570	2,004,744	4,996,475	243,608	89,158	154,450
1991	5,651,900	2,074,530	3,577,370	2,401,910	3,249,990	961,397	1,440,513	1,113,133	2,136,857	5,404,815	247,085	89,289	157,796
1992	5,722,349	2,080,005	3,642,344	2,413,266	3,309,083	951,816	1,461,450	1,128,189	2,180,894	5,484,514	237,835	83,288	154,547
1993	5,565,561	2,043,319	3,522,242	2,345,396	3,220,165	928,216	1,417,180	1,115,103	2,105,062	5,337,022	228,539	86,357	142,182
1994	5,529,609	2,031,713	3,497,896	2,323,161	3,206,448	911,589	1,411,572	1,120,124	2,086,324	5,308,366	221,243	85,607	135,636
1995	5,492,098	1,977,046	3,515,052	2,328,500	3,163,598	878,215	1,450,285	1,098,831	2,064,767	5,277,398	214,700	75,154	139,546
1996	5,562,780	2,072,215	3,490,565	2,358,792	3,203,988	916,452	1,442,340	1,155,763	2,048,225	5,314,038	248,742	75,253	173,489
1997	5,605,569	2,095,171	3,510,398	2,389,711	3,215,858	931,394	1,458,317	1,163,777	2,052,081	5,360,686	244,883	71,794	173,089
1998	5,489,314	2,085,906	3,403,408	2,333,334	3,155,980	936,421	1,396,913	1,149,485	2,006,495	5,245,963	243,351	65,870	177,481
1999	5,653,256	2,167,242	3,486,014	2,413,322	3,239,934	979,203	1,434,119	1,188,039	2,051,895	5,397,786	255,470	63,301	192,169
2000	5,948,104	2,217,044	3,731,060	2,558,520	3,389,584	995,839	1,562,681	1,221,205	2,168,379	5,697,061	251,043	58,844	192,199
2001	6,250,529	2,374,490	3,876,039	2,675,193	3,575,336	1,066,281	1,608,912	1,308,209	2,267,127	5,996,651	253,878	47,549	206,329
2002	6,529,198	2,556,032	3,973,166	2,753,405	3,775,793	1,135,669	1,617,736	1,420,363	2,355,430	6,270,199	258,999	47,087	211,912
2003	6,493,862	2,650,337	3,843,525	2,689,928	3,803,934	1,162,555	1,527,373	1,487,782	2,316,152	6,208,885	284,977	43,868	241,109
2004	6,545,570	2,683,489	3,862,081	2,697,507	3,848,063	1,166,554	1,530,953	1,516,935	2,331,128	6,243,344	302,226	42,250	259,976
2005	6,487,826	2,646,763	3,841,063	2,680,299	3,807,527	1,153,759	1,526,540	1,493,004	2,314,523	6,184,000	303,826	43,522	260,304
2006	6,513,303	2,643,162	3,870,141	2,701,970	3,811,333	1,159,733	1,542,237	1,483,429	2,327,904	6,219,880	293,423	39,156	254,267
2007	6,628,936	2,694,608	3,934,328	2,775,166	3,853,770	1,191,058	1,584,108	1,503,550	2,350,220	6,335,826	293,110	33,492	259,618
2008	6,970,947	2,832,412	4,138,535	2,935,799	4,035,148	1,250,063	1,685,736	1,582,349	2,452,799	6,639,928	331,019	35,358	295,661
2009	7,522,581	3,243,952	4,278,629	3,197,338	4,325,243	1,446,372	1,750,966	1,797,580	2,527,663	7,101,569	421,012	34,772	386,240

See notes at end of table.

Table 16. Total undergraduate fall enrollment in degree-granting postsecondary institutions, by attendance status, sex of student, and control and level of institution: Selected years, 1970 through 2028—Continued

Level and year	Total	Full-time	Part-time	Males	Females	Males		Females		Public	Private		
						Full-time	Part-time	Full-time	Part-time		Total	Nonprofit	For-profit
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2010	7,683,597	3,365,379	4,318,218	3,265,885	4,417,712	1,483,230	1,782,655	1,882,149	2,535,563	7,218,063	465,534	32,683	432,851
2011	7,511,150	3,170,207	4,340,943	3,175,803	4,335,347	1,391,183	1,784,620	1,779,024	2,556,323	7,068,158	442,992	39,855	403,137
2012	7,167,840	2,941,797	4,226,043	3,046,093	4,121,747	1,305,657	1,740,436	1,636,140	2,485,607	6,792,065	375,775	37,698	338,077
2013	6,970,644	2,836,274	4,134,370	2,998,440	3,972,204	1,279,794	1,718,646	1,556,480	2,415,724	6,626,411	344,233	32,191	312,042
2014	6,714,678	2,661,107	4,053,571	2,894,020	3,820,658	1,200,648	1,693,372	1,460,459	2,360,199	6,397,552	317,126	30,376	286,750
2015	6,499,461	2,510,684	3,988,777	2,818,075	3,681,386	1,143,704	1,674,371	1,366,980	2,314,406	6,224,304	275,157	50,009	225,148
2016	6,092,418	2,309,347	3,783,071	2,637,394	3,455,024	1,057,839	1,579,555	1,251,508	2,203,516	5,842,909	249,509	50,555	198,954
2017	5,941,958	2,227,977	3,713,981	2,563,062	3,378,896	1,013,848	1,549,214	1,214,129	2,164,767	5,706,678	235,280	48,390	186,890
2018[1]	5,965,000	2,233,000	3,732,000	2,574,000	3,390,000	1,016,000	1,559,000	1,217,000	2,173,000	5,729,000	236,000	—	—
2019[1]	5,991,000	2,239,000	3,753,000	2,586,000	3,406,000	1,018,000	1,568,000	1,221,000	2,185,000	5,755,000	237,000	—	—
2020[1]	6,004,000	2,238,000	3,766,000	2,591,000	3,412,000	1,018,000	1,574,000	1,221,000	2,192,000	5,767,000	237,000	—	—
2021[1]	6,019,000	2,237,000	3,781,000	2,597,000	3,422,000	1,016,000	1,581,000	1,221,000	2,201,000	5,782,000	237,000	—	—
2022[1]	6,035,000	2,238,000	3,797,000	2,604,000	3,431,000	1,016,000	1,588,000	1,222,000	2,209,000	5,798,000	237,000	—	—
2023[1]	6,054,000	2,240,000	3,814,000	2,612,000	3,442,000	1,017,000	1,596,000	1,224,000	2,219,000	5,817,000	237,000	—	—
2024[1]	6,077,000	2,247,000	3,830,000	2,621,000	3,456,000	1,019,000	1,602,000	1,227,000	2,228,000	5,839,000	238,000	—	—
2025[1]	6,098,000	2,254,000	3,844,000	2,630,000	3,468,000	1,023,000	1,607,000	1,232,000	2,237,000	5,859,000	239,000	—	—
2026[1]	6,124,000	2,262,000	3,862,000	2,642,000	3,483,000	1,027,000	1,615,000	1,236,000	2,247,000	5,884,000	240,000	—	—
2027[1]	6,140,000	2,264,000	3,876,000	2,649,000	3,491,000	1,028,000	1,621,000	1,236,000	2,255,000	5,900,000	240,000	—	—
2028[1]	6,148,000	2,262,000	3,886,000	2,653,000	3,495,000	1,027,000	1,626,000	1,235,000	2,260,000	5,908,000	240,000	—	—
4-year institutions													
1970	5,049,688	4,051,155	998,533	2,875,276	2,174,412	2,325,073	550,203	1,726,082	448,330	3,425,272	1,624,416	1,616,834	7,582
1975	5,713,729	4,407,387	1,306,342	3,093,401	2,620,328	2,423,797	669,604	1,983,590	636,738	3,994,059	1,719,670	1,701,847	17,823
1980	5,949,958	4,608,107	1,341,851	2,953,535	2,996,423	2,347,238	606,297	2,260,869	735,554	4,114,363	1,835,595	1,812,609	22,986
1985	6,065,597	4,628,985	1,436,612	2,959,846	3,105,751	2,330,138	629,708	2,298,847	806,904	4,207,392	1,858,205	1,820,205	38,000
1986	6,118,427	4,655,812	1,462,615	2,956,573	3,161,854	2,321,779	634,794	2,334,033	827,821	4,247,025	1,871,402	1,826,796	44,606
1987	6,270,013	4,753,880	1,516,133	2,995,634	3,274,379	2,343,509	652,125	2,410,371	864,008	4,377,535	1,892,478	1,849,840	42,638
1988	6,441,393	4,898,836	1,542,557	3,047,955	3,393,438	2,387,849	660,106	2,510,987	882,451	4,487,659	1,953,734	—	—
1989	6,591,642	4,984,995	1,606,647	3,094,190	3,497,452	2,408,959	685,231	2,576,036	921,416	4,604,082	1,987,560	—	—
1990	6,719,023	5,092,068	1,626,955	3,146,990	3,572,033	2,455,143	691,847	2,636,925	935,108	4,713,121	2,005,902	1,954,249	51,653
1991	6,787,387	5,146,882	1,640,505	3,169,093	3,618,294	2,474,129	694,964	2,672,753	945,541	4,743,142	2,044,245	1,983,065	61,180
1992	6,815,351	5,164,437	1,650,914	3,169,670	3,645,681	2,472,923	696,747	2,691,514	954,167	4,731,783	2,083,568	2,018,433	65,135
1993	6,758,398	5,136,163	1,622,235	3,138,286	3,620,112	2,453,781	684,505	2,682,382	937,730	4,674,765	2,083,633	2,012,840	70,793
1994	6,732,999	5,136,993	1,596,006	3,098,952	3,634,047	2,430,002	668,950	2,706,991	927,056	4,636,762	2,096,237	2,014,858	81,379
1995	6,739,621	5,168,222	1,571,399	3,072,630	3,666,991	2,418,395	654,235	2,749,827	917,164	4,626,228	2,113,393	2,029,539	83,854
1996	6,764,168	5,226,624	1,537,544	3,061,880	3,702,288	2,422,656	639,224	2,803,968	898,320	4,621,245	2,142,923	2,037,065	105,858
1997	6,845,018	5,323,427	1,521,591	3,078,821	3,766,197	2,448,203	630,618	2,875,224	890,973	4,646,793	2,198,225	2,068,030	130,195
1998	6,947,623	5,452,805	1,494,818	3,112,799	3,834,824	2,491,740	621,059	2,961,065	873,759	4,704,249	2,243,374	2,086,785	156,589
1999	7,086,189	5,586,306	1,499,883	3,170,912	3,915,277	2,545,383	625,529	3,040,923	874,354	4,776,442	2,309,747	2,121,989	187,758
2000	7,207,289	5,705,882	1,501,407	3,219,748	3,987,541	2,592,407	627,341	3,113,475	874,066	4,842,261	2,365,028	2,154,336	210,692
2001	7,465,081	5,953,150	1,511,931	3,329,238	4,135,843	2,702,349	626,889	3,250,801	885,042	4,989,220	2,475,861	2,210,169	265,692
2002	7,727,879	6,178,220	1,549,659	3,438,985	4,288,894	2,798,499	640,486	3,379,721	909,173	5,162,656	2,565,223	2,259,004	306,219
2003	7,986,502	6,394,916	1,591,586	3,537,444	4,449,058	2,886,127	651,317	3,508,789	940,269	5,314,218	2,672,284	2,302,805	369,479
2004	8,235,060	6,600,847	1,634,213	3,642,541	4,592,519	2,974,074	668,467	3,626,773	965,746	5,407,236	2,827,824	2,347,116	480,708
2005	8,476,138	6,799,667	1,676,471	3,728,572	4,747,566	3,047,104	681,468	3,752,563	995,003	5,513,730	2,962,408	2,374,846	587,562
2006	8,666,288	6,928,187	1,738,101	3,809,228	4,857,060	3,104,989	704,239	3,823,198	1,033,862	5,622,745	3,043,543	2,409,094	634,449
2007	8,984,604	7,147,365	1,837,239	3,956,395	5,028,209	3,206,344	750,051	3,941,021	1,087,188	5,811,918	3,172,686	2,436,971	735,715
2008	9,373,645	7,411,762	1,961,883	4,119,841	5,253,804	3,320,850	798,991	4,090,912	1,162,892	5,950,019	3,423,626	2,500,431	923,195
2009	9,941,598	7,794,323	2,147,275	4,365,838	5,575,760	3,495,748	870,090	4,298,575	1,277,185	6,284,806	3,656,792	2,560,399	1,096,393
2010	10,398,830	8,091,661	2,307,169	4,570,397	5,828,433	3,635,745	934,652	4,455,916	1,372,517	6,484,937	3,913,893	2,620,310	1,293,583
2011	10,566,153	8,194,968	2,371,185	4,647,189	5,918,964	3,679,370	967,819	4,515,598	1,403,366	6,626,741	3,939,412	2,679,068	1,260,344
2012	10,567,798	8,155,295	2,412,503	4,668,845	5,898,953	3,678,732	990,113	4,476,563	1,422,390	6,686,035	3,881,763	2,706,702	1,175,061
2013	10,505,660	8,103,002	2,402,658	4,661,700	5,843,960	3,670,416	991,284	4,432,586	1,411,374	6,721,881	3,783,779	2,723,272	1,060,507
2014	10,579,458	8,123,285	2,456,173	4,692,279	5,887,179	3,676,883	1,015,396	4,446,402	1,440,777	6,846,981	3,732,477	2,741,689	990,788
2015	10,547,212	8,092,346	2,454,866	4,684,179	5,863,033	3,665,394	1,018,785	4,426,952	1,436,081	6,926,519	3,620,693	2,772,113	848,580
2016	10,782,231	8,120,721	2,661,510	4,779,465	6,002,766	3,667,671	1,111,794	4,453,050	1,549,716	7,301,070	3,481,161	2,763,187	717,974
2017	10,818,373	8,142,688	2,675,685	4,784,376	6,033,997	3,669,817	1,114,559	4,472,871	1,561,126	7,394,275	3,424,098	2,768,627	655,471
2018[1]	10,849,000	8,160,000	2,689,000	4,797,000	6,051,000	3,676,000	1,122,000	4,484,000	1,567,000	7,415,000	3,433,000	—	—
2019[1]	10,885,000	8,182,000	2,704,000	4,813,000	6,073,000	3,685,000	1,128,000	4,497,000	1,576,000	7,441,000	3,445,000	—	—
2020[1]	10,893,000	8,180,000	2,713,000	4,815,000	6,078,000	3,683,000	1,132,000	4,497,000	1,581,000	7,446,000	3,447,000	—	—
2021[1]	10,902,000	8,177,000	2,724,000	4,816,000	6,086,000	3,678,000	1,137,000	4,499,000	1,587,000	7,452,000	3,450,000	—	—
2022[1]	10,914,000	8,179,000	2,736,000	4,819,000	6,095,000	3,676,000	1,142,000	4,502,000	1,593,000	7,461,000	3,453,000	—	—
2023[1]	10,936,000	8,188,000	2,748,000	4,828,000	6,108,000	3,680,000	1,148,000	4,508,000	1,600,000	7,476,000	3,460,000	—	—
2024[1]	10,970,000	8,211,000	2,759,000	4,842,000	6,129,000	3,689,000	1,153,000	4,522,000	1,607,000	7,499,000	3,471,000	—	—
2025[1]	11,008,000	8,239,000	2,769,000	4,858,000	6,150,000	3,702,000	1,156,000	4,537,000	1,613,000	7,525,000	3,483,000	—	—
2026[1]	11,050,000	8,268,000	2,782,000	4,878,000	6,172,000	3,716,000	1,162,000	4,552,000	1,620,000	7,554,000	3,496,000	—	—
2027[1]	11,066,000	8,274,000	2,792,000	4,887,000	6,179,000	3,720,000	1,166,000	4,554,000	1,626,000	7,565,000	3,501,000	—	—
2028[1]	11,066,000	8,267,000	2,800,000	4,887,000	6,180,000	3,717,000	1,170,000	4,550,000	1,630,000	7,566,000	3,501,000	—	—

—Not available.
[1]Projected.
[2]Beginning in 1980, 2-year institutions include schools accredited by the Accrediting Commission of Career Schools and Colleges of Technology.
NOTE: Data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1970 through 1985; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:86–99); IPEDS Spring 2001 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This table was prepared March 2019.)

Table 17. Total postbaccalaureate fall enrollment in degree-granting postsecondary institutions, by attendance status, sex of student, and control of institution: 1970 through 2028

Year	Total	Full-time	Part-time	Males	Females	Males		Females		Public	Private		
						Full-time	Part-time	Full-time	Part-time		Total	Nonprofit	For-profit
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1970	1,212,243	536,226	676,017	793,940	418,303	407,724	386,216	128,502	289,801	807,879	404,364	404,287	77
1971	1,204,390	564,236	640,154	789,131	415,259	428,167	360,964	136,069	279,190	796,516	407,874	407,804	70
1972	1,272,421	583,299	689,122	810,164	462,257	436,533	373,631	146,766	315,491	848,031	424,390	424,278	112
1973	1,342,452	610,935	731,517	833,453	508,999	444,219	389,234	166,716	342,283	897,104	445,348	445,205	143
1974	1,425,001	643,927	781,074	856,847	568,154	454,706	402,141	189,221	378,933	956,770	468,231	467,950	281
1975	1,505,404	672,938	832,466	891,992	613,412	467,425	424,567	205,513	407,899	1,008,476	496,928	496,604	324
1976	1,577,546	683,825	893,721	904,551	672,995	459,286	445,265	224,539	448,456	1,033,115	544,431	541,064	3,367
1977	1,569,084	698,902	870,182	891,819	677,265	462,038	429,781	236,864	440,401	1,004,013	565,071	561,384	3,687
1978	1,575,693	704,831	870,862	879,931	695,762	458,865	421,066	245,966	449,796	998,608	577,085	573,563	3,522
1979	1,571,922	714,624	857,298	862,754	709,168	456,197	406,557	258,427	450,741	989,991	581,931	578,425	3,506
1980	1,621,840	736,214	885,626	874,197	747,643	462,387	411,810	273,827	473,816	1,015,439	606,401	601,084	5,317
1981	1,617,150	732,182	884,968	866,785	750,365	452,364	414,421	279,818	470,547	998,669	618,481	613,557	4,924
1982	1,600,718	736,813	863,905	860,890	739,828	453,519	407,371	283,294	456,534	983,014	617,704	613,350	4,354
1983	1,618,666	747,016	871,650	865,425	753,241	455,540	409,885	291,476	461,765	985,616	633,050	628,111	4,939
1984	1,623,869	750,735	873,134	856,761	767,108	452,579	404,182	298,156	468,952	983,879	639,990	634,109	5,881
1985	1,650,381	755,629	894,752	856,370	794,011	451,274	405,096	304,355	489,656	1,002,148	648,233	642,795	5,438
1986	1,705,536	767,477	938,059	867,010	838,526	452,717	414,293	314,760	523,766	1,053,177	652,359	644,185	8,174
1987	1,720,407	768,536	951,871	863,599	856,808	447,212	416,387	321,324	535,484	1,054,665	665,742	662,408	3,334
1988	1,738,789	794,340	944,449	864,252	874,537	455,337	408,915	339,003	535,534	1,058,242	680,547	—	—
1989	1,796,029	820,254	975,775	879,025	917,004	461,596	417,429	358,658	558,346	1,090,221	705,808	—	—
1990	1,859,531	844,955	1,014,576	904,150	955,381	471,217	432,933	373,738	581,643	1,135,121	724,410	716,820	7,590
1991	1,919,666	893,917	1,025,749	930,841	988,825	493,849	436,992	400,068	588,757	1,161,606	758,060	746,687	11,373
1992	1,949,659	917,676	1,031,983	941,053	1,008,606	502,166	438,887	415,510	593,096	1,168,270	781,389	770,802	10,587
1993	1,980,844	948,136	1,032,708	943,768	1,037,076	508,574	435,194	439,562	597,514	1,177,301	803,543	789,700	13,843
1994	2,016,182	969,070	1,047,112	949,785	1,066,397	513,592	436,193	455,478	610,919	1,188,552	827,630	809,642	17,988
1995	2,030,062	983,534	1,046,528	941,409	1,088,653	510,782	430,627	472,752	615,901	1,188,748	841,314	824,351	16,963
1996	2,040,572	1,004,114	1,036,458	932,153	1,108,419	512,100	420,053	492,014	616,405	1,185,216	855,356	830,238	25,118
1997	2,051,747	1,019,464	1,032,283	927,496	1,124,251	510,845	416,651	508,619	615,632	1,188,640	863,107	837,790	25,317
1998	2,070,030	1,024,627	1,045,403	923,132	1,146,898	505,492	417,640	519,135	627,763	1,187,557	882,473	852,270	30,203
1999	2,110,246	1,049,591	1,060,655	930,930	1,179,316	508,930	422,000	540,661	638,655	1,201,511	908,735	869,739	38,996
2000	2,156,896	1,086,674	1,070,222	943,501	1,213,395	522,847	420,654	563,827	649,568	1,213,464	943,432	896,239	47,193
2001	2,212,377	1,119,862	1,092,515	956,384	1,255,993	531,260	425,124	588,602	667,391	1,247,285	965,092	909,612	55,480
2002	2,354,634	1,212,107	1,142,527	1,009,726	1,344,908	566,930	442,796	645,177	699,731	1,319,138	1,035,496	959,385	76,111
2003	2,431,117	1,280,880	1,150,237	1,032,892	1,398,225	589,190	443,702	691,690	706,535	1,335,595	1,095,522	994,375	101,147
2004	2,491,414	1,325,841	1,165,573	1,047,214	1,444,200	598,727	448,487	727,114	717,086	1,329,532	1,161,882	1,022,319	139,563
2005	2,523,511	1,350,581	1,172,930	1,047,054	1,476,457	602,525	444,529	748,056	728,401	1,324,104	1,199,407	1,036,324	163,083
2006	2,574,639	1,386,189	1,188,450	1,061,067	1,513,572	614,706	446,361	771,483	742,089	1,332,725	1,241,914	1,064,679	177,235
2007	2,644,598	1,428,956	1,215,642	1,088,377	1,556,221	632,619	455,758	796,337	759,884	1,353,150	1,291,448	1,100,932	190,516
2008	2,737,094	1,490,462	1,246,632	1,122,074	1,615,020	656,213	465,861	834,249	780,771	1,380,915	1,356,179	1,125,038	231,141
2009	2,849,415	1,567,080	1,282,335	1,169,777	1,679,638	689,977	479,800	877,103	802,535	1,424,393	1,425,022	1,172,501	252,521
2010	2,937,011	1,630,142	1,306,869	1,209,477	1,727,534	719,408	490,069	910,734	816,800	1,439,171	1,497,840	1,201,489	296,351
2011	2,933,287	1,637,356	1,295,931	1,211,264	1,722,023	722,265	488,999	915,091	806,932	1,421,404	1,511,883	1,207,896	303,987
2012	2,908,840	1,637,312	1,271,528	1,204,068	1,704,772	724,017	480,051	913,295	791,477	1,406,567	1,502,273	1,206,988	295,285
2013	2,900,373	1,657,334	1,243,039	1,201,057	1,699,316	732,112	468,945	925,222	774,094	1,398,556	1,501,817	1,215,927	285,890
2014	2,914,956	1,670,072	1,244,884	1,211,231	1,703,725	742,247	468,984	927,825	775,900	1,410,127	1,504,829	1,225,184	279,645
2015	2,941,531	1,684,482	1,257,049	1,221,565	1,719,966	749,349	472,216	935,133	784,833	1,422,020	1,519,511	1,243,769	275,742
2016	2,972,255	1,695,246	1,277,009	1,221,563	1,750,692	747,288	474,275	947,958	802,734	1,441,861	1,530,394	1,265,214	265,180
2017	3,005,267	1,706,639	1,298,628	1,220,194	1,785,073	740,910	479,284	965,729	819,344	1,459,202	1,546,065	1,289,460	256,605
2018[1]	3,015,000	1,710,000	1,305,000	1,224,000	1,791,000	742,000	482,000	968,000	823,000	1,464,000	1,551,000	—	—
2019[1]	3,027,000	1,715,000	1,312,000	1,229,000	1,798,000	744,000	485,000	971,000	827,000	1,470,000	1,557,000	—	—
2020[1]	3,031,000	1,715,000	1,316,000	1,231,000	1,800,000	744,000	487,000	971,000	830,000	1,472,000	1,559,000	—	—
2021[1]	3,036,000	1,714,000	1,322,000	1,232,000	1,804,000	743,000	489,000	971,000	833,000	1,474,000	1,562,000	—	—
2022[1]	3,042,000	1,714,000	1,327,000	1,234,000	1,808,000	742,000	491,000	972,000	836,000	1,477,000	1,565,000	—	—
2023[1]	3,050,000	1,716,000	1,333,000	1,237,000	1,813,000	743,000	494,000	973,000	840,000	1,481,000	1,569,000	—	—
2024[1]	3,060,000	1,721,000	1,339,000	1,240,000	1,820,000	745,000	496,000	976,000	843,000	1,486,000	1,574,000	—	—
2025[1]	3,071,000	1,727,000	1,344,000	1,245,000	1,826,000	747,000	497,000	980,000	847,000	1,491,000	1,579,000	—	—
2026[1]	3,083,000	1,733,000	1,350,000	1,250,000	1,833,000	750,000	500,000	983,000	850,000	1,497,000	1,586,000	—	—
2027[1]	3,089,000	1,734,000	1,355,000	1,253,000	1,836,000	751,000	502,000	983,000	853,000	1,500,000	1,589,000	—	—
2028[1]	3,091,000	1,733,000	1,359,000	1,253,000	1,838,000	750,000	503,000	982,000	856,000	1,501,000	1,590,000	—	—

—Not available.
[1]Projected.
NOTE: Data include unclassified graduate students. Data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1970 through 1985; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:86–99); IPEDS Spring 2001 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This table was prepared March 2019.)

Table 18. Total fall enrollment of first-time degree/certificate-seeking students in degree-granting postsecondary institutions, by attendance status, sex of student, and level and control of institution: 1960 through 2028

Year	Total	Full-time	Part-time	Males			Females			4-year		2-year	
				Total	Full-time	Part-time	Total	Full-time	Part-time	Public	Private	Public	Private
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1960[1]	923,069	—	—	539,512	—	—	383,557	—	—	395,884[2]	313,209[2]	181,860[2]	32,116[2]
1961[1]	1,018,361	—	—	591,913	—	—	426,448	—	—	438,135[2]	336,449[2]	210,101[2]	33,676[2]
1962[1]	1,030,554	—	—	598,099	—	—	432,455	—	—	445,191[2]	324,923[2]	224,537[2]	35,903[2]
1963[1]	1,046,424	—	—	604,282	—	—	442,142	—	—	—	—	—	—
1964[1]	1,224,840	—	—	701,524	—	—	523,316	—	—	539,251[2]	363,348[2]	275,413[2]	46,828[2]
1965[1]	1,441,822	—	—	829,215	—	—	612,607	—	—	642,233[2]	398,792[2]	347,788[2]	53,009[2]
1966	1,554,337	—	—	889,516	—	—	664,821	—	—	626,472[2]	382,889[2]	478,459[2]	66,517[2]
1967	1,640,936	1,335,512	305,424	931,127	761,299	169,828	709,809	574,213	135,596	644,525	368,300	561,488	66,623
1968	1,892,849	1,470,653	422,196	1,082,367	847,005	235,362	810,482	623,648	186,834	724,377	378,052	718,562	71,858
1969	1,967,104	1,525,290	441,814	1,118,269	876,280	241,989	848,835	649,010	199,825	699,167	391,508	814,132	62,297
1970	2,063,397	1,587,072	476,325	1,151,960	896,281	255,679	911,437	690,791	220,646	717,449	395,886	890,703	59,359
1971	2,119,018	1,606,036	512,982	1,170,518	895,715	274,803	948,500	710,321	238,179	704,052	384,695	971,295	58,976
1972	2,152,778	1,574,197	578,581	1,157,501	858,254	299,247	995,277	715,943	279,334	680,337	380,982	1,036,616	54,843
1973	2,226,041	1,607,269	618,772	1,182,173	867,314	314,859	1,043,868	739,955	303,913	698,777	378,994	1,089,182	59,088
1974	2,365,761	1,673,333	692,428	1,243,790	896,077	347,713	1,121,971	777,256	344,715	745,637	386,391	1,175,759	57,974
1975	2,515,155	1,763,296	751,859	1,327,935	942,198	385,737	1,187,220	821,098	366,122	771,725	395,440	1,283,523	64,467
1976	2,347,014	1,662,333	684,681	1,170,326	854,597	315,729	1,176,688	807,736	368,952	717,373	413,961	1,152,944	62,736
1977	2,394,426	1,680,916	713,510	1,155,856	839,848	316,008	1,238,570	841,068	397,502	737,497	404,631	1,185,648	66,650
1978	2,389,627	1,650,848	738,779	1,141,777	817,294	324,483	1,247,850	833,554	414,296	736,703	406,669	1,173,544	72,711
1979	2,502,896	1,706,732	796,164	1,179,846	840,315	339,531	1,323,050	866,417	456,633	760,119	415,126	1,253,854	73,797
1980	2,587,644	1,749,928	837,716	1,218,961	862,458	356,503	1,368,683	887,470	481,213	765,395	417,937	1,313,591	90,721[3]
1981	2,595,421	1,737,714	857,707	1,217,680	851,833	365,847	1,377,741	885,881	491,860	754,007	419,257	1,318,436	103,721[3]
1982	2,505,466	1,688,620	816,846	1,199,237	837,223	362,014	1,306,229	851,397	454,832	730,775	404,252	1,254,193	116,246[3]
1983	2,443,703	1,678,071	765,632	1,159,049	824,609	334,440	1,284,654	853,462	431,192	728,244	403,882	1,189,869	121,708
1984	2,356,898	1,613,185	743,713	1,112,303	786,099	326,204	1,244,595	827,086	417,509	713,790	402,959	1,130,311	109,838
1985	2,292,222	1,602,038	690,184	1,075,736	774,858	300,878	1,216,486	827,180	389,306	717,199	398,556	1,060,275	116,192
1986	2,219,208	1,589,451	629,757	1,046,527	768,856	277,671	1,172,681	820,595	352,086	719,974	391,673	990,973	116,588
1987	2,246,359	1,626,719	619,640	1,046,615	779,226	267,389	1,199,744	847,493	352,251	757,833	405,113	979,820	103,593
1988	2,378,803	1,698,927	679,876	1,100,026	807,319	292,707	1,278,777	891,608	387,169	783,358	425,907	1,048,914	120,624
1989	2,341,035	1,656,594	684,441	1,094,750	791,295	303,455	1,246,285	865,299	380,986	762,217	413,836	1,048,529	116,453
1990	2,256,624	1,617,118	639,506	1,045,191	771,372	273,819	1,211,433	845,746	365,687	727,264	400,120	1,041,097	88,143
1991	2,277,920	1,652,983	624,937	1,068,433	798,043	270,390	1,209,487	854,940	354,547	717,697	392,904	1,070,048	97,271
1992	2,184,113	1,603,737	580,376	1,013,058	760,290	252,768	1,171,055	843,447	327,608	697,393	408,306	993,074	85,340
1993	2,160,710	1,608,274	552,436	1,007,647	762,240	245,407	1,153,063	846,034	307,029	702,273	410,688	973,545	74,204
1994	2,133,205	1,603,106	530,099	984,558	751,081	233,477	1,148,647	852,025	296,622	709,042	405,917	952,468	65,778
1995	2,168,831	1,646,812	522,019	1,001,052	767,185	233,867	1,167,779	879,627	288,152	731,836	419,025	954,595	63,375
1996	2,274,319	1,739,852	534,467	1,046,662	805,982	240,680	1,227,657	933,870	293,787	741,164	427,442	989,536	116,177
1997	2,219,255	1,733,512	485,743	1,026,058	806,054	220,004	1,193,197	927,458	265,739	755,362	442,397	923,954	97,542
1998	2,212,593	1,775,412	437,181	1,022,656	825,577	197,079	1,189,937	949,835	240,102	792,772	460,948	858,417	100,456
1999	2,357,590	1,849,741	507,849	1,094,539	865,545	228,994	1,263,051	984,196	278,855	819,503	474,223	955,499	108,365
2000	2,427,551	1,918,093	509,458	1,123,948	894,432	229,516	1,303,603	1,023,661	279,942	842,228	498,532	952,175	134,616
2001	2,497,078	1,989,179	507,899	1,152,837	926,393	226,444	1,344,241	1,062,786	281,455	866,619	508,030	988,726	133,703
2002	2,570,611	2,053,065	517,546	1,170,609	945,938	224,671	1,400,002	1,107,127	292,875	886,297	517,621	1,037,267	129,426
2003	2,591,754	2,102,394	489,360	1,175,856	965,075	210,781	1,415,898	1,137,319	278,579	918,602	537,726	1,004,428	130,998
2004	2,630,243	2,147,546	482,697	1,190,268	981,591	208,677	1,439,975	1,165,955	274,020	925,249	562,485	1,009,082	133,427
2005	2,657,338	2,189,884	467,454	1,200,055	995,610	204,445	1,457,283	1,194,274	263,009	953,903	606,712	977,224	119,499
2006	2,707,205	2,220,184	487,021	1,228,703	1,015,786	212,917	1,478,502	1,204,398	274,104	990,077	598,266	1,013,419	105,443
2007	2,777,168	2,295,518	481,650	1,268,137	1,053,375	214,762	1,509,031	1,242,143	266,888	1,023,789	633,772	1,016,636	102,971
2008	3,022,736	2,425,987	596,749	1,388,441	1,114,724	273,717	1,634,295	1,311,263	323,032	1,053,829	672,372	1,186,640	109,895
2009	3,156,882	2,534,440	622,442	1,464,424	1,177,119	287,305	1,692,458	1,357,321	335,137	1,090,980	658,808	1,275,974	131,120
2010	3,156,727	2,533,636	623,091	1,461,016	1,171,090	289,926	1,695,711	1,362,546	333,165	1,110,601	674,573	1,238,491	133,062
2011	3,091,496	2,479,155	612,341	1,424,140	1,140,843	283,297	1,667,356	1,338,312	329,044	1,131,091	656,864	1,195,083	108,458
2012	2,994,187	2,408,063	586,124	1,387,316	1,115,266	272,050	1,606,871	1,292,797	314,074	1,128,344	642,716	1,137,927	85,200
2013	2,985,366	2,415,969	569,397	1,383,852	1,117,525	266,327	1,601,514	1,298,444	303,070	1,144,102	633,184	1,126,978	81,102
2014	2,925,998	2,383,328	542,670	1,355,164	1,100,005	255,159	1,570,834	1,283,323	287,511	1,170,639	612,162	1,070,625	72,572
2015	2,882,949	2,368,283	514,666	1,338,853	1,096,976	241,877	1,544,096	1,271,307	272,789	1,190,206	599,242	1,031,117	62,384
2016	2,882,991	2,369,021	513,970	1,333,598	1,093,968	239,630	1,549,393	1,275,053	274,340	1,259,214	581,098	981,029	61,650
2017	2,880,171	2,377,035	503,136	1,323,424	1,091,425	231,999	1,556,747	1,285,610	271,137	1,285,506	588,659	951,618	54,388
2018[4]	2,889,000	—	—	1,327,000	—	—	1,561,000	—	—	—	—	—	—
2019[4]	2,900,000	—	—	1,332,000	—	—	1,568,000	—	—	—	—	—	—
2020[4]	2,903,000	—	—	1,334,000	—	—	1,570,000	—	—	—	—	—	—
2021[4]	2,907,000	—	—	1,335,000	—	—	1,572,000	—	—	—	—	—	—
2022[4]	2,912,000	—	—	1,337,000	—	—	1,576,000	—	—	—	—	—	—
2023[4]	2,919,000	—	—	1,340,000	—	—	1,580,000	—	—	—	—	—	—
2024[4]	2,929,000	—	—	1,344,000	—	—	1,585,000	—	—	—	—	—	—
2025[4]	2,939,000	—	—	1,348,000	—	—	1,591,000	—	—	—	—	—	—
2026[4]	2,951,000	—	—	1,354,000	—	—	1,597,000	—	—	—	—	—	—
2027[4]	2,956,000	—	—	1,357,000	—	—	1,599,000	—	—	—	—	—	—
2028[4]	2,958,000	—	—	1,358,000	—	—	1,600,000	—	—	—	—	—	—

—Not available.

[1]Excludes first-time degree/certificate-seeking students in occupational programs not creditable towards a bachelor's degree.

[2]Data for 2-year branches of 4-year college systems are aggregated with the 4-year institutions.

[3]Large increases are due to the addition of schools accredited by the Accrediting Commission of Career Schools and Colleges of Technology.

[4]Projected.

NOTE: Data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. Alaska and Hawaii are included in all years. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Biennial Survey of Education in the United States*; *Opening Fall Enrollment in Higher Education*, 1963 through 1965; Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1966 through 1985; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:86–99); IPEDS Spring 2001 through Spring 2018, Fall Enrollment component; and First-Time Freshmen Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table 19. Fall enrollment of U.S. residents in degree-granting postsecondary institutions, by race/ethnicity: Selected years, 1976 through 2028

	Enrollment (in thousands)									Percentage distribution								
					Asian/Pacific Islander			American Indian/ Alaska Native	Two or more races					Asian/Pacific Islander			American Indian/ Alaska Native	Two or more races
Year	Total	White	Black	Hispanic	Total	Asian	Pacific Islander			Total	White	Black	Hispanic	Total	Asian	Pacific Islander		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1976	10,767	9,076	1,033	384	198	—	—	76	—	100.0	84.3	9.6	3.6	1.8	—	—	0.7	—
1980	11,782	9,833	1,107	472	286	—	—	84	—	100.0	83.5	9.4	4.0	2.4	—	—	0.7	—
1990	13,427	10,722	1,247	782	572	—	—	103	—	100.0	79.9	9.3	5.8	4.3	—	—	0.8	—
1994	13,823	10,427	1,449	1,046	774	—	—	127	—	100.0	75.4	10.5	7.6	5.6	—	—	0.9	—
1995	13,807	10,311	1,474	1,094	797	—	—	131	—	100.0	74.7	10.7	7.9	5.8	—	—	1.0	—
1996	13,901	10,264	1,506	1,166	828	—	—	138	—	100.0	73.8	10.8	8.4	6.0	—	—	1.0	—
1997	14,037	10,266	1,551	1,218	859	—	—	142	—	100.0	73.1	11.0	8.7	6.1	—	—	1.0	—
1998	14,063	10,179	1,583	1,257	900	—	—	144	—	100.0	72.4	11.3	8.9	6.4	—	—	1.0	—
1999	14,361	10,329	1,649	1,324	914	—	—	146	—	100.0	71.9	11.5	9.2	6.4	—	—	1.0	—
2000	14,784	10,462	1,730	1,462	978	—	—	151	—	100.0	70.8	11.7	9.9	6.6	—	—	1.0	—
2001	15,363	10,775	1,850	1,561	1,019	—	—	158	—	100.0	70.1	12.0	10.2	6.6	—	—	1.0	—
2002	16,021	11,140	1,979	1,662	1,074	—	—	166	—	100.0	69.5	12.4	10.4	6.7	—	—	1.0	—
2003	16,314	11,281	2,068	1,716	1,076	—	—	173	—	100.0	69.1	12.7	10.5	6.6	—	—	1.1	—
2004	16,682	11,423	2,165	1,810	1,109	—	—	176	—	100.0	68.5	13.0	10.8	6.6	—	—	1.1	—
2005	16,903	11,495	2,215	1,882	1,134	—	—	176	—	100.0	68.0	13.1	11.1	6.7	—	—	1.0	—
2006	17,158	11,568	2,280	1,964	1,165	—	—	181	—	100.0	67.4	13.3	11.4	6.8	—	—	1.1	—
2007	17,635	11,761	2,384	2,081	1,218	—	—	190	—	100.0	66.7	13.5	11.8	6.9	—	—	1.1	—
2008	18,421	12,075	2,580	2,271	1,303	—	—	193	—	100.0	65.5	14.0	12.3	7.1	—	—	1.0	—
2009	19,631	12,669	2,884	2,537	1,335	—	—	206	—	100.0	64.5	14.7	12.9	6.8	—	—	1.0	—
2010	20,312	12,721	3,039	2,749	1,282	1,218	64	196	325	100.0	62.6	15.0	13.5	6.3	6.0	0.3	1.0	1.6
2011	20,270	12,402	3,079	2,893	1,277	1,211	66	186	433	100.0	61.2	15.2	14.3	6.3	6.0	0.3	0.9	2.1
2012	19,861	11,982	2,962	2,980	1,258	1,195	64	173	505	100.0	60.3	14.9	15.0	6.3	6.0	0.3	0.9	2.5
2013	19,537	11,589	2,872	3,093	1,260	1,199	61	162	560	100.0	59.3	14.7	15.8	6.4	6.1	0.3	0.8	2.9
2014	19,291	11,239	2,793	3,192	1,272	1,214	58	153	642	100.0	58.3	14.5	16.5	6.6	6.3	0.3	0.8	3.3
2015	19,006	10,939	2,681	3,298	1,284	1,229	55	146	658	100.0	57.6	14.1	17.4	6.8	6.5	0.3	0.8	3.5
2016	18,849	10,717	2,589	3,428	1,307	1,253	53	142	666	100.0	56.9	13.7	18.2	6.9	6.7	0.3	0.8	3.5
2017	18,765	10,511	2,546	3,541	1,330	1,278	52	138	700	100.0	56.0	13.6	18.9	7.1	6.8	0.3	0.7	3.7
2018[1]	18,815	10,525	2,610	3,542	1,300	—	—	135	702	100.0	55.9	13.9	18.8	6.9	—	—	0.7	3.7
2019[1]	18,853	10,507	2,623	3,578	1,307	—	—	134	703	100.0	55.7	13.9	19.0	6.9	—	—	0.7	3.7
2020[1]	18,844	10,434	2,636	3,628	1,309	—	—	133	703	100.0	55.4	14.0	19.3	6.9	—	—	0.7	3.7
2021[1]	18,837	10,365	2,649	3,674	1,314	—	—	132	703	100.0	55.0	14.1	19.5	7.0	—	—	0.7	3.7
2022[1]	18,834	10,303	2,658	3,717	1,320	—	—	132	703	100.0	54.7	14.1	19.7	7.0	—	—	0.7	3.7
2023[1]	18,844	10,244	2,671	3,765	1,329	—	—	131	703	100.0	54.4	14.2	20.0	7.1	—	—	0.7	3.7
2024[1]	18,868	10,193	2,684	3,817	1,340	—	—	130	704	100.0	54.0	14.2	20.2	7.1	—	—	0.7	3.7
2025[1]	18,892	10,142	2,697	3,872	1,348	—	—	129	705	100.0	53.7	14.3	20.5	7.1	—	—	0.7	3.7
2026[1]	18,928	10,090	2,716	3,933	1,354	—	—	128	706	100.0	53.3	14.4	20.8	7.2	—	—	0.7	3.7
2027[1]	18,921	10,009	2,734	3,988	1,357	—	—	126	706	100.0	52.9	14.4	21.1	7.2	—	—	0.7	3.7
2028[1]	18,886	9,913	2,748	4,036	1,359	—	—	125	705	100.0	52.5	14.5	21.4	7.2	—	—	0.7	3.7

—Not available.
[1]Projected.
NOTE: Race categories exclude persons of Hispanic ethnicity. Prior to 2010, institutions were not required to report separate data on Asians, Pacific Islanders, and students of Two or more races. Projections for Asian and Pacific Islander enrollment are not available due to the limited amount of historical data available upon which to base a projection model. Data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. Detail may not sum to totals because of rounding. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1976 and 1980; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:90–99); IPEDS Spring 2001 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table 20. Full-time-equivalent fall enrollment in degree-granting postsecondary institutions, by control and level of institution: 1967 through 2028

Year	All institutions			Public institutions			Private institutions						
								4-year			2-year		
	Total	4-year	2-year	Total	4-year	2-year	Total	Total	Nonprofit	For-profit	Total	Nonprofit	For-profit
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1967	5,499,360	4,448,302	1,051,058	3,777,701	2,850,432	927,269	1,721,659	1,597,870	—	—	123,789	—	—
1968	5,977,768	4,729,522	1,248,246	4,248,639	3,128,057	1,120,582	1,729,129	1,601,465	—	—	127,664	—	—
1969	6,333,357	4,899,034	1,434,323	4,577,353	3,259,323	1,318,030	1,756,004	1,639,711	—	—	116,293	—	—
1970	6,737,819	5,145,422	1,592,397	4,953,144	3,468,569	1,484,575	1,784,675	1,676,853	—	—	107,822	—	—
1971	7,148,558	5,357,647	1,790,911	5,344,402	3,660,626	1,683,776	1,804,156	1,697,021	—	—	107,135	—	—
1972	7,253,757	5,406,833	1,846,924	5,452,854	3,706,238	1,746,616	1,800,903	1,700,595	—	—	100,308	—	—
1973	7,453,463	5,439,230	2,014,233	5,629,563	3,721,037	1,908,526	1,823,900	1,718,193	—	—	105,707	—	—
1974	7,805,452	5,606,247	2,199,205	5,944,799	3,847,543	2,097,256	1,860,653	1,758,704	—	—	101,949	—	—
1975	8,479,698	5,900,408	2,579,290	6,522,319	4,056,502	2,465,817	1,957,379	1,843,906	—	—	113,473	—	—
1976	8,312,502	5,848,001	2,464,501	6,349,903	3,998,450	2,351,453	1,962,599	1,849,551	—	—	113,048	—	—
1977	8,415,339	5,935,076	2,480,263	6,396,476	4,039,071	2,357,405	2,018,863	1,896,005	—	—	122,858	—	—
1978	8,348,482	5,932,357	2,416,125	6,279,199	3,996,126	2,283,073	2,069,283	1,936,231	—	—	133,052	—	—
1979	8,487,317	6,016,072	2,471,245	6,392,617	4,059,304	2,333,313	2,094,700	1,956,768	—	—	137,932	—	—
1980	8,819,013	6,161,372	2,657,641	6,642,294	4,158,267	2,484,027	2,176,719	2,003,105	—	—	173,614[1]	—	—
1981	9,014,521	6,249,847	2,764,674	6,781,300	4,208,506	2,572,794	2,233,221	2,041,341	—	—	191,880[1]	—	—
1982	9,091,648	6,248,923	2,842,725	6,850,589	4,220,648	2,629,941	2,241,059	2,028,275	—	—	212,784[1]	—	—
1983	9,166,398	6,325,222	2,841,176	6,881,479	4,265,807	2,615,672	2,284,919	2,059,415	—	—	225,504	—	—
1984	8,951,695	6,292,711	2,658,984	6,684,664	4,237,895	2,446,769	2,267,031	2,054,816	—	—	212,215	—	—
1985	8,943,433	6,294,339	2,649,094	6,667,781	4,239,622	2,428,159	2,275,652	2,054,717	—	—	220,935	—	—
1986	9,064,165	6,360,325	2,703,842	6,778,045	4,295,494	2,482,551	2,286,122	2,064,831	—	—	221,291[2]	—	—
1987	9,229,736	6,486,504	2,743,230	6,937,690	4,395,728	2,541,961	2,292,045	2,090,776	—	—	201,269[2]	—	—
1988	9,464,271	6,664,146	2,800,125	7,096,905	4,505,774	2,591,131	2,367,366	2,158,372	—	—	208,994	—	—
1989	9,780,881	6,813,602	2,967,279	7,371,590	4,619,828	2,751,762	2,409,291	2,193,774	—	—	215,517	—	—
1990	9,983,436	6,968,008	3,015,428	7,557,982	4,740,049	2,817,933	2,425,454	2,227,959	2,177,668	50,291	197,495	72,785	124,710
1991	10,360,606	7,081,454	3,279,152	7,862,845	4,795,704	3,067,141	2,497,761	2,285,750	2,223,463	62,287	212,011	72,545	139,466
1992	10,436,776	7,129,379	3,307,397	7,911,701	4,797,884	3,113,817	2,525,075	2,331,495	2,267,373	64,122	193,580	66,647	126,933
1993	10,351,415	7,120,921	3,230,494	7,812,394	4,765,983	3,046,411	2,539,021	2,354,938	2,282,643	72,295	184,083	70,469	113,614
1994	10,348,072	7,137,341	3,210,731	7,784,396	4,749,524	3,034,872	2,563,676	2,387,817	2,301,063	86,754	175,859	69,578	106,281
1995	10,334,956	7,172,844	3,162,112	7,751,815	4,757,223	2,994,592	2,583,141	2,415,621	2,328,730	86,891	167,520	62,416	105,104
1996	10,481,886	7,234,541	3,247,345	7,794,895	4,767,117	3,027,778	2,686,991	2,467,424	2,353,561	113,863	219,567	63,954	155,613
1997	10,615,028	7,338,794	3,276,234	7,869,764	4,813,849	3,055,915	2,745,264	2,524,945	2,389,627	135,318	220,319	61,761	158,558
1998	10,698,775	7,467,828	3,230,947	7,880,135	4,868,857	3,011,278	2,818,640	2,598,971	2,436,188	162,783	219,669	56,834	162,835
1999	10,974,519	7,634,247	3,340,272	8,059,240	4,949,851	3,109,389	2,915,279	2,684,396	2,488,140	196,256	230,883	53,956	176,927
2000	11,267,025	7,795,139	3,471,886	8,266,932	5,025,588	3,241,344	3,000,093	2,769,551	2,549,676	219,875	230,542	51,503	179,039
2001	11,765,945	8,087,980	3,677,965	8,639,154	5,194,035	3,445,119	3,126,791	2,893,945	2,612,833	281,112	232,846	41,037	191,809
2002	12,331,319	8,439,064	3,892,255	9,061,411	5,406,283	3,655,128	3,269,908	3,032,781	2,699,702	333,079	237,127	40,110	197,017
2003	12,687,597	8,744,188	3,943,409	9,240,724	5,557,680	3,683,044	3,446,873	3,186,508	2,776,850	409,658	260,365	36,815	223,550
2004	13,000,994	9,018,024	3,982,970	9,348,081	5,640,650	3,707,431	3,652,913	3,377,374	2,837,251	540,123	275,539	34,202	241,337
2005	13,200,790	9,261,634	3,939,156	9,390,216	5,728,327	3,661,889	3,810,574	3,533,307	2,878,354	654,953	277,267	34,729	242,538
2006	13,401,696	9,456,480	3,945,216	9,502,028	5,824,962	3,677,066	3,899,668	3,631,518	2,936,261	695,257	268,150	31,203	236,947
2007	13,786,735	9,768,388	4,018,347	9,744,001	5,992,611	3,751,390	4,042,734	3,775,777	2,993,901	781,876	266,957	26,140	240,817
2008	14,377,990	10,153,074	4,224,916	10,061,076	6,138,686	3,922,390	4,316,914	4,014,388	3,058,910	955,478	302,526	28,072	274,454
2009	15,379,473	10,695,816	4,683,657	10,746,637	6,452,414	4,294,223	4,632,836	4,243,402	3,153,294	1,090,108	389,434	27,964	361,470
2010	15,947,474	11,129,239	4,818,235	11,018,756	6,635,799	4,382,957	4,928,718	4,493,440	3,235,149	1,258,291	435,278	26,920	408,358
2011	15,892,792	11,261,845	4,630,947	10,954,754	6,734,116	4,220,638	4,938,038	4,527,729	3,285,711	1,242,018	410,309	34,267	376,042
2012	15,593,434	11,229,774	4,363,660	10,781,798	6,764,184	4,017,614	4,811,636	4,465,590	3,309,242	1,156,348	346,046	32,684	313,362
2013	15,410,058	11,183,239	4,226,819	10,697,939	6,790,930	3,907,009	4,712,119	4,392,309	3,337,799	1,054,510	319,810	27,313	292,497
2014	15,263,179	11,238,618	4,024,561	10,624,163	6,891,984	3,732,179	4,639,016	4,346,634	3,363,101	983,533	292,382	25,808	266,574
2015	15,078,504	11,226,353	3,852,151	10,569,574	6,970,121	3,599,453	4,508,930	4,256,232	3,399,283	856,949	252,698	41,579	211,119
2016	14,937,939	11,356,540	3,581,399	10,572,028	7,221,134	3,350,894	4,365,911	4,135,406	3,410,337	725,069	230,505	43,900	186,605
2017	14,880,079	11,403,660	3,476,419	10,565,751	7,309,604	3,256,147	4,314,328	4,094,056	3,435,169	658,887	220,272	43,990	176,282
2018[3]	14,919,000	11,432,000	3,487,000	10,594,000	7,328,000	3,266,000	4,325,000	4,104,000	—	—	221,000	—	—
2019[3]	14,967,000	11,467,000	3,500,000	10,629,000	7,350,000	3,279,000	4,338,000	4,117,000	—	—	221,000	—	—
2020[3]	14,975,000	11,471,000	3,504,000	10,635,000	7,352,000	3,283,000	4,340,000	4,118,000	—	—	221,000	—	—
2021[3]	14,982,000	11,474,000	3,509,000	10,641,000	7,354,000	3,287,000	4,341,000	4,119,000	—	—	221,000	—	—
2022[3]	14,996,000	11,482,000	3,514,000	10,652,000	7,359,000	3,293,000	4,344,000	4,122,000	—	—	222,000	—	—
2023[3]	15,023,000	11,501,000	3,522,000	10,672,000	7,371,000	3,301,000	4,351,000	4,129,000	—	—	222,000	—	—
2024[3]	15,069,000	11,535,000	3,534,000	10,705,000	7,393,000	3,312,000	4,364,000	4,141,000	—	—	222,000	—	—
2025[3]	15,121,000	11,575,000	3,546,000	10,742,000	7,419,000	3,323,000	4,379,000	4,156,000	—	—	223,000	—	—
2026[3]	15,178,000	11,618,000	3,560,000	10,783,000	7,446,000	3,336,000	4,395,000	4,171,000	—	—	224,000	—	—
2027[3]	15,197,000	11,630,000	3,567,000	10,797,000	7,455,000	3,342,000	4,400,000	4,176,000	—	—	224,000	—	—
2028[3]	15,194,000	11,626,000	3,568,000	10,796,000	7,452,000	3,344,000	4,398,000	4,174,000	—	—	224,000	—	—

—Not available.

[1]Large increases are due to the addition of schools accredited by the Accrediting Commission of Career Schools and Colleges of Technology.

[2]Because of imputation techniques, data are not consistent with figures for other years.

[3]Projected.

NOTE: Full-time-equivalent enrollment is the number of full-time students enrolled, plus the full-time equivalent of the part-time students. Data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1967 through 1985; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:86–99); IPEDS Spring 2001 through Spring 2018, Fall Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 2000 through 2028. (This table was prepared March 2019.)

Table 21. Degrees conferred by postsecondary institutions, by level of degree and sex of student: Selected years, 1869–70 through 2028–29

	Associate's degrees				Bachelor's degrees				Master's degrees				Doctor's degrees[1]			
Year	Total	Males	Females	Percent female	Total	Males	Females	Percent female	Total	Males	Females	Percent female	Total	Males	Females	Percent female
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1869–70	—	—	—	—	9,371[2]	7,993[2]	1,378[2]	14.7	0	0	0	—	1	1	0	0.0
1879–80	—	—	—	—	12,896[2]	10,411[2]	2,485[2]	19.3	879	868	11	1.3	54	51	3	5.6
1889–90	—	—	—	—	15,539[2]	12,857[2]	2,682[2]	17.3	1,015	821	194	19.1	149	147	2	1.3
1899–1900	—	—	—	—	27,410[2]	22,173[2]	5,237[2]	19.1	1,583	1,280	303	19.1	382	359	23	6.0
1909–10	—	—	—	—	37,199[2]	28,762[2]	8,437[2]	22.7	2,113	1,555	558	26.4	443	399	44	9.9
1919–20	—	—	—	—	48,622[2]	31,980[2]	16,642[2]	34.2	4,279	2,985	1,294	30.2	615	522	93	15.1
1929–30	—	—	—	—	122,484[2]	73,615[2]	48,869[2]	39.9	14,969	8,925	6,044	40.4	2,299	1,946	353	15.4
1939–40	—	—	—	—	186,500[2]	109,546[2]	76,954[2]	41.3	26,731	16,508	10,223	38.2	3,290	2,861	429	13.0
1949–50	—	—	—	—	432,058[2]	328,841[2]	103,217[2]	23.9	58,183	41,220	16,963	29.2	6,420	5,804	616	9.6
1959–60	—	—	—	—	392,440[2]	254,063[2]	138,377[2]	35.3	74,435	50,898	23,537	31.6	9,829	8,801	1,028	10.5
1969–70	206,023	117,432	88,591	43.0	792,316	451,097	341,219	43.1	213,589	130,799	82,790	38.8	59,486	53,792	5,694	9.6
1979–80	400,910	183,737	217,173	54.2	929,417	473,611	455,806	49.0	305,196	156,882	148,314	48.6	95,631	69,526	26,105	27.3
1980–81	416,377	188,638	227,739	54.7	935,140	469,883	465,257	49.8	302,637	152,979	149,658	49.5	98,016	69,567	28,449	29.0
1981–82	434,526	196,944	237,582	54.7	952,998	473,364	479,634	50.3	302,447	151,349	151,098	50.0	97,838	68,630	29,208	29.9
1982–83	449,620	203,991	245,629	54.6	969,510	479,140	490,370	50.6	296,415	150,092	146,323	49.4	99,335	67,757	31,578	31.8
1983–84	452,240	202,704	249,536	55.2	974,309	482,319	491,990	50.5	291,141	149,268	141,873	48.7	100,799	67,769	33,030	32.8
1984–85	454,712	202,932	251,780	55.4	979,477	482,528	496,949	50.7	293,472	149,276	144,196	49.1	100,785	66,269	34,516	34.2
1985–86	446,047	196,166	249,881	56.0	987,823	485,923	501,900	50.8	295,850	149,373	146,477	49.5	100,280	65,215	35,065	35.0
1986–87	436,304	190,839	245,465	56.3	991,264	480,782	510,482	51.5	296,530	147,063	149,467	50.4	98,477	62,790	35,687	36.2
1987–88	435,085	190,047	245,038	56.3	994,829	477,203	517,626	52.0	305,783	150,243	155,540	50.9	99,139	63,019	36,120	36.4
1988–89	436,764	186,316	250,448	57.3	1,018,755	483,346	535,409	52.6	316,626	153,993	162,633	51.4	100,571	63,055	37,516	37.3
1989–90	455,102	191,195	263,907	58.0	1,051,344	491,696	559,648	53.2	330,152	158,052	172,100	52.1	103,508	63,963	39,545	38.2
1990–91	481,720	198,634	283,086	58.8	1,094,538	504,045	590,493	53.9	342,863	160,842	182,021	53.1	105,547	64,242	41,305	39.1
1991–92	504,231	207,481	296,750	58.9	1,136,553	520,811	615,742	54.2	358,089	165,867	192,222	53.7	109,554	66,603	42,951	39.2
1992–93	514,756	211,964	302,792	58.8	1,165,178	532,881	632,297	54.3	375,032	173,354	201,678	53.8	112,072	67,130	44,942	40.1
1993–94	530,632	215,261	315,371	59.4	1,169,275	532,422	636,853	54.5	393,037	180,571	212,466	54.1	112,636	66,773	45,863	40.7
1994–95	539,691	218,352	321,339	59.5	1,160,134	526,131	634,003	54.6	403,609	183,043	220,566	54.6	114,266	67,324	46,942	41.1
1995–96	555,216	219,514	335,702	60.5	1,164,792	522,454	642,338	55.1	412,180	183,481	228,699	55.5	115,507	67,189	48,318	41.8
1996–97	571,226	223,948	347,278	60.8	1,172,879	520,515	652,364	55.6	425,260	185,270	239,990	56.4	118,747	68,387	50,360	42.4
1997–98	558,555	217,613	340,942	61.0	1,184,406	519,956	664,450	56.1	436,037	188,718	247,319	56.7	118,735	67,232	51,503	43.4
1998–99	564,984	220,508	344,476	61.0	1,202,239	519,961	682,278	56.8	446,038	190,230	255,808	57.4	116,700	65,340	51,360	44.0
1999–2000	564,933	224,721	340,212	60.2	1,237,875	530,367	707,508	57.2	463,185	196,129	267,056	57.7	118,736	64,930	53,806	45.3
2000–01	578,865	231,645	347,220	60.0	1,244,171	531,840	712,331	57.3	473,502	197,770	275,732	58.2	119,585	64,171	55,414	46.3
2001–02	595,133	238,109	357,024	60.0	1,291,900	549,816	742,084	57.4	487,313	202,604	284,709	58.4	119,663	62,731	56,932	47.6
2002–03	634,016	253,451	380,565	60.0	1,348,811	573,258	775,553	57.5	518,699	215,172	303,527	58.5	121,579	62,730	58,849	48.4
2003–04	665,301	260,033	405,268	60.9	1,399,542	595,425	804,117	57.5	564,272	233,056	331,216	58.7	126,087	63,981	62,106	49.3
2004–05	696,660	267,536	429,124	61.6	1,439,264	613,000	826,264	57.4	580,151	237,155	342,996	59.1	134,387	67,257	67,130	50.0
2005–06	713,315	270,139	443,176	62.1	1,485,104	630,502	854,602	57.5	599,862	241,701	358,161	59.7	138,056	68,912	69,144	50.1
2006–07	727,616	275,034	452,582	62.2	1,524,729	649,816	874,913	57.4	610,703	242,213	368,490	60.3	144,694	71,311	73,383	50.7
2007–08	750,166	282,695	467,471	62.3	1,563,734	668,184	895,550	57.3	630,844	250,203	380,641	60.3	149,190	73,340	75,850	50.8
2008–09	787,243	298,066	489,177	62.1	1,601,399	685,422	915,977	57.2	662,082	263,515	398,567	60.2	154,564	75,674	78,890	51.0
2009–10	848,856	322,747	526,109	62.0	1,649,919	706,660	943,259	57.2	693,313	275,317	417,996	60.3	158,590	76,610	81,980	51.7
2010–11	943,506	361,408	582,098	61.7	1,716,053	734,159	981,894	57.2	730,922	291,680	439,242	60.1	163,827	79,672	84,155	51.4
2011–12	1,021,718	393,479	628,239	61.5	1,792,163	765,772	1,026,391	57.3	755,967	302,484	453,483	60.0	170,217	82,670	87,547	51.4
2012–13	1,007,427	389,195	618,232	61.4	1,840,381	787,408	1,052,973	57.2	751,718	301,552	450,166	59.9	175,026	85,080	89,946	51.4
2013–14	1,005,155	391,474	613,681	61.1	1,870,150	801,905	1,068,245	57.1	754,582	302,846	451,736	59.9	177,587	85,585	92,002	51.8
2014–15	1,014,341	396,782	617,559	60.9	1,894,969	812,693	1,082,276	57.1	758,804	306,615	452,189	59.6	178,548	84,922	93,626	52.4
2015–16	1,008,228	392,084	616,144	61.1	1,920,750	821,746	1,099,004	57.2	785,757	320,574	465,183	59.2	178,134	84,240	93,894	52.7
2016–17	1,005,649	394,159	611,490	60.8	1,956,032	836,045	1,119,987	57.3	804,684	326,892	477,792	59.4	181,352	84,646	96,706	53.3
2017–18[3]	981,000	383,000	598,000	61.0	1,963,000	837,000	1,126,000	57.4	814,000	327,000	487,000	59.9	183,000	85,000	99,000	53.8
2018–19[3]	985,000	385,000	600,000	60.9	1,968,000	839,000	1,129,000	57.4	816,000	328,000	489,000	59.9	184,000	85,000	99,000	53.8
2019–20[3]	989,000	386,000	603,000	60.9	1,975,000	842,000	1,133,000	57.4	820,000	329,000	491,000	59.9	184,000	85,000	99,000	53.8
2020–21[3]	991,000	387,000	604,000	60.9	1,976,000	842,000	1,134,000	57.4	821,000	329,000	491,000	59.9	185,000	85,000	99,000	53.8
2021–22[3]	994,000	388,000	606,000	60.9	1,978,000	842,000	1,136,000	57.4	822,000	330,000	492,000	59.9	185,000	85,000	100,000	53.9
2022–23[3]	996,000	389,000	607,000	60.9	1,980,000	843,000	1,137,000	57.4	824,000	330,000	493,000	59.9	185,000	85,000	100,000	53.9
2023–24[3]	1,000,000	390,000	609,000	60.9	1,984,000	844,000	1,140,000	57.4	826,000	331,000	495,000	59.9	186,000	86,000	100,000	53.9
2024–25[3]	1,003,000	392,000	612,000	61.0	1,990,000	847,000	1,143,000	57.4	829,000	332,000	497,000	59.9	186,000	86,000	101,000	53.9
2025–26[3]	1,007,000	393,000	614,000	61.0	1,997,000	850,000	1,147,000	57.5	831,000	333,000	498,000	59.9	187,000	86,000	101,000	53.9
2026–27[3]	1,011,000	395,000	616,000	61.0	2,005,000	853,000	1,152,000	57.4	835,000	334,000	500,000	59.9	188,000	87,000	101,000	53.9
2027–28[3]	1,014,000	396,000	618,000	60.9	2,008,000	855,000	1,153,000	57.4	836,000	335,000	501,000	59.9	188,000	87,000	101,000	53.9
2028–29[3]	1,015,000	396,000	619,000	60.9	2,008,000	855,000	1,153,000	57.4	837,000	335,000	502,000	59.9	188,000	87,000	102,000	53.9

—Not available.
[1]Includes Ph.D., Ed.D., and comparable degrees at the doctoral level. Includes most degrees that were classified as first-professional prior to 2010–11, such as M.D., D.D.S., and law degrees.
[2]Includes some degrees classified as master's or doctor's degrees in later years.
[3]Projected.
NOTE: Data through 1994–95 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Earned Degrees Conferred*, 1869–70 through 1964–65; Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards Conferred" surveys, 1965–66 through 1985–86; Integrated Postsecondary Education Data System (IPEDS), "Completions Survey" (IPEDS-C:87–99); IPEDS Fall 2000 through Fall 2017, Completions component; and Degrees Conferred Projection Model, 1980–81 through 2028–29. (This table was prepared March 2019.)

Technical Appendixes

Appendix A
Introduction to Projection Methodology

A.0. INTRODUCTION TO PROJECTION METHODOLOGY

Content of appendix A

Since its inception in 1964, the *Projections of Education Statistics* series has been providing projections of key education statistics to policymakers, educators, researchers, the press, and the general public. This edition of *Projections of Education Statistics* is the 47th in the series.

Appendix A contains this introduction, which provides a general overview of the projection methodology, as well as six additional sections that discuss the specific methodology for the different statistics projected:

- A.0. Introduction to Projection Methodology;
- A.1. Elementary and Secondary Enrollment;
- A.2. Elementary and Secondary Teachers;
- A.3. High School Graduates;
- A.4. Expenditures for Public Elementary and Secondary Education;
- A.5. Enrollment in Degree-Granting Postsecondary Institutions; and
- A.6. Postsecondary Degrees Conferred.

This introduction

- outlines the two major techniques used to make the projections;
- summarizes key demographic and economic assumptions underlying the projections;
- examines the accuracy of the projections; and
- introduces the subsequent sections of appendix A.

Projection techniques

Two main projection techniques were used to develop the projections presented in this publication:

- Exponential smoothing was the technique used in the projections of elementary and secondary enrollments and high school graduates. This technique also played a role in the projections of teachers at the elementary and secondary level, as well as enrollments and degrees conferred at the postsecondary level.
- Multiple linear regression was the primary technique used in the projections of teachers and expenditures at the elementary and secondary level, as well as enrollments and degrees conferred at the postsecondary level.

Exponential smoothing

Two different types of exponential smoothing, single exponential smoothing and double exponential smoothing, were used in producing the projections presented in this publication.

Single exponential smoothing was used when the historical data had a basically horizontal pattern. Single exponential smoothing produces a single forecast for all years in the forecast period. In developing projections of elementary and secondary enrollments, for example, the rate at which students progress from one particular grade to the next (e.g., from grade 2 to grade 3) was projected using single exponential smoothing. Thus, this percentage was assumed to be constant over the forecast period.

In general, exponential smoothing places more weight on recent observations than on earlier ones. The weights for observations decrease exponentially as one moves further into the past. As a result, the older data have less influence on the projections. The rate at which the weights of older observations decrease is determined by the smoothing constant.

When using single exponential smoothing for a time series, P_t, a smoothed series, $\hat{P}$, is computed recursively by evaluating

$$\hat{P}_t = \propto P_t + (1 - \propto)\ \hat{P}_{t-1}$$

where $0 < \propto \leq 1$ is the smoothing constant.

By repeated substitution, we can rewrite the equation as

$$\hat{P}_t = \propto \sum_{s=0}^{t-1} (1 - \propto)^s P_{t-s}$$

where time, s, goes from the first period in the time series, 0, to time period t-1.

The forecasts are constant for all years in the forecast period. The constant equals

$$\hat{P}_{T+k} = \hat{P}_T$$

where T is the last year of actual data and k is the kth year in the forecast period where $k > 0$.

These equations illustrate that the projection is a weighted average based on exponentially decreasing weights. For higher smoothing constants, weights for earlier observations decrease more rapidly than for lower smoothing constants.

For each of the approximately 1,200 single exponential smoothing equations in this edition of *Projections of Education Statistics*, a smoothing constant was individually chosen to minimize the sum of squared forecast errors for that equation. The smoothing constants used to produce the projections in this report ranged from 0.001 to 0.999.

Double exponential smoothing is an extension of single exponential smoothing that allows the forecasting of data with trends. It produces different forecasts for different years in the forecast period. Double exponential smoothing with two smoothing constants was used to forecast the number of doctor's degrees awarded to men and women.

The smoothing forecast using double exponential smoothing is found using the three equations:

$$\hat{P}_{t+k} = a_t + b_t k$$

$$a_t = \propto P_t + (1 - \propto)\ (a_{t-1} + b_{t-1})$$

$$b_t = \beta\ (a_t - a_{t-1}) + (1 - \beta)\ b_{t-1}$$

where a_t denotes an estimate of the level of the series at time t, b_t denotes an estimate of the level of the series at time t, and $0 < \propto, \beta < 1$ are the smoothing constants.

Forecasts from double smoothing are computed as

$$\hat{P}_{T+k} = a_T + b_T k$$

where T is the last year of actual data and k is the kth year in the forecast period where $k > 0$. The last expression shows that forecasts from double smoothing lie on a linear trend with intercept a_T and slope b_T. Single exponential smoothing can be viewed as a special case of double exponential smoothing where the impact that time has on the forecasts has been eliminated (i.e., requiring the slope term b_t to equal 0.0).

The smoothing constants for each of the two double exponential smoothing equations used for this report were selected using a search algorithm that finds the pair of smoothing constants that together minimize the sum of forecast errors for their equation.

Beginning with the *Projections of Education Statistics to 2020*, each smoothing constant was chosen separately. In earlier editions, all the smoothing constants had been set to 0.4. Also beginning with that edition, two smoothing constants, rather than one, were used for double exponential smoothing.

Multiple linear regression

Multiple linear regression was used in cases where a strong relationship exists between the variable being projected (the dependent variable) and independent variables. This technique can be used only when accurate data and reliable projections of the independent variables are available. Key independent variables for this publication include demographic and economic factors. For example, current expenditures for public elementary and secondary education are related to economic factors such as disposable income and education revenues from state sources. The sources of the demographic and economic projections used for this publication are discussed below, under "Assumptions."

The equations in this appendix should be viewed as forecasting rather than structural equations. That is, the equations are intended only to project values for the dependent variables, not to reflect all elements of underlying social, political, and economic structures. Lack of available data precluded the building of large-scale structural models. The particular equations shown were selected on the basis of their statistical properties, such as coefficients of determination (R^2s), the *t*-statistics of the coefficients, the Durbin-Watson statistic, the Breusch-Godfrey Serial Correlation LM test statistic, and residual plots.

The functional form primarily used is the multiplicative model. When used with two independent variables, this model takes the form:

$$Y = a \cdot X_1^{b_1} \cdot X_2^{b_2}$$

This equation can easily be transformed into the linear form by taking the natural log (ln) of both sides of the equation:

$$ln(Y) = ln(a) + b_1 lnX_1 + b_2 lnX_2$$

One property of this model is that the coefficient of an independent variable shows how responsive in percentage terms the dependent variable is to a one percent change in that independent variable (also called the elasticity). For example, a 1 percent change in X_1 in the above equation would lead to a b_1 percent change in Y.

Assumptions

All projections are based on underlying assumptions, and these assumptions determine projection results to a large extent. It is important that users of projections understand the assumptions to determine the acceptability of projected time series for their purposes. All the projections in this publication are to some extent dependent on demographic and/or economic assumptions.

Demographic assumptions

Many of the projections in this publication are demographically based on the 2017 National Population Projections (September 2018) produced by the U.S. Census Bureau and the IHS U.S. Regional Economic Service, Population Projections, December 2018 produced by the economic consulting firm IHS Global Inc.

The two sets of population projections are produced using cohort-component models. In order for the national-level population projections by age, sex, and race/ethnicity to be consistent with the most recent historical estimates released by the Census Bureau, the projections were ratio-adjusted by applying the ratio of the last historical estimate to the corresponding projections year to the projections for each age, sex, and race/ethnicity combination. This allows for a consistent set of historical estimates and projections. For more information on the methodology used for Census Bureau population projections, see appendix C, Data Sources.

The enrollment projections in this publication depend on population projections for the various age groups that attend school. The future fertility rate assumption (along with corresponding projections of female populations) determines projections of the number of births, a key factor for population projections. The fertility rate assumption plays a major role in determining population projections for the age groups enrolled in nursery school, kindergarten, and elementary grades. The effects of the fertility rate assumption are more pronounced toward the end of the forecast period, while immigration assumptions affect all years. For enrollments in secondary grades and college, the fertility rate assumption is of no consequence, since all the population cohorts for these enrollment ranges have already been born.

Economic assumptions

Various economic variables are used in the forecasting models for numbers of elementary and secondary teachers, public elementary and secondary school expenditures, and postsecondary enrollment.

Projections of the economic variables were from the trend scenario of the "U.S. Quarterly Macroeconomic Model December 2018 Short-Term Baseline Projections" developed by the IHS Global Inc. This set of projections was IHS Global Inc.'s most recent set at the time the education projections in this report were produced. The trend scenario depicts a mean of possible paths that the economy could take over the forecast period, barring major shocks. The economy, in this scenario, evolves smoothly, without major fluctuations.

More information about specific assumptions

For details about the primary assumptions used in this edition of *Projections of Education Statistics*, see table A-1 on page 67.

Accuracy of the projections

Projections of time series usually differ from the final reported data due to errors from many sources. This is because of the inherent nature of the statistical universe from which the basic data are obtained and the properties of projection methodologies, which depend on the validity of many assumptions.

The mean absolute percentage error (MAPE) is one way to express the forecast accuracy of past projections. This measure expresses the average absolute value of errors over past projections in percentage terms. For example, an analysis of projection errors over the past 35 editions of *Projections of Education Statistics* indicates that the MAPEs for public school enrollment in grades preK–12 for lead times of 1, 2, 5, and 10 years were 0.3, 0.5, 1.2, and 2.6 percent, respectively. For the 1-year-out projection, this means that one would expect the projection to be within 0.3 percent of the actual value, on average.

For a list of MAPEs for selected national statistics in this publication, see table A-2 on page 67. Sections A.1 through A.4 each contain at least one text table (tables A through F) that presents the MAPEs for the key national statistics of that section. Each text table appears directly after the discussion of accuracy of that section's national projections. For a list of MAPEs by state and region for public elementary and secondary enrollment, see tables A-7 through A-9 on pages 76–78 and for a list of MAPEs by state and region for the number of high school graduates in public schools, see table A-14 on page 91.

Tables A-3 and A-4 present an example of how the MAPEs were constructed using actual values for total enrollment in degree-granting postsecondary institutions projections for schools years 2014–15 through 2017–18 and enrollment projections from the last four editions of *Projections of Education Statistics*. The top two panels of table A-3 shows the actual values for school years 2014–15 through 2017–18 and enrollment projections for each year from *Projections of Education Statistics to 2024* with the number of projections generally decreasing by one for each subsequent edition. The bottom panel of table A-3 shows the percentage differences between the actual values and the projected values. For example, the projected value for 2014–15 presented in *Projections of Education Statistics to 2024* was 0.2 percent higher than the actual value for that year.

The top panel of table A-4 shows the absolute value of the percent differences from table A-3 arranged by lead time rather than year. For example, in the *Projections of Education Statistics to 2024*, the last year of actual data reported was 2013–14 and thus the lead time for the projection of 2014–15 data was 1 year. Thus, the 0.2 appearing in the 2014–15 column of Table A-3 for *Projections of Education Statistics to 2024* appears in the column for lead times of 1 year in Table A-4, indicating that projection of the one-year-out forecast from *Projections of Education Statistics to 2024* differed by 0.2 percent in absolute terms from its actual value. The MAPEs for each lead time shown in the bottom panel of table A-4 were calculated by computing the average of the absolute values of the percentage differences for that lead time. For example, actual values are available to calculate the absolute values of the percentage differences for a lead time of 2 years for the first three editions of the *Projections of Education Statistics* listed in table A-4. These absolute values are 1.2, 3.4, and 3.3. The MAPE for a lead time of 2 years was then calculated by taking the average of these numbers, or 2.6. This matches the MAPE that appears in the bottom panel for a lead time of 2 years. (Calculations for table A-3 are based on unrounded numbers.) These MAPEs are different from the MAPEs for fall enrollment in degree-granting institutions projections elsewhere in this report because the MAPEs in the example were calculated using only the last four editions of *Projections of Education Statistics*.

The number of years used in the analyses of the projection errors differ both because projections of additional education statistics have been added to the report over time and because, in some cases, there have been substantial changes in the methodology used to produce the projections such that the MAPEs for the earlier projections are no longer relevant. MAPEs are presented for a statistic only after it has been produced using substantially the same methodology in five previous editions of *Projections of Education Statistics* and there are at least 5 years of historical data for use in calculating the MAPEs.

Table A-1. Summary of forecast assumptions to 2028

Variable	Assumption
1	2
Demographic assumptions	
Population	Projections are consistent with the Census Bureau estimates[1]
18- to 24-year-old population	Census Bureau projection: average annual growth rate of 0.0%
25- to 29-year-old population	Census Bureau projection: average annual growth rate of -0.2%
30- to 34-year-old population	Census Bureau projection: average annual growth rate of 0.6%
35- to 44-year-old population	Census Bureau projection: average annual growth rate of 1.3%
Economic assumptions	
Disposable income per capita in constant dollars	Annual percent changes range between 1.1% and 1.9% with an annual growth rate of 1.4%
Education revenue receipts from state sources per capita in constant dollars	Annual percent changes range between 0.8% and 1.6% with an annual growth rate of 0.9%
Inflation rate	Inflation rate ranges between 1.7% and 2.4%
Unemployment rate (males)	
Ages 18 and 19	Remains between 12.4% and 15.6%
Ages 20 to 24	Remains between 6.8% and 8.7%
Age 25 and over	Remains between 2.8% and 3.7%
Unemployment rate (females)	
Ages 18 and 19	Remains between 9.2% and 11.8%
Ages 20 to 24	Remains between 5.2% and 6.7%
Age 25 and over	Remains between 3.0% and 3.9%

[1]As the Census Bureau projections were not updated to reflect the most recent Census Bureau population estimates, the Census Bureau age-specific population projections for each year were adjusted by multiplying the ratio of the total Census Bureau estimate for 2018 to the total Census Bureau projection for 2018.

SOURCE: U.S. Department of Commerce, Census Bureau, Population Estimates, retrieved July 19, 2018 from https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/; and Population Projections, retrieved October 10, 2018, from https://www.census.gov/data/datasets/2017/demo/popproj/2017-popproj.html; and IHS Global Inc., "U.S. Quarterly Macroeconomic Model, December 2018 Short-Term Baseline Projections." (This table was prepared March 2019.)

Table A-2. Mean absolute percentage errors (MAPEs), by lead time for selected statistics in all elementary and secondary schools: MAPEs constructed using projections from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*

	Lead time (years)									
Statistic	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
Public elementary and secondary schools										
Prekindergarten–12 enrollment[1]	0.3	0.5	0.8	1.0	1.2	1.4	1.6	1.9	2.2	2.6
Prekindergarten–8 enrollment[1]	0.3	0.6	0.9	1.1	1.4	1.7	2.0	2.4	2.8	3.3
9–12 enrollment[1]	0.4	0.7	1.0	1.1	1.3	1.4	1.6	1.8	2.0	2.3
White[2]	0.5	0.9	1.5	1.9	2.8	5.2	6.8	7.9	7.5	—
Black[2]	0.6	1.4	1.9	2.3	2.7	3.8	4.7	5.2	3.4	—
Hispanic[2]	0.9	1.1	1.3	2.1	2.9	4.0	4.7	4.5	0.2	—
Asian/Pacific Islander[2]	0.6	1.9	3.3	4.4	5.3	7.3	9.9	10.3	8.4	—
American Indian/Alaska Native[2]	1.3	2.4	4.7	7.2	10.4	19.2	22.9	25.8	25.8	—
Elementary and secondary teachers[3]	0.7	1.4	1.7	2.3	3.0	4.0	4.7	5.4	5.7	6.5
High school graduates[4]	1.0	1.1	1.8	2.2	2.5	2.9	3.5	4.2	4.8	5.1
White[2]	1.0	0.5	0.8	1.3	2.5	3.5	—	—	—	—
Black[2]	2.3	3.0	3.5	5.8	7.1	9.3	—	—	—	—
Hispanic[2]	3.6	4.5	6.6	13.2	16.9	16.2	—	—	—	—
Asian/Pacific Islander[2]	1.5	2.6	2.7	1.6	2.2	0.3	—	—	—	—
American Indian/Alaska Native[2]	1.9	1.8	3.7	6.9	8.8	7.8	—	—	—	—
Total current expenditures[5]	1.7	2.6	2.7	2.7	3.1	4.1	5.0	5.8	6.3	7.2
Current expenditures per pupil in fall enrollment[5]	1.7	2.6	2.7	2.7	3.3	4.1	5.0	5.7	6.6	7.5
Private elementary and secondary schools[6]										
Prekindergarten–12 enrollment[6]	2.8	5.5	3.6	8.4	7.3	10.2	9.3	13.8	14.0	17.3
Prekindergarten–8 enrollment[6]	3.1	5.8	3.8	9.6	8.3	11.9	11.2	17.1	17.9	21.5
9–12 enrollment[6]	2.9	4.2	3.7	4.5	4.1	4.7	4.5	5.9	4.5	6.8
High school graduates[6]	3.0	2.5	5.4	5.3	4.9	7.4	6.8	6.4	6.9	7.7

—Not available.
[1]MAPEs for public prekindergarten–12 enrollments were calculated using the last 35 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*.
[2]MAPEs for public prekindergarten–12 enrollments and high school graduates by race/ethnicity were calculated using the last nine editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2019* through *Projections of Education Statistics to 2027*.
[3]Data for teachers expressed in full-time equivalents. MAPEs for teachers were calculated from the past 28 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1997–98* through *Projections of Education Statistics to 2027*, excluding *Projections of Education Statistics to 2012* which did not include projections of teachers.
[4]MAPEs for public high school graduates were calculated from the past 28 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2000* through *Projections of Education Statistics to 2027*.
[5]In constant dollars based on the Consumer Price Index for all urban consumers, Bureau of Labor Statistics, U.S. Department of Labor. MAPEs for current expenditures were calculated using projections from the last 28 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1997–98* through *Projections of Education Statistics to 2027*, excluding *Projections of Education Statistics to 2012* which did not include projections of current expenditures.
[6]MAPEs for private prekindergarten–12 enrollments and high school graduates were calculated from the past 17 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2011* through *Projections of Education Statistics to 2027*.
NOTE: Mean absolute percentage error is the average value over past projections of the absolute values of errors expressed in percentage terms. No MAPEs are presented for enrollments in degree-granting postsecondary institutions and postsecondary degrees conferred as projections of some of these statistics were calculated using a new model and all remaining projections were calculated using projections from a new model. Calculations were made using unrounded numbers. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared March 2019.)

Table A-3. Example of constructing mean absolute percentage errors (MAPEs) on fall enrollment in degree-granting institutions, part 1

Source	Year of data			
	2014–15	2015–16	2016–17	2017–18
1	2	3	4	5
	Enrollment in thousands			
Actual	20,209	19,988	19,847	19,766
	Projected enrollment in thousands			
Projections of Education Statistics to 2024	20,254	20,233	20,485	20,925
Projections of Education Statistics to 2025	†	20,264	20,516	20,972
Projections of Education Statistics to 2026	†	†	20,185	20,413
Projections of Education Statistics to 2027	†	†	†	19,831
	Percentage difference between actual and projected values			
Projections of Education Statistics to 2024	0.2	1.2	3.2	5.9
Projections of Education Statistics to 2025	†	1.4	3.4	6.1
Projections of Education Statistics to 2026	†	†	1.7	3.3
Projections of Education Statistics to 2027	†	†	†	0.3

†Not applicable.
NOTE: Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), IPEDS Spring 2014 through Spring 2018, Enrollment component; and *Projections of Education Statistics*, various editions. (This exhibit was prepared January 2019.)

Table A-4. Example of constructing mean absolute percentage errors (MAPEs) on fall enrollment in degree-granting institutions, part 2

Source	Lead time (years)			
	1	2	3	4
1	2	3	4	5
	Absolute value of percentage difference between actual and projected values			
Projections of Education Statistics to 2024	0.2	1.2	3.2	5.9
Projections of Education Statistics to 2025	1.4	3.4	6.1	†
Projections of Education Statistics to 2026	1.7	3.3	†	†
Projections of Education Statistics to 2027	0.3	†	†	†
	Mean absolute percentage error			
Example	0.9	2.6	4.7	5.9

†Not applicable.
NOTE: The mean absolute percentage errors presented in this table are for illustrative purpose only.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), IPEDS Spring 2014 through Spring 2018, Enrollment component; and *Projections of Education Statistics*, various editions. (This exhibit was prepared January 2019.)

A.1. ELEMENTARY AND SECONDARY ENROLLMENT

Projections in this edition

This edition of *Projections of Education Statistics* presents projected trends in elementary and secondary enrollment from 2017 to 2028. These projections were made using three models:

- The *National Elementary and Secondary Enrollment Projection Model* was used to project total, public, and private school enrollments for the nation by grade level and for ungraded elementary and ungraded secondary programs.
- The *State Public Elementary and Secondary Enrollment Projection Model* was used to project total public school enrollments by grade level for individual states and regions.
- The *National Public Elementary and Secondary Enrollment by Race/Ethnicity Projection Model* was used to project public school enrollments for the nation by race/ethnicity and grade level.

All three elementary and secondary enrollment models used the following same methods.

Overview of approach

Two methods were used in all the elementary and secondary enrollment models:

- The *grade progression rate method* was used to project enrollments in grades 2 through 12. In this method, a rate of progression from each grade (1 through 11) to the next grade (2 through 12) was projected using single exponential smoothing. (For example, the rate of progression from grade 2 to grade 3 is the current year's grade 3 enrollment expressed as a percentage of the previous year's grade 2 enrollment.) To calculate enrollment for each year in the forecast period, the progression rate for each grade was applied to the previous year's enrollment in the previous grade.
- The *enrollment rate method* was used to project prekindergarten, kindergarten, and first-grade enrollments as well as elementary special and ungraded and secondary special and ungraded enrollments. For each of these enrollment categories, the enrollment rate for the last year of actual data was used as the projected enrollment rate. To calculate enrollment for each year in the forecast period, the enrollment rate for each category was applied to the projected population in the appropriate age group.

Assumptions underlying these methods

The grade progression and enrollment rate methods assume that past trends in factors affecting public and private elementary and secondary school enrollments will continue over the forecast period. This assumption implies that all factors influencing enrollments will display future patterns consistent with past patterns. This method implicitly includes the net effect of such factors as migration, dropouts, deaths, nonpromotion, and transfers between public and private schools.

Procedures and equations used in all three elementary and secondary enrollment projection models

The notation and equations that follow describe the basic procedures used to project elementary and secondary enrollments in each of the three elementary and secondary enrollment projection models.

Let:

i = Subscript denoting age
j = Subscript denoting grade
t = Subscript denoting time
T = Subscript of the first year in the forecast period
N_t = Enrollment at the prekindergarten (nursery) level
K_t = Enrollment at the kindergarten level
$G_{j,t}$ = Enrollment in grade j
E_t = Enrollment in elementary special and ungraded programs
S_t = Enrollment in secondary special and ungraded programs

$P_{i,t}$ = Population age i

$R_{j,t}$ = Progression rate for grade j

RN_t = Enrollment rate for prekindergarten (nursery school)

RK_t = Enrollment rate for kindergarten

$RG_{1,t}$ = Enrollment rate for grade 1

RE_t = Enrollment rate for elementary special and ungraded programs

RS_t = Enrollment rate for secondary special and ungraded programs.

Step 1. *Calculate historical grade progression rates for each of grades 2 through 12.* The first step in projecting the enrollments for grades 2 through 12 using the grade progression method was to calculate, for each grade, a progression rate for each year of actual data used to produce the projections except for the first year. The progression rate for grade j in year t equals

$$R_{j,t} = G_{j,t}/G_{j-1,t-1}$$

Step 2. *Produce a projected progression rate for each of grades 2 through 12.* Projections for each grade's progression rate were then produced for the forecast period using single exponential smoothing. A separate smoothing constant, chosen to minimize the sum of squared forecast errors, was used to calculate the projected progression rate for each grade. Single exponential smoothing produces a single forecast for all years in the forecast period. Therefore, for each grade j, the projected progression rate, $\hat{R}_j$, is the same for each year in the forecast period.

Step 3. *Calculate enrollment projections for each of grades 2 through 12.* For the first year in the forecast period, T, enrollment projections, $\hat{G}_{j,t}$, for grades 2 through 12, were produced using the projected progression rates and the enrollments of grades 1 through 11 from the last year of actual data, T–1. Specifically,

This same procedure was then used to produce the projections for the following year, T+1, except that enrollment projections for year T were used rather than actual numbers:

$$\hat{G}_{j,T} = \hat{R}_j \cdot G_{j-1,T-1}$$

The enrollment projections for grades 2 through 11 for year T were those just produced using the grade progression method. The projection for grade 1 for year T was produced using the enrollment rate method, as outlined in steps 4 and 5 below.

$$\hat{G}_{j,T+1} = \hat{R}_j \cdot \hat{G}_{j,T}$$

The same procedure was used for the remaining years in the projections period.

Step 4. *For the last year of actual data, calculate enrollment rates for prekindergarten, kindergarten, grade 1, elementary special and ungraded, and secondary special and ungraded.* The first step in projecting prekindergarten, kindergarten, first-grade, elementary special and ungraded, and secondary special and ungraded enrollments using the enrollment rate method was to calculate enrollment rates for each enrollment category for the last year of actual data, T–1, where:

$$RN_{T-1} = N_{T-1}/P_{5,T-1}$$

$$RK_{T-1} = K_{T-1}/P_{5,T-1}$$

$$RG_{1,T-1} = G_{1,T-1}/P_{6,T-1}$$

$$RE_{T-1} = E_{T-1}/\Sigma_{i=5}^{13}P_{i,T-1}$$

$$RS_{T-1} = S_{T-1}/\Sigma_{i=14}^{17}P_{i,T-1}$$

These enrollment rates were then used as the projected enrollment rates for each year in the forecast period ($\widehat{RN}$, $\widehat{RK}$, $\widehat{RG}_1$, $\widehat{RE}$, and $\widehat{RS}$).

Step 5. *Using the rates for the last year of actual data as the projected enrollment rates, calculate enrollment projections for prekindergarten through grade 1 and the ungraded categories.* For each year in the forecast period, the enrollment rates were then multiplied by the appropriate population projections from the U.S. Census Bureau ($\hat{P}_{i,t}$) to calculate enrollment projections for prekindergarten (nursery school) ($\hat{N}_t$), kindergarten ($\hat{K}_t$), first grade ($\hat{G}_{1,t}$), elementary ungraded ($\hat{E}_t$), and secondary ungraded ($\hat{S}_t$)

$$\hat{N}_t = \widehat{RN} \cdot \hat{P}_{5,t}$$
$$\hat{K}_t = \widehat{RK} \cdot \hat{P}_{5,t}$$
$$\hat{G}_{1,t} = \widehat{RG}_1 \cdot \hat{P}_{5,t}$$
$$\hat{E}_t = \widehat{RE} \cdot \left(\sum_{i=5}^{13} \hat{P}_{i,t}\right)$$
$$\hat{S}_t = \widehat{RS} \cdot \left(\sum_{i=14}^{17} \hat{P}_{i,t}\right)$$

Step 6. *Calculate total elementary and secondary enrollments by summing the projections for each grade and the ungraded categories.* To obtain projections of total enrollment, projections of enrollments for the individual grades (prekindergarten through 12), elementary ungraded, and secondary ungraded were summed.

National Elementary and Secondary Enrollment Projection Model

This model was used to project national total, public, and private school enrollments by grade level and for ungraded elementary and ungraded secondary programs. National enrollment projections for public and private schools were developed separately, then added together to yield total elementary and secondary enrollment projections for the nation. To develop these projections, enrollment data from NCES were used, along with population estimates and projections from the U.S. Census Bureau. Below is information about the specific data used to develop the public school projections and the private school projections, as well as information about the grade progression rates and enrollment rates specific to public schools and private schools.

For details on procedures used to develop the projections, see "Procedures and equations used in all three elementary and secondary enrollment projection models," earlier in this section of appendix A.

Data used to develop national elementary and secondary enrollment projections

Public school enrollment data. Public school enrollment data from the NCES *Statistics of Public Elementary and Secondary School Systems* for 1972 to 1980 and the NCES Common Core of Data (CCD) for 1981 to 2016 were used to develop the national public school enrollment projections.

Private school enrollment data. Private school enrollment data from the NCES Private School Universe Survey (PSS) for 1989–90, 1991–92, 1993–94, 1995–96, 1997–98, 1999–2000, 2001–02, 2003–04, 2005–06, 2007–08, 2009–10, 2011–12, 2013–14, and 2015–16 were used to develop the national private school enrollment projections. Since the PSS is collected in the fall of odd-numbered years, data for even-numbered years without a PSS collection were estimated by interpolating grade-by-grade progression data from PSS.

Population estimates and projections used for public school enrollment projections. Population estimates for 1972 to 2017 and population projections for 2018 to 2028 from the U.S. Census Bureau were also used to develop the public school enrollment projections. (See table B-1 on page 110 and table B-2 on page 111.) The set of population projections used in this year's *Projections of Education Statistics* are the Census Bureau's 2017 National Population Projections by age and sex (September 2018), adjusted to line up with the most recent historical estimates. This was done through the use of ratio adjustments in which, for each combination of state, age, and sex, the population projections from 2018 to 2028 were multiplied by the ratio of the population estimate for 2017 to the population projection for 2017.

Population estimates and projections used for private school enrollment projections. Population estimates for 1989 to 2017 and population projections for 2018 to 2028 from the U.S. Census Bureau were used to develop the private school enrollment projections. The population projections were ratio-adjusted to line up with the most recent historical estimates.

Grade progression and enrollment rates for national elementary and secondary enrollment projections

Public school grade progression and enrollment rates. Table A-5 on page 75 shows the public school grade progression rates for 2016 and projections for 2017 through 2028. Table A-6 on page 75 shows the public school enrollment rates for 2016 and projections for 2017 through 2028.

Accuracy of national elementary and secondary enrollment projections

Mean absolute percentage errors (MAPEs) for projections of public school enrollment were calculated using the last 35 editions of *Projections of Education Statistics*, while MAPEs for projections of private school enrollment were calculated using the last 17 editions. Table A, below, shows MAPEs for both public and private school enrollment projections.

For more information about MAPEs, see Section A.0. Introduction, earlier in appendix A.

Table A. Mean absolute percentage errors (MAPEs) of enrollment projections, by lead time, control of school, and grade in elementary and secondary schools: MAPEs constructed using projections from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*

	Lead time (years)									
Statistic	1	2	3	4	5	6	7	8	9	10
Public elementary and secondary schools										
Prekindergarten–12 enrollment	0.3	0.5	0.8	1.0	1.2	1.4	1.6	1.9	2.2	2.6
Prekindergarten–8 enrollment	0.3	0.6	0.9	1.1	1.4	1.7	2.0	2.4	2.8	3.3
9–12 enrollment	0.4	0.7	1.0	1.1	1.3	1.4	1.6	1.8	2.0	2.3
Private elementary and secondary schools										
Prekindergarten–12 enrollment	2.8	5.5	3.6	8.4	7.3	10.2	9.3	13.8	14.0	17.3
Prekindergarten–8 enrollment	3.1	5.8	3.8	9.6	8.3	11.9	11.2	17.1	17.9	21.5
9–12 enrollment	2.9	4.2	3.7	4.5	4.1	4.7	4.5	5.9	4.5	6.8

NOTE: Mean absolute percentage error is the average value over past projections of the absolute values of errors expressed in percentage terms. MAPEs for public prekindergarten–12 enrollments were calculated using the last 35 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*. MAPEs for private prekindergarten–12 enrollments were calculated from the past 17 editions, from *Projections of Education Statistics to 2011* through *Projections of Education Statistics to 2027*. Calculations were made using unrounded numbers. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared January 2019.)

State Public Elementary and Secondary Enrollment Projection Model

This edition of *Projections of Education Statistics* contains projected trends in public elementary and secondary enrollment by grade level from 2017 to 2028 for each of the 50 states and the District of Columbia, as well as for each region of the country. The state enrollment projections were produced in two stages:

- first, an initial set of projections for each state was produced; and
- second, these initial projections were adjusted to sum to the national public enrollment totals produced by the National Elementary and Secondary Enrollment Projection Model.

For each region, the enrollment projections equaled the sum of enrollment projections for the states within that region. The states within each geographic region can be found in appendix F.

Initial set of state projections

The same methods used to produce the national enrollment projections—namely, the grade progression rate method and the enrollment rate method—were used to produce the initial sets of public school enrollment projections for each state and the District of Columbia. A separate smoothing constant, chosen to minimize the sum of squared forecast errors, was used to calculate the projected progression rate for each combination of jurisdiction and grade.

For details on the procedures used to develop the initial sets of projections, see "Procedures and equations used in all three elementary and secondary enrollment projection models," earlier in this section of appendix A.

Limitations of the grade progression method for state projections

The grade progression rate method assumes that past trends in factors affecting public school enrollments will continue over the forecast period. This assumption implies that all factors influencing enrollments will display future patterns consistent with past patterns. Therefore, this method has limitations when applied to states with unanticipated changes in migration rates. This method implicitly includes the net effect of such factors as migration, dropouts, deaths, nonpromotion, and transfers to and from private schools.

Adjustments to the state projections

The initial projections of state public school enrollments were adjusted to sum to the national projections of public school prekindergarten (preK)–12, preK–8, and 9–12 enrollments shown in table 1 on page 33. This was done through the use of ratio adjustments in which all the states' initial enrollment projections for each grade level were multiplied by the ratio of the national enrollment projection for that grade level to the sum of the state enrollment projections for that grade level.

Data used to develop state elementary and secondary enrollment projections

Public school enrollment data. Public school enrollment data from the NCES *Statistics of Public Elementary and Secondary School Systems* for 1980 and from the NCES Common Core of Data (CCD) for 1981 to 2016 were used to develop these projections.

Population estimates and projections. Population estimates for 1980 to 2017 from the U.S. Census Bureau and population projections for 2017 to 2028 from IHS Global Inc. were used to develop the state-level enrollment projections. This is the fourth edition of *Projections of Education Statistics* to use population projections from IHS Global Inc. rather than from the Census Bureau. The change was made because it had been many years since the Census Bureau had produced population projections at the state level. Unlike the old state-level Census population projections, the IHS Global Inc. state-level population projections were by age groups rather than individual ages. For each year, age-specific population projections for each state were produced for each age from 5 through 17 by applying that age's share of national projection for its age-group to the state-level projections for its age group.

Accuracy of state elementary and secondary enrollment projections

Mean absolute percentage errors (MAPEs) for projections of public school enrollment by state were calculated using the last 23 editions of *Projections of Education Statistics*. Tables A-7 through A-9 on pages 76–78 show MAPEs for preK–12, preK–8, and 9–12 enrollment in public elementary and secondary schools by state.

National Public Elementary and Secondary Enrollment by Race/Ethnicity Projection Model

This edition of *Projections of Education Statistics* contains projected trends in national public elementary and secondary enrollment by race/ethnicity from 2017 to 2028.

This is the sixth edition to include enrollment projections for students of Two or more races. As 2010 is the first year in which all 50 states and the District of Columbia reported enrollment data for students of Two or more races, enrollment projections for this category were produced using a different method than that used for the other five racial/ethnic groups.

Prior to 2008, there was a single category for students of Asian and/or Native Hawaiian or Other Pacific Islander origin. In 2008 and 2009, states could choose to place these students in the single category, Asian and/or Native Hawaiian or Other Pacific Islander, or in one of three categories, (1) Asian, (2) Hawaiian or Other Pacific Islander, and (3) Two or more races (for students of both Asian and Hawaiian or Other Pacific Islander origin). Beginning in 2010, the option of using the single category was eliminated and states were required to place students in one of those three categories. For students of Asian and/or Native Hawaiian or Other Pacific Islander origin, projections were calculated for a single category, Asian/Pacific Islander. For 2008 and 2009, the count of the Asian/Pacific Islander students included the total of the Asian and/or Native Hawaiian or Other Pacific Islander students for states reporting one category and the counts for Asian students and Native Hawaiian or Other Pacific Islander students for states reporting three categories. Beginning in 2010, the count of the Asian/Pacific Islander students was the sum of the counts Asian students and Native Hawaiian or Other Pacific Islander students.

The enrollment projections by race/ethnicity were produced in two stages:

- first, an initial set of projections by race/ethnicity was produced; and
- second, these initial projections were adjusted to sum to the national totals.

Initial set of projections by race/ethnicity

The same methods used to produce the national enrollment projections—namely, the grade progression rate method and the enrollment rate method—were used to produce initial sets of projections for each of the following five racial/ethnic groups: White, Black, Hispanic, Asian/Pacific Islander, and American Indian/Alaska Native. A separate smoothing constant, chosen to minimize the sum of squared forecast errors, was used to calculate the projected progression rate for each combination of race/ethnicity and grade.

For details on the procedures used to develop the initial sets of projections, see "Procedures and equations used in all three elementary and secondary enrollment models," earlier in this section of appendix A.

National enrollment projections for students of Two or more races by grade level were produced by taking the 2016 grade-level enrollment numbers for students of Two or more races and applying the growth rates from 2017 to 2028 of the U.S. Census Bureau's age specific population projections for persons of Two or more races.

Adjustments to the projections by race/ethnicity

The initial projections of enrollments by race/ethnicity were adjusted to sum to the national projections of public school preK–12, preK–8, and 9–12 enrollments shown in table 1 on page 33. This was done through the use of ratio adjustments in which all the initial enrollment projections by race/ethnicity for each grade level were multiplied by the ratio of the national enrollment projection for that grade level to the sum of the initial enrollment projections by race/ethnicity for that grade level.

Data and imputations used to develop enrollment projections by race/ethnicity

Public school enrollment data. Public school enrollment data by grade level and race/ethnicity from the NCES Common Core of Data (CCD) for 1994 to 2016 were used to develop these projections. While projections by race/ethnicity were produced at the national level only, the national data used to develop these projections were constructed from state-level data on enrollment by grade level and race/ethnicity. In those instances where states did not report their enrollment data by grade level and race/ethnicity, the state-level data had to be examined and some imputations made in order to produce the national public school enrollment by grade level and race/ethnicity data. For example, in 1994, North Dakota did not report grade-level enrollment data by race/ethnicity. It did, however, report these numbers for 1995. So, to impute these numbers for 1994, North Dakota's 1994 grade-level enrollment data were estimated by the state's 1995 racial/ethnic distribution at each grade level.

Population estimates and projections. Population estimates for 2000 to 2017 and population projections for 2018 to 2028 from the U.S. Census Bureau were used to develop the enrollment projections by race/ethnicity. The set of population projections used in this year's *Projections of Education Statistics* are the Census Bureau's 2017 National Population Projections by age, sex, and race/ethnicity (September 2018), ratio-adjusted to line up with the most recent historical estimates.

Accuracy of enrollment projections by race/ethnicity

Mean absolute percentage errors (MAPEs) for projections of public school enrollment by race/ethnicity were calculated using the last nine editions of *Projections of Education Statistics*. Table B, below, shows MAPEs for public school enrollment by race/ethnicity projections.

Table B. Mean absolute percentage errors (MAPEs) of enrollment projections, by lead time and race/ethnicity: MAPEs constructed using projections from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*

	Lead time (years)									
Statistic	1	2	3	4	5	6	7	8	9	10
Total enrollment	**0.3**	**0.5**	**0.8**	**1.0**	**1.2**	**1.4**	**1.6**	**1.9**	**2.2**	**2.6**
White	0.5	0.9	1.5	1.9	2.8	5.2	6.8	7.9	7.5	—
Black	0.6	1.4	1.9	2.3	2.7	3.8	4.7	5.2	3.4	—
Hispanic	0.9	1.1	1.3	2.1	2.9	4.0	4.7	4.5	0.2	—
Asian/Pacific Islander	0.6	1.9	3.3	4.4	5.3	7.3	9.9	10.3	8.4	—
American Indian/Alaska Native	1.3	2.4	4.7	7.2	10.4	19.2	22.9	25.8	25.8	—

— Not available.

NOTE: Mean absolute percentage error is the average value over past projections of the absolute values of errors expressed in percentage terms. MAPEs for public preK–12 enrollments were calculated using the last 35 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*. MAPEs for public preK–12 enrollments by race/ethnicity were calculated using the last nine editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2019* through *Projections of Education Statistics to 2027*. Calculations were made using unrounded numbers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared January 2019.)

Table A-5. Actual and projected national public school grade progression rates: Fall 2016, and fall 2017 through fall 2028

Grade	Actual 2016	Projected 2017 through 2028
1	2	3
1 to 2	99.8	99.8
2 to 3	100.8	100.6
3 to 4	99.7	99.7
4 to 5	100.6	100.3
5 to 6	100.6	100.5
6 to 7	100.8	100.7
7 to 8	100.5	100.4
8 to 9	107.2	107.2
9 to 10	96.0	96.0
10 to 11	95.4	95.4
11 to 12	99.3	99.3

NOTE: The progression rate for a particular grade in a year equals the enrollment in the grade for that year divided by the enrollment in the previous grade in the previous year all multiplied by 100. For example, the progression rate for third-graders in 2016 equals the enrollment of third-graders in 2016 divided by the enrollment of second-graders in 2015, all multiplied by 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2015–16 and 2016–17; and National Elementary and Secondary Enrollment Projection Model, 1972 through 2028. (This table was prepared January 2019.)

Table A-6. Actual and projected national enrollment rates in public schools, by grade level: Fall 2016, and fall 2017 through fall 2028

Grade	Actual 2016	Projected 2017 through 2028
1	2	3
Prekindergarten	35.4	35.4
Kindergarten	91.7	91.7
Grade 1	91.7	91.7
Elementary ungraded	0.2	0.2
Secondary ungraded	0.3	0.3

NOTE: The enrollment rate for each grade level equals the enrollment at that grade level divided by the population of that grade's base age, all multiplied by 100. The base age for each grade level is as follows: kindergarten, 5 years old; grade 1, 6 years old; elementary ungraded, 5 to 13 years olds; and secondary ungraded, 14 to 17 years olds. Projected values for 2017 through 2028 were held constant at the actual values for 2016.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2016–17; and National Elementary and Secondary Enrollment Projection Model, 1972 through 2028. (This table was prepared January 2019.)

Table A-7. Mean absolute percentage errors (MAPEs) for projected prekindergarten–12 enrollment in public elementary and secondary schools, by lead time, region, and state: MAPEs constructed using projections from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*

Region and state	Lead time (years)									
	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
United States	**0.3**	**0.5**	**0.8**	**1.0**	**1.2**	**1.4**	**1.6**	**1.9**	**2.2**	**2.6**
Region										
Northeast	0.5	0.7	0.9	1.0	1.0	1.2	1.3	1.2	1.2	1.2
Midwest	0.2	0.4	0.5	0.6	0.8	1.0	1.2	1.4	1.4	1.7
South	0.4	0.8	1.1	1.5	1.8	2.3	2.7	3.2	4.0	4.7
West	0.4	0.8	1.1	1.3	1.7	2.1	2.4	2.7	2.8	2.9
State										
Alabama	0.6	0.8	1.0	1.4	1.8	2.5	3.1	3.7	4.3	4.8
Alaska	0.9	1.6	2.2	2.7	3.2	4.2	4.8	6.0	7.0	8.9
Arizona	1.9	2.8	4.0	5.4	7.1	8.9	10.3	11.7	13.4	14.2
Arkansas	0.5	0.9	1.5	2.0	2.5	3.3	4.0	4.1	4.7	5.2
California	0.5	0.9	1.2	1.7	2.2	2.8	3.1	3.4	4.0	4.8
Colorado	0.5	0.8	1.1	1.4	1.9	2.6	3.3	3.8	4.6	5.5
Connecticut	0.5	0.8	1.0	1.2	1.6	2.1	2.7	3.1	3.7	4.4
Delaware	0.7	1.3	1.7	2.1	2.6	3.4	4.4	4.9	5.8	6.4
District of Columbia	4.3	4.6	6.2	7.6	7.6	7.8	6.4	5.8	7.1	6.8
Florida	0.7	1.5	2.2	3.0	3.8	5.1	6.1	7.0	8.0	9.2
Georgia	0.6	1.1	1.6	2.3	2.8	3.6	4.4	5.1	6.2	7.1
Hawaii	1.7	2.9	3.5	4.3	5.6	7.3	8.8	9.7	11.4	13.6
Idaho	0.9	1.7	2.2	2.5	3.0	3.9	4.3	4.5	4.5	4.8
Illinois	0.5	0.7	0.9	1.1	1.4	1.7	1.9	2.4	2.6	3.1
Indiana	0.3	0.7	0.9	1.2	1.5	1.8	2.1	2.2	2.4	2.7
Iowa	0.5	0.8	1.1	1.4	1.7	2.0	2.2	2.6	3.2	3.5
Kansas	0.7	1.1	1.4	1.4	1.7	2.2	2.4	2.5	2.7	3.0
Kentucky	1.4	1.5	1.8	2.0	1.9	2.8	2.9	3.0	3.6	4.2
Louisiana	1.6	2.6	3.2	4.1	4.9	6.1	6.9	6.7	7.5	8.2
Maine	0.7	1.2	1.4	1.7	2.1	2.0	1.8	2.0	2.2	2.7
Maryland	0.4	0.8	1.1	1.4	1.9	2.3	2.5	2.5	2.5	2.3
Massachusetts	0.4	0.7	0.9	1.0	1.2	1.5	1.7	2.0	2.2	2.3
Michigan	0.6	1.4	1.8	2.1	2.5	3.4	4.0	4.5	5.1	5.7
Minnesota	0.3	0.5	0.7	0.8	1.1	1.4	1.6	1.7	1.7	1.9
Mississippi	0.4	0.9	1.2	1.4	1.6	1.9	2.1	2.3	2.7	3.1
Missouri	0.3	0.5	0.5	0.7	0.8	1.0	1.0	1.2	1.4	1.8
Montana	0.7	1.2	1.8	2.4	3.2	4.4	5.5	6.4	7.7	9.0
Nebraska	0.5	0.8	1.1	1.4	1.7	2.2	2.7	3.0	3.4	3.5
Nevada	0.9	1.7	2.6	3.9	5.3	7.4	9.6	11.1	13.0	14.8
New Hampshire	0.5	0.8	0.9	1.2	1.4	2.1	2.6	3.4	4.2	5.1
New Jersey	0.9	1.4	1.9	2.1	2.2	2.6	3.1	3.8	4.4	4.4
New Mexico	1.2	1.9	2.6	3.6	4.6	6.0	7.1	8.0	8.8	9.7
New York	0.8	1.1	1.4	1.8	2.2	2.8	3.0	3.1	3.2	2.9
North Carolina	0.8	1.4	1.9	2.7	3.4	4.4	5.2	5.9	7.0	7.5
North Dakota	0.8	1.7	2.3	3.2	4.4	6.0	7.6	9.2	10.3	11.1
Ohio	0.4	0.5	0.8	1.0	1.3	1.7	2.0	2.2	2.3	2.5
Oklahoma	0.7	1.2	1.7	2.2	2.8	3.5	4.2	4.8	5.5	6.2
Oregon	0.8	1.3	1.7	1.8	1.9	2.2	2.6	3.0	3.3	3.5
Pennsylvania	0.8	1.2	1.3	1.4	1.6	1.9	1.7	1.8	2.0	2.8
Rhode Island	0.9	1.5	2.2	2.7	2.9	3.4	3.7	3.8	4.2	4.3
South Carolina	0.6	1.0	1.5	2.0	2.4	3.0	3.7	4.2	4.7	5.1
South Dakota	1.1	1.9	2.9	3.9	4.9	6.2	6.8	7.4	8.3	9.0
Tennessee	0.8	1.2	1.5	1.9	2.1	2.5	3.0	3.5	3.8	4.0
Texas	0.6	1.1	1.6	2.1	2.6	3.5	4.5	5.3	6.3	7.4
Utah	1.3	1.7	1.9	2.8	3.6	4.8	5.2	5.9	6.8	6.4
Vermont	1.2	2.2	2.4	2.8	3.4	4.2	4.2	4.7	4.5	5.6
Virginia	0.4	0.6	0.7	1.0	1.4	1.8	2.1	2.5	3.0	3.7
Washington	0.4	0.8	1.1	1.4	1.6	1.9	2.3	2.5	2.7	2.9
West Virginia	0.6	0.8	0.9	1.3	1.7	2.3	3.0	3.4	4.0	4.5
Wisconsin	0.5	0.8	1.0	1.3	1.6	1.8	1.9	2.0	1.8	2.0
Wyoming	0.7	1.3	2.0	3.0	4.2	5.7	7.0	8.2	9.7	11.4

NOTE: Mean absolute percentage error (MAPE) is the average value over past projections of the absolute values of errors expressed in percentage terms. National MAPEs for public prekindergarten–12 enrollments were calculated using the last 35 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*. State MAPEs were calculated using the last 23 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2005* through *Projections of Education Statistics to 2027*. Calculations were made using unrounded numbers. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared January 2019.)

Table A-8. Mean absolute percentage errors (MAPEs) for projected prekindergarten–8 enrollment in public elementary and secondary schools, by lead time, region, and state: MAPEs constructed using projections from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*

Region and state	Lead time (years)									
	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
United States	**0.3**	**0.6**	**0.9**	**1.1**	**1.4**	**1.7**	**2.0**	**2.4**	**2.8**	**3.3**
Region										
Northeast	0.4	0.7	0.8	0.9	0.9	1.1	1.2	1.2	1.1	1.1
Midwest	0.2	0.4	0.5	0.7	0.8	1.0	1.1	1.3	1.4	1.6
South	0.5	0.9	1.4	1.8	2.2	2.8	3.4	4.0	4.9	5.6
West	0.5	0.9	1.3	1.7	2.1	2.6	2.9	3.3	3.5	3.8
State										
Alabama	0.6	0.9	1.3	1.8	2.2	3.0	3.6	4.1	4.7	5.0
Alaska	1.1	1.8	2.7	3.5	4.4	5.8	7.1	9.1	10.6	12.8
Arizona	1.9	2.9	4.3	5.7	7.1	9.3	10.5	12.0	13.2	13.8
Arkansas	0.7	1.1	1.8	2.4	3.0	4.1	4.8	4.9	5.4	5.9
California	0.7	1.3	1.7	2.3	3.0	3.7	4.2	4.8	5.5	6.6
Colorado	0.6	1.0	1.2	1.6	2.2	3.1	4.0	4.7	5.5	6.6
Connecticut	0.6	0.9	1.2	1.5	2.1	2.6	3.1	3.6	4.1	4.7
Delaware	0.9	1.4	1.7	2.3	2.8	3.9	4.8	5.5	6.4	7.4
District of Columbia	3.9	4.8	5.8	7.0	6.9	7.2	6.5	5.6	7.3	6.6
Florida	0.8	1.7	2.6	3.5	4.5	6.0	7.3	8.2	9.5	10.6
Georgia	0.8	1.4	2.1	2.7	3.3	4.3	5.3	6.1	7.2	8.1
Hawaii	2.0	3.4	3.9	4.9	6.6	9.0	11.0	12.3	14.6	17.0
Idaho	1.0	2.0	2.8	3.2	3.8	4.6	5.0	5.1	5.0	5.2
Illinois	0.6	0.8	1.0	1.3	1.7	2.1	2.4	2.9	3.1	3.7
Indiana	0.4	0.8	1.0	1.3	1.5	1.8	2.1	2.1	2.3	2.7
Iowa	0.6	1.0	1.4	2.0	2.5	3.1	3.5	4.1	4.8	5.1
Kansas	0.8	1.2	1.4	1.5	1.9	2.6	3.1	3.3	3.7	4.0
Kentucky	1.5	1.8	2.3	2.6	2.7	3.0	3.2	3.4	3.9	4.9
Louisiana	1.5	2.5	2.8	3.4	4.0	5.0	5.8	5.5	6.2	7.0
Maine	0.6	1.0	1.3	1.7	2.4	2.8	3.1	4.0	4.8	5.8
Maryland	0.5	0.8	1.2	1.6	2.2	2.8	3.2	3.4	3.6	3.6
Massachusetts	0.4	0.7	1.0	1.2	1.3	1.7	1.9	2.1	2.2	2.2
Michigan	0.7	1.4	1.8	2.3	2.6	3.5	4.1	5.0	5.7	6.3
Minnesota	0.4	0.5	0.8	1.0	1.3	1.5	1.6	1.6	1.6	1.6
Mississippi	0.6	1.2	1.5	1.8	2.1	2.6	2.8	3.0	3.5	3.9
Missouri	0.5	0.7	0.9	1.0	1.2	1.4	1.4	1.3	1.3	1.6
Montana	0.9	1.5	2.4	3.3	4.5	6.3	8.0	9.3	10.9	12.1
Nebraska	0.6	1.0	1.3	1.5	1.9	2.5	3.1	3.6	4.0	4.1
Nevada	1.1	2.3	3.8	5.4	7.2	9.9	12.4	14.3	16.4	17.8
New Hampshire	0.6	1.0	1.2	1.6	2.5	3.4	4.2	5.3	6.4	7.5
New Jersey	1.0	1.6	2.0	2.0	2.0	2.3	3.0	3.5	3.9	3.7
New Mexico	1.0	1.8	2.4	3.2	4.3	6.1	7.4	8.7	9.3	9.8
New York	0.6	0.9	1.1	1.5	2.0	2.4	2.9	3.1	3.1	2.8
North Carolina	1.0	1.8	2.5	3.5	4.2	5.4	6.2	7.3	8.5	9.1
North Dakota	1.1	2.2	3.0	4.1	5.6	7.5	9.4	11.4	12.4	13.0
Ohio	0.4	0.4	0.6	0.7	1.0	1.3	1.4	1.7	1.8	2.1
Oklahoma	1.0	1.6	2.2	2.8	3.5	4.5	5.3	5.8	6.4	7.3
Oregon	0.9	1.5	1.7	1.7	2.0	2.4	2.5	3.0	3.5	3.6
Pennsylvania	0.5	0.9	1.2	1.3	1.5	1.6	1.5	1.5	1.8	2.3
Rhode Island	1.1	1.7	2.3	2.9	3.1	3.8	4.3	4.4	4.8	5.2
South Carolina	0.8	1.2	1.6	2.3	2.6	3.4	3.9	4.3	4.7	5.2
South Dakota	1.2	2.0	3.0	4.3	5.7	7.6	8.4	9.6	10.7	10.8
Tennessee	0.8	1.1	1.7	2.1	2.2	2.4	2.6	3.0	3.5	4.0
Texas	0.8	1.4	2.1	2.7	3.3	4.3	5.2	6.2	7.3	8.3
Utah	1.2	1.7	2.0	2.7	3.5	4.7	5.3	5.9	6.8	7.2
Vermont	1.7	2.8	3.0	3.5	4.5	5.6	6.1	7.0	6.6	7.7
Virginia	0.5	0.7	0.8	1.2	1.6	2.1	2.5	3.0	3.5	4.2
Washington	0.4	0.8	1.1	1.4	1.6	2.2	2.3	2.7	2.6	2.7
West Virginia	0.6	0.8	1.0	1.3	1.7	2.3	2.9	3.4	4.1	4.5
Wisconsin	0.6	0.7	0.9	1.3	1.7	2.0	2.1	2.1	1.8	2.0
Wyoming	0.9	1.6	2.5	3.7	5.3	7.3	9.0	10.6	12.3	14.0

NOTE: Mean absolute percentage error (MAPE) is the average value over past projections of the absolute values of errors expressed in percentage terms. National MAPEs for public prekindergarten–8 enrollments were calculated using the last 35 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*. State MAPEs were calculated using the last 23 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2005* through *Projections of Education Statistics to 2027*. Calculations were made using unrounded numbers. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared January 2019.)

Table A-9. Mean absolute percentage errors (MAPEs) for projected grades 9–12 enrollment in public schools, by lead time, region, and state: MAPEs constructed using projections from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*

Region and state	Lead time (years)									
	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
United States	**0.4**	**0.7**	**1.0**	**1.1**	**1.3**	**1.4**	**1.6**	**1.8**	**2.0**	**2.3**
Region										
Northeast	0.8	1.1	1.2	1.5	1.7	1.8	1.6	1.8	1.8	1.9
Midwest	0.4	0.6	0.8	0.9	1.0	1.2	1.5	1.7	1.7	1.9
South	0.3	0.8	1.3	1.6	1.7	2.0	2.2	2.4	2.6	3.3
West	0.5	0.7	1.1	1.3	1.4	1.5	1.7	1.8	1.9	1.6
State										
Alabama	0.9	1.5	1.8	2.3	2.6	3.5	4.2	4.8	5.6	6.1
Alaska	1.0	2.0	2.7	2.9	3.1	3.5	3.6	3.8	3.5	3.3
Arizona	3.3	5.4	7.3	7.8	8.2	9.0	9.9	10.8	13.8	15.6
Arkansas	0.4	0.8	1.2	1.3	1.5	1.9	2.2	2.5	3.1	3.8
California	0.4	0.8	1.2	1.7	2.0	2.3	2.5	2.7	2.3	2.0
Colorado	0.6	1.1	1.6	2.0	2.3	2.8	3.0	2.9	3.1	3.7
Connecticut	0.6	1.0	1.1	1.5	2.0	2.6	3.2	3.9	4.8	5.8
Delaware	1.2	1.7	2.2	2.6	2.7	3.0	3.5	3.6	4.6	5.4
District of Columbia	6.2	7.7	10.2	12.7	14.8	16.6	14.8	14.7	15.1	16.2
Florida	0.7	1.2	1.7	2.2	2.5	3.5	4.4	5.4	5.4	5.8
Georgia	0.5	0.9	1.4	1.7	2.0	2.5	3.0	3.5	4.4	5.5
Hawaii	1.4	2.2	2.9	3.5	3.8	4.6	5.1	5.5	5.6	6.4
Idaho	0.9	1.4	1.8	1.9	2.6	3.0	3.8	4.4	4.7	4.8
Illinois	0.7	1.0	1.3	1.4	1.6	2.1	2.4	2.7	2.6	2.9
Indiana	0.4	0.9	1.3	1.7	2.1	2.5	2.8	3.0	3.3	3.5
Iowa	0.6	0.7	1.0	0.9	1.3	1.6	2.0	2.3	2.6	3.2
Kansas	1.0	1.5	1.9	2.1	2.0	1.9	1.5	1.5	1.5	1.1
Kentucky	1.4	1.8	2.0	1.8	1.8	3.1	3.7	3.5	4.4	4.3
Louisiana	2.4	3.6	4.9	6.2	7.5	9.4	10.6	10.8	12.4	13.4
Maine	1.4	2.5	3.2	4.0	4.5	5.7	6.8	7.5	8.2	8.1
Maryland	0.5	0.8	1.2	1.5	1.7	2.1	2.3	2.7	2.8	2.2
Massachusetts	0.6	1.2	1.6	1.9	2.5	3.1	3.6	3.9	4.3	4.4
Michigan	1.2	2.0	2.5	2.8	3.3	4.2	5.1	5.9	7.1	7.9
Minnesota	0.5	0.8	1.0	1.1	1.3	1.7	2.0	2.2	2.4	2.9
Mississippi	0.6	1.2	1.8	2.2	2.5	3.0	3.5	3.9	4.3	4.3
Missouri	0.3	0.6	0.8	1.2	1.4	1.6	1.5	1.7	2.0	2.4
Montana	0.5	0.8	1.1	1.5	1.9	2.5	3.0	3.3	3.0	3.1
Nebraska	0.4	0.8	1.1	1.4	1.6	1.9	2.3	2.6	2.8	2.8
Nevada	1.1	2.1	2.6	2.8	3.4	4.5	5.8	7.7	9.5	10.4
New Hampshire	0.6	1.0	1.4	1.6	1.7	2.0	2.4	3.0	3.6	4.2
New Jersey	0.7	1.5	2.1	2.3	2.8	3.5	4.2	4.8	5.9	6.3
New Mexico	2.3	3.5	4.7	5.7	7.0	8.1	8.7	8.8	9.2	10.4
New York	1.4	2.1	2.3	2.6	3.1	3.9	3.5	3.9	4.2	3.8
North Carolina	1.0	1.4	1.6	1.7	2.1	2.6	3.1	3.4	4.2	5.0
North Dakota	0.6	1.3	1.7	2.3	2.9	4.0	5.6	7.1	8.2	8.9
Ohio	0.9	1.5	1.9	2.2	2.6	3.3	3.8	3.9	3.6	3.3
Oklahoma	0.4	0.8	1.2	1.6	1.9	2.3	2.7	3.2	3.9	4.7
Oregon	1.0	1.5	2.1	2.4	2.5	3.1	3.6	4.1	4.5	4.6
Pennsylvania	1.5	1.9	2.0	2.0	2.4	2.8	2.7	2.8	2.4	3.7
Rhode Island	0.7	1.5	2.3	3.1	3.9	4.7	5.0	5.3	5.1	5.4
South Carolina	0.6	1.2	1.8	2.2	2.7	3.4	3.9	4.4	4.9	5.8
South Dakota	1.4	2.5	3.8	4.9	6.0	7.1	8.4	9.1	9.4	9.7
Tennessee	1.7	2.0	2.6	3.3	3.9	4.8	5.4	5.7	5.9	5.8
Texas	0.4	1.0	1.5	1.8	2.2	2.6	3.1	3.7	4.5	5.7
Utah	1.6	1.9	1.9	3.2	4.1	5.7	6.0	7.0	8.5	7.1
Vermont	1.0	2.2	2.7	3.1	3.4	3.7	3.9	4.0	4.0	3.7
Virginia	0.5	0.9	1.4	1.9	2.3	2.8	2.9	2.9	2.9	2.9
Washington	0.5	1.0	1.3	1.7	2.0	2.3	2.9	3.2	3.8	4.2
West Virginia	0.7	1.0	1.1	1.3	1.9	2.8	3.5	4.0	4.1	4.5
Wisconsin	0.7	1.1	1.3	1.5	1.7	2.0	2.3	2.7	2.7	2.7
Wyoming	0.7	1.2	1.7	2.6	3.6	5.0	6.3	7.5	8.2	8.4

NOTE: Mean absolute percentage error (MAPE) is the average value over past projections of the absolute values of errors expressed in percentage terms. National MAPEs for public 9–12 enrollments were calculated using the last 35 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*. State MAPEs were calculated using the last 23 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2005* through *Projections of Education Statistics to 2027*. Calculations were made using unrounded numbers. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared January 2019.)

A.2. ELEMENTARY AND SECONDARY TEACHERS

Projections in this edition

This edition of *Projections of Education Statistics* presents projected trends in elementary and secondary teachers, pupil/teacher ratios, and new teacher hires from 2017 to 2028. These projections were made using two models:

- The *Elementary and Secondary Teacher Projection Model* was used to project the number of public school teachers, the number of private school teachers, and the total number of teachers for the nation. It was also used to project pupil/teacher ratios for public schools, private schools, and all elementary and secondary schools.
- The *New Teacher Hires Projection Model* was used to project the number of new teacher hires in public schools, private schools, and all schools.

Overview of approach

Approach for numbers of teachers and pupil/teacher ratios

Public schools. Multiple linear regression was used to produce initial projections of public school pupil/teacher ratios separately for elementary and secondary schools. The initial projections of elementary pupil/teacher ratios and secondary pupil/teacher ratios were applied to enrollment projections to project the numbers of elementary teachers and secondary teachers, which were summed to get the total number of public school teachers. Final projections of the overall public school pupil/teacher ratios were produced by dividing total projected public school enrollment by the total projected number of teachers.

Assumptions underlying this method

This method assumes that past relationships between the public school pupil/teacher ratio (the dependent variable) and the independent variables used in the regression analysis will continue throughout the forecast period. For more information about the independent variables, see "Elementary and Secondary Teacher Projection Model," later in this section of appendix A.

Private schools. Private school pupil/teacher ratios were projected by applying each year's projected annual percentage change in the overall public school pupil/teacher ratio to the previous year's private school pupil/teacher ratio. The projected private school pupil/teacher ratios were then applied to projected enrollments at private schools to produce projected numbers of private school teachers.

Assumptions underlying this method

This method assumes that the future pattern in the trend of private school pupil/teacher ratios will be the same as that for public school pupil/teacher ratios. The reader is cautioned that a number of factors could alter the assumption of consistent patterns of change in ratios over the forecast period.

Approach for new teacher hires

The following numbers were projected separately for public schools and for private schools:

- *The number of teachers needed to fill openings when there is an increase in the size of the teaching workforce from one year to the next and the decrease in the number of replacement teachers needed if there is a decrease in the size of the teaching workforce from one year to the next.* This number was estimated based on continuation rates of teachers by their age.
- *The number of teachers needed to fill openings due to an increase in the size of the teaching workforce from one year to the next.* This number was estimated by subtracting the projected number of teachers in one year from the projected number of teachers in the next year.

These two numbers were summed to yield the total number of "new teacher hires" for each control of school—that is, teachers who will be hired in a given year, but who did not teach in that control the previous year. A teacher who moves from one control to the other control (i.e., from a public to private school or from a private to a public school) is considered a new teacher hire, but a teacher who moves from one school to another school in the same control is not considered a new teacher hire.

Elementary and Secondary Teacher Projection Model

Projections for public schools were produced first. Projections for private schools were produced based partially on input from the public school projections. Finally, the public and private school projections were combined into total elementary and secondary school projections (not shown in the steps below).

Steps used to project numbers of teachers and pupil/teacher ratios

Public school teachers. The following steps were used for the public school projections:

Step 1. *Produce projections of pupil/teacher ratios for public elementary schools and public secondary schools separately.* Two separate log-log equations were used—one for elementary schools and one for secondary schools. The equation for secondary schools included an AR(1) term for correcting for autocorrelation. The following independent variables for each of the equations is as follows:

- *Independent variables for public elementary school pupil/teacher ratios*—(1) average teacher wage relative to the overall economy-level wage, and (2) level of education revenue from state sources in constant dollars per public elementary student.
- *Independent variables for public secondary school pupil/teacher ratios*—(1) level of education revenue from state sources in constant dollars per public secondary student, and (2) the number of students enrolled in public secondary schools relative to the secondary school–age population.

To estimate the model, each equation was first transformed into nonlinear log-log form and then the coefficients were estimated by applying Marquardt nonlinear least squares to the public secondary school pupil/teacher ratio equation and least squares estimation to the public elementary school pupil/teacher ratio equation.

For details on the equations, model statistics, and data used to project public school pupil/teacher ratios, see "Data and equations used for projections of teachers and pupil/teacher ratios," below.

Step 2. *Produce projections of the number of teachers for public elementary schools and public secondary schools separately.* The projections of the public elementary pupil/teacher ratio and public secondary pupil/teacher ratio were applied to projections of enrollments in elementary schools and secondary schools, respectively, to produce projections of public elementary teachers and public secondary teachers.

Step 3. *Produce projections of the total number of teachers for public elementary and secondary schools combined.* The projections of public elementary teachers and public secondary teachers were added together to produce the projections of the total number of public elementary and secondary teachers.

Step 4. *Produce projections of the pupil/teacher ratio for public elementary and secondary schools combined.* The projections of total enrollment in public elementary and secondary schools were divided by the projections of the total number of public elementary and secondary teachers to produce projections of the overall pupil/teacher ratio in public elementary and secondary schools.

Private school teachers. The following steps were used for the private school projections:

Step 1. *Produce projections of the elementary and secondary private teachers to public teachers ratio.* First, the historical ratio of elementary private teachers to elementary public teachers and secondary private school teachers to secondary public school teachers were generated through the last historical year for which both public and private data exist. Then, given the typical one-year lag in the private school data, the ratio of private teachers to public teachers for both elementary and secondary were calculated for the missing year of private data by setting the missing year equal to the last historical estimate. This method was applied throughout the forecast period such that the elementary and secondary private teachers to public teachers ratio throughout the projections period equaled the last historical ratio—for the projections through 2028 that year was 2015.

Step 2. *Produce projections of the number of private school teachers.* The projected public teachers/private teachers ratios were applied to projected public school enrollments to produce projections of private school teachers from 2016 through 2028 for both elementary and secondary levels.

For information about the private school teacher and enrollment data used for the private school projections, see "Data and equations used for projections of teachers and pupil/teacher ratios," below.

Data and equations used for projections of teachers and pupil/teacher ratios

Public school data used in these projections were by organizational level (i.e., school level), not by grade level. Thus, secondary school enrollment is not the same as enrollment in grades 9 through 12 because many jurisdictions count some grade 7 and 8 enrollment as secondary. For example, some jurisdictions may have 6-year high schools with grades 7 through 12.

Data used to estimate the equation for public elementary school pupil/teacher ratios. The following data were used to estimate the equation:

- To compute the historical elementary school pupil/teacher ratios—Data on 1972–73 to 1980–81 enrollments in public elementary schools came from the NCES *Statistics of Public Elementary and Secondary Day Schools* and data on 1981–82 to 2016–17 enrollment came from the NCES Common Core of Data (CCD). The proportion of public school teachers who taught in elementary schools was taken from the National Education Association and then applied to the total number of public school teachers from the CCD to produce the number of teachers in elementary schools.
- For 1973–74 and 1975–76, the education revenue from state sources data came from *Statistics of State School Systems*, published by NCES. For 1972–73, 1974–75, and 1976–77, the education revenue from state sources data came from *Revenues and Expenditures for Public Elementary and Secondary Education*, also published by NCES. For 1977–78 through 2015–16, these data came from the NCES Common Core of Data (CCD).

Estimated equation and model statistics for public elementary school pupil/teacher ratios. For the estimated equation and model statistics, see table A-10 on page 85. In the public elementary pupil/teacher ratio equation, the independent variables affect the dependent variable in the expected ways:

- As the average teacher wage relative to the overall economy-level wage increases, the pupil/teacher ratio increases; and
- As the level of education revenue from state sources in constant dollars per public elementary student increases, the pupil/teacher ratio decreases.

Data used to project public elementary school pupil/teacher ratios. The estimated equation was run using projected values for teacher salaries and education revenues from state sources from 2016–17 through 2028–29. For more information, see Section A.0. Introduction to Projection Methodology, earlier in this appendix and Section A.4. Expenditures for Public Elementary and Secondary Education later in this appendix.

Data used to estimate the equation for public secondary school pupil/teacher ratios. The following data were used to estimate the equation:

- To compute the historical secondary school pupil/teacher ratios—Data on 1972–73 to 1980–81 enrollments in public elementary schools came from the NCES *Statistics of Public Elementary and Secondary Day Schools* and data on 1981–82 to 2016–17 enrollment came from the NCES Common Core of Data (CCD). The proportion of public school teachers who taught in secondary schools was taken from the National Education Association and then applied to the total number of public school teachers from the CCD to produce the number of teachers in secondary schools.
- For 1973–74 and 1975–76, the education revenue from state sources data came from *Statistics of State School Systems*, published by NCES. For 1972–73, 1974–75, and 1976–77, the education revenue from state sources data came from *Revenues and Expenditures for Public Elementary and Secondary Education*, also published by NCES. For 1977–78 through 2015–16, these data came from the NCES Common Core of Data (CCD).
- To compute the historical secondary school enrollment rate—Data on the secondary school-age population from 1972–73 to 2016–17 came from the U.S. Census Bureau. Data on enrollments in public secondary schools during the same period came from the CCD, as noted above.

Estimated equation and model statistics for public secondary school pupil/teacher ratios. For the estimated equation and model statistics, see table A-10 on page 85. In the public secondary pupil/teacher ratio equation, the independent variables affect the dependent variable in the expected way:

- As enrollment rates (number of enrolled students relative to the school-age population) increase, the pupil/teacher ratio increases; and
- As the level of education revenue from state sources in constant dollars per public secondary student increases, the pupil/teacher ratio decreases.

Data used to project public secondary school pupil/teacher ratios. The estimated equation was run using projections for education revenues, public secondary enrollments, and secondary school–age populations from 2016–17 through 2028–29. Secondary enrollment projections were derived from the enrollment projections described in Section A.1. Elementary and Secondary Enrollment. Population projections were from the Census Bureau's 2017 National Population Projections by age and sex (September 2018), ratio-adjusted to line up with the most recent historical estimates.

Private school teacher and enrollment data. Private school data for 1989–90, 1991–92, 1993–94, 1995–96, 1997–98, 1999–2000, 2001–02, 2003–04, 2005–06, 2007–08, 2009–10, 2011–12, 2013–14, and 2015–16 came from the biennial NCES Private School Universe Survey (PSS). Since the PSS is collected in the fall of odd-numbered years, data for years without a PSS collection were estimated using data from the PSS.

Private school enrollment projections. Private school enrollments from 2016 to 2028 came from the projections described in Section A.1. Elementary and Secondary Enrollment, earlier in this appendix.

Accuracy of projections of numbers of teachers

Mean absolute percentage errors (MAPEs) for projections of public school teachers were calculated using the last 28 editions of *Projections of Education Statistics* that included projections of teachers. Table C shows MAPEs for projections of the numbers of public school teachers. No mean absolute percentage errors (MAPEs) were calculated for private elementary and secondary teachers as this is the first edition of *Projections of Education Statistics* to use the new Private Elementary and Secondary Teachers Model. For information concerning the accuracy of the previous models used to produce projections of private elementary and secondary teachers, see page 91 of *Projections of Education Statistics to 2027*.

For more information about MAPEs, see Section A.0. Introduction to Projection Methodology, earlier in this appendix.

Table C. Mean absolute percentage errors (MAPEs) of projections of number of public elementary and secondary school teachers, by lead time: MAPEs constructed using projections from *Projections of Education Statistics to 1997–98* through *Projections of Education Statistics to 2027*

	Lead time (years)									
Statistic	1	2	3	4	5	6	7	8	9	10
Public elementary and secondary teachers	0.7	1.4	1.7	2.3	3.0	4.0	4.7	5.4	5.7	6.5

NOTE: MAPEs for teachers were calculated from the past 28 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1997–98* through *Projections of Education Statistics to 2027*, excluding *Projections of Education Statistics to 2012,* which did not include projections of teachers. Calculations were made using unrounded numbers. Some data have been revised from previously published figures. Number of teachers reported in full-time equivalents.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared February 2019.)

New Teacher Hires Projection Model

The New Teacher Hires Projection Model was estimated separately for public and private school teachers. The model produces projections of the number of teachers who were not teaching in the previous year, but who will be hired in a given year.

About new teacher hires

A teacher is considered to be a new teacher hire for a control of school (public or private) for a given year if the teacher teaches in that control that year but had not taught in that control in the previous year. Included among new teachers hires are: (1) teachers who are new to the profession; (2) teachers who had taught previously but had not been teaching the previous year; and (3) teachers who had been teaching in one control the previous year but have moved to the other control. Concerning the last category, if a teacher moves from one public school to a different public school, that teacher would not be counted as a new teacher hire for the purposes of this model. On the other hand, if a teacher moves from a public school to a private school, that teacher would be counted as a private school new teacher hire, since the teacher did not teach in a private school in the previous year.

The New Teacher Hires Projection Model measures the demand for teacher hires. Due to difficulties in defining and measuring the pool of potential teachers, no attempt was made to measure the supply of new teacher candidates.

Steps used to project numbers of new teacher hires

The steps outlined below provide a general summary of how the New Teacher Hires Projection Model was used to produce projections of the need for new teacher hires.

For more information about the New Teacher Hires Projection Model, see Hussar (1999).

First, the series of steps outlined below was used to produce projections of public school new teacher hires. Then, the same steps were used to produce projections of private school new hires. Finally, the public and private new teacher hires were combined to produce projections of total new teacher hires.

Step 1. *Estimate the age distribution of full-time-equivalent (FTE) teachers in 2015 (2011 for private school teachers).* For this estimate, the age distribution of the headcount of school teachers (including both full-time and part-time teachers) in 2015 (2011 for private school teachers) was applied to the national number of FTE teachers in the same year.

Step 2. *Project the number of new FTE teacher hires needed to replace those who left teaching between 2015 and 2016 (between 2011 and 2012 for private school teachers).*

- Age-specific continuation rates for 2012 (due to data availability, 2008 continuation rates were used for private school new teacher hires) were applied to the FTE count of teachers by age for 2015 (2011 for private school teachers), resulting in estimates of the number of FTE teachers who remained in teaching in 2016 (2012 for private school teachers) by individual age.
- The FTE teachers who remained in teaching by individual age were summed across all ages to produce a projection of the total number of FTE teachers who remained teaching in 2016 (2012 for private school teachers).
- The total projection of remaining FTE teachers in 2016 (2012 for private school teachers) was subtracted from the total FTE teacher count for 2015 (2011 for private school teachers) to produce the projected number of FTE teachers who left teaching.

Step 3. *Project the number of new FTE teacher hires needed due to the overall increase in the teacher workforce between 2015 and 2016 (2011 and 2012 for private school teachers).* The total number of FTE teachers in 2015 (2011 for private school teachers) was subtracted from the total projected number of FTE teachers in 2016 (2012 for private school teachers) to project the overall increase in the teaching workforce between 2015 and 2016 (2011 and 2012 for private school teachers).

Step 4. *Project the total number of new FTE teacher hires needed in 2016 (2012 for private school teachers).* The number of FTE teachers who left teaching from step 2 was added to the projected net change in the number of FTE teachers from step 3 to project the total number of new FTE teacher hires needed in 2016 (2012 for private school teachers).

Step 5. *Project the FTE count of teachers by age for 2016 (2012 for private school teachers).* In this step

- The age distribution for the headcount of newly hired teachers in 2015 (2011 for private school teachers) was applied to the projected total number of new FTE teacher hires in 2016 (2012 for private school teachers), resulting in the projected number of new FTE teacher hires by age.
- For each individual age, the projected number of new FTE teacher hires was added to the projected number of remaining FTE teachers (from step 2, first bullet) to produce the projected FTE count of teachers by age for 2016 (2012 for private school teachers).

Step 6. *Repeat steps 2 to 5 for each year from 2017 through 2028 (2013 through 2028 for private school teachers).*

- In step 2
  - For public school teachers ages 22 through 66 and private school teachers ages 21 through 65, projections of age-specific continuation rates were used. A separate smoothing constant, chosen to minimize the sum of squared forecast errors, was used to calculate the projected progression rate for each age. (For a general description of the exponential smoothing technique, see Section A.0. Introduction to Projection Methodology, earlier in this appendix.)
  - For all other ages, the age-specific continuation rates for 2012 for public school teachers and 2008 for private school teachers (the last year of actual data) were used.
- In step 3, projections of the numbers of FTE teachers were used for all years in which there were no actual teacher numbers. The projections of FTE teachers are described under "Elementary and Secondary Teacher Projection Model," earlier in this section of appendix A.

Assumptions underlying this method

A number of assumptions are made in order to make these projections. They include that (1) the age distribution of FTE teachers in 2015 (2011 for private school teachers) was similar to that of full-time and part-time teachers in that year (step 1); (2) the age-specific continuation rates for FTE teachers for each year from 2016 through 2028 (2012 through 2028 for private school teachers) are similar to either the projections produced using single exponential smoothing or the values for 2012 (2008 for private school teachers), depending on the age of the teachers (step 2); (3) the age distribution for newly hired FTE teachers from 2016 through 2028 (2012 through 2028 for private school teachers) is similar to that of newly hired full-time and part-time teachers in 2015 (2011 for private school teachers) (step 3); (4) the actual numbers of FTE teachers for each year from 2016 through 2028 (2012 through 2028 for private school teachers) are similar to projections of FTE teachers shown in table 8 on page 44; and (5) no economic or political changes further affect the size of the teaching force.

Data used for projections of new teacher hires

Data on numbers of public school teachers. The number of FTE teachers for 2015 came from the NCES Common Core of Data (CCD).

Data on numbers of private school teachers. Private school data on the numbers of FTE teachers in 2003–04, 2005–06, 2007–08, 2009–10, 2011–12, 2013–14, and 2015–16 came from the biennial NCES Private School Universe Survey (PSS). Since the PSS is collected in the fall of odd-numbered years, data for years without a PSS collection were estimated using data from the PSS.

Data on the age distribution of public and private school teachers. Data on the age distribution of full-time and part-time public school teachers came from the National Teacher and Principal Survey (NTPS), 2015–16 and that of private school teachers came from the 2011–12 NCES Schools and Staffing Survey (SASS). These data and their standard errors are shown in table A-11 on page 85.

Data on the age distribution of public and private new teacher hires. Data on the age distribution of newly hired full-time and part-time public school teachers came from the National Teacher and Principal Survey (NTPS), 2015–16 and that of private school teachers came from the 2011–12 NCES Schools and Staffing Survey (SASS). These data and their standard errors are shown in table A-12 on page 85.

Data on and projections of age-specific continuation rates of public and private school teachers. The 2008 continuation rates came from the 2008–09 NCES Teacher Follow-Up Survey (TFS) and the 2012 continuation rates came from the 2012–13 TFS. Data from the 1994–95, 2000–01, and 2004–05 TFS were also used in the projection of age-specific continuation rates. The actual data, their standard errors, and the projections are shown in table A-13 on page 86.

Projections of the numbers of public and private elementary and secondary school teachers. These projections are described under "Elementary and Secondary Teacher Projection Model," earlier in this section of appendix A.

Accuracy of projections of new teacher hires

No MAPEs are presented for new teacher hires as there has only been three additional years of historical data for this statistic since it was first included in *Projections of Education Statistics to 2018*.

Table A-10. Estimated equations and model statistics for public elementary and secondary teachers based on data from 1972 through 2016

Dependent variable	Equation[1]	R^2	Breusch-Godfrey Serial Correlation LM test statistic[2]	Time period
1	2	3	4	5
Elementary	ln(RELENRTCH) = 3.9 + 0.06ln(RSALARY) – 0.24ln(RSGRNTELENR) (41.712) (4.953) (-11.699)	0.99	6.60 (0.037)	1972 to 2016
Secondary	ln(RSCENRTCH) = 4.06 – 0.18ln(RSGRNTSCENR) + 0.77ln(RSCENRPU) + .83 AR(1) (16.998) (-4.213) (5.093) (8.193)	0.98	1.02 (0.601)	1973 to 2016

[1]AR(1) indicates that the model was estimated using least squares with the AR(1) process for correcting for first-order autocorrelation. To estimate the model, it was first transformed into a nonlinear model and then the coefficients were estimated simultaneously by applying a Marquardt nonlinear least squares algorithm to the transformed equation. For a general discussion of the problem of autocorrelation, and the method used to forecast in the presence of autocorrelation, see G. Judge, W. Hill, R. Griffiths, H. Lutkepohl, and Lee, T. *The Theory and Practice of Econometrics*. New York: John Wiley and Sons, 1985, pp. 315–318. Numbers in parentheses are *t*-statistics.
[2]The number in parentheses is the probability of the Chi-Square associated with the Breusch-Godfrey Serial Correlation LM Test. A *p* value greater that 0.05 implies that we do not reject the null hypothesis of no autocorrelation at the 5 percent significance level for a two-tailed test and 10 percent significance level for a one-tailed test, i.e., there is no autocorrelation present. For an explanation of the Breusch-Godfrey Serial Correlation LM test statistic, see Greene, W. (2000). *Econometric Analysis*. New Jersey: Prentice-Hall.
NOTE: R^2 indicates the coefficient of determination.
RELENRTCH = Ratio of public elementary school enrollment to classroom teachers (i.e., pupil/teacher ratio).
RSCENRTCH = Ratio of public secondary school enrollment to classroom teachers (i.e., pupil/teacher ratio).
RSALARY = Average annual teacher salary relative to the overall economy wage in 2000 dollars.
RSGRNTELENR = Ratio of education revenue receipts from state sources per capita to public elementary school enrollment in 2000 dollars.
RSGRNTSCENR = Ratio of education revenue receipts from state sources per capita to public secondary school enrollment in 2000 dollars.
RSCENRPU = Ln of the ratio of enrollment in public secondary schools to the 11- to 18-year-old population.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Elementary and Secondary Teacher Projection Model, 1972 through 2028. (This table was prepared March 2019.)

Table A-11. Percentage distribution of full-time and part-time school teachers, by age, control of school, and teaching status: School years 2011–12 and 2015–16

Control of school and teaching status	Percent of total		Age distribution													
			Total	Less than 25 years		25–29 years		30–39 years		40–49 years		50–59 years		60–64 years		65 years or more	
1	2		3	4		5		6		7		8		9		10	
Public actual, 2015–16	**100.0**	**(†)**	**100.0**	**3.2**	**(0.10)**	**11.8**	**(0.20)**	**28.5**	**(0.28)**	**27.4**	**(0.29)**	**21.5**	**(0.23)**	**5.8**	**(0.15)**	**1.8**	**(0.08)**
Full-time	93.2	(0.17)	100.0	3.2	(0.10)	12.0	(0.22)	28.7	(0.30)	27.5	(0.30)	21.4	(0.25)	5.6	(0.15)	1.6	(0.08)
Part-time	6.8	(0.17)	100.0	2.1	(0.30)	9.1	(0.69)	25.2	(0.98)	27.1	(1.04)	23.6	(1.00)	8.9	(0.64)	4.1	(0.46)
Private actual, 2011–12	**100.0**	**(†)**	**100.0**	**4.6**	**(1.35)**	**12.2**	**(1.26)**	**24.0**	**(1.58)**	**23.8**	**(1.57)**	**21.3**	**(1.57)**	**9.6**	**(0.97)**	**4.6**	**(0.93)**
Full-time	79.4	(2.04)	100.0	4.7	(1.30)	12.5	(1.25)	25.6	(1.82)	23.8	(1.75)	21.1	(1.66)	9.0	(1.07)	3.3	(0.94)
Part-time	20.6	(2.04)	100.0	4.0	(1.90)	10.9	(3.14)	18.2	(4.31)	23.5	(3.39)	22.2	(3.15)	11.8	(3.09)	9.4	(2.60)

†Not applicable.
NOTE: Detail may not sum to totals because of rounding. Standard errors appear in parentheses. The 2011–12 data are the most recent data available for teachers at private schools.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Private School Teacher Questionnaire," 2011–12; National Teacher and Principal Survey (NTPS), "Public School Teacher Data File," 2015–16; and unpublished tabulations. (This table was prepared April 2018.)

Table A-12. Percentage distribution of full-time and part-time newly hired teachers, by age and control of school: Selected school years, 1987–88 through 2015–16

Control of school and school year	Age distribution															
	Total	Less than 25 years		25–29 years		30–39 years		40–49 years		50–59 years		60–64 years		65 years or more	
1	2	3		4		5		6		7		8		9	
Public															
1987–88	100.0	17.7	(0.79)	23.7	(1.19)	33.0	(1.43)	21.2	(0.80)	4.0	(0.51)	0.3!	(0.11)	‡	(†)
1990–91	100.0	17.5	(1.06)	24.0	(1.35)	30.6	(1.33)	21.4	(1.28)	5.6	(0.65)	0.6	(0.18)	‡	(†)
1993–94	100.0	16.2	(0.91)	28.7	(1.15)	24.9	(1.04)	24.6	(1.16)	5.0	(0.63)	0.5	(0.13)	0.2!	(0.09)
1999–2000	100.0	23.6	(1.28)	22.5	(0.97)	22.2	(1.10)	19.2	(0.90)	11.1	(0.88)	0.9	(0.23)	0.6!	(0.26)
2003–04	100.0	24.4	(1.21)	19.0	(1.23)	24.6	(1.10)	16.5	(1.18)	13.3	(0.93)	1.5	(0.29)	0.7!	(0.29)
2007–08	100.0	23.8	(1.75)	24.3	(1.79)	20.4	(1.56)	15.1	(0.94)	13.6	(1.22)	2.3	(0.39)	0.5!	(0.22)
2011–12	100.0	21.9	(2.46)	23.0	(2.93)	24.1	(2.79)	15.9	(2.79)	10.9	(2.58)	3.5!	(1.35)	‡	(†)
2015–16	100.0	23.9	(1.20)	22.0	(1.23)	23.7	(1.23)	17.3	(1.07)	9.2	(0.77)	2.9	(0.39)	1.0	(0.23)
Private															
1987–88	100.0	17.0	(1.27)	22.8	(1.68)	32.5	(2.17)	17.9	(1.61)	5.3	(1.09)	‡	(†)	1.8!	(0.77)
1990–91	100.0	15.8	(1.47)	26.3	(1.83)	29.1	(1.86)	21.1	(1.67)	5.6	(0.88)	1.1!	(0.40)	1.0!	(0.42)
1993–94	100.0	19.3	(1.13)	24.4	(1.19)	24.9	(1.49)	22.6	(1.18)	7.3	(0.85)	0.9	(0.20)	0.6!	(0.23)
1999–2000	100.0	18.5	(0.89)	17.2	(0.87)	24.1	(1.24)	22.1	(1.19)	14.0	(1.01)	2.6	(0.39)	1.5	(0.38)
2003–04	100.0	17.1	(1.59)	16.0	(2.13)	23.0	(2.19)	22.8	(3.32)	15.3	(1.77)	3.6	(0.83)	2.1	(0.58)
2007–08	100.0	14.3	(1.26)	18.2	(1.36)	23.2	(1.97)	23.6	(1.92)	14.4	(1.49)	4.2	(0.84)	2.1!	(0.69)
2011–12	100.0	14.9!	(5.78)	20.7	(4.29)	27.5	(4.62)	17.4	(4.74)	10.8	(2.51)	5.3!	(2.32)	‡	(†)

†Not applicable.
!Interpret with caution. The coefficient of variation (CV) for this estimate is 30 percent or greater.
‡Reporting standards not met. The coefficient of variation (CV) for this estimate is 50 percent or greater.
NOTE: Detail may not sum to totals because of rounding. Standard errors appear in parentheses. The 2011–12 data are the most recent data available for teachers at private schools.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Teacher Questionnaire," 1987–88 through 2011–12 and "Private School Teacher Questionnaire," 1987–88 through 2011–12; and National Teacher and Principal Survey (NTPS), "Public School Teacher Data File," 2015–16. (This table was prepared April 2018.)

Table A-13. Actual and projected continuation rates of full-time and part-time school teachers, by age and control of school: Selected school years, 1993–94 to 1994–95 through 2028–29 to 2029–30

Control of school and school year	Continuation rates, by age															
	Total		Less than 25 years		25–29 years		30–39 years		40–49 years		50–59 years		60–64 years		65 years or more	
1	2		3		4		5		6		7		8		9	
Public actual																
1993–94 to 1994–95	93.4	(0.36)	96.2	(1.09)	90.0	(1.22)	93.3	(1.03)	96.1	(0.54)	93.7	(0.77)	69.5	(4.79)	65.9	(8.81)
1999–2000 to 2000–01	92.4	(0.38)	95.8	(0.98)	89.3	(7.38)	93.2	(2.76)	94.5	(0.61)	92.9	(4.58)	76.8!	(29.18)	(‡)	(†)
2003–04 to 2004–05	91.4	(0.55)	94.9	(1.79)	90.1	(1.71)	92.6	(0.93)	94.5	(0.78)	90.8	(0.81)	77.2	(3.00)	70.3	(9.40)
2007–08 to 2008–09	91.8	(0.45)	92.2	(1.95)	89.0	(2.33)	92.4	(1.29)	95.1	(1.06)	92.3	(1.23)	82.8	(3.97)	88.9	(4.26)
2011–12 to 2012–13	92.1	(0.65)	83.1	(9.79)	92.3	(1.39)	94.2	(1.14)	96.7	(0.53)	90.2	(1.38)	81.9	(3.11)	70.2	(12.44)
Public projected																
2012–13 to 2013–14	92.3	(†)	90.1	(†)	91.8	(†)	94.0	(†)	96.7	(†)	90.3	(†)	81.4	(†)	69.6	(†)
2013–14 to 2014–15	92.3	(†)	89.9	(†)	91.8	(†)	93.9	(†)	96.8	(†)	90.2	(†)	81.7	(†)	69.8	(†)
2014–15 to 2015–16	92.2	(†)	90.0	(†)	91.8	(†)	93.9	(†)	96.8	(†)	90.2	(†)	81.5	(†)	68.6	(†)
2015–16 to 2016–17	92.4	(†)	90.0	(†)	91.8	(†)	93.9	(†)	96.8	(†)	90.3	(†)	81.7	(†)	69.5	(†)
2016–17 to 2017–18	92.4	(†)	90.1	(†)	91.7	(†)	94.0	(†)	96.7	(†)	90.3	(†)	81.6	(†)	70.5	(†)
2017–18 to 2018–19	92.5	(†)	89.8	(†)	91.8	(†)	94.0	(†)	96.7	(†)	90.3	(†)	81.7	(†)	71.6	(†)
2018–19 to 2019–20	92.5	(†)	90.0	(†)	91.8	(†)	94.0	(†)	96.6	(†)	90.3	(†)	81.5	(†)	71.8	(†)
2019–20 to 2020–21	92.4	(†)	89.9	(†)	91.8	(†)	93.9	(†)	96.6	(†)	90.3	(†)	81.8	(†)	71.7	(†)
2020–21 to 2021–22	92.4	(†)	89.9	(†)	91.8	(†)	93.9	(†)	96.6	(†)	90.4	(†)	81.5	(†)	71.1	(†)
2021–22 to 2022–22	92.4	(†)	89.9	(†)	91.8	(†)	93.9	(†)	96.7	(†)	90.4	(†)	81.6	(†)	70.2	(†)
2022–23 to 2023–24	92.5	(†)	90.0	(†)	91.8	(†)	93.9	(†)	96.7	(†)	90.5	(†)	81.5	(†)	71.0	(†)
2023–24 to 2024–25	92.5	(†)	89.9	(†)	91.8	(†)	93.9	(†)	96.7	(†)	90.5	(†)	81.7	(†)	71.6	(†)
2024–25 to 2025–26	92.5	(†)	89.9	(†)	91.8	(†)	93.8	(†)	96.6	(†)	90.5	(†)	81.5	(†)	71.7	(†)
2025–26 to 2026–27	92.5	(†)	89.9	(†)	91.8	(†)	93.9	(†)	96.6	(†)	90.4	(†)	81.7	(†)	71.2	(†)
2026–27 to 2027–28	92.5	(†)	89.9	(†)	91.8	(†)	93.9	(†)	96.6	(†)	90.4	(†)	81.5	(†)	71.4	(†)
2027–28 to 2028–29	92.5	(†)	89.9	(†)	91.8	(†)	93.9	(†)	96.6	(†)	90.4	(†)	81.7	(†)	71.3	(†)
2028–29 to 2029–30	92.4	(†)	89.9	(†)	91.8	(†)	93.9	(†)	96.6	(†)	90.4	(†)	81.4	(†)	71.1	(†)
Private actual																
1993–94 to 1994–95	88.1	(0.74)	80.0	(4.42)	86.9	(1.64)	85.1	(1.70)	91.3	(1.14)	91.8	(1.52)	86.9	(2.74)	58.1	(8.67)
1999–2000 to 2000–01	83.0	(0.72)	61.7	(4.90)	72.2	(2.76)	80.2	(1.57)	86.1	(1.47)	92.3	(1.00)	78.8	(4.79)	75.2	(5.17)
2003–04 to 2004–05	83.3	(2.06)	75.4	(5.97)	71.7	(3.62)	82.2	(2.30)	86.8	(2.28)	89.2	(9.17)	80.1	(4.15)	79.5	(6.07)
2007–08 to 2008–09	82.2	(1.69)	77.7	(8.33)	71.7	(6.44)	79.1	(3.43)	86.1	(2.92)	86.8	(2.17)	85.2	(4.21)	77.3	(8.23)
Private projected																
2012–13 to 2013–14	81.5	(†)	69.1	(†)	73.2	(†)	80.2	(†)	86.0	(†)	88.1	(†)	80.0	(†)	75.9	(†)
2013–14 to 2014–15	81.2	(†)	68.7	(†)	73.2	(†)	80.2	(†)	86.1	(†)	87.6	(†)	79.9	(†)	75.4	(†)
2014–15 to 2015–16	81.1	(†)	69.2	(†)	73.3	(†)	80.2	(†)	86.0	(†)	87.6	(†)	79.4	(†)	77.7	(†)
2015–16 to 2016–17	81.2	(†)	69.2	(†)	73.2	(†)	80.1	(†)	86.2	(†)	87.9	(†)	80.0	(†)	76.8	(†)
2016–17 to 2017–18	81.1	(†)	69.4	(†)	73.1	(†)	80.0	(†)	85.8	(†)	87.7	(†)	80.3	(†)	76.2	(†)
2017–18 to 2018–19	81.1	(†)	69.3	(†)	73.2	(†)	80.1	(†)	85.9	(†)	87.6	(†)	79.5	(†)	77.1	(†)
2018–19 to 2019–20	81.2	(†)	69.2	(†)	73.2	(†)	80.1	(†)	85.9	(†)	87.7	(†)	79.5	(†)	76.9	(†)
2019–20 to 2020–21	81.2	(†)	69.2	(†)	73.3	(†)	80.1	(†)	85.9	(†)	87.8	(†)	79.9	(†)	76.2	(†)
2020–21 to 2021–22	81.3	(†)	69.2	(†)	73.3	(†)	80.2	(†)	85.9	(†)	87.7	(†)	79.8	(†)	76.8	(†)
2021–22 to 2022–23	81.2	(†)	69.2	(†)	73.3	(†)	80.2	(†)	86.0	(†)	87.6	(†)	79.7	(†)	76.1	(†)
2022–23 to 2023–24	81.2	(†)	69.2	(†)	73.2	(†)	80.2	(†)	85.9	(†)	87.7	(†)	80.0	(†)	75.5	(†)
2023–24 to 2024–25	81.3	(†)	69.2	(†)	73.2	(†)	80.2	(†)	85.9	(†)	87.7	(†)	80.1	(†)	76.0	(†)
2024–25 to 2025–26	81.3	(†)	69.2	(†)	73.2	(†)	80.2	(†)	85.9	(†)	87.7	(†)	79.7	(†)	76.0	(†)
2025–26 to 2026–27	81.3	(†)	69.2	(†)	73.2	(†)	80.2	(†)	85.9	(†)	87.7	(†)	79.7	(†)	75.8	(†)
2026–27 to 2027–28	81.3	(†)	69.2	(†)	73.2	(†)	80.2	(†)	85.9	(†)	87.7	(†)	80.0	(†)	75.9	(†)
2027–28 to 2028–29	81.3	(†)	69.2	(†)	73.2	(†)	80.2	(†)	85.9	(†)	87.7	(†)	79.9	(†)	75.9	(†)
2028–29 to 2029–30	81.3	(†)	69.2	(†)	73.2	(†)	80.2	(†)	85.9	(†)	87.7	(†)	79.7	(†)	75.7	(†)

†Not applicable.
!Interpret with caution. The coefficient of variation (CV) for this estimate is 30 percent or greater.
‡Reporting standards not met. The coefficient of variation (CV) for this estimate is 50 percent or greater.
NOTE: The continuation rate for teachers for each control of school (public schools and private schools) is the percentage of teachers in that control who continued teaching in the same control from one year to the next. Standard errors appear in parentheses. The 2012–13 data are the most recent data available for public school teachers and the 2008-09 data are the most recent data available for private school teachers. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Teacher Follow up Survey (TFS), "Public School Teacher Questionnaire," 1994–95 through 2008–09 and "Private School Teacher Questionnaire," 1994–95 through 2012–13; and unpublished tabulations. (This table was prepared May 2019.)

A.3. HIGH SCHOOL GRADUATES

Projections in this edition

This edition of *Projections of Education Statistics* presents projected trends in the number of high school graduates from 2013–14 to 2028–29. These projections were made using three models:

- The *National High School Graduates Projection Model* was used to project the number of public high school graduates, the number of private high school graduates, and the total number of high school graduates for the nation.
- The *State Public High School Graduates Projection Model* was used to project the number of public high school graduates for individual states and regions.
- The *National Public High School Graduates by Race/Ethnicity Projection Model* was used to project the number of public high school graduates for the nation by race/ethnicity.

Overview of approach

All the high school graduates models first calculated the number of high school graduates as a percentage of grade 12 enrollment based on historical data. Single exponential smoothing was used to project this percentage. The projected percentage was then applied to projections of grade 12 enrollment.

Assumptions underlying this approach

The percentage of 12th-graders who graduate was assumed to remain constant at levels consistent with the most recent rates. This methodology assumes that past trends in factors affecting graduation rates, such as dropouts, migration, and public or private transfers, will continue over the forecast period. No specific assumptions were made regarding the dropout rate, retention rate, or the rate at which alternative credentials are awarded. The combined effect of these proportions is reflected implicitly in the graduate proportion. In addition to student behaviors, the projected number of graduates could be affected by changes in graduation requirements, but this is not considered in the projections in this report.

Procedures used in all three high school graduates projection models

The following steps were used to project the numbers of high school graduates:

Step 1. *For each year in the historic period, express the number of high school graduates as a percentage of grade 12 enrollment.* This value represents the approximate percentage of 12th graders who graduate. For information about the specific historical data and analysis periods used for the National High School Graduates Model, the State Public High School Graduates Model, and the National Public High School Graduates by Race/Ethnicity Model, see the description of the appropriate model, later in this section of appendix A.

Step 2. *Project the percentage of 12th-graders who graduate from step 1.* This percentage was projected using single exponential smoothing with a smoothing constant chosen to minimize the sum of squared forecast errors. Because single exponential smoothing produces a single forecast for all years in the forecast period, the same projected percentage of grade 12 enrollment was used for each year in the forecast period.

Step 3. *Calculate projections of the numbers of high school graduates.* For each year in the forecast period, the projected percentage from step 2 was applied to projections of grade 12 enrollment to yield projections of high school graduates.

National High School Graduates Projection Model

This model was used to project the number of public high school graduates, the number of private high school graduates, and the total number of high school graduates for the nation. Public and private high school graduates were projected separately. The public and private projections were then summed to yield projections of the total number of high school graduates for the nation.

For details of the procedures used to develop the projections, see "Procedures used in all three high school graduates projection models," above.

Data used in the National High School Graduates Projection Model

Public school data on graduates and grade 12 enrollment. Data on public school high school graduates and 12th-grade enrollments from the NCES *Statistics of Public Elementary and Secondary School Systems* for 1972–73 to 1980–81 and the NCES Common Core of Data (CCD) for 1981–82 through 2005–06 were used to develop national projections of public high school. Also, for 2006–07 through 2012–13 data on high school graduates from the "State Dropout and Completion Data File" were used. Finally, for 2006–07 through 2016–17, data on public school 12th-grade enrollments from the CCD were also used.

Private school data on graduates and grade 12 enrollment. Data on private school 12th-grade enrollments for 1989–90 through 2015–16 and high school graduates for 1988–89 through 2014–15 were used to develop national projections of private high school graduates. The data were from the biennial NCES Private School Universe Survey (PSS) from 1989–90 to 2015–16 with data for 12th grade enrollment the same as the year of the survey and the data for high school graduates for the preceding year (i.e., the 2015–16 PSS presents high school graduates for 2014–15). Since the PSS is collected in the fall of odd-numbered years, data for missing years were estimated using data from the PSS. For 12th grade enrollment, estimates for missing years were linear interpolations of the prior year's and succeeding year's actual values. For high school graduates, estimates for the missing years were the interpolations of the high school graduates to estimated 12th grade enrollment percentages for the prior and succeeding years multiplied by the estimated enrollments for the current year.

Public and private school enrollment projections for grade 12. Projections of grade 12 enrollment in public schools and in private schools were used to develop projections of public high school graduates and private high school graduates, respectively. The grade 12 enrollment projections were made using the grade progression method. For more information, see Section A.1. Elementary and Secondary Enrollment, earlier in this appendix.

Accuracy of national high school graduates projections

Mean absolute percentage errors (MAPEs) for projections of graduates from public high schools were calculated using the last 28 editions of *Projections of Education Statistics*, while MAPEs for projections of graduates from private high schools were calculated using the last 17 editions. Table D, below, shows MAPEs for both public and private school graduation projections.

Table D. Mean absolute percentage errors (MAPEs) of projections of high school graduates, by lead time and control of school: MAPEs constructed using projections from *Projections of Education Statistics to 2000* through *Projections of Education Statistics to 2027*

	Lead time (years)									
Statistic	1	2	3	4	5	6	7	8	9	10
Public high school graduates	1.0	1.1	1.8	2.2	2.5	2.9	3.5	4.2	4.8	5.1
Private high school graduates	3.0	2.5	5.4	5.3	4.9	7.4	6.8	6.4	6.9	7.7

NOTE: MAPEs for public high school graduates were calculated from the past 28 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2000* through *Projections of Education Statistics to 2027*. MAPEs for private high school graduates were calculated from the past 17 editions of *Projections of Education Statistics*, from *Projections of Education Statistic to 2011* through *Projections of Education Statistics to 2027*. Calculations were made using unrounded numbers. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared February 2019.)

For more information about MAPEs, see Section A.0. Introduction to Projection Methodology, earlier in appendix A.

State Public High School Graduates Projection Model

This edition of *Projections of Education Statistics* contains projections of public high school graduates from 2013–14 to 2028–29 for each of the 50 states and the District of Columbia, as well as for each region of the country. The state projections of high school graduates were produced in two stages:

- first, an initial set of projections for each state was produced; and
- second, these initial projections were adjusted to sum to the national public school totals produced by the National High School Graduates Projection Model.

For each region, the high school graduate projections equaled the sum of high school graduate projections for the states within that region.

Initial set of state projections

The same steps used to produce the national projections of high school graduates were used to produce an initial set of projections for each state and the District of Columbia. A separate smoothing constant, chosen to minimize the sum of squared forecast errors, was used to calculate the projected percentage of 12th grade enrollment for each jurisdiction.

For details on the steps used to develop the initial sets of projections, see "Procedures used in all three high school graduate projection models," earlier in this section of appendix A.

Adjustments to the state projections

The initial projections of state public high school graduates were adjusted to sum to the national projections of public high school graduates shown in table 9 on page 45. This was done through the use of ratio adjustments in which all the states' high school graduate projections were multiplied by the ratio of the national public high school graduate projection to the sum of the state public high school graduate projections.

Data used in the State Public High School Graduates Projection Model

Public school data on graduates and grade 12 enrollment at the state level. State-level data on public school high school graduates from the NCES *Statistics of Public Elementary and Secondary School Systems* for 1972–73 to 1980–81, the NCES Common Core of Data (CCD) for 1981–82 through 2004–05, and the "State Dropout and Completion Data File" for 2005–06 through 2012–13 were used to develop state-level projections of public high school graduates. State-level data on public school 12th-grade enrollments from the NCES *Statistics of Public Elementary and Secondary School Systems* for 1972–73 to 1980–81 and the NCES Common Core of Data (CCD) for 1981–82 through 2016–17 were also used.

Public school projections for grade 12 enrollment at the state level. State-level projections of grade 12 enrollment in public schools were used to develop the state-level projections of public high school graduates. The grade 12 enrollment projections were made using the grade progression method. For more information, see Section A.1. Elementary and Secondary Enrollment, earlier in this appendix.

Accuracy of state public high school graduate projections

Mean absolute percentage errors (MAPEs) for projections of the number of public high school graduates by state were calculated using the last 23 editions of *Projections of Education Statistics*. Table A-14 on page 91 shows MAPEs for the number of high school graduates by state.

National Public High School Graduates by Race/Ethnicity Projection Model

The projections of public high school graduates by race/ethnicity were produced in two stages:

- first, an initial set of projections for each racial/ethnic group was produced; and
- second, these initial projections were adjusted to sum to the national public school totals produced by the National High School Graduates Projection Model.

Initial set of projections by race/ethnicity

The same steps used to produce the national projections of high school graduates were used to produce an initial set of projections for each of the following five racial/ethnic groups: White, Black, Hispanic, Asian/Pacific Islander, and American Indian/Alaska Native. For example, the number of White public high school graduates was projected as a percentage of White grade 12 enrollment in public schools. A separate smoothing constant, chosen to minimize the sum of squared forecast errors, was used to calculate the projected percentage of 12th-grade enrollment for each racial/ethnic group. This is the sixth edition of *Projections of Education Statistics* to include projections for high school graduates of Two or more races. To produce an initial set of projections for this racial/ethnic group, the 2012–13 ratio of 12th-grade enrollment to high school graduates of the group were multiplied by the 12th-grade enrollment projections of the group from the data file used to produce table 6.

Adjustments to the projections by race/ethnicity

The projections of public high school graduates by race/ethnicity were adjusted to sum to the national projections of public high school graduates shown in table 9 on page 45. This was done through the use of ratio adjustments in which all high school graduate projections by race/ethnicity were multiplied by the ratio of the national high school graduate projection to the sum of the high school projections by race/ethnicity.

Data and imputations used in the Public High School Graduates by Race/Ethnicity Projection Model

Public school data on graduates and grade 12 enrollment by race/ethnicity. Data on public school high school graduates by race/ethnicity from the NCES Common Core of Data (CCD) for 1994–95 through 2004–05, and the "State Dropout and Completion Data File" for 2005–06 through 2012–13 were used to develop projections of public high school graduates by race/ethnicity. Data on public school 12th-grade enrollments by race/ethnicity from the NCES *Statistics of Public Elementary and Secondary School Systems* for 1972–73 to 1980–81 and the NCES Common Core of Data (CCD) for 1981–82 through 2016–17 were also used. In those instances where states did not report their high school graduate data by race/ethnicity, the state-level data had to be examined and some imputations made. For example, in 1994, Arizona did not report high school graduate data by race/ethnicity. It did, however, report grade 12 enrollment numbers by race/ethnicity for that year. So, to impute the high school graduate numbers by race/ethnicity for that year, Arizona's total number of high school graduates for 1994 was multiplied by the state's 1994 racial/ethnic distribution for grade 12 enrollment.

Public enrollment projections for grade 12 by race/ethnicity. Projections of grade 12 enrollment in public schools by race/ethnicity were used to develop the projections of public high school graduates by race/ethnicity. The grade 12 enrollment projections were made using the grade progression method. For more information, see Section A.1. Elementary and Secondary Enrollment, earlier in this appendix.

Accuracy of enrollment projections by race/ethnicity

Mean absolute percentage errors (MAPEs) for projections of the number of public high school graduates by race/ethnicity were calculated using the last nine editions of *Projections of Education Statistic*. Table E, below, shows MAPEs for public high school graduates by race/ethnicity projections.

Table E. Mean absolute percentage errors (MAPEs) of projections of public high school graduates, by lead time and race/ethnicity: MAPEs constructed using projections from *Projections of Education Statistics to 2000* through *Projections of Education Statistics to 2027*

	Lead time (years)									
Statistic	1	2	3	4	5	6	7	8	9	10
Total high school graduates	1.0	1.1	1.8	2.2	2.5	2.9	3.5	4.2	4.8	5.1
White	1.0	0.5	0.8	1.3	2.5	3.5	—	—	—	—
Black	2.3	3.0	3.5	5.8	7.1	9.3	—	—	—	—
Hispanic	3.6	4.5	6.6	13.2	16.9	16.2	—	—	—	—
Asian/Pacific Islander	1.5	2.6	2.7	1.6	2.2	0.3	—	—	—	—
American Indian/Alaska Native	1.9	1.8	3.7	6.9	8.8	7.8	—	—	—	—

—Not available.
NOTE: MAPEs for public high school graduates were calculated from the past 28 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2000* through *Projections of Education Statistics to 2027*. MAPEs for public high school graduates by race/ethnicity were calculated using the last nine editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2019* through *Projections of Education Statistics to 2027*. Calculations were made using unrounded numbers. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared January 2019.)

Table A-14. Mean absolute percentage errors (MAPEs) for the projected number of high school graduates in public schools, by lead time, region, and state: MAPEs constructed using projections from *Projections of Education Statistics to 2000* through *Projections of Education Statistics to 2027*

Region and state	Lead time (years)									
	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
United States	**1.0**	**1.1**	**1.8**	**2.2**	**2.5**	**2.9**	**3.5**	**4.2**	**4.8**	**5.1**
Region										
Northeast	1.1	1.6	1.7	2.3	3.0	3.6	3.7	4.4	5.2	5.6
Midwest	1.1	0.9	1.5	1.8	2.4	2.8	2.8	3.0	3.3	3.3
South	1.1	1.5	2.5	3.1	3.7	4.5	5.0	6.0	6.9	7.9
West	1.7	2.0	2.6	3.7	3.5	3.5	3.0	2.7	3.4	3.4
State										
Alabama	3.1	3.1	2.8	5.1	6.1	7.3	8.2	8.5	9.5	10.3
Alaska	2.5	2.1	3.0	4.6	5.2	6.6	7.5	7.8	7.8	7.6
Arizona	7.6	8.0	10.0	12.6	11.4	11.6	13.8	11.6	10.5	12.5
Arkansas	1.3	1.6	2.0	2.5	2.9	2.4	2.3	2.8	3.1	3.9
California	2.4	2.5	3.3	4.6	5.0	5.2	5.2	4.4	5.1	5.0
Colorado	1.6	2.2	2.6	2.2	2.8	2.9	3.1	3.9	4.6	4.7
Connecticut	2.6	2.3	2.5	3.3	3.6	4.0	4.6	4.4	5.6	5.0
Delaware	1.9	2.5	3.2	4.6	3.9	4.9	5.0	6.0	6.7	7.6
District of Columbia	6.7	7.4	11.6	14.0	14.1	14.8	15.9	17.2	17.9	20.5
Florida	1.9	3.9	5.2	4.6	5.1	5.0	6.0	6.6	8.1	7.2
Georgia	1.9	2.7	3.5	5.5	7.4	8.4	9.1	9.4	10.2	10.1
Hawaii	3.3	3.8	4.4	5.4	8.2	8.9	10.9	11.8	13.4	14.5
Idaho	1.0	1.3	1.4	1.9	2.2	2.7	3.0	3.8	4.9	5.4
Illinois	2.5	2.1	2.9	3.6	3.8	3.7	5.4	4.4	5.1	6.5
Indiana	1.4	1.8	1.8	2.3	2.7	3.2	3.9	4.3	4.7	5.0
Iowa	1.4	1.2	1.9	2.0	2.7	2.7	2.5	2.5	2.5	2.7
Kansas	1.2	1.6	2.4	3.0	4.3	5.4	6.0	6.5	7.0	7.0
Kentucky	2.2	3.3	3.4	4.7	5.4	6.4	7.4	7.9	7.9	9.9
Louisiana	1.8	2.7	4.5	6.2	7.3	6.6	6.3	6.4	3.8	5.3
Maine	2.5	3.8	3.7	4.8	5.6	6.7	8.6	9.3	11.0	11.7
Maryland	1.2	1.2	1.8	1.7	2.4	2.8	3.3	3.3	3.5	4.6
Massachusetts	1.0	1.4	2.4	3.1	3.6	4.0	4.4	4.2	4.2	4.3
Michigan	2.9	3.8	4.5	5.6	5.5	5.5	7.1	8.0	8.7	9.5
Minnesota	2.1	1.2	1.5	1.8	2.2	2.4	2.9	3.6	4.0	4.7
Mississippi	1.4	1.6	2.2	2.5	3.5	4.3	4.4	5.1	5.5	5.7
Missouri	0.9	1.4	2.3	2.8	3.5	4.4	4.9	5.4	6.4	6.7
Montana	0.8	0.9	1.4	1.6	2.5	3.5	4.4	5.9	7.1	8.3
Nebraska	2.0	2.5	2.6	2.7	3.1	3.2	2.7	2.7	2.6	3.1
Nevada	4.7	7.1	8.8	9.8	8.8	9.3	8.6	9.5	11.1	12.8
New Hampshire	1.1	2.0	2.3	3.0	3.8	4.8	5.5	6.6	7.2	7.4
New Jersey	2.0	3.5	4.2	4.1	4.3	5.4	6.4	7.3	8.0	8.8
New Mexico	3.1	2.7	4.3	4.5	6.6	6.9	7.3	8.1	9.7	10.0
New York	1.8	2.9	3.3	5.0	6.1	7.4	8.2	9.2	9.8	10.5
North Carolina	1.9	2.4	3.6	4.1	4.9	5.6	5.9	6.8	7.8	10.2
North Dakota	1.2	1.7	2.1	2.8	3.4	3.6	4.0	4.5	5.3	7.1
Ohio	2.6	2.5	3.9	3.8	3.7	3.7	3.3	3.9	4.4	5.7
Oklahoma	1.2	1.4	1.7	1.6	2.2	2.9	3.3	3.5	3.7	4.4
Oregon	1.8	2.1	2.6	4.0	4.3	5.0	5.7	6.8	7.2	6.9
Pennsylvania	1.6	2.6	3.2	3.3	3.3	3.0	2.8	3.3	3.9	4.1
Rhode Island	1.3	1.2	2.1	1.9	2.5	3.0	4.2	5.1	5.4	5.1
South Carolina	1.7	3.2	3.1	5.3	6.7	8.2	8.6	9.0	9.0	9.5
South Dakota	2.2	2.9	3.2	5.0	7.7	8.4	9.7	10.9	12.5	13.8
Tennessee	4.2	6.1	7.9	11.1	13.5	15.5	15.8	16.4	16.2	15.4
Texas	2.4	3.5	4.7	6.0	6.5	7.4	8.3	9.7	11.3	13.0
Utah	4.6	5.6	5.3	6.2	6.1	4.9	4.8	4.9	4.3	2.3
Vermont	1.9	2.2	3.2	4.7	6.6	6.9	7.5	8.3	9.5	9.8
Virginia	1.4	2.1	2.7	4.0	4.8	4.8	4.3	3.6	3.9	4.4
Washington	1.8	1.9	2.7	2.6	3.0	3.8	4.1	4.2	5.5	5.4
West Virginia	0.6	1.0	1.8	1.9	2.4	3.5	3.8	5.0	5.4	6.0
Wisconsin	1.2	1.4	2.4	2.7	3.1	3.9	4.3	5.1	5.8	5.3
Wyoming	1.5	1.9	2.4	3.1	4.5	5.8	7.6	8.9	10.4	11.3

NOTE: Mean absolute percentage error (MAPE) is the average value over past projections of the absolute values of errors expressed in percentage terms. National MAPEs for public high school graduates were calculated using the last 28 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2000* through *Projections of Education Statistics to 2027*. State MAPEs were calculated using the last 23 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 2005* through *Projections of Education Statistics to 2027*. Calculations were made using unrounded numbers. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared January 2019.)

A.4. EXPENDITURES FOR PUBLIC ELEMENTARY AND SECONDARY EDUCATION

Projections in this edition

This edition of *Projections of Education Statistics* presents projections of total current expenditures for public elementary and secondary education, current expenditures per pupil in fall enrollment, and current expenditures per pupil in average daily attendance for 2016–17 through 2028–29.

As the source of the elementary and secondary private school data, the NCES Private School Universe Survey, does not collect data for current expenditures, there are no projections for private school current expenditures.

Overview of approach

Theoretical and empirical background

The Public Elementary and Secondary Education Current Expenditure Projection Model used in this report is based on the theoretical and empirical literature on the demand for local public services such as education.[1] Specifically, it is based on a type of model that has been called a median voter model. In brief, a median voter model posits that spending for each public good in the community (in this case, spending for education) reflects the preferences of the "median voter" in the community. This individual is identified as the voter in the community with the median income and median property value. The amount of spending in the community reflects the price of education facing the voter with the median income, as well as his income and tastes. There are competing models in which the level of spending reflects the choices of others in the community, such as government officials.

In a median voter model, the demand for education expenditures is typically linked to four different types of independent variables: (1) measures of the income of the median voter; (2) measures of intergovernmental aid for education going indirectly to the median voter; (3) measures of the price to the median voter of providing one more dollar of education expenditures per pupil; and (4) any other variables that may affect one's tastes for education. The Public Elementary and Secondary Education Current Expenditure Projection Model contains independent variables of the first two types. It uses multiple linear regression analysis to define the relationships between these independent variables and current expenditures (the dependent variable).

Elementary and Secondary Education Current Expenditure Projection Model

Projections for current expenditures per pupil in fall enrollment were produced first. These projections were then used in calculating total expenditures and expenditures per pupil in average daily attendance.

Steps used to project current expenditures for public elementary and secondary education

Step 1. *Produce projections of education revenue from state sources.* The equation for education revenue included an AR(1) term for correcting for autocorrelation and the following independent variables:

- disposable income per capita in constant dollars; and
- the ratio of fall enrollment to the population.

To estimate the model, it was first transformed into a nonlinear model and then the coefficients were estimated simultaneously by applying a Marquardt nonlinear least squares algorithm to the transformed equation.

Step 2. *Produce projections of current expenditures per pupil in fall enrollment.* The equation for current expenditures per pupil for fall enrollment included an AR(1) term for correcting for autocorrelation and the following independent variables:

- disposable income per capita in constant dollars; and
- education revenue from state sources per capita in constant dollars. This variable was projected in step 1.

[1] For a discussion of the theory together with a review of some of the older literature, see Inman (1979). More recent empirical work includes Gamkhar and Oates (1996) and Mitias and Turnbull (2001).

To estimate the models, they were first transformed into nonlinear models and then the coefficients were estimated simultaneously by applying a Marquardt nonlinear least squares algorithm to the transformed equation.

For details on the equations used in steps 1 and 2, the data used to estimate these equations, and their results, see "Data and equations used for projections of current expenditures for public elementary and secondary education," below.

Step 3. *Produce projections of total current expenditures.* Projections of total current expenditures were made by multiplying the projections for current expenditures per pupil in fall enrollment by projections for fall enrollment.

Step 4. *Produce projections of current expenditures per pupil in average daily attendance.* The projections for total current expenditures were divided by projections for average daily attendance to produce projections of current expenditures per pupil in average daily attendance.

All the projections were developed in 1982–84 dollars and then placed in 2017–18 dollars using the projections of the Consumer Price Index. Current-dollar projections were produced by multiplying the constant-dollar projections by projections for the Consumer Price Index. The Consumer Price Index and the other economic variables used in calculating the projections presented in this report were placed in school year terms rather than calendar year terms.

Data and equations used for projections of current expenditures for public elementary and secondary education

Data used to estimate the equations for revenue from state sources and current expenditures per pupil. The following data for the period from 1973–74 to 2015–16 were used to estimate the equations:

- Current expenditures and revenues from state sources—For 1973–74 and 1975–76, the current expenditures data came from *Statistics of State School Systems*, published by NCES. For 1974–75 and 1976–77, the current expenditures data came from *Revenues and Expenditures for Public Elementary and Secondary Education*, also published by NCES. For 1977–78 through 2015–16, these data came from the NCES Common Core of Data (CCD) and unpublished data. For most years, the sources for the past values of revenue from state sources were identical to the sources for current expenditures.
- Disposable personal income per capita—Disposable personal income data from the Bureau of Economic Analysis were divided by population data from the U.S. Census Bureau.
- The ratio of fall enrollment to population data—Fall enrollment data from the CCD were divided by population data from the U.S. Census Bureau. (See table B-4 on page 113.)

Estimated equations and model statistics for revenue from state sources and current expenditures per pupil. For the results of the equations, see table A-15 on page 95. In each equation, the independent variables affect the dependent variable in the expected way. In the revenues from state sources equation:

- All other things being equal, as disposable income per capita increases so does local governments' education revenue from state sources per capita; and
- As enrollment increases relative to the population, so does the local governments' education revenue from state sources per capita.
- In the current expenditures per pupil equation: All other things being equal, as disposable income per capita increases, so does current expenditures per pupil; and
- As local governments' education revenue from state sources per capita increases, so does current expenditures per pupil.

Projections for economic variables. Projections for economic variables, including disposable income and the Consumer Price Index, were from the "U.S. Quarterly Macroeconomic Model: December 2018 Short-Term Baseline Projections" from the economic consulting firm, IHS Global Inc. (see supplemental table B-5). This set of projections was IHS Global Inc.'s most recent set at the time the education projections in this report were produced. The values of all the variables from IHS Global Inc. were placed in school-year terms. The school-year numbers were calculated by taking the average of the last two quarters of one year and the first two quarters of the next year.

Projections for fall enrollment. The projections for fall enrollment are those presented in section 1 of this publication. The methodology for these projections is presented in Section A.1. Elementary and Secondary Enrollment, earlier in this appendix.

Projections for population. Population estimates for 1973 to 2017 and population projections for 2018 to 2028 from the U.S. Census Bureau were used to develop the public school current expenditure projections. The set of population projections used in this year's *Projections of Education Statistics* are the Census Bureau's 2017 National Population Projections (September 2018).

Historical data for average daily attendance. For 1973–74 and 1975–76, these data came from *Statistics of State School Systems*, published by NCES. For 1974–75 and 1976–77, the current expenditures data came from *Revenues and Expenditures for Public Elementary and Secondary Education*, also published by NCES. For 1977–78 through 2015–16, these data came from the CCD and unpublished NCES data.

Projections for average daily attendance. These projections were made by multiplying the projections for enrollment by the average value of the ratios of average daily attendance to enrollment from 1993–94 to 2015–16; this average value was approximately 0.93.

Accuracy of projections

Mean absolute percentage errors (MAPEs) for projections of current expenditures for public elementary and secondary education were calculated using the last 29 editions of *Projections of Education Statistics* that included projections of current expenditures. Table F, below, shows the MAPEs for projections of current expenditures.

Table F. Mean absolute percentage errors (MAPEs) of projections for total and per pupil current expenditures for public elementary and secondary education, by lead time: MAPEs constructed using projections from *Projections of Education Statistics to 1984–85* through *Projections of Education Statistics to 2027*

	Lead time (years)									
Statistic	1	2	3	4	5	6	7	8	9	10
Total current expenditures	1.7	2.6	2.7	2.7	3.1	4.1	5.0	5.8	6.3	7.2
Current expenditures per pupil in fall enrollment	1.7	2.6	2.7	2.7	3.3	4.1	5.0	5.7	6.6	7.5

NOTE: Expenditures were in constant dollars based on the Consumer Price Index for all urban consumers, Bureau of Labor Statistics, U.S. Department of Labor. MAPEs for current expenditures were calculated using projections from the last 29 editions of *Projections of Education Statistics*, from *Projections of Education Statistics to 1997–98* through *Projections of Education Statistics to 2027*, excluding *Projections of Education Statistics to 2012* which did not include projections of current expenditures. Calculations were made using unrounded numbers. Some data have been revised from previously published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics*, various issues. (This table was prepared February 2019.)

For more information about MAPEs, see Section A.0. Introduction to Projection Methodology, earlier in this appendix.

Table A-15. Estimated equations and model statistics for current expenditures per pupil in fall enrollment for public elementary and secondary schools, and education revenue from state sources per capita based on data from 1973–74 to 2015–16

Dependent variable	Equation[1]	R^2	Breusch-Godfrey Serial Correlation LM test statistic[2]	Time period
1	2	3	4	5
Current expenditures per pupil	ln(CUREXP) = 2.27 (1.250) + 0.47ln(PCI) (2.509) + 0.21ln(SGRANT) (2.561) + 0.94AR(1) (28.242)	0.997	6.21 (0.045)	1973–74 to 2015–16
Education revenue from state sources per capita	ln(SGRNT) = 7.72 (2.097) + 0.95ln(PCI) (7.719) + 1.34ln(ENRPOP) (3.107) + 0.82AR(1) (13.925)	0.984	1.40 (0.496)	1973–74 to 2015–16

[1]AR(1) indicates that the model was estimated using least squares with the AR(1) process for correcting for first-order autocorrelation. To estimate the model, it was first transformed into a nonlinear model and then the coefficients were estimated simultaneously by applying a Marquardt nonlinear least squares algorithm to the transformed equation. For a general discussion of the problem of autocorrelation, and the method used to forecast in the presence of autocorrelation, see Judge, G., Hill, W., Griffiths, R., Lutkepohl, H., and Lee, T. (1985). *The Theory and Practice of Econometrics*. New York: John Wiley and Sons, pp. 315–318. Numbers in parentheses are *t*-statistics.

[2]The number in parentheses is the probability of the Chi-Square associated with the Breusch-Godfrey Serial Correlation LM Test. A p value greater that 0.05 implies that we do not reject the null hypothesis of no autocorrelation at the 5 percent significance level for a two-tailed test and 10 percent significance level for a one-tailed test, (i.e., there is no autocorrelation present). For an explanation of the Breusch-Godfrey Serial Correlation LM test statistic, see Greene, W. (2000). *Econometric Analysis*. New Jersey: Prentice-Hall.

NOTE: R^2 indicates the coefficient of determination.

CUREXP = Current expenditures of public elementary and secondary schools per pupil in fall enrollment in constant 1982–84 dollars.

SGRANT = Local governments' education revenue from state sources, per capita, in constant 1982–84 dollars.

PCI = Disposable income per capita in constant 2000 chained dollars.

ENRPOP = Ratio of fall enrollment to the population.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Public Elementary and Secondary Education Current Expenditure Projection Model, 1973–74 through 2028–29. (This table was prepared March 2019.)

A.5. ENROLLMENT IN DEGREE-GRANTING POSTSECONDARY INSTITUTIONS

Projections in this edition

This edition of *Projections of Education Statistics* presents projections of enrollment in degree-granting postsecondary institutions for fall 2018 through fall 2029. Three different models were used to produce these enrollment projections:

- The *Enrollment in Degree-Granting Institutions Projection Model* produced projections of enrollments by attendance status, level of student, level of institution, control of institution, sex, and age. It also produced projections of full-time-equivalent enrollments by level of student, level of institution, and control of institution.
- The *Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model* produced projections of enrollments by race/ethnicity.
- The *First-Time Freshmen Projection Model* produced projections of enrollments of first-time freshmen by sex.

Overview of approach

Basic features of the three degree-granting enrollment projection models

The Enrollment in Degree-Granting Institutions Projection Model is the primary model for projecting enrollment in degree-granting postsecondary institutions. Beginning with *Projections of Education Statistics to 2027*, enrollment rates by attendance status, sex, and age category are projected by setting them to their most recent historic values. These rates are applied to projections of populations of the same sex and age to produce projections of enrollment by attendance status, sex, and age. To project enrollments by level of student, level of institution, and control of institution, rates for these characteristics are projected using single exponential smoothing and applied to enrollment projections previously produced by the model. The previous model was replaced because of decreased satisfaction with model performance as measured though such measures as Mean Absolute Projection Errors (MAPEs).

The Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model takes an approach similar to that of the Enrollment in Degree-Granting Institutions Projection Model. As in earlier editions, enrollment rates by attendance status, sex, and race/ethnicity are projected for the age categories using either the pooled seemingly unrelated regression method or the pooled seemingly unrelated regression method with a first-order autocorrelation correction. The resulting rates are iteratively corrected to ensure consistency with those projected by the Enrollment in Degree-Granting Institutions Projection Model. The adjusted rates are then applied to projections of populations of the same sex, age, and race/ethnicity.

The First-Time Freshmen Enrollment in Degree-Granting Institutions Projection Model uses single exponential smoothing to project the ratio of freshmen enrollment to undergraduate enrollment separately for males and for females. It then applies the projected ratios to the projections of undergraduate enrollment by sex that were produced by the Enrollment in Degree-Granting Institutions Projection Model.

The Enrollment in Degree-Granting Institutions Projection Model

The Enrollment in Degree-Granting Institutions Projection Model produces projections of enrollment counts by six levels of detail, as well as projections of full-time-equivalent enrollments by level of student, level of institution, and control of institution.

Steps used in the Enrollment in Degree-Granting Institutions Projection Model

Step 1. *Adjust age-specific enrollment counts from the U.S. Census Bureau to make them agree with the more highly aggregated NCES enrollment counts that do not include age.* The Enrollment in Degree-Granting Institutions Projection Model projects enrollments by six levels of detail: attendance status, level of student, level of institution, control of institution, sex, and age. While NCES does produce enrollment counts by the first five levels of detail, it does not produce data by the sixth level of detail, age, every year. However, the U.S. Census Bureau does produce annual age-specific enrollment counts.

In step 1, the age distributions from the Census Bureau counts for 2000 to 2018 were applied to the NCES counts to produce a set of enrollment data that breaks enrollments down by age while being consistent with NCES counts. Specifically, the most detailed level of Census Bureau data (by attendance status, level of student, level of institution, control of institution, sex, and age) was iteratively changed using proportions based on the more highly aggregated NCES enrollment numbers to ensure that all sums across this most detailed level of Census enrollment data equaled the more highly aggregated NCES enrollment totals that did not include age.

Step 2. *Calculate enrollment rates by attendance status, sex, and age category.* The enrollment data were broken up into 14 age categories, with separate age categories for individual ages 14 through 24 as well as for the age groups 25 to 29, 30 to 34, and 35 and over. For each of the 14 age categories, 4 enrollment rates were calculated—part-time male, full-time male, part-time female, and full-time female—resulting in a total of 56 enrollment rates. Each of the 56 enrollment rates was calculated by dividing the enrollment count for that combination of attendance status, sex, and age category by the total population for the corresponding combination of sex and age category. For each combination of attendance and sex, the enrollment rate for the oldest age category was calculated by dividing the enrollment count for those 35 and over by the total population for those 35 to 44.

Step 3. *Produce projections of enrollment rates by attendance status, sex, and age category*. Enrollment rates by attendance status and sex were produced for the following 14 age categories: individual ages 14 through 24 and age groups 25 to 29, 30 to 34, and 35 and over. For this edition of *Projections of Education Statistics*, the same method was used to produce enrollment rates for individual ages 17 through 24 and age groups 25 to 29, 30 to 34, and 35 and over by attendance status and sex as had been used in *Projections of Education Statistics to 2027*. In earlier editions of this report, these enrollment rates were produced using multiple linear regression models. As of the 2027 edition, these rates were set to their most recent historic values. This change was made because of increases in the forecasts errors when enrollment projections were compared to their actual values. Because enrollment in degree-granting postsecondary institutions is negligible for ages 14, 15, and 16, enrollment rates for individual ages 14, 15, and 16 by attendance status and sex were produced by double exponential smoothing. This is the same method as was used in the most recent editions of *Projections of Education Statistics*.

For the projected enrollment rates and the actual 2017 values, see table A-16 on page 101.

Step 4. *Produce projections of enrollments by attendance status, sex, and age category.* For each combination of attendance status, sex, and age category, enrollment projections were produced by multiplying the projected enrollment rate for that combination by projections of the total population with the corresponding combination of sex and age category.

Step 5. *Add three additional levels of detail—level of student, control of institution, and level of institution—to the projected enrollments by attendance status and sex*. In this step, the data on enrollment by age category were not used. Step 5 can be broken into two parts:

First, data for 2017 were used to calculate the percentage distribution of enrollment by level of student, control of institution, and level of institution for each combination of attendance status and sex. Because it was assumed that there was no enrollment in 2-year institutions at the postbaccalaureate level, six combinations of student level and institution type were used: undergraduates at public 4-year institutions, undergraduates at public 2-year institutions, postbaccalaureate students at public 4-year institutions, undergraduates at private 4-year institutions, undergraduates at private 2-year institutions, and postbaccalaureate students at private 4-year institutions.

For the projected percentage distributions from step 5 and the actual 2017 distributions, see table A-17 on page 102.

Second, the 2017 distributions by level of student, control of institution, and type of institution were applied to the projected enrollments by attendance status and sex from step 4 to obtain the enrollment projections by attendance status, sex, level of student, control of institution, and level of institution.

This is the first edition of *Projections of Education Statistics* to use this methodology to produce enrollments by level of student, control of institution, and level of institution.

Step 6. *Produce projections of full-time-equivalent enrollment by level of student, level of institution, and control of institution.* Full-time-equivalent enrollment represents total full-time and part-time enrollment as if it were enrollment on a full-time basis. It equals the sum of full-time enrollment plus the full-time-equivalent of part-time enrollment. Full-time-equivalent enrollment projections were produced in the following manner:

First, for each combination of level of student, level of institution, and control of institution, the historic data were used to calculate the full-time-equivalent of part-time enrollment as a percentage of part-time enrollment.

Second, for each combination of level of student, level of institution, and control of institution, the full-time equivalent of part-time enrollment as a percentage of part-time enrollment was projected using single exponential smoothing. A separate smoothing constant, chosen to minimize the sum of squared forecast errors, was used for each percentage.

Third, for each combination of level of student, level of institution, and control of institution, the projected percentages were applied to the projections of part-time enrollment to project the full-time equivalent of the part-time enrollment.

Fourth, the projections of full-time equivalents of part-time enrollment were added to projections of full-time enrollment to obtain projections of full-time-equivalent enrollment.

Data for the Enrollment in Degree-Granting Institutions Projection Model

Enrollment data for degree-granting postsecondary institutions. Enrollment data for 2000 to 2017 by attendance status, level of student, level of institution, control of institution, and sex came from the NCES Integrated Postsecondary Education Data System (IPEDS). These are universe counts. The U.S. Census Bureau was the source for enrollment estimates for 1981 to 2017 by the characteristics listed above, as well as age of student.

Population data and projections. Population counts for 2000 to 2018 came from the U.S. Census Bureau. Population projections for 2019 to 2028 are the Census Bureau's 2017 National Population Projections of the population by sex and age (September 2018), ratio-adjusted to line up with the most recent historical estimates. For more information, see Section A.0. Introduction to Projection Methodology, earlier in this appendix.

Data and results for the model. The following details for the model are shown on pages 101–102:

- Table A-16 shows enrollment rates by sex, attendance status, and age for fall 2017 and projected enrollment rates for fall 2023 and fall 2028.
- Table A-17 shows actual and projected percentage distributions of full-time and part-time students.
- Table A-18 shows actual and projected data for enrollment in public degree-granting institutions as a percentage of total enrollment by sex, attendance status, student level, and level of institution.

Accuracy of projections for the Enrollment in Degree-Granting Institutions Projection Model

No mean absolute percentage errors (MAPEs) were calculated for enrollments in degree-granting postsecondary institutions as this is the first edition of *Projections of Education Statistics* to use the new model Enrollment in Degree-Granting Institutions Model. For information concerning the accuracy of the previous models used to produce projections of enrollment in degree-granting postsecondary institutions, see page 125 of *Projections of Education Statistics to 2026*.

The Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model

The Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model projects enrollments in degree-granting institutions by attendance status, sex, age, and race/ethnicity. The following groups are projected in this model:

- White;
- Black;
- Hispanic;
- Asian/Pacific Islander;
- American Indian/Alaska Native;
- Two or more races; and
- nonresident alien.

See the glossary for definitions of the six racial/ethnic categories and the nonresident alien category. (The race/ethnicity of nonresident aliens is unknown, but they are considered a separate group for purposes of this analysis.)

Steps used in the Degree-Granting Institutions by Race/Ethnicity Projection Model

Step 1. *Adjust U.S. Census Bureau enrollment counts by attendance status, sex, age, and race/ethnicity to make them sum to NCES enrollment counts by attendance status, sex, and race/ethnicity.* For 1981 to 2017, the most detailed levels of Census Bureau enrollment data (by enrollment status, sex, age, and race/ethnicity) were iteratively changed using proportions that were based on the more highly aggregated NCES enrollment numbers to ensure that the sums across these most detailed levels of enrollment data equaled the more highly aggregated NCES enrollment numbers that did not include age.

Step 2. *Calculate enrollment rates by attendance status, sex, age category, and race/ethnicity.* The enrollment data were broken up into 14 age categories, with separate age categories for individual ages 14 through 24 as well as for the age groups 25 to 29, 30 to 34, and 35 and over. For each of the 14 age categories, enrollment rates were calculated for each combination of attendance status, sex, and the six racial/ethnic groups, resulting in a total of 350 enrollment rates (enrollment for Two or more races was projected to increase at the same rate as enrollment as total degree-granting postsecondary enrollment each year). Each of the 350 enrollment rates was calculated by dividing the enrollment count for that combination of attendance status, sex, age category, and race/ethnicity by the total population for the corresponding combination of sex, age category, and race/ethnicity. For each combination of attendance status, sex and racial/ethnic group, the enrollment rate for the oldest age category was calculated by dividing the enrollment count for those 35 and over by the total population for those 35 to 44.

Step 3. *Produce projections of enrollment rates by attendance status, sex, age category, and race/ethnicity.* Enrollment rates for most of the age groups and racial/ethnic groups were projected using multiple linear regression. However, there were several exceptions:

- Due to negligible enrollments for ages 14, 15, and 16, these ages were not included in the multiple linear regression models. Instead, projections of enrollment rates for individual ages 14, 15, and 16 were produced by single exponential smoothing.
- Due to the relatively large fluctuations in the historical enrollment rates resulting from small sample sizes, American Indian/Alaska Native enrollments were projected using single exponential smoothing.
- Since there were no applicable population counts to compute enrollment rates for nonresident aliens, their enrollments were projected using patterns in recent historical growth.

Four racial/ethnic groups were modeled: White, Black, Hispanic, and Asian/Pacific Islander. Eleven age categories were modeled: individual ages 17 through 24 and age groups 25 to 29, 30 to 34, and 35 to 44. For each of the age categories, projected enrollment rates by attendance status, sex, and race/ethnicity were produced using 16 pooled time-series models—one for each combination of attendance status, sex, and the four racial/ethnic groups. Each equation included variables measuring

- recent trends;
- economic conditions (such as disposable income); and
- demographic changes.

For more information on the equations used to project enrollment rates for the combinations of attendance status, sex, and race/ethnicity, see tables A-19 through A-26, under "Data and equations used for the Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model," below.

The final set of projected rates by attendance status, sex, age, and race/ethnicity were controlled to enrollment rates by attendance status, sex, and age produced by the Enrollment in Degree-Granting Institutions Projection Model to ensure consistency across models.

Step 4. *Produce projections of enrollments by attendance status, sex, age category, and race/ethnicity.* For each combination of attendance status, sex, age category, and race/ethnicity, enrollment projections were produced by multiplying the projected enrollment rate for that combination by projections of the total population with the corresponding combination of sex, age category, and race/ethnicity.

Data and equations used for the Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model

Enrollment data for degree-granting institutions by race/ethnicity. Enrollment data for 1981 to 2017 by attendance status, sex, and race/ethnicity came from the NCES Integrated Postsecondary Education Data System (IPEDS). These are universe counts. The U.S. Census Bureau, Current Population Survey was the source for enrollment estimates for 1981 to 2017 by the characteristics listed above, as well as age of student.

Population data and projections by race/ethnicity. Population counts for 1981 to 2017 came from the U.S. Census Bureau, Population Estimates series. Population projections for 2018 to 2028 are the Census Bureau's 2017 National Population Projections of the population by sex, age and race/ethnicity (December 2017), ratio-adjusted to line up with most recent historical estimates.

Projections for economic variables. The economic variables used in developing these projections were from the "U.S. Quarterly Macroeconomic Model: December 2018 Short-Term Baseline Projections" from the economic consulting firm, IHS Global Inc. This set of projections was IHS Global Inc.'s most recent set at the time the education projections in this report were produced.

Estimated equations and model statistics. Tables A-20 through A-27 show the estimated equations and model statistics used to project enrollment rates for the various combinations of attendance status, sex, and race/ethnicity.

Accuracy of projections for the Degree-Granting Institutions by Race/Ethnicity Projection Model

No mean absolute percentage errors (MAPEs) were calculated for enrollments in degree-granting postsecondary institutions by race/ethnicity, as projections from the new Enrollment in Degree-Granting Institutions Model were used in the calculating the enrollment by race/ethnicity projections. For information concerning the accuracy of the previous models used to produce projections of enrollment in degree-granting postsecondary institutions, see page 125 of *Projections of Education Statistics to 2026*.

The First-Time Freshmen Enrollment in Degree-Granting Institutions Projection Model

The First-Time Freshmen Enrollment in Degree-Granting Institutions Projection Model produced projections of first-time freshmen enrollment in degree-granting institutions by sex.

Steps used in the First-Time Freshmen Enrollment in Degree-Granting Institutions Projection Model

The projections were produced in the following manner:

Step 1. *Calculate the ratio of first-time freshmen enrollment to undergraduate enrollment.* For 1975 to 2017, the ratio of first-time freshmen enrollment to undergraduate enrollment was calculated for males and females.

Step 2. *Project the ratio of first-time freshmen enrollment to undergraduate enrollment.* The percentages of undergraduate enrollment for both males and females were projected using single exponential smoothing. A separate smoothing constant, chosen to minimize the sum of squared forecast errors, was used for each percentage.

Step 3. *Apply the projected ratio to projected undergraduate enrollment.* The projected ratios were applied to projections of undergraduate enrollment by sex from the Enrollment in Degree-Granting Institutions Model to yield projections of first-time freshmen enrollment.

Assumptions underlying this method

This method assumes that the future pattern in the trend of first-time freshmen enrollment will be the same as that for undergraduate enrollment.

Data used in the First-Time Freshmen Enrollment in Degree-Granting Institutions Projection Model

Undergraduate and freshmen enrollment data for degree-granting institutions. Undergraduate and freshmen enrollment data by sex for 1975 to 2017 came from the NCES Integrated Postsecondary Education Data System (IPEDS).

Projections of undergraduate enrollment. Projections of undergraduate enrollment by sex came from the Enrollment in Degree-Granting Institutions Model, discussed earlier in this section of appendix A.

Accuracy of projections for the First-Time Freshmen Enrollment Projection Model

No mean absolute percentage errors (MAPEs) were calculated for first-time freshmen enrollments in degree-granting postsecondary institutions, as projections from the new Enrollment in Degree-Granting Institutions Model were used in the calculating the first-time freshmen enrollment projections. For information concerning the accuracy of the previous models used to produce projections of enrollment in degree-granting postsecondary institutions, see page 125 of *Projections of Education Statistics to 2026*.

Table A-16. Actual and projected numbers for enrollment rates of all students at degree-granting postsecondary institutions, by sex, attendance status, and age: Fall 2017, fall 2023, and fall 2028

Sex, attendance status, and age	Actual 2017	Projected	
		2023	2028
1	2	3	4
Males			
Full-time			
16-years-old	0.5	0.7	0.7
17-years-old	1.6	1.6	1.6
18-years-old	27.1	27.1	27.1
19-years-old	38.2	38.2	38.2
20-years-old	42.4	42.4	42.4
21-years-old	32.6	32.6	32.6
22-years-old	23.8	23.8	23.8
23-years-old	13.7	13.7	13.7
24-years-old	12.2	12.2	12.2
25- to 29-years-old	5.4	5.4	5.4
30- to 34-years-old	2.0	2.0	2.0
35- to 44-years-old	1.3	1.3	1.3
Part-time			
16-years-old	#	0.1	0.1
17-years-old	0.9	0.9	0.9
18-years-old	4.3	4.3	4.3
19-years-old	9.0	9.0	9.0
20-years-old	8.2	8.2	8.2
21-years-old	8.3	8.3	8.3
22-years-old	9.7	9.7	9.7
23-years-old	10.3	10.3	10.3
24-years-old	7.4	7.4	7.4
25- to 29-years-old	5.6	5.6	5.6
30- to 34-years-old	3.5	3.5	3.5
35- to 44-years-old	3.8	3.8	3.8
Females			
Full-time			
16-years-old	1.2	1.0	1.0
17-years-old	4.1	4.1	4.1
18-years-old	39.7	39.7	39.7
19-years-old	49.7	49.7	49.7
20-years-old	47.2	47.2	47.2
21-years-old	44.9	44.9	44.9
22-years-old	25.1	25.1	25.1
23-years-old	18.1	18.1	18.1
24-years-old	15.4	15.4	15.4
25- to 29-years-old	6.2	6.2	6.2
30- to 34-years-old	2.7	2.7	2.7
35- to 44-years-old	2.2	2.2	2.2
Part-time			
16-years-old	0.6	0.2	0.2
17-years-old	1.1	1.1	1.1
18-years-old	7.2	7.2	7.2
19-years-old	12.8	12.8	12.8
20-years-old	9.3	9.3	9.3
21-years-old	14.7	14.7	14.7
22-years-old	11.5	11.5	11.5
23-years-old	11.6	11.6	11.6
24-years-old	10.8	10.8	10.8
25- to 29-years-old	8.9	8.9	8.9
30- to 34-years-old	4.4	4.4	4.4
35- to 44-years-old	6.6	6.6	6.6

#Rounds to zero.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Spring 2018; Enrollment in Degree-Granting Institutions Projection Model, 1980 through 2028; and U.S. Department of Commerce, Census Bureau, Current Population Reports, "Social and Economic Characteristics of Students," 2017. (This table was prepared March 2019.)

Table A-17. Actual and projected percentages of students at degree-granting postsecondary institutions, by sex, attendance status, student level, and level of institution: Fall 2017, and fall 2018 through fall 2028

Attendance status, student level, and institution level	Males		Females	
	Actual 2017	Projected 2018 through 2028	Actual 2017	Projected 2018 through 2028
1	2	3	4	5
Full-time				
Undergraduate, 4-year institutions	67.7	67.7	67.2	67.2
Undergraduate, 2-year institutions	18.7	18.7	18.3	18.3
Postbaccalaureate, 4-year institutions	13.7	13.7	14.5	14.5
Part-time				
Undergraduate, 4-year institutions	35.5	35.5	34.3	34.3
Undergraduate, 2-year institutions	49.3	49.3	47.6	47.6
Postbaccalaureate, 4-year institutions	15.2	15.2	18.0	18.0

Rounds to zero.
NOTE: Detail may not sum to totals because of rounding. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Spring 2018; Enrollment in Degree-Granting Institutions Projection Model, 1980 through 2028; and U.S. Department of Commerce, Census Bureau, Current Population Reports, "Social and Economic Characteristics of Students," 2017. (This table was prepared March 2019.)

Table A-18. Actual and projected enrollment in public degree-granting postsecondary institutions as a percentage of total postsecondary enrollment, by sex, attendance status, student level, and level of institution: Fall 2017, and fall 2018 through fall 2028

Attendance status, student level, and level of institution	Males		Females	
	Actual 2017	Projected 2018 through 2028	Actual 2017	Projected 2018 through 2028
Full-time, undergraduate, 4-year institutions	69.4	69.4	66.0	66.0
Part-time, undergraduate, 4-year institutions	74.0	74.0	68.6	68.6
Full-time, undergraduate, 2-year institutions	93.3	93.3	88.2	88.2
Part-time, undergraduate, 2-year institutions	99.6	99.6	99.1	99.1
Full-time, postbaccalaureate, 4-year institutions	49.3	49.3	46.2	46.2
Part-time, postbaccalaureate, 4-year institutions	52.6	52.6	48.2	48.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Spring 2018; and Enrollment in Degree-Granting Institutions Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table A-19. Estimated equations and model statistics for full-time and part-time enrollment rates of White males at degree-granting postsecondary institutions based on data from 1980 to 2017

Independent variable	Coefficient	Standard error	*t*-statistic	R^2	D.W. statistic
1	2	3	4	5	6
Full-time					
Intercept term for 17-year-olds	-9.05	0.261	-34.64	0.99	1.57*
Intercept term for 18-year-olds	-6.05	0.251	-24.14		
Intercept term for 19-year-olds	-5.75	0.248	-23.19		
Intercept term for 20-year-olds	-5.90	0.248	-23.76		
Intercept term for 21-year-olds	-6.05	0.248	-24.35		
Intercept term for 22-year-olds	-6.55	0.248	-26.37		
Intercept term for 23-year-olds	-7.12	0.249	-28.63		
Intercept term for 24-year-olds	-7.49	0.250	-29.95		
Intercept term for 25- to 29-year-olds	-8.34	0.249	-33.53		
Intercept term for 30- to 34-year-olds	-9.37	0.250	-37.45		
Intercept term for 35- to 44-year-olds	-9.97	0.251	-39.65		
Log of White per capita disposable income in current dollars	0.28	0.013	21.75		
Part-time					
Intercept term for 17-year-olds	-5.28	0.480	-11.00	0.85	1.81*
Intercept term for 18-year-olds	-1.65	0.106	-15.55		
Intercept term for 19-year-olds	-1.13	0.113	-10.05		
Intercept term for 20-year-olds	-1.08	0.103	-10.48		
Intercept term for 21-year-olds	-1.13	0.103	-10.96		
Intercept term for 22-year-olds	-1.34	0.104	-12.86		
Intercept term for 23-year-olds	-1.38	0.100	-13.86		
Intercept term for 24-year-olds	-1.45	0.099	-14.75		
Intercept term for 25- to 29-year-olds	-1.76	0.096	-18.41		
Intercept term for 30- to 34-year-olds	-2.22	0.097	-22.82		
Intercept term for 35- to 44-year-olds	-2.25	0.094	-23.82		
Log of real total private compensation employment cost index	1.36	0.126	10.75		

* $p < .05$.
NOTE: R^2 = Coefficient of determination. D.W. statistic = Durbin-Watson statistic, a test for autocorrelation among regression residuals. For more details see Johnston, J., and Dinardo, J. (1996). *Econometric Methods*. New York: McGraw-Hill. The regression method used to estimate the full-time and part-time equations was the pooled seemingly unrelated regression method. The time period used to estimate the equations is from 1980 to 2017. The number of observations is 418. For additional information, see Intriligator, M.D. (1978). *Econometric Models, Techniques, & Applications*. New Jersey: Prentice-Hall, Inc., pp. 165–173. Race categories exclude persons of Hispanic ethnicity.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model, 1980 through 2028. (This table was prepared May 2019.)

Table A-20. Estimated equations and model statistics for full-time and part-time enrollment rates of White females at degree-granting postsecondary institutions based on data from 1980 to 2017

Independent variable	Coefficient	Standard error	*t*-statistic	R^2	D.W. statistic
1	2	3	4	5	6
Full-time					
Intercept term for 17-year-olds	-12.78	0.437	-29.28	0.99	1.75*
Intercept term for 18-year-olds	-9.82	0.429	-22.90		
Intercept term for 19-year-olds	-9.63	0.427	-22.53		
Intercept term for 20-year-olds	-9.85	0.428	-23.03		
Intercept term for 21-year-olds	-10.08	0.428	-23.57		
Intercept term for 22-year-olds	-10.82	0.428	-25.29		
Intercept term for 23-year-olds	-11.36	0.429	-26.50		
Intercept term for 24-year-olds	-11.75	0.429	-27.41		
Intercept term for 25- to 29-year-olds	-12.55	0.428	-29.31		
Intercept term for 30- to 34-year-olds	-13.29	0.428	-31.07		
Intercept term for 35- to 44-year-olds	-13.48	0.428	-31.51		
Log of White per capita disposable income in current dollars	0.49	0.022	22.44		
Part-time					
Intercept term for 17-year-olds	-10.07	0.377	-26.73	0.70	1.87*
Intercept term for 18-year-olds	-6.45	0.304	-21.22		
Intercept term for 19-year-olds	-5.94	0.305	-19.48		
Intercept term for 20-year-olds	-6.02	0.305	-19.72		
Intercept term for 21-year-olds	-6.09	0.305	-19.98		
Intercept term for 22-year-olds	-6.31	0.303	-20.82		
Intercept term for 23-year-olds	-6.38	0.304	-21.01		
Intercept term for 24-year-olds	-6.41	0.302	-21.24		
Intercept term for 25- to 29-year-olds	-6.72	0.301	-22.30		
Intercept term for 30- to 34-year-olds	-7.12	0.303	-23.51		
Intercept term for 35- to 44-year-olds	-6.78	0.301	-22.51		
Log of real total private compensation employment cost index	0.22	0.015	14.06		

* $p < .05$.
NOTE: R^2 = Coefficient of determination. D.W. statistic = Durbin-Watson statistic, a test for autocorrelation among regression residuals. For more details see Johnston, J., and Dinardo, J. (1996). *Econometric Methods*. New York: McGraw-Hill. The regression method used to estimate the full-time and part-time equations was the pooled seemingly unrelated regression method. The time period used to estimate the equations is from 1980 to 2017. The number of observations is 418. For additional information, see Intriligator, M.D. (1978). *Econometric Models, Techniques, & Applications*. New Jersey: Prentice-Hall, Inc., pp. 165–173. Race categories exclude persons of Hispanic ethnicity.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table A-21. Estimated equations and model statistics for full-time and part-time enrollment rates of Black males at degree-granting postsecondary institutions based on data from 1980 to 2017

Independent variable	Coefficient	Standard error	*t*-statistic	R^2	D.W. statistic
1	2	3	4	5	6
Full-time					
Intercept term for 17-year-olds	-10.94	0.608	-18.01	0.94	1.79*
Intercept term for 18-year-olds	-8.63	0.600	-14.38		
Intercept term for 19-year-olds	-8.32	0.599	-13.89		
Intercept term for 20-year-olds	-8.40	0.600	-14.00		
Intercept term for 21-year-olds	-8.62	0.601	-14.36		
Intercept term for 22-year-olds	-8.84	0.601	-14.72		
Intercept term for 23-year-olds	-9.30	0.603	-15.43		
Intercept term for 24-year-olds	-9.59	0.602	-15.93		
Intercept term for 25- to 29-year-olds	-10.35	0.601	-17.21		
Intercept term for 30- to 34-year-olds	-11.15	0.604	-18.47		
Intercept term for 35- to 44-year-olds	-11.44	0.603	-18.97		
Log of Black per capita disposable income in current dollars	0.38	0.032	11.80		
Part-time					
Intercept term for 17-year-olds	-12.77	0.678	-18.85	0.52	1.95*
Intercept term for 18-year-olds	-11.31	0.524	-21.60		
Intercept term for 19-year-olds	-10.52	0.516	-20.41		
Intercept term for 20-year-olds	-10.43	0.516	-20.23		
Intercept term for 21-year-olds	-10.39	0.510	-20.38		
Intercept term for 22-year-olds	-10.50	0.516	-20.34		
Intercept term for 23-year-olds	-10.59	0.520	-20.38		
Intercept term for 24-year-olds	-10.73	0.522	-20.54		
Intercept term for 25- to 29-year-olds	-10.82	0.508	-21.29		
Intercept term for 30- to 34-year-olds	-11.11	0.507	-21.90		
Intercept term for 35- to 44-year-olds	-11.08	0.505	-21.94		
Log of Black per capita disposable income in current dollars	0.41	0.027	15.14		

* $p < .05$.
NOTE: R^2 = Coefficient of determination. D.W. statistic = Durbin-Watson statistic, a test for autocorrelation among regression residuals. For more details see Johnston, J., and Dinardo, J. (1996). *Econometric Methods*. New York: McGraw-Hill. The regression method used to estimate the full-time and part-time equations was the pooled seemingly unrelated regression method. The time period used to estimate the equations is from 1980 to 2017. The number of observations is 418. For additional information, see Intriligator, M.D. (1978). *Econometric Models, Techniques, & Applications*. New Jersey: Prentice-Hall, Inc., pp. 165–173. Race categories exclude persons of Hispanic ethnicity.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table A-22. Estimated equations and model statistics for full-time and part-time enrollment rates of Black females at degree-granting postsecondary institutions based on data from 1980 to 2017

Independent variable	Coefficient	Standard error	*t*-statistic	R^2	D.W. statistic
1	2	3	4	5	6
Full-time					
Intercept term for 17-year-olds	-14.27	0.574	-24.87	0.96	1.79*
Intercept term for 18-year-olds	-11.97	0.566	-21.15		
Intercept term for 19-year-olds	-11.69	0.565	-20.70		
Intercept term for 20-year-olds	-11.92	0.566	-21.07		
Intercept term for 21-year-olds	-12.13	0.565	-21.46		
Intercept term for 22-year-olds	-12.54	0.565	-22.19		
Intercept term for 23-year-olds	-12.83	0.566	-22.66		
Intercept term for 24-year-olds	-13.18	0.567	-23.22		
Intercept term for 25- to 29-year-olds	-13.92	0.567	-24.55		
Intercept term for 30- to 34-year-olds	-14.42	0.567	-25.45		
Intercept term for 35- to 44-year-olds	-14.71	0.568	-25.93		
Log of Black per capita disposable income in current dollars	0.59	0.030	19.59		
Part-time					
Intercept term for 17-year-olds	-14.05	0.790	-17.78	0.47	1.83*
Intercept term for 18-year-olds	-12.07	0.776	-15.57		
Intercept term for 19-year-olds	-11.56	0.773	-14.95		
Intercept term for 20-year-olds	-11.52	0.773	-14.91		
Intercept term for 21-year-olds	-11.48	0.771	-14.89		
Intercept term for 22-year-olds	-11.52	0.771	-14.95		
Intercept term for 23-year-olds	-11.63	0.772	-15.07		
Intercept term for 24-year-olds	-11.66	0.772	-15.10		
Intercept term for 25- to 29-year-olds	-11.85	0.768	-15.44		
Intercept term for 30- to 34-year-olds	-12.02	0.768	-15.66		
Intercept term for 35- to 44-year-olds	-11.82	0.767	-15.40		
Log of Black per capita disposable income in current dollars	0.49	0.041	12.02		

* $p < .05$.
NOTE: R^2 = Coefficient of determination. D.W. statistic = Durbin-Watson statistic, a test for autocorrelation among regression residuals. For more details see Johnston, J., and Dinardo, J. (1996). *Econometric Methods*. New York: McGraw-Hill. The regression method used to estimate the full-time and part-time equations was the pooled seemingly unrelated regression method. The time period used to estimate the equations is from 1980 to 2017. The number of observations is 418. For additional information, see Intriligator, M.D. (1978). *Econometric Models, Techniques, & Applications*. New Jersey: Prentice-Hall, Inc., pp. 165–173. Race categories exclude persons of Hispanic ethnicity.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table A-23. Estimated equations and model statistics for full-time and part-time enrollment rates of Hispanic males at degree-granting postsecondary institutions based on data from 1980 to 2017

Independent variable	Coefficient	Standard error	*t*-statistic	R^2	D.W. statistic
1	2	3	4	5	6
Full-time					
Intercept term for 17-year-olds	-13.24	0.716	-18.49	0.91	1.88*
Intercept term for 18-year-olds	-11.09	0.711	-15.61		
Intercept term for 19-year-olds	-10.85	0.711	-15.26		
Intercept term for 20-year-olds	-11.03	0.712	-15.50		
Intercept term for 21-year-olds	-11.27	0.713	-15.82		
Intercept term for 22-year-olds	-11.72	0.712	-16.46		
Intercept term for 23-year-olds	-12.04	0.713	-16.89		
Intercept term for 24-year-olds	-12.22	0.712	-17.17		
Intercept term for 25- to 29-year-olds	-13.04	0.712	-18.30		
Intercept term for 30- to 34-year-olds	-13.91	0.713	-19.51		
Intercept term for 35- to 44-year-olds	-14.39	0.714	-20.15		
Log of Hispanic per capita disposable income in current dollars	0.50	0.038	13.06		
Part-time					
Intercept term for 17-year-olds	-13.43	0.707	-19.01	0.60	1.74*
Intercept term for 18-year-olds	-11.29	0.546	-20.67		
Intercept term for 19-year-olds	-10.94	0.549	-19.95		
Intercept term for 20-year-olds	-10.80	0.547	-19.76		
Intercept term for 21-year-olds	-10.84	0.547	-19.81		
Intercept term for 22-year-olds	-11.22	0.546	-20.53		
Intercept term for 23-year-olds	-11.21	0.550	-20.39		
Intercept term for 24-year-olds	-11.44	0.547	-20.92		
Intercept term for 25- to 29-year-olds	-11.73	0.540	-21.73		
Intercept term for 30- to 34-year-olds	-12.27	0.543	-22.60		
Intercept term for 35- to 44-year-olds	-12.26	0.540	-22.72		
Log of Hispanic per capita disposable income in current dollars	0.45	0.029	15.58		

* $p < .05$.
NOTE: R^2 = Coefficient of determination. D.W. statistic = Durbin-Watson statistic, a test for autocorrelation among regression residuals. For more details see Johnston, J., and Dinardo, J. (1996). *Econometric Methods*. New York: McGraw-Hill. The regression method used to estimate the full-time and part-time equations was the pooled seemingly unrelated regression method. The time period used to estimate the equations is from 1980 to 2017. The number of observations is 418. For additional information, see Intriligator, M.D. (1978). *Econometric Models, Techniques, & Applications*. New Jersey: Prentice-Hall, Inc., pp. 165–173.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table A-24. Estimated equations and model statistics for full-time and part-time enrollment rates of Hispanic females at degree-granting postsecondary institutions based on data from 1980 to 2017

Independent variable	Coefficient	Standard error	*t*-statistic	R^2	D.W. statistic
1	2	3	4	5	6
Full-time					
Intercept term for 17-year-olds	-18.22	0.637	-28.61	0.92	1.87*
Intercept term for 18-year-olds	-15.71	0.627	-25.07		
Intercept term for 19-year-olds	-15.55	0.626	-24.85		
Intercept term for 20-year-olds	-15.86	0.626	-25.32		
Intercept term for 21-year-olds	-15.97	0.627	-25.47		
Intercept term for 22-year-olds	-16.60	0.628	-26.45		
Intercept term for 23-year-olds	-16.85	0.628	-26.85		
Intercept term for 24-year-olds	-17.33	0.630	-27.53		
Intercept term for 25- to 29-year-olds	-18.01	0.625	-28.80		
Intercept term for 30- to 34-year-olds	-18.72	0.628	-29.82		
Intercept term for 35- to 44-year-olds	-19.08	0.629	-30.35		
Log of Hispanic per capita disposable income in current dollars	0.79	0.034	23.21		
Part-time					
Intercept term for 17-year-olds	-15.38	0.638	-24.12	0.60	1.94*
Intercept term for 18-year-olds	-13.31	0.620	-21.46		
Intercept term for 19-year-olds	-12.86	0.621	-20.73		
Intercept term for 20-year-olds	-13.12	0.622	-21.10		
Intercept term for 21-year-olds	-12.95	0.622	-20.84		
Intercept term for 22-year-olds	-13.30	0.622	-21.40		
Intercept term for 23-year-olds	-13.23	0.619	-21.39		
Intercept term for 24-year-olds	-13.48	0.620	-21.74		
Intercept term for 25- to 29-year-olds	-13.80	0.615	-22.45		
Intercept term for 30- to 34-year-olds	-14.25	0.616	-23.15		
Intercept term for 35- to 44-year-olds	-14.13	0.615	-22.96		
Log of Hispanic per capita disposable income in current dollars	0.59	0.033	17.73		

* $p < .05$.
NOTE: R^2 = Coefficient of determination. D.W. statistic = Durbin-Watson statistic, a test for autocorrelation among regression residuals. For more details see Johnston, J., and Dinardo, J. (1996). *Econometric Methods*. New York: McGraw-Hill. The regression method used to estimate the full-time and part-time equations was the pooled seemingly unrelated regression method. The time period used to estimate the equations is from 1980 to 2017. The number of observations is 418. For additional information, see Intriligator, M.D. (1978). *Econometric Models, Techniques, & Applications*. New Jersey: Prentice-Hall, Inc., pp. 165–173.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model, 1980 through 2028. (This table was prepared March 2019.)

Table A-25. Estimated equations and model statistics for full-time and part-time enrollment rates of Asian/Pacific Islander males at degree-granting postsecondary institutions based on data from 1989 to 2017

Independent variable	Coefficient	Standard error	*t*-statistic	R^2	D.W. statistic
1	2	3	4	5	6
Full-time					
Intercept term for 17-year-olds	-3.56	0.512	-14.87	0.92	1.94*
Intercept term for 18-year-olds	-0.86	0.500	-10.11		
Intercept term for 19-year-olds	-0.61	0.502	-9.69		
Intercept term for 20-year-olds	-0.61	0.508	-9.94		
Intercept term for 21-year-olds	-0.60	0.508	-9.87		
Intercept term for 22-year-olds	-0.97	0.509	-10.48		
Intercept term for 23-year-olds	-1.25	0.509	-10.88		
Intercept term for 24-year-olds	-1.57	0.510	-11.46		
Intercept term for 25- to 29-year-olds	-2.33	0.519	-13.19		
Intercept term for 30- to 34-year-olds	-3.39	0.522	-14.98		
Intercept term for 35- to 44-year-olds	-4.26	0.525	-16.47		
Log of Asian/Pacific Islander per capita disposable income in current dollars	0.04	0.024	1.69		
Log unemployment rate for Asian/Pacific Islanders	0.19	0.039	4.86		
Part-time					
Intercept term for 17-year-olds	-1.80	0.839	-2.14	0.65	1.96*
Intercept term for 18-year-olds	-0.15	0.620	-0.24		
Intercept term for 19-year-olds	0.61	0.609	1.00		
Intercept term for 20-year-olds	0.45	0.621	0.72		
Intercept term for 21-year-olds	0.45	0.619	0.72		
Intercept term for 22-year-olds	0.41	0.624	0.66		
Intercept term for 23-year-olds	0.12	0.614	0.20		
Intercept term for 24-year-olds	0.08	0.609	0.13		
Intercept term for 25- to 29-year-olds	-0.33	0.601	-0.55		
Intercept term for 30- to 34-year-olds	-1.03	0.606	-1.70		
Intercept term for 35- to 44-year-olds	-1.23	0.600	-2.05		
Log of Asian/Pacific Islander level of educational attainment per household	0.13	0.038	3.48		

* $p < .05$.

NOTE: R^2 = Coefficient of determination. D.W. statistic = Durbin-Watson statistic, a test for autocorrelation among regression residuals. For more details see Johnston, J., and Dinardo, J. (1996). *Econometric Methods*. New York: McGraw-Hill. The regression method used to estimate the full-time and part-time equations was the pooled seemingly unrelated regression method. The time period used to estimate the is from 1989 to 2017. The number of observations equal to 319. For additional information, see Intriligator, M.D. (1978). *Econometric Models, Techniques, & Applications*. New Jersey: Prentice-Hall, Inc., pp. 165–173. Race categories exclude persons of Hispanic ethnicity.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Enrollment in Degree-Granting Institutions by Race/Ethnicity Projection Model, 1989 through 2028. (This table was prepared March 2019.)

Table A-26. Estimated equations and model statistics for full-time and part-time enrollment rates of Asian/Pacific Islander females at degree-granting postsecondary institutions based on data from 1989 to 2017

Independent variable	Coefficient	Standard error	*t*-statistic	R^2	D.W. statistic
1	2	3	4	5	6
Full-time					
Intercept term for 17-year-olds	-6.03	0.583	-10.34	0.97	1.85*
Intercept term for 18-year-olds	-3.62	0.570	-6.35		
Intercept term for 19-year-olds	-3.15	0.574	-5.49		
Intercept term for 20-year-olds	-3.36	0.572	-5.88		
Intercept term for 21-year-olds	-3.42	0.570	-5.99		
Intercept term for 22-year-olds	-3.95	0.572	-6.91		
Intercept term for 23-year-olds	-4.27	0.571	-7.49		
Intercept term for 24-year-olds	-4.76	0.578	-8.23		
Intercept term for 25- to 29-year-olds	-5.70	0.569	-10.02		
Intercept term for 30- to 34-year-olds	-6.93	0.572	-12.12		
Intercept term for 35- to 44-year-olds	-7.50	0.572	-13.11		
Log of Asian/Pacific Islander per capita disposable income in current dollars	0.18	0.029	6.06		
Part-time					
Intercept term for 17-year-olds	0.93	0.271	3.44	0.68	2.02*
Intercept term for 18-year-olds	-2.25	0.874	-2.58		
Intercept term for 19-year-olds	-0.76	0.858	-0.89		
Intercept term for 20-year-olds	-0.12	0.871	-0.14		
Intercept term for 21-year-olds	-0.34	0.864	-0.40		
Intercept term for 22-year-olds	0.20	0.855	0.23		
Intercept term for 23-year-olds	-0.22	0.859	-0.26		
Intercept term for 24-year-olds	-0.37	0.853	-0.44		
Intercept term for 25- to 29-year-olds	-0.42	0.857	-0.49		
Intercept term for 30- to 34-year-olds	-0.97	0.847	-1.14		
Intercept term for 35- to 44-year-olds	-1.59	0.848	-1.87		
Log of Asian/Pacific Islander per capita disposable income in current dollars	0.69	0.192	3.59		
Log of Asian/Pacific Islander level of educational attainment per household	0.93	0.271	3.44		

* $p < .05$.

NOTE: R^2 = Coefficient of determination. D.W. statistic = Durbin-Watson statistic, a test for autocorrelation among regression residuals. For more details see Johnston, J., and Dinardo, J. (1996). *Econometric Methods*. New York: McGraw-Hill. The regression method used to estimate the full-time and part-time equations was the pooled seemingly unrelated regression method. The time period used to estimate the equations is from 1989 to 2017. The number of observations is 319. For additional information, see Intriligator, M.D. (1978). *Econometric Models, Techniques, & Applications*. New Jersey: Prentice-Hall, Inc., pp. 165–173. Race categories exclude persons of Hispanic ethnicity.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Enrollment in Degree-Granting Institutions by Race/Ethnicity Model, 1989–2017. (This table was prepared March 2019.)

A.6. POSTSECONDARY DEGREES CONFERRED

Projections in this edition

This edition of *Projections of Education Statistics* presents projections of postsecondary degrees conferred by level of degree and sex of recipient for 2017–18 through 2028–29.

Overview of approach

Basic approach

The Degrees Conferred Projections Model uses single exponential smoothing to project separate ratios of associate's, bachelor's, master's, and doctor's degrees by sex to the relevant enrollment by sex. For associate's degrees, the relevant enrollment is undergraduate enrollment in 2-year institutions; for bachelor's degrees, it is undergraduate enrollment in 4-year institutions; and for both master's and doctor's degrees, it is it is graduate enrollment in 4-year institutions. The Model applies the projected ratios to projections of the relevant enrollment that was produced by the Enrollment in Degree-Granting Institutions Projection Model.

Degrees Conferred Projection Model

Procedures used to project degrees

For all degree levels, projections of degrees conferred were made separately for males and for females. The projections for males and females were then summed to get projections of the total number of degrees.

Associate's degrees. *Projections were based on undergraduate enrollment in 2-year institutions by sex*. First, for 2002–03 through 2016–17, the ratio on associate's degrees to undergraduate enrollment in 2-year institutions was calculated for males and females. Next, the ratios for males and females were projected using single exponential smoothing where each smoothing constant was chosen to minimize the sum of squared forecast errors. The projected ratios were applied to projections of undergraduate enrollment in 2-year institutions by sex from the Enrollment in Degree-Granting Institutions Model to yield projections of associate's degrees.

Bachelor's degrees. *Projections were based on undergraduate enrollment in 4-year institutions by sex*. First, for 2002–03 through 2016–17, the ratio on bachelor's degrees to undergraduate enrollment in 4-year institutions was calculated for males and females. Next, the ratios for males and females were projected using single exponential smoothing where each smoothing constant was chosen to minimize the sum of squared forecast errors. The projected ratios were applied to projections of undergraduate enrollment in 4-year institutions by sex from the Enrollment in Degree-Granting Institutions Model to yield projections of bachelor's degrees.

Master's degrees. *Projections were based on graduate enrollment in 4-year institutions by sex*. First, for 2002–03 through 2016–17, the ratio on master's degrees to graduate enrollment in 4-year institutions was calculated for males and females. Next, the ratios for males and females were projected using single exponential smoothing where each smoothing constant was chosen to minimize the sum of squared forecast errors. The projected ratios were applied to projections of graduate enrollment in 4-year institutions by sex from the Enrollment in Degree-Granting Institutions Model to yield projections of master's degrees.

Doctor's degrees. *Projections were based on graduate enrollment in 4-year institutions by sex*. First, for 2002–03 through 2016–17, the ratio on doctor's degrees to graduate enrollment in 4-year institutions was calculated for males and females. Next, the ratios for males and females were projected using single exponential smoothing where each smoothing constant was chosen to minimize the sum of squared forecast errors. The projected ratios were applied to projections of graduate enrollment in 4-year institutions by sex from the Enrollment in Degree-Granting Institutions Model to yield projections of doctor's degrees.

Data and equations used to project degrees

Enrollment data and projections for degree-granting institutions. Historical enrollment data by sex, level of student, and level of institution from 2002–03 to 2017–18 came from the NCES Integrated Postsecondary Education Data System (IPEDS). The enrollment projections used are those produced for this edition of *Projections of Education Statistics*. For more information about the enrollment projections, see Section A.5. Enrollment in Degree-granting postsecondary Institutions, earlier in this appendix.

Data on degrees awarded at all levels. Historical data by level of degree and sex of recipient from 2002–03 to 2016–17 came from the NCES Integrated Postsecondary Education Data System (IPEDS).

Accuracy of projections

No MAPEs were calculated for degrees conferred because this is the second edition of *Projections of Education Statistics* to use the current models. For information concerning the accuracy of the previous models used to produce projections of degrees conferred, see page 125 of *Projections of Education Statistics to 2026*.

Appendix B
Supplementary Tables

Table B-1. Actual and projected prekindergarten- and kindergarten-age populations, by age: 2003 through 2028

[In thousands]

Year (July 1)	3- to 5-year-olds	3-year-olds	4-year-olds	5-year-olds
1	2	3	4	5
Actual				
2003	11,501	3,861	3,817	3,824
2004	11,714	4,008	3,877	3,830
2005	11,866	3,943	4,030	3,893
2006	11,987	3,966	3,971	4,051
2007	11,996	4,004	3,998	3,993
2008	12,058	3,992	4,041	4,024
2009	12,129	4,026	4,033	4,070
2010	12,253	4,112	4,077	4,064
2011	12,310	4,102	4,121	4,087
2012	12,224	3,981	4,111	4,131
2013	12,105	3,991	3,992	4,122
2014	12,013	4,005	4,004	4,004
2015	12,009	3,973	4,019	4,017
2016	12,002	3,981	3,988	4,033
2017	12,004	4,007	3,996	4,001
2018	12,068	4,038	4,021	4,009
Projected				
2019	12,093	4,025	4,037	4,031
2020	12,184	4,113	4,024	4,046
2021	12,281	4,135	4,113	4,034
2022	12,413	4,155	4,135	4,123
2023	12,474	4,173	4,155	4,145
2024	12,527	4,188	4,173	4,165
2025	12,572	4,200	4,188	4,183
2026	12,608	4,209	4,200	4,198
2027	12,636	4,216	4,209	4,211
2028	12,658	4,221	4,216	4,220

NOTE: Some data have been revised from previously published figures. Detail may not sum to totals because of rounding. As the Census Bureau projections were not updated to reflect the most recent Census Bureau population estimates, the Census Bureau age-specific population projections for each year were adjusted by multiplying the ratio of the total Census Bureau estimate for 2018 to the total Census Bureau projection for 2018.

SOURCE: U.S. Department of Commerce, Census Bureau, Population Estimates, retrieved July 19, 2018 from https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/; and Population Projections, retrieved October 10, 2018, from https://www.census.gov/data/datasets/2017/demo/popproj/2017-popproj.html. (This table was prepared March 2019.)

Table B-2. Actual and projected school-age populations, by selected ages: 2003 through 2028

[In thousands]

Year (July 1)	5-year-olds	6-year-olds	5- to 13-year-olds	14- to 17-year-olds
1	2	3	4	5
Actual				
2003	3,824	3,838	36,814	16,694
2004	3,830	3,822	36,458	17,054
2005	3,893	3,828	36,248	17,358
2006	4,051	3,891	36,269	17,549
2007	3,993	4,046	36,296	17,597
2008	4,024	3,988	36,438	17,395
2009	4,070	4,018	36,657	17,232
2010	4,064	4,073	36,866	17,066
2011	4,087	4,075	36,916	16,872
2012	4,131	4,097	37,004	16,722
2013	4,122	4,141	37,073	16,653
2014	4,004	4,133	36,952	16,748
2015	4,017	4,017	36,902	16,810
2016	4,033	4,029	36,960	16,779
2017	4,001	4,046	36,955	16,761
2018	4,009	4,014	36,915	16,700
Projected				
2019	4,031	4,019	36,875	16,685
2020	4,046	4,040	36,826	16,783
2021	4,034	4,056	36,719	16,899
2022	4,123	4,043	36,708	16,967
2023	4,145	4,133	36,836	16,914
2024	4,165	4,155	36,976	16,847
2025	4,183	4,175	37,120	16,748
2026	4,198	4,193	37,316	16,620
2027	4,211	4,208	37,520	16,615
2028	4,220	4,221	37,712	16,621

NOTE: Some data have been revised from previously published figures. Detail may not sum to totals because of rounding. As the Census Bureau projections were not updated to reflect the most recent Census Bureau population estimates, the Census Bureau age-specific population projections for each year were adjusted by multiplying the ratio of the total Census Bureau estimate for 2018 to the total Census Bureau projection for 2018.

SOURCE: U.S. Department of Commerce, Census Bureau, Population Estimates, retrieved July 19, 2018 from https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/; and Population Projections, retrieved October 10, 2018, from https://www.census.gov/data/datasets/2017/demo/popproj/2017-popproj.html. (This table was prepared March 2019.)

Table B-3. Actual and projected college-age populations, by selected ages: 2003 through 2028

[In thousands]

Year (July 1)	18-year-olds	18- to 24-year-olds	25- to 29-year-olds	30- to 34-year-olds	35- to 44-year-olds
1	2	3	4	5	6
Actual					
2003	4,206	29,121	18,872	20,545	44,251
2004	4,218	29,474	19,193	20,220	43,881
2005	4,228	29,609	19,629	19,787	43,594
2006	4,303	29,758	20,200	19,343	43,325
2007	4,397	29,973	20,640	19,231	42,879
2008	4,590	30,355	21,003	19,365	42,275
2009	4,537	30,687	21,184	19,708	41,573
2010	4,492	30,915	21,248	20,132	41,065
2011	4,403	31,230	21,391	20,586	40,732
2012	4,360	31,495	21,479	20,975	40,612
2013	4,294	31,601	21,658	21,336	40,558
2014	4,224	31,525	22,034	21,570	40,527
2015	4,214	31,238	22,483	21,694	40,568
2016	4,224	30,930	22,984	21,879	40,593
2017	4,242	30,693	23,423	22,009	40,917
2018	4,329	30,633	23,672	22,223	41,436
Projected					
2019	4,280	30,562	23,763	22,622	41,954
2020	4,192	30,463	23,582	23,081	42,506
2021	4,221	30,461	23,295	23,595	43,163
2022	4,264	30,511	23,052	24,052	43,707
2023	4,268	30,558	22,905	24,323	44,308
2024	4,293	30,615	22,811	24,424	44,959
2025	4,340	30,637	22,859	24,254	45,555
2026	4,334	30,703	22,926	23,979	46,267
2027	4,218	30,739	22,916	23,747	46,873
2028	4,229	30,756	22,928	23,610	47,378

NOTE: Some data have been revised from previously published figures. Detail may not sum to totals because of rounding. As the Census Bureau projections were not updated to reflect the most recent Census Bureau population estimates, the Census Bureau age-specific population projections for each year were adjusted by multiplying the ratio of the total Census Bureau estimate for 2018 to the total Census Bureau projection for 2018.

SOURCE: U.S. Department of Commerce, Census Bureau, Population Estimates, retrieved July 19, 2018 from https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/; and Population Projections, retrieved October 10, 2018, from https://www.census.gov/data/datasets/2017/demo/popproj/2017-popproj.html. (This table was prepared March 2019.)

Table B-4. Actual and projected fall enrollment in public elementary and secondary schools, change in fall enrollment from previous year, resident population, and fall enrollment as a ratio of the population: School years 2003–2004 through 2028–29

School year	Fall enrollment (in thousands)	Change in fall enrollment from previous year (in thousands)	Resident population (in millions)	Fall enrollment as a ratio of the population
1	2	3	4	5
Actual				
2003–04	48,540	357	290.6	0.167
2004–05	48,795	255	293.2	0.166
2005–06	49,113	318	295.9	0.166
2006–07	49,316	203	298.8	0.165
2007–08	49,291	-25	301.7	0.163
2008–09	49,266	-25	304.5	0.162
2009–10	49,361	95	307.2	0.161
2010–11	49,484	123	309.8	0.160
2011–12	49,522	37	312.1	0.159
2012–13	49,771	249	314.3	0.158
2013–14	50,045	273	316.5	0.158
2014–15	50,313	268	318.9	0.158
2015–16	50,438	125	321.3	0.157
2016–17	50,615	177	323.6	0.156
Projected				
2017–18	50,695	80	325.9	0.156
2018–19	50,728	33	328.3	0.155
2019–20	50,770	42	330.6	0.154
2020–21	50,857	87	333.0	0.153
2021–22	50,892	35	335.4	0.152
2022–23	51,012	120	337.7	0.151
2023–24	51,098	86	340.0	0.150
2024–25	51,124	26	342.3	0.149
2025–26	51,119	-5	344.6	0.148
2026–27	51,123	4	346.9	0.147
2027–28	51,228	105	349.1	0.147
2028–29	51,419	191	351.3	0.146

NOTE: Resident population includes civilian population and armed forces personnel residing with the United States: it excludes armed forces personnel overseas. Calculations were made using unrounded numbers. Some data have been revised from previously published figures. Detail may not sum to totals because of rounding. As the Census Bureau projections were not updated to reflect the most recent Census Bureau population estimates, the Census Bureau age-specific population projections for each year were adjusted by multiplying the ratio of the total Census Bureau estimate for 2018 to the total Census Bureau projection for 2018.

SOURCE: U.S. Department of Commerce, Census Bureau, Population Estimates, retrieved July 19, 2018 from https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/; and Population Projections, retrieved October 10, 2018, from https://www.census.gov/data/datasets/2017/demo/popproj/2017-popproj.html. U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1996–97 through 2015–16; and National Elementary and Secondary Enrollment Projection Model, 1972 through 2028. (This table was prepared March 2019.)

Table B-5. Actual and projected macroeconomic measures of the economy: School years 2003–2004 through 2028–29

School year	Disposable income per capita in constant 2017–18 dollars[1]	Education revenue receipts from state sources per capita in constant 2017–18 dollars[2]	Consumer Price Index[3]
1	2	3	4
Actual			
2003–04	$38,666	$997	0.750
2004–05	39,247	1,009	0.773
2005–06	39,956	1,020	0.802
2006–07	40,859	1,072	0.823
2007–08	41,154	1,098	0.853
2008–09	40,805	1,050	0.865
2009–10	40,585	964	0.874
2010–11	41,509	967	0.891
2011–12	42,166	940	0.917
2012–13	42,351	932	0.933
2013–14	42,468	963	0.947
2014–15	44,123	991	0.954
2015–16	45,038	1,033	0.960
2016–17[4]	45,545	1,043	0.978
2017–18[4]	46,480	1,060	1.000
Projected			
2018–19	47,379	1,073	1.022
2019–20	48,292	1,086	1.046
2020–21	49,088	1,097	1.068
2021–22	49,775	1,104	1.093
2022–23	50,409	1,113	1.119
2023–24	50,944	1,117	1.145
2024–25	51,541	1,121	1.171
2025–26	52,305	1,128	1.196
2026–27	53,142	1,136	1.222
2027–28	54,044	1,148	1.249
2028–29	54,656	1,157	1.270

[1]Based on the price deflator for personal consumption expenditures, Bureau of Labor Statistics, U.S. Department of Labor.
[2]Based on the Consumer Price Index for all urban consumers, Bureau of Labor Statistics, U.S. Department of Labor.
[3]Consumer Price Index adjusted to a school-year basis (July through June).
[4]Education revenue receipts from state sources per capita is a projection.
NOTE: Calculations were made using unrounded numbers. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2003–04 through 2015–16; Revenue Receipts From State Sources Projections Model, 1971–72 through 2028–29; and IHS Global Inc., "U.S. Quarterly Macroeconomic Model, December 2018 Short-Term Baseline Projections." (This table was prepared March 2019.)

Appendix C
Data Sources

SOURCES AND COMPARABILITY OF DATA

The information in this report was obtained from many sources, including federal and state agencies, private research organizations, and professional associations. The data were collected by many methods, including surveys of a universe (such as all colleges) or of a sample, and compilations of administrative records. Care should be used when comparing data from different sources. Differences in procedures, such as timing, phrasing of questions, and interviewer training, mean that the results from the different sources are not strictly comparable. More extensive documentation of one survey's procedures than of another's does not imply more problems with the data, only that more information is available on the survey.

ACCURACY OF DATA

The accuracy of any statistic is determined by the joint effects of "sampling" and "nonsampling" errors. Estimates based on a sample will differ from the figures that would have been obtained if a complete census had been taken using the same survey instruments, instructions, and procedures. Besides sampling errors, both of the survey types, universe and sample, are subject to errors of design, reporting, and processing, and errors due to nonresponse. To the extent possible, these nonsampling errors are kept to a minimum by methods built into the survey procedures. In general, however, the effects of nonsampling errors are more difficult to gauge than those produced by sampling variability.

SAMPLING ERRORS

The standard error is the primary measure of the sampling variability of an estimate. Standard errors can be used to produce confidence intervals. For example, from table A-11, an estimated 93.1 percent of public school teachers reported that they worked full time in 2011–12. This figure has an estimated standard error of 0.46 percent. Therefore, the estimated 95 percent confidence interval for this statistic is approximately 92.15 to 93.98 percent (93.1 ± 1.96 [0.46]). That is, if the processes of selecting a sample, collecting the data, and constructing the confidence interval were repeated, it would be expected that in 95 out of 100 samples from the same population, the confidence interval would contain the true full-time working rate.

Analysis of standard errors can help assess how valid a comparison between two estimates might be. The *standard error of a difference* between two independent sample estimates is equal to the square root of the sum of the squared standard errors of the estimates. The standard error (*se*) of the difference between independent sample estimates *a* and *b* is

$$se_{a\text{-}b} = (se_a^2 + se_b^2)^{1/2}$$

Note that some of the standard errors in the original documents are approximations. That is, to derive estimates of standard errors that would be applicable to a wide variety of items and could be prepared at a moderate cost, a number of approximations were required. As a result, most of the standard errors presented provide a general order of magnitude rather than the exact standard error for any specific item.

NONSAMPLING ERRORS

Both universe and sample surveys are subject to nonsampling errors. Nonsampling errors are of two kinds: random and nonrandom. Random nonsampling errors may arise when respondents or interviewers interpret questions differently, when respondents must estimate values, or when coders, keyers, and other processors handle answers differently. Nonrandom nonsampling errors result from total nonresponse (no usable data obtained for a sampled unit), partial or item nonresponse (only a portion of a response may be usable), inability or unwillingness on the part of respondents to provide information,

difficulty interpreting questions, mistakes in recording or keying data, errors of collection or processing, and overcoverage or undercoverage of the target universe. Random nonresponse errors usually, but not always, result in an understatement of sampling errors and thus an overstatement of the precision of survey estimates. Because estimating the magnitude of nonsampling errors would require special experiments or access to independent data, these magnitudes are seldom available.

To compensate for suspected nonrandom errors, adjustments of the sample estimates are often made. For example, adjustments are frequently made for nonresponse, both total and partial. Imputations are usually made separately within various groups of sample members that have similar survey characteristics. Imputation for item nonresponse is usually made by substituting for a missing item the response to that item of a respondent having characteristics similar to those of the respondent.

Although the magnitude of nonsampling errors in the data used in *Projections of Education Statistics* is frequently unknown, idiosyncrasies that have been identified are noted on the appropriate tables.

FEDERAL AGENCY SOURCES

National Center for Education Statistics (NCES)

Common Core of Data

The Common Core of Data (CCD) is NCES's primary database on public elementary and secondary education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts containing data designed to be comparable across all states. This database can be used to select samples for other NCES surveys and provide basic information and descriptive statistics on public elementary and secondary schools and schooling in general.

The CCD collects statistical information annually from approximately 100,000 public elementary and secondary schools and approximately 18,000 public school districts (including supervisory unions and regional education service agencies) in the 50 states, the District of Columbia, the Department of Defense Education Activity (DoDEA), the Bureau of Indian Education (BIE), Puerto Rico, American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands. Three categories of information are collected in the CCD survey: general descriptive information on schools and school districts; data on students and staff; and fiscal data. The general school and district descriptive information includes name, address, phone number, and type of locale; the data on students and staff include selected demographic characteristics; and the fiscal data pertain to revenues and current expenditures.

The ED*Facts* data collection system is the primary collection tool for the CCD. NCES works collaboratively with the U.S. Department of Education's Performance Information Management Service to develop the CCD collection procedures and data definitions. Coordinators from state education agencies (SEAs) submit the CCD data at different levels (school, agency, and state) to the ED*Facts* collection system. Prior to submitting CCD files to ED*Facts*, SEAs must collect and compile information from their respective local education agencies (LEAs) through established administrative records systems within their state or jurisdiction.

Once SEAs have completed their submissions, the CCD survey staff analyzes and verifies the data for quality assurance. Even though the CCD is a universe collection and thus not subject to sampling errors, nonsampling errors can occur. The two potential sources of nonsampling errors are nonresponse and inaccurate reporting. NCES attempts to minimize nonsampling errors through the use of annual training of SEA coordinators, extensive quality reviews, and survey editing procedures. In addition, each year, SEAs are given the opportunity to revise their state-level aggregates from the previous survey cycle.

The CCD survey consists of five components: The Public Elementary/Secondary School Universe Survey, the Local Education Agency (School District) Universe Survey, the State Nonfiscal Survey of Public Elementary/Secondary Education, the National Public Education Financial Survey (NPEFS), and the School District Finance Survey (F-33). The following sections describe the CCD surveys that were used in preparing this report.

State Nonfiscal Survey of Public Elementary/Secondary Education

The State Nonfiscal Survey of Public Elementary/Secondary Education for the 2016–17 school year provides state-level, aggregate information about students and staff in public elementary and secondary education. It includes data from the 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, the Northern Mariana Islands, Guam, and American Samoa. The DoDEA and the BIE are also included in the survey universe. This survey covers public school student membership by grade, race/ethnicity, and state or jurisdiction and covers number of staff in public schools by category and state or jurisdiction. Beginning with the 2006–07 school year, the number of diploma recipients and other high school completers are no longer included in the State Nonfiscal Survey of Public Elementary/Secondary Education file. These data are now published in the public-use CCD State Dropout and Completion Data File.

National Public Education Financial Survey

The purpose of the National Public Education Financial Survey (NPEFS) is to provide district, state, and federal policymakers, researchers, and other interested users with descriptive information about revenues and expenditures for public elementary and secondary education. The data collected are useful to (1) chief officers of state education agencies; (2) policymakers in the executive and legislative branches of federal and state governments; (3) education policy and public policy researchers; and (4) the public, journalists, and others.

Data for NPEFS are collected from SEAs in the 50 states, the District of Columbia, Puerto Rico, American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands. The data file is organized by state or jurisdiction and contains revenue data by funding source; expenditure data by function (the activity being supported by the expenditure) and object (the category of expenditure); average daily attendance data; and total student membership data from the CCD State Nonfiscal Survey of Public Elementary/Secondary Education.

Further information on the nonfiscal CCD data may be obtained from

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Integrated Postsecondary Education Data System

The Integrated Postsecondary Education Data System (IPEDS) surveys approximately 6,000 postsecondary institutions, including universities and colleges, as well as institutions offering technical and vocational education beyond the high school level. IPEDS, an annual universe collection that began in 1986, replaced the Higher Education General Information Survey (HEGIS).

IPEDS consists of 12 interrelated survey components that provide information on postsecondary institutions and academic libraries at these institutions, student enrollment, student financial aid, programs offered, retention and graduation rates, degrees and certificates conferred, and the human and financial resources involved in the provision of institutionally based postsecondary education. Prior to 2000, the IPEDS survey had the following subject-matter components: Institutional Characteristics; Total Institutional Activity (these data were moved to the Institutional Characteristics component in 1990–91, then to the Fall Enrollment component in 2000–01); Fall Enrollment; Fall Staff; Salaries, Tenure, and Fringe

Benefits of Full-Time Faculty; Completions; Finance; Academic Libraries (in 2000, the Academic Libraries component separated from the IPEDS collection); and Graduation Rates. Since 2000, IPEDS survey components occurring in a particular collection year have been organized into three seasonal collection periods: fall, winter, and spring. The Institutional Characteristics and Completions components first took place during the fall 2000 collection. The Employees by Assigned Position (EAP); Salaries, Tenure, and Fringe Benefits of Full-Time Faculty; and Fall Staff components first took place during the winter 2001–02 collection. The Fall Enrollment, Student Financial Aid, Finance, and Graduation Rates components first took place during the spring 2001 collection. In the winter 2005–06 data collection, the EAP; Fall Staff; and Salaries, Tenure, and Fringe Benefits of Full-Time Faculty components were merged into the Human Resources component. During the 2007–08 collection year, the Fall Enrollment component was broken into two components: 12-Month Enrollment (taking place in the fall collection) and Fall Enrollment (taking place in the spring collection). In the 2011–12 IPEDS data collection year, the Student Financial Aid component was moved to the winter data collection to aid in the timing of the net price of attendance calculations displayed on the College Navigator (https://nces.ed.gov/collegenavigator/). In the 2012–13 IPEDS data collection year, the Human Resources component was moved from the winter data collection to the spring data collection, and in the 2013–14 data collection year, the Graduation Rates and Graduation Rates 200 Percent components were moved from the spring data collection to the winter data collection. In the 2014–15 data collection year, a new component (Admissions) was added to IPEDS and a former IPEDS component (Academic Libraries) was reintegrated into IPEDS. The Admissions component, created out of admissions data contained in the fall collection's Institutional Characteristics component, was made a part of the winter collection. The Academic Libraries component, after having been conducted as a survey independent of IPEDS between 2000 and 2012, was reintegrated into IPEDS as part of the spring collection. Finally, in the 2015–16 data collection year, the Outcomes Measure survey component was added to IPEDS.

Beginning in 2008–09, the first-professional degree category was combined with the doctor's degree category. However, some degrees formerly identified as first-professional that take more than two full-time-equivalent academic years to complete, such as those in Theology (M.Div, M.H.L./Rav), are included in the master's degree category. Doctor's degrees were broken out into three distinct categories: research/scholarship, professional practice, and other doctor's degrees.

The collection of race/ethnicity data also changed in 2008–09. IPEDS now collects a count of students who identify as Hispanic and counts of non-Hispanic students who identify with each race category. The "Asian" race category is now separate from the "Native Hawaiian or Other Pacific Islander" category, and a new category of "Two or more races" has been added.

The degree-granting institutions portion of IPEDS is a census of colleges that award associate's or higher degrees and are eligible to participate in Title IV financial aid programs. Prior to 1993, data from technical and vocational institutions were collected through a sample survey. Beginning in 1993, all data are gathered in a census of all postsecondary institutions. Beginning in 1997, the survey was restricted to institutions participating in Title IV programs.

The classification of institutions offering college and university education changed as of 1996. Prior to 1996, institutions that had courses leading to an associate's or higher degree or that had courses accepted for credit toward those degrees were considered higher education institutions. Higher education institutions were accredited by an agency or association that was recognized by the U.S. Department of Education or were recognized directly by the Secretary of Education. The newer standard includes institutions that award associate's or higher degrees and that are eligible to participate in Title IV federal financial aid programs. Tables that contain any data according to this standard are titled "degree-granting" institutions. Time-series tables may contain data from both series, and they are noted accordingly. The impact of this change on data collected in 1996 was not large. Also, degrees awarded at the bachelor's level or higher were not heavily affected. The largest impact was on private 2-year college enrollment. In contrast, most of the data on public 4-year colleges were affected to a minimal extent. The impact on enrollment in public 2-year colleges was noticeable in certain states, such as Arizona, Arkansas, Georgia, Louisiana, and Washington, but was relatively small at the national level. Overall, total enrollment for all institutions was about one-half of 1 percent higher in 1996 for degree-granting institutions than for higher education institutions.

Prior to the establishment of IPEDS in 1986, HEGIS acquired and maintained statistical data on the characteristics and operations of institutions of higher education. Implemented in 1966, HEGIS was an annual universe survey of institutions accredited at the college level by an agency recognized by the Secretary of the U.S. Department of Education. These institutions were listed in NCES's *Education Directory, Colleges and Universities*.

HEGIS surveys collected information on institutional characteristics, faculty salaries, finances, enrollment, and degrees. Since these surveys, like IPEDS, were distributed to all higher education institutions, the data presented are not subject to sampling error. However, they are subject to nonsampling error, the sources of which varied with the survey instrument.

The NCES Taskforce for IPEDS Redesign recognized that there were issues related to the consistency of data definitions as well as the accuracy, reliability, and validity of other quality measures within and across surveys. The IPEDS redesign in 2000 provided institution-specific web-based data forms. While the new system shortened data processing time and provided better data consistency, it did not address the accuracy of the data provided by institutions.

Beginning in 2003–04 with the Prior Year Data Revision System, prior-year data have been available to institutions entering current data. This allows institutions to make changes to their prior-year entries either by adjusting the data or by providing missing data. These revisions allow the evaluation of the data's accuracy by looking at the changes made.

NCES conducted a study (NCES 2005-175) of the 2002–03 data that were revised in 2003–04 to determine the accuracy of the imputations, track the institutions that submitted revised data, and analyze the revised data they submitted. When institutions made changes to their data, it was assumed that the revised data were the "true" data. The data were analyzed for the number and type of institutions making changes, the type of changes, the magnitude of the changes, and the impact on published data.

Because NCES imputes for missing data, imputation procedures were also addressed by the Redesign Taskforce. For the 2003–04 assessment, differences between revised values and values that were imputed in the original files were compared (i.e., revised value minus imputed value). These differences were then used to provide an assessment of the effectiveness of imputation procedures. The size of the differences also provides an indication of the accuracy of imputation procedures. To assess the overall impact of changes on aggregate IPEDS estimates, published tables for each component were reconstructed using the revised 2002–03 data. These reconstructed tables were then compared to the published tables to determine the magnitude of aggregate bias and the direction of this bias.

Since the 2000–01 data collection year, IPEDS data collections have been web based. Data have been provided by "keyholders," institutional representatives appointed by campus chief executives, who are responsible for ensuring that survey data submitted by the institution are correct and complete. Because Title IV institutions are the primary focus of IPEDS and because these institutions are required to respond to IPEDS, response rates for Title IV institutions have been high (data on specific components are cited below). More details on the accuracy and reliability of IPEDS data can be found in the *Integrated Postsecondary Education Data System Data Quality Study* (NCES 2005-175).

Further information on IPEDS may be obtained from

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Fall (12-Month Enrollment)

The 12-month period during which data are collected is July 1 through June 30. Data are collected by race/ethnicity, gender, and level of study (undergraduate or postbaccalaureate) and include unduplicated headcounts and instructional activity (contact or credit hours). These data are also used to calculate a full-time-equivalent (FTE) enrollment based on instructional activity. FTE enrollment is useful for gauging the size of the educational enterprise at the institution. Prior to the 2007–08 IPEDS data collection, the data collected in the 12-Month Enrollment component were part of the Fall Enrollment component, which is conducted during the spring data collection period. However, to improve the timeliness of the data, a separate 12-Month Enrollment survey component was developed in 2007. These data are now collected in the fall for the previous academic year. The response rate for the 12-Month Enrollment component of the fall 2016 data

collection was nearly 100 percent. Data from only 5 of 6,635 Title IV institutions that were expected to respond to this component contained item nonresponse, and these missing items were imputed.

Further information on the IPEDS 12-Month Enrollment component may be obtained from

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Fall (Completions)

This survey was part of the HEGIS series throughout its existence. However, the degree classification taxonomy was revised in 1970–71, 1982–83, 1991–92, 2002–03, and 2009–10. Collection of degree data has been maintained through IPEDS.

Degrees-conferred trend tables arranged by the 2009–10 classification are included in the *Projections of Education Statistics* to provide consistent data from 1970–71 through the most recent year. Data on associate's degrees, by field of study, cannot be made comparable with figures from years prior to 1982–83. The nonresponse rate does not appear to be a significant source of nonsampling error for this survey. The response rate over the years has been high; for the fall 2016 Completions component, it rounded to 100 percent. Data from 3 of the 6,642 Title IV institutions that were expected to respond to this component were imputed due to unit nonresponse. Imputation methods for the fall 2017 IPEDS Completions component are discussed in the *2017–18 Integrated Postsecondary Education Data System (IPEDS) Methodology Report* (NCES 2018-195).

Further information on the IPEDS Completions component may be obtained from

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Spring (Fall Enrollment)

This survey has been part of the HEGIS and IPEDS series since 1966. Response rates have been relatively high, generally exceeding 85 percent. Beginning in 2000, with web-based data collection, higher response rates were attained. In the spring 2018 data collection, in which the Fall Enrollment component covered student enrollment in fall 2017, the response rate was greater than 99 percent. Of the 6,617 institutions that were expected to respond, 33 institutions did not respond, and these data were imputed. Additionally, data from eight institutions that responded contained item nonresponse, and these missing items were imputed. Data collection procedures for the Fall Enrollment component of the spring 2017 data collection are presented in *Enrollment and Employees in Postsecondary Institutions, Fall 2017; and Financial Statistics and Academic Libraries, Fiscal Year 2017: First Look (Provisional Data)* (NCES 2019-021rev).

Beginning with the fall 1986 survey and the introduction of IPEDS (see above), a redesign of the survey resulted in the collection of data by race/ethnicity, gender, level of study (i.e., undergraduate and graduate), and attendance status (i.e., full-time and part-time). Other aspects of the survey include allowing (in alternating years) for the collection of age and residence data. The Fall Enrollment component also collects data on first-time retention rates, student-to-faculty ratios, and student enrollment in distance education courses. Finally, in even-numbered years, 4-year institutions provide enrollment data by level of study, race/ethnicity, and gender for nine selected fields of study or Classification of Instructional Programs (CIP) codes. (The CIP is a taxonomic coding scheme that contains titles and descriptions of primarily postsecondary instructional programs.)

Beginning in 2000, the survey collected instructional activity and unduplicated headcount data, which are needed to compute a standardized, full-time-equivalent (FTE) enrollment statistic for the entire academic year. As of 2007–08, the timeliness of the instructional activity data has been improved by collecting these data in the fall as part of the 12-Month Enrollment component instead of in the spring as part of the Fall Enrollment component.

Further information on the IPEDS Fall Enrollment component may be obtained from

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National Teacher and Principal Survey

The National Teacher and Principal Survey (NTPS) is a set of related questionnaires that collect descriptive data on the context of elementary and secondary education. Data reported by schools, principals, and teachers provide a variety of statistics on the condition of education in the United States that may be used by policymakers and the general public. The NTPS system covers a wide range of topics, including teacher demand, teacher and principal characteristics, teachers' and principals' perceptions of school climate and problems in their schools, teacher and principal compensation, district hiring and retention practices, general conditions in schools, and basic characteristics of the student population.

The NTPS was first conducted during the 2015–16 school year. The survey is a redesign of the Schools and Staffing Survey (SASS), which was conducted from the 1987–88 school year to the 2011–12 school year. Although the NTPS maintains the SASS survey's focus on schools, teachers, and administrators, the NTPS has a different structure and sample than SASS. In addition, whereas SASS operated on a 4-year survey cycle, the NTPS operates on a 2-year survey cycle.

The school sample for the 2015–16 NTPS was based on an adjusted public school universe file from the 2013–14 Common Core of Data (CCD), a database of all the nation's public school districts and public schools. The NTPS definition of a school is the same as the SASS definition of a school—an institution or part of an institution that provides classroom instruction to students, has one or more teachers to provide instruction, serves students in one or more of grades 1–12 or the ungraded equivalent, and is located in one or more buildings apart from a private home.

The 2015–16 NTPS universe of schools is confined to the 50 states plus the District of Columbia. It excludes the Department of Defense dependents schools overseas, schools in U.S. territories overseas, and CCD schools that do not offer teacher-provided classroom instruction in grades 1–12 or the ungraded equivalent. Bureau of Indian Education schools are included in the NTPS universe, but these schools were not oversampled and the data do not support separate BIE estimates.

The NTPS includes three key components: school questionnaires, principal questionnaires, and teacher questionnaires. NTPS data are collected by the U.S. Census Bureau through a mail questionnaire with telephone and in-person field follow-up. The school and principal questionnaires were sent to sampled schools, and the teacher questionnaire was sent to a sample of teachers working at sampled schools. The NTPS school sample consisted of about 8,300 public schools; the principal sample consisted of about 8,300 public school principals; and the teacher sample consisted of about 50,000 public school teachers.

The school questionnaire asks knowledgeable school staff members about grades offered, student attendance and enrollment, staffing patterns, teaching vacancies, programs and services offered, curriculum, and community service requirements. In addition, basic information is collected about the school year, including the beginning time of students' school days and the length of the school year. The weighted unit response rate for the 2015–16 school survey was 72.5 percent.

The principal questionnaire collects information about principal/school head demographic characteristics, training, experience, salary, goals for the school, and judgments about school working conditions and climate. Information is also obtained on professional development opportunities for teachers and principals, teacher performance, barriers to dismissal of underperforming teachers, school climate and safety, parent/guardian participation in school events, and attitudes about educational goals and school governance. The weighted unit response rate for the 2015–16 principal survey was 71.8 percent.

The teacher questionnaire collects data from teachers about their current teaching assignment, workload, education history, and perceptions and attitudes about teaching. Questions are also asked about teacher preparation, induction, organization of classes, computers, and professional development. The weighted response rate for the 2015–16 teacher survey was 67.8 percent.

Further information about the NTPS is available in *User's Manual for the 2015–16 National Teacher and Principal Survey, Volumes 1–4* (NCES 2017-131 through NCES 2017-134).

For additional information about the NTPS program, please contact

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Private School Universe Survey

The purposes of the Private School Universe Survey (PSS) data collection activities are (1) to build an accurate and complete list of private schools to serve as a sampling frame for NCES sample surveys of private schools and (2) to report data on the total number of private schools, teachers, and students in the survey universe. Begun in 1989, the PSS has been conducted every 2 years, and data for the 1989–90, 1991–92, 1993–94, 1995–96, 1997–98, 1999–2000, 2001–02, 2003–04, 2005–06, 2007–08, 2009–10, 2011–12, 2013–14, and 2015–16 school years have been released. A First Look report on the 2015–16 PSS data, *Characteristics of Private Schools in the United States: Results From the 2015–16 Private School Universe Survey* (NCES 2017-073) presents selected findings from the 2015–16 PSS.

The PSS produces data similar to that of the Common Core of Data for public schools, and can be used for public-private comparisons. The data are useful for a variety of policy- and research-relevant issues, such as the growth of religiously affiliated schools, the number of private high school graduates, the length of the school year for various private schools, and the number of private school students and teachers.

The target population for this universe survey is all private schools in the United States that meet the PSS criteria of a private school (i.e., the private school is an institution that provides instruction for any of grades K through 12, has one or more teachers to give instruction, is not administered by a public agency, and is not operated in a private home).

The survey universe is composed of schools identified from a variety of sources. The main source is a list frame initially developed for the 1989–90 PSS. The list is updated regularly by matching it with lists provided by nationwide private school associations, state departments of education, and other national guides and sources that list private schools. The other source is an area frame search in approximately 124 geographic areas, conducted by the U.S. Census Bureau.

Of the 40,302 schools included in the 2009–10 sample, 10,229 were found ineligible for the survey. Those not responding numbered 1,856, and those responding numbered 28,217. The unweighted response rate for the 2009–10 PSS survey was 93.8 percent.

Of the 39,325 schools included in the 2011–12 sample, 10,030 cases were considered as out-of-scope (not eligible for the PSS). A total of 26,983 private schools completed a PSS interview (15.8 percent completed online), while 2,312 schools refused to participate, resulting in an unweighted response rate of 92.1 percent.

There were 40,298 schools in the 2013–14 sample; of these 10,659 cases were considered as out-of-scope (not eligible for the PSS). A total of 24,566 private schools completed a PSS interview (34.1 percent completed online), while 5,073 schools refused to participate resulting in an unweighted response rate of 82.9 percent.

The 2015–16 PSS included 42,389 schools, of which 12,754 were considered as out-of-scope (not eligible for the PSS). A total of 22,428 private schools completed a PSS interview and 7,207 schools failed to respond, which resulted in an unweighted response rate of 75.7 percent.

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Schools and Staffing Survey

The Schools and Staffing Survey (SASS) is a set of related questionnaires that collect descriptive data on the context of public and private elementary and secondary education. Data reported by districts, schools, principals, and teachers provide a variety of statistics on the condition of education in the United States that may be used by policymakers and the general public. The SASS system covers a wide range of topics, including teacher demand, teacher and principal characteristics, teachers' and principals' perceptions of school climate and problems in their schools, teacher and principal compensation, district hiring and retention practices, general conditions in schools, and basic characteristics of the student population. After 2010–11, NCES redesigned SASS and named it the National Teacher and Principal Survey (NTPS) to reflect the redesigned study's focus on the teacher and principal labor market and on the state of K–12 school staff.

SASS data are collected through a mail questionnaire with telephone and in-person field follow-up. SASS has been conducted by the Census Bureau for NCES since the first administration of the survey, which was conducted during the 1987–88 school year. Subsequent SASS administrations were conducted in 1990–91, 1993–94, 1999–2000, 2003–04, 2007–08, and 2011–12.

SASS is designed to produce national, regional, and state estimates for public elementary and secondary schools, school districts, principals, teachers, and school library media centers and national and regional estimates for public charter schools, as well as principals, teachers, and school library media centers within these schools. For private schools, the sample supports national, regional, and affiliation estimates for schools, principals, and teachers.

From its inception, SASS has had four core components: school questionnaires, teacher questionnaires, principal questionnaires, and school district (prior to 1999–2000, "teacher demand and shortage") questionnaires. A fifth component, school library media center questionnaires, was introduced in the 1993–94 administration and has been included in every subsequent administration of SASS. School library data were also collected in the 1990–91 administration of the survey through the school and principal questionnaires.

School questionnaires used in SASS include the Public and Private School Questionnaires, teacher questionnaires include the Public and Private School Teacher Questionnaires, principal questionnaires include the Public and Private School Principal (or School Administrator) Questionnaires, and school district questionnaires include the School District (or Teacher Demand and Shortage) Questionnaires.

Although the four core questionnaires and the school library media questionnaires have remained relatively stable over the various administrations of SASS, the survey has changed to accommodate emerging issues in elementary and secondary education. Some questionnaire items have been added, some have been deleted, and some have been reworded.

During the 1990–91 SASS cycle, NCES worked with the Office of Indian Education to add an Indian School Questionnaire to SASS, and it remained a part of SASS through 2007–08. The Indian School Questionnaire explores the

same school-level issues that the Public and Private School Questionnaires explore, allowing comparisons among the three types of schools. The 1990–91, 1993–94, 1999–2000, 2003–04, and 2007–08 administrations of SASS obtained data on Bureau of Indian Education (BIE) schools (schools funded or operated by the BIE), but the 2011–12 administration did not obtain BIE data. SASS estimates for all survey years presented in this report exclude BIE schools, and as a result, estimates in this report may differ from those in previously published reports.

The SASS teacher surveys collect information on the characteristics of teachers, such as their age, race/ethnicity, years of teaching experience, average number of hours per week spent on teaching activities, base salary, average class size, and highest degree earned. These teacher-reported data may be combined with related information on their school's characteristics, such as school type (e.g., public traditional, public charter, Catholic, private other religious, and private nonsectarian), community type, and school enrollment size. The teacher questionnaires also ask for information on teacher opinions regarding the school and teaching environment. In 1993–94, about 53,000 public school teachers and 10,400 private school teachers were sampled. In 1999–2000, about 56,300 public school teachers, 4,400 public charter school teachers, and 10,800 private school teachers were sampled. In 2003–04, about 52,500 public school teachers and 10,000 private school teachers were sampled. In 2007–08, about 48,400 public school teachers and 8,200 private school teachers were sampled. In 2011–12, about 51,100 public school teachers and 7,100 private school teachers were sampled. Weighted overall response rates in 2011–12 were 61.8 percent for public school teachers and 50.1 percent for private school teachers.

The SASS 2011–12 sample of schools was confined to the 50 states and the District of Columbia and excludes the other jurisdictions, the Department of Defense overseas schools, the BIE schools, and schools that do not offer teacher-provided classroom instruction in grades 1–12 or the ungraded equivalent. The SASS 2011–12 sample included 10,250 traditional public schools, 750 public charter schools, and 3,000 private schools.

The public school sample for the 2011–12 SASS was based on an adjusted public school universe file from the 2009–10 Common Core of Data, a database of all the nation's public school districts and public schools. The private school sample for the 2011–12 SASS was selected from the 2009–10 Private School Universe Survey (PSS), as updated for the 2011–12 PSS. This update collected membership lists from private school associations and religious denominations, as well as private school lists from state education departments. The 2011–12 SASS private school frame was further augmented by the inclusion of additional schools that were identified through the 2009–10 PSS area frame data collection.

The NCES data product *2011–12 Schools and Staffing Survey (SASS) Restricted-Use Data Files* (NCES 2014-356) is available. (Information on how to obtain a restricted-use data license is located at https://nces.ed.gov/pubsearch/licenses.asp.) This DVD contains eight files (Public School District, Public School Principal, Public School, Public School Teacher, Public School Library Media Center, Private School Principal, Private School, and Private School Teacher) in multiple formats. It also contains a six-volume User's Manual, which includes a codebook for each file.

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Teacher Follow-Up Survey

The Teacher Follow-up Survey (TFS) is a follow-up survey of selected elementary and secondary school teachers who participate in the NCES Schools and Staffing Survey (SASS). Its purpose is to determine how many teachers remain at the same school, move to another school, or leave the profession in the year following a SASS administration. It is administered to elementary and secondary teachers in the 50 states and the District of Columbia. The TFS uses two questionnaires, one for teachers who left teaching since the previous SASS administration and another for those who are still teaching either in the same school as last year or in a different school. The objective of the TFS is to focus on the characteristics of each group in order to answer questions about teacher mobility and attrition.

The 2008–09 TFS is different from any previous TFS administration in that it also serves as the second wave of a longitudinal study of first-year teachers. Because of this, the 2008–09 TFS consists of four questionnaires. Two are for respondents who were first-year public school teachers in the 2007–08 SASS and two are for the remainder of the sample.

The 2012–13 TFS sample was made up of teachers who had taken the 2011–12 SASS survey. The 2012–13 TFS sample contained about 5,800 public school teachers and 1,200 private school teachers. The weighted overall response rate using the initial basic weight for private school teachers was notably low (39.7 percent), resulting in a decision to exclude private school teachers from the 2012–13 TFS data files. The weighted overall response rate for public school teachers was 49.9 percent (50.3 percent for current and 45.6 percent for former teachers). Additional information about the 2012–13 TFS, including the analysis of unit nonresponse bias, is available in the First Look report *Teacher Attrition and Mobility: Results From the 2012–13 Teacher Follow-up Survey* (NCES 2014-077).

Further information on the TFS may be obtained from

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Bureau of Economic Analysis

National Income and Product Accounts

The National Income and Product Accounts (NIPAs), produced by the Bureau of Economic Analysis, are a set of economic accounts that provide information on the value and composition of output produced in the United States during a given period. NIPAs present measures of economic activity in the United States, including production, income distribution, and personal savings. NIPAs also include data on employee compensation and wages. These estimations were first calculated in the early 1930s to help the government design economic policies to combat the Great Depression. Most of the NIPA series are published quarterly, with annual reviews of estimates from the three most recent years conducted in the summer.

Revisions to the NIPAs have been made over the years to create a more comprehensive economic picture of the United States. For example, in 1976, consumption of fixed capital (CFC) estimates shifted to a current-cost basis. In 1991, NIPAs began to use gross domestic product (GDP) instead of gross national product (GNP) as the primary measure of U.S. production. (At that time, virtually all other countries were already using GDP as their primary measure of production.) In the 2003 comprehensive revision, a more complete and accurate measure of insurance services was adopted. The incorporation of a new classification system for personal consumption expenditures (PCE) was among the changes contained in the 2009 comprehensive revision. The comprehensive revision of 2013 included the treatment of research and development expenditures by business, government, and nonprofit institutions serving households as fixed investment. The 2017 NIPA annual update contained estimates that reflected the incorporation of newly available and revised source data and the adoption of improved estimating methods.

NIPAs are slowly being integrated with other federal account systems, such as the federal account system of the Bureau of Labor Statistics.

Further information on NIPAs may be obtained from

U.S. Department of Commerce
Bureau of Economic Analysis
www.bea.gov

Bureau of Labor Statistics

Consumer Price Indexes

The Consumer Price Index (CPI) represents changes in prices of all goods and services purchased for consumption by urban households. Indexes are available for two population groups: a CPI for All Urban Consumers (CPI-U) and a CPI for Urban Wage Earners and Clerical Workers (CPI-W). Unless otherwise specified, data are adjusted for inflation using the CPI-U. These values are generally adjusted to a school-year basis by averaging the July through June figures. Price indexes are available for the United States, the four Census regions, size of city, cross-classifications of regions and size classes, and 26 local areas. The major uses of the CPI include as an economic indicator, as a deflator of other economic series, and as a means of adjusting income.

Also available is the Consumer Price Index research series using current methods (CPI-U-RS), which presents an estimate of the CPI-U from 1978 to the present that incorporates most of the improvements that the Bureau of Labor Statistics has made over that time span into the entire series. The historical price index series of the CPI-U does not reflect these changes, though these changes do make the present and future CPI more accurate. The limitations of the CPI-U-RS include considerable uncertainty surrounding the magnitude of the adjustments and the several improvements in the CPI that have not been incorporated into the CPI-U-RS for various reasons. Nonetheless, the CPI-U-RS can serve as a valuable proxy for researchers needing a historical estimate of inflation using current methods. This series has not been used in this report.

Further information on consumer price indexes may be obtained from

Bureau of Labor Statistics
U.S. Department of Labor
2 Massachusetts Avenue NE
Washington, DC 20212
https://www.bls.gov/cpi

Employment and Unemployment Surveys

Statistics on the employment and unemployment status of the population and related data are compiled by the Bureau of Labor Statistics (BLS) using data from the Current Population Survey (CPS) (see below) and other surveys. The CPS, a monthly household survey conducted by the U.S. Census Bureau for the Bureau of Labor Statistics, provides a comprehensive body of information on the employment and unemployment experience of the nation's population, classified by age, sex, race, and various other characteristics.

Further information on unemployment surveys may be obtained from

Bureau of Labor Statistics
U.S. Department of Labor
2 Massachusetts Avenue NE
Washington, DC 20212
cpsinfo@bls.gov
https://www.bls.gov/bls/employment.htm

Census Bureau

Current Population Survey

The Current Population Survey (CPS) is a monthly survey of about 54,000 households conducted by the U.S. Census Bureau for the Bureau of Labor Statistics. The CPS is the primary source of labor force statistics for the U.S. noninstitutionalized population (e.g., it excludes military personnel and their families living on bases and inmates of correctional institutions). In addition, supplemental questionnaires are used to provide further information about the U.S. population. The March supplement (also known as the Annual Social and Economic [ASEC] supplement) contains detailed questions on topics such as income, employment, and educational attainment; additional questions, such as items on disabilities, have also been included. In the July supplement, items on computer and internet use are the principal focus. The October supplement also contains some questions about computer and internet use, but most of its questions relate to school enrollment and school characteristics.

CPS samples are initially selected based on results from the decennial census and are periodically updated to reflect new housing construction. The current sample design for the main CPS, last revised in July 2015, includes about 74,000 households. Each month, about 54,000 of the 74,000 households are interviewed. Information is obtained each month from those in the household who are 15 years of age and over, and demographic data are collected for children 0–14 years of age. In addition, supplemental questions regarding school enrollment are asked about eligible household members age 3 and over in the October CPS supplement.

In January 1992, the CPS educational attainment variable was changed. The "Highest grade attended" and "Year completed" questions were replaced by the question "What is the highest level of school . . . has completed or the highest degree . . . has received?" Thus, for example, while the old questions elicited data for those who completed more than 4 years of high school, the new question elicited data for those who were high school completers, i.e., those who graduated from high school with a diploma as well as those who completed high school through equivalency programs, such as a GED program.

A major redesign of the CPS was implemented in January 1994 to improve the quality of the data collected. Survey questions were revised, new questions were added, and computer-assisted interviewing methods were used for the survey data collection. Further information about the redesign is available in *Current Population Survey, October 1995: (School Enrollment Supplement) Technical Documentation* at https://www.census.gov/prod/techdoc/cps/cpsoct95.pdf.

Caution should be used when comparing data from 1994 through 2001 with data from 1993 and earlier. Data from 1994 through 2001 reflect 1990 census-based population controls, while data from 1993 and earlier reflect 1980 or earlier census-based population controls. Changes in population controls generally have relatively little impact on summary measures such as means, medians, and percentage distributions. They can have a significant impact on population counts. For example, use of the 1990 census-based population controls resulted in about a 1 percent increase in the civilian noninstitutional population and in the number of families and households. Thus, estimates of levels for data collected in 1994 and later years will differ from those for earlier years by more than what could be attributed to actual changes in the population. These differences could be disproportionately greater for certain subpopulation groups than for the total population.

Beginning in 2003, the race/ethnicity questions were expanded. Information on people of Two or more races were included, and the Asian and Pacific Islander race category was split into two categories: Asian and Native Hawaiian or Other Pacific Islander. In addition, questions were reworded to make it clear that self-reported data on race/ethnicity should reflect the race/ethnicity with which the responder identifies, rather than what may be written in official documentation.

The estimation procedure employed for monthly CPS data involves inflating weighted sample results to independent estimates of characteristics of the civilian noninstitutional population in the United States by age, sex, and race. These independent estimates are based on statistics from decennial censuses; statistics on births, deaths, immigration, and emigration; and statistics on the population in the armed services. Generalized standard error tables are provided in the Current Population Reports; methods for deriving standard errors can be found within the CPS technical documentation at https://www.census.gov/programs-surveys/cps/technical-documentation/complete.html. The CPS data are subject to both nonsampling and sampling errors.

Standard errors were estimated using the generalized variance function prior to 2005 for March CPS data and prior to 2010 for October CPS data. The generalized variance function is a simple model that expresses the variance as a function of the expected value of a survey estimate. Standard errors were estimated using replicate weight methodology beginning in 2005 for March CPS data and beginning in 2010 for October CPS data. Those interested in using CPS household-level supplement replicate weights to calculate variances may refer to *Estimating Current Population Survey (CPS) Household-Level Supplement Variances Using Replicate Weights* at https://thedataweb.rm.census.gov/pub/cps/supps/HH-level_Use_of_the_Public_Use_Replicate_Weight_File.doc.

Further information on CPS may be obtained from

Education and Social Stratification Branch
Population Division
Census Bureau
U.S. Department of Commerce
4600 Silver Hill Road
Washington, DC 20233
https://www.census.gov/cps

Dropouts

Each October, the Current Population Survey (CPS) includes supplemental questions on the enrollment status of the population ages 3 years and over as part of the monthly basic survey on labor force participation. In addition to gathering the information on school enrollment, with the limitations on accuracy as noted below under "School Enrollment," the survey data permit calculations of dropout rates. Both status and event dropout rates are tabulated from the October CPS. Event rates describe the proportion of students who leave school each year without completing a high school program. Status rates provide cumulative data on dropouts among all young adults within a specified age range. Status rates are higher than event rates because they include all dropouts ages 16 through 24, regardless of when they last attended school.

In addition to other survey limitations, dropout rates may be affected by survey coverage and exclusion of the institutionalized population. The incarcerated population has grown more rapidly and has a higher dropout rate than the general population. Dropout rates for the total population might be higher than those for the noninstitutionalized population if the prison and jail populations were included in the dropout rate calculations. On the other hand, if military personnel, who tend to be high school graduates, were included, it might offset some or all of the impact from the theoretical inclusion of the jail and prison populations.

Another area of concern with tabulations involving young people in household surveys is the relatively low coverage ratio compared to older age groups. CPS undercoverage results from missed housing units and missed people within sample households. Overall CPS undercoverage for October 2016 is estimated to be about 11 percent. CPS coverage varies with age, sex, and race. Generally, coverage is larger for females than for males and larger for non-Blacks than for Blacks. This differential coverage is a general problem for most household-based surveys. Further information on CPS methodology may be found in the technical documentation at https://www.census.gov/programs-surveys/cps.html.

Further information on the calculation of dropouts and dropout rates may be obtained from *Trends in High School Dropout and Completion Rates in the United States* at https://nces.ed.gov/programs/dropout/index.asp or by contacting

Cristobal de Brey
Annual Reports and Information Staff
National Center for Education Statistics
550 12th Street SW
Washington, DC 20202
cristobal.debrey@ed.gov

School Enrollment

Each October, the Current Population Survey (CPS) includes supplemental questions on the enrollment status of the population ages 3 years and over. Currently, the October supplement consisted of approximately 54,000 interviewed households, the same households interviewed in the basic Current Population Survey. The main sources of nonsampling variability in the responses to the supplement are those inherent in the survey instrument. The question of current enrollment may not be answered accurately for various reasons. Some respondents may not know current grade information for every student in the household, a problem especially prevalent for households with members in college or in nursery school. Confusion over college credits or hours taken by a student may make it difficult to determine the year in which the student is enrolled. Problems may occur with the definition of nursery school (a group or class organized to provide educational experiences for children) where respondents' interpretations of "educational experiences" vary.

For the October 2016 basic CPS, the household-level nonresponse rate was 12.7 percent. The person-level nonresponse rate for the school enrollment supplement was an additional 8.0 percent. Since the basic CPS nonresponse rate is a household-level rate and the school enrollment supplement nonresponse rate is a person-level rate, these rates cannot be combined to derive an overall nonresponse rate. Nonresponding households may have fewer persons than interviewed ones, so combining these rates may lead to an overestimate of the true overall nonresponse rate for persons for the school enrollment supplement.

Further information on CPS methodology may be obtained from https://www.census.gov/programs-surveys/cps.html.

Further information on the CPS School Enrollment Supplement may be obtained from

Education and Social Stratification Branch
Census Bureau
U.S. Department of Commerce
4600 Silver Hill Road
Washington, DC 20233
https://www.census.gov/topics/education/school-enrollment.html

Decennial Census, Population Estimates, and Population Projections

The Decennial Census is a universe survey mandated by the U.S. Constitution. It is a questionnaire sent to every household in the country, and it is composed of seven questions about the household and its members (name, sex, age, relationship, Hispanic origin, race, and whether the housing unit is owned or rented). The Census Bureau also produces annual estimates of the resident population by demographic characteristics (age, sex, race, and Hispanic origin) for the nation, states, and counties, as well as national and state projections for the resident population. The reference date for population estimates is July 1 of the given year. With each new issue of July 1 estimates, the Census Bureau revises estimates for each year back to the last census. Previously published estimates are superseded and archived.

Further information on the Decennial Census may be obtained from https://www.census.gov.

National Population Projections

The 2017 National Population Projections, the first based on the 2010 Census, provide projections of resident population and projections of the United States resident population by age, sex, race, and Hispanic origin from 2017 through 2060. The following is a general description of the methods used to produce the 2017 National Population Projections.

The projections were produced using a cohort component method beginning with an estimated base population for July 1, 2013. First, components of population change (mortality, fertility, and net international migration) were projected. Next, for each passing year, the population is advanced one year of age and the new age categories are updated using the projected survival rates and levels of net international migration for that year. A new birth cohort is then added to form the population under one year of age by applying projected age-specific fertility rates to the average female population aged 10 to 54 years and updating the new cohort for the effects of mortality and net international migration.

The assumptions for the components of change were based on time series analysis. Initially, demographic models were used to summarize historical trends. Further information on the methodologies used to produce the 2017 National Population Projections may be obtained from https://www.census.gov/programs-surveys/popproj.html.

More information on Census Bureau projections may be obtained from

Population Division
Census Bureau
U.S. Department of Commerce
Washington, DC 20233
https://www.census.gov

Other Sources

IHS Global Inc.

IHS Global Inc. provides an information system that includes databases of economic and financial information; simulation and planning models; regular publications and special studies; data retrieval and management systems; and access to experts on economic, financial, industrial, and market activities. One service is the IHS Global Inc. Model of the U.S. Economy, which contains annual projections of U.S. economic and financial conditions, including forecasts for the federal government, incomes, population, prices and wages, and state and local governments, over a long-term (10- to 25-year) forecast period.

Additional information is available from

IHS Global Inc.
15 Inverness Way East
Englewood, CO 80112
https://ihsmarkit.com

Appendix D
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Appendix E
List of Abbreviations

ADA	Average daily attendance
CCD	Common Core of Data
CPI	Consumer Price Index
CPS	Current Population Survey
CV	Coefficient of Variation
D.W. statistic	Durbin-Watson statistic
FTE	Full-time-equivalent
HEGIS	Higher Education General Information Survey
IPEDS	Integrated Postsecondary Education Data System
IPEDS-C	Integrated Postsecondary Education Data System, Completions Survey
IPEDS-EF	Integrated Postsecondary Education Data System, Fall Enrollment Survey
MAPE	Mean absolute percentage error
NCES	National Center for Education Statistics
PreK	Prekindergarten
PreK–8	Prekindergarten through grade 8
PreK–12	Prekindergarten through grade 12
PSS	Private School Survey
SASS	Schools and Staffing Survey

Appendix F
Glossary

A

Alternative school A public elementary/secondary school that serves students whose needs cannot be met in a regular, special education, or vocational school; may provide nontraditional education; and may serve as an adjunct to a regular school. Although alternative schools fall outside the categories of regular, special education, and vocational education, they may provide similar services or curriculum. Some examples of alternative schools are schools for potential dropouts; residential treatment centers for substance abuse (if they provide elementary or secondary education); schools for chronic truants; and schools for students with behavioral problems.

Associate's degree A degree granted for the successful completion of a sub-baccalaureate program of studies, usually requiring at least 2 years (or equivalent) of full-time college-level study. This includes degrees granted in a cooperative or work-study program.

Autocorrelation Correlation of the error terms from different observations of the same variable. Also called Serial correlation.

Average daily attendance (ADA) The aggregate attendance of a school during a reporting period (normally a school year) divided by the number of days school is in session during this period. Only days on which the pupils are under the guidance and direction of teachers should be considered days in session.

Average daily membership (ADM) The aggregate membership of a school during a reporting period (normally a school year) divided by the number of days school is in session during this period. Only days on which the pupils are under the guidance and direction of teachers should be considered as days in session. The average daily membership for groups of schools having varying lengths of terms is the average of the average daily memberships obtained for the individual schools. Membership includes all pupils who are enrolled, even if they do not actually attend.

B

Bachelor's degree A degree granted for the successful completion of a baccalaureate program of studies, usually requiring at least 4 years (or equivalent) of full-time college-level study. This includes degrees granted in a cooperative or work-study program.

Breusch-Godfrey serial correlation LM test A statistic testing the independence of errors in least-squares regression against alternatives of first-order and higher degrees of serial correlation. The test belongs to a class of asymptotic tests known as the Lagrange multiplier (LM) tests.

C

Capital outlay Funds for the acquisition of land and buildings; building construction, remodeling, and additions; the initial installation or extension of service systems and other built-in equipment; and site improvement. The category also encompasses architectural and engineering services including the development of blueprints.

Certificate A formal award certifying the satisfactory completion of a postsecondary education program. Certificates can be awarded at any level of postsecondary education and include awards below the associate's degree level.

Classroom teacher A staff member assigned the professional activities of instructing pupils in self-contained classes or courses, or in classroom situations; usually expressed in full-time equivalents.

Coefficient of variation (CV) Represents the ratio of the standard error to the estimate. For example, a CV of 30 percent indicates that the standard error of the estimate is equal to 30 percent of the estimate's value. The CV is used to compare the amount of variation relative to the magnitude of the estimate. A CV of 30 percent or greater indicates that an estimate should be interpreted with caution. For a discussion of standard errors, see Appendix A: Introduction to Projections Methodology.

Cohort A group of individuals that have a statistical factor in common, for example, year of birth.

Cohort-component method A method for estimating and projecting a population that is distinguished by its ability to preserve knowledge of an age distribution of a population (which may be of a single sex, race, and Hispanic origin) over time.

College A postsecondary school that offers general or liberal arts education, usually leading to an associate's, bachelor's, master's, or doctor's degree. Junior colleges and community colleges are included under this terminology.

Constant dollars Dollar amounts that have been adjusted by means of price and cost indexes to eliminate inflationary factors and allow direct comparison across years.

Consumer Price Index (CPI) This price index measures the average change in the cost of a fixed market basket of goods and services purchased by consumers. Indexes vary for specific areas or regions, periods of time, major groups of consumer expenditures, and population groups. The CPI reflects spending patterns for two population groups: (1) all urban consumers and urban wage earners and (2) clerical workers. CPIs are calculated for both the calendar year and the school year using the U.S. All Items CPI for All Urban Consumers (CPI-U). The calendar year CPI is the same as the annual CPI-U. The school year CPI is calculated by adding the monthly CPI-U figures, beginning with July of the first year and ending with June of the following year, and then dividing that figure by 12.

Control of institutions A classification of institutions of elementary/secondary or postsecondary education by whether the institution is operated by publicly elected or appointed officials and derives its primary support from public funds (public control) or is operated by privately elected or appointed officials and derives its major source of funds from private sources (private control).

Current dollars Dollar amounts that have not been adjusted to compensate for inflation.

Current expenditures (elementary/secondary) The expenditures for operating local public schools, excluding capital outlay and interest on school debt. These expenditures include such items as salaries for school personnel, benefits, student transportation, school books and materials, and energy costs. Beginning in 1980–81, expenditures for state administration are excluded.

Instruction expenditures Includes expenditures for activities related to the interaction between teacher and students. Includes salaries and benefits for teachers and instructional aides, textbooks, supplies, and purchased services such as instruction via television. Also included are tuition expenditures to other local education agencies.

Administration expenditures Includes expenditures for school administration (i.e., the office of the principal, full-time department chairpersons, and graduation expenses), general administration (the superintendent and board of education and their immediate staff), and other support services expenditures.

Transportation Includes expenditures for vehicle operation, monitoring, and vehicle servicing and maintenance.

Food services Includes all expenditures associated with providing food to students and staff in a school or school district. The services include preparing and serving regular and incidental meals or snacks in connection with school activities, as well as the delivery of food to schools.

Enterprise operations Includes expenditures for activities that are financed, at least in part, by user charges, similar to a private business. These include operations funded by sales of products or services, together with amounts for direct program support made by state education agencies for local school districts.

Current expenditures per pupil in average daily attendance Current expenditures for the regular school term divided by the average daily attendance of full-time pupils (or full-time equivalency of pupils) during the term. See also Current expenditures and Average daily attendance.

D

Degree An award conferred by a college, university, or other postsecondary education institution as official recognition for the successful completion of a program of studies. Refers specifically to associate's or higher degrees conferred by degree-granting institutions. See also Associate's degree, Bachelor's degree, Master's degree, and Doctor's degree.

Degree/certificate-seeking student A student enrolled in courses for credit and recognized by the institution as seeking a degree, certificate, or other formal award. High school students also enrolled in postsecondary courses for credit are not considered degree/certificate-seeking. See also Degree and Certificate.

Degree-granting institutions Postsecondary institutions that are eligible for Title IV federal financial aid programs and grant an associate's or higher degree. For an institution to be eligible to participate in Title IV financial aid programs it must offer a program of at least 300 clock hours in length, have accreditation recognized by the U.S. Department of Education, have been in business for at least 2 years, and have signed a participation agreement with the Department.

Degrees of freedom The number of free or linearly independent sample observations used in the calculation of a statistic. In a time series regression with t time periods and k independent variables including a constant term, there would be t minus k degrees of freedom.

Department of Defense (DoD) dependents schools Schools that are operated by the Department of Defense Education Activity (a civilian agency of the U.S. Department of Defense) and provide comprehensive prekindergarten through 12th-grade educational programs on military installations both within the United States and overseas.

Dependent variable A mathematical variable whose value is determined by that of one or more other variables in a function. In regression analysis, when a random variable, *y,* is expressed as a function of variables *x1, x2, ... xk*, plus a stochastic term, then *y* is known as the "dependent variable."

Disposable personal income Current income received by people less their contributions for social insurance, personal tax, and nontax payments. It is the income available to people for spending and saving. Nontax payments include passport fees, fines and penalties, donations, and tuitions and fees paid to schools and hospitals operated mainly by the government. See also Personal income.

Doctor's degree The highest award a student can earn for graduate study. Includes such degrees as the Doctor of Education (Ed.D.); the Doctor of Juridical Science (S.J.D.); the Doctor of Public Health (Dr.P.H.); and the Doctor of Philosophy (Ph.D.) in any field, such as agronomy, food technology, education, engineering, public administration, ophthalmology, or radiology. The doctor's degree classification encompasses three main subcategories—research/scholarship degrees, professional practice degrees, and other degrees—which are described below.

Doctor's degree—research/scholarship A Ph.D. or other doctor's degree that requires advanced work beyond the master's level, including the preparation and defense of a dissertation based on original research, or the planning and execution of an original project demonstrating substantial artistic or scholarly achievement. Examples of this type of degree may include the following and others, as designated by the awarding institution: the Ed.D. (in education), D.M.A. (in musical arts), D.B.A. (in business administration), D.Sc. (in science), D.A. (in arts), or D.M. (in medicine).

Doctor's degree—professional practice A doctor's degree that is conferred upon completion of a program providing the knowledge and skills for the recognition, credential, or license required for professional practice. The degree is awarded after a period of study such that the total time to the degree, including both preprofessional and professional preparation, equals at least 6 full-time-equivalent academic years. Some doctor's degrees of this type were formerly classified as first-professional degrees. Examples of this type of degree may include the following and others, as designated by the awarding institution: the D.C. or D.C.M. (in chiropractic); D.D.S. or D.M.D. (in dentistry); L.L.B. or J.D. (in law); M.D. (in medicine); O.D. (in optometry); D.O. (in osteopathic medicine); Pharm.D. (in pharmacy); D.P.M., Pod.D., or D.P. (in podiatry); or D.V.M. (in veterinary medicine).

Doctor's degree—other A doctor's degree that does not meet the definition of either a doctor's degree—research/scholarship or a doctor's degree—professional practice.

Double exponential smoothing A method that takes a single smoothed average component of demand and smoothes it a second time to allow for estimation of a trend effect.

Dropout The term is used to describe both the event of leaving school before completing high school and the status of an individual who is not in school and who is not a high school completer. High school completers include both graduates of school programs as well as those completing high school through equivalency programs such as the General Educational Development (GED) program. Transferring from a public school to a private school, for example, is not regarded as a dropout event. A person who drops out of school may later return and graduate but is called a "dropout" at the time he or she leaves school. Measures to describe these behaviors include the event dropout rate (or the closely related school persistence rate), the status dropout rate, and the high school completion rate.

Durbin-Watson statistic A statistic testing the independence of errors in least squares regression against the alternative of first-order serial correlation. The statistic is a simple linear transformation of the first-order serial correlation of residuals and, although its distribution is unknown, it is tested by bounding statistics that follow R. L. Anderson's distribution.

E

Econometrics The quantitative examination of economic trends and relationships using statistical techniques, and the development, examination, and refinement of those techniques.

Elementary school A school classified as elementary by state and local practice and composed of any span of grades not above grade 8.

Elementary/secondary school Includes only schools that are part of state and local school systems, and also most nonprofit private elementary/secondary schools, both religiously affiliated and nonsectarian. Includes regular, alternative, vocational, and special education schools. U.S. totals exclude federal schools for American Indians, and federal schools on military posts and other federal installations.

Enrollment The total number of students registered in a given school unit at a given time, generally in the fall of a year.

Estimate A numerical value obtained from a statistical sample and assigned to a population parameter. The particular value yielded by an estimator in a given set of circumstances or the rule by which such particular values are calculated.

Estimating equation An equation involving observed quantities and an unknown that serves to estimate the latter.

Estimation Estimation is concerned with inference about the numerical value of unknown population values from incomplete data, such as a sample. If a single figure is calculated for each unknown parameter, the process is called point estimation. If an interval is calculated within which the parameter is likely, in some sense, to lie, the process is called interval estimation.

Expenditures, Total For elementary/secondary schools, these include all charges for current outlays plus capital outlays and interest on school debt. For degree-granting institutions, these include current outlays plus capital outlays. For government, these include charges net of recoveries and other correcting transactions other than for retirement of debt, investment in securities, extension of credit, or as agency transactions. Government expenditures include only external transactions, such as the provision of prerequisites or other payments in kind. Aggregates for groups of governments exclude intergovernmental transactions among the governments.

Expenditures per pupil Charges incurred for a particular period of time divided by a student unit of measure, such as average daily attendance or fall enrollment.

Exponential smoothing A method used in time series analysis to smooth or to predict a series. There are various forms, but all are based on the supposition that more remote history has less importance than more recent history.

F

Financial aid Grants, loans, assistantships, scholarships, fellowships, tuition waivers, tuition discounts, veteran's benefits, employer aid (tuition reimbursement), and other monies (other than from relatives or friends) provided to students to help them meet expenses. Except where designated, includes Title IV subsidized and unsubsidized loans made directly to students.

First-order serial correlation When errors in one time period are correlated directly with errors in the ensuing time period.

First-professional degree NCES no longer uses this classification. Most degrees formerly classified as first-professional (such as M.D., D.D.S., Pharm.D., D.V.M., and J.D.) are now classified as doctor's degrees—professional practice. However, master's of divinity degrees are now classified as master's degrees.

First-time student (undergraduate) A student who has no prior postsecondary experience (except as noted below) attending any institution for the first time at the undergraduate level. Includes students enrolled in the fall term who attended college for the first time in the prior summer term, and students who entered with advanced standing (college credits earned before graduation from high school).

Fiscal year A period of 12 months for which accounting records are compiled. Institutions and states may designate their own accounting period, though most states use a July 1 through June 30 accounting year. The yearly accounting period for the federal government begins on October 1 and ends on the following September 30. The fiscal year is designated by the calendar year in which it ends; e.g., fiscal year 2006 begins on October 1, 2005, and ends on September 30, 2006. (From fiscal year 1844 to fiscal year 1976, the federal fiscal year began on July 1 and ended on the following June 30.)

Forecast An estimate of the future based on rational study and analysis of available pertinent data, as opposed to subjective prediction.

Forecasting Assessing the magnitude that a quantity will assume at some future point in time, as distinct from "estimation," which attempts to assess the magnitude of an already existent quantity.

For-profit institution A private institution in which the individual(s) or agency in control receives compensation other than wages, rent, or other expenses for the assumption of risk.

FTE teacher See Instructional staff.

Full-time enrollment The number of students enrolled in postsecondary education courses with total credit load equal to at least 75 percent of the normal full-time course load. At the undergraduate level, full-time enrollment typically includes students who have a credit load of 12 or more semester or quarter credits. At the postbaccalaureate level, full-time enrollment includes students who typically have a credit load of 9 or more semester or quarter credits, as well as other students who are considered full time by their institutions.

Full-time-equivalent (FTE) enrollment For postsecondary institutions, enrollment of full-time students, plus the full-time equivalent of part-time students. The full-time equivalent of the part-time students is estimated using different factors depending on the type and control of institution and level of student.

Function A mathematical correspondence that assigns exactly one element of one set to each element of the same or another set. A variable that depends on and varies with another.

Functional form A mathematical statement of the relationship among the variables in a model.

G

Geographic region One of the four regions of the United States used by the U.S. Census Bureau, as follows:

Northeast
Connecticut (CT)
Maine (ME)
Massachusetts (MA)
New Hampshire (NH)
New Jersey (NJ)
New York (NY)
Pennsylvania (PA)
Rhode Island (RI)
Vermont (VT)

South
Alabama (AL)
Arkansas (AR)
Delaware (DE)
District of Columbia (DC)
Florida (FL)
Georgia (GA)
Kentucky (KY)
Louisiana (LA)
Maryland (MD)
Mississippi (MS)
North Carolina (NC)
Oklahoma (OK)
South Carolina (SC)
Tennessee (TN)
Texas (TX)
Virginia (VA)
West Virginia (WV)

Midwest
Illinois (IL)
Indiana (IN)
Iowa (IA)
Kansas (KS)
Michigan (MI)
Minnesota (MN)
Missouri (MO)
Nebraska (NE)
North Dakota (ND)
Ohio (OH)
South Dakota (SD)
Wisconsin (WI)

West
Alaska (AK)
Arizona (AZ)
California (CA)
Colorado (CO)
Hawaii (HI)
Idaho (ID)
Montana (MT)
Nevada (NV)
New Mexico (NM)
Oregon (OR)
Utah (UT)
Washington (WA)
Wyoming (WY)

Graduate An individual who has received formal recognition for the successful completion of a prescribed program of studies.

Graduate enrollment The number of students who are working towards a master's or doctor's degree and students who are in postbaccalaureate classes but not in degree programs.

H

High school A secondary school offering the final years of high school work necessary for graduation, usually includes grades 10, 11, 12 (in a 6-3-3 plan) or grades 9, 10, 11, and 12 (in a 6-2-4 plan).

High school completer An individual who has been awarded a high school diploma or an equivalent credential, including a General Educational Development (GED) certificate.

High school diploma A formal document regulated by the state certifying the successful completion of a prescribed secondary school program of studies. In some states or communities, high school diplomas are differentiated by type, such as an academic diploma, a general diploma, or a vocational diploma.

High school equivalency certificate A formal document certifying that an individual has met the state requirements for high school graduation equivalency by obtaining satisfactory scores on an approved examination and meeting other performance requirements (if any) set by a state education agency or other appropriate body. One particular version of this certificate is the General Educational Development (GED) test. The GED test is a comprehensive test used primarily to appraise the educational development of students who have not completed their formal high school education and who may earn a high school equivalency certificate by achieving satisfactory scores. GEDs are awarded by the states or other agencies, and the test is developed and distributed by the GED Testing Service (a joint venture of the American Council on Education and Pearson).

Higher education Study beyond secondary school at an institution that offers programs terminating in an associate's, bachelor's, or higher degree.

I

Income tax Taxes levied on net income, that is, on gross income less certain deductions permitted by law. These taxes can be levied on individuals or on corporations or unincorporated businesses where the income is taxed distinctly from individual income.

Independent variable In regression analysis, a random variable, y, is expressed as a function of variables $x1$, $x2$, ... xk, plus a stochastic term; the x's are known as "independent variables."

Inflation A rise in the general level of prices of goods and services in an economy over a period of time, which

generally corresponds to a decline in the real value of money or a loss of purchasing power. See also Constant dollars and Purchasing Power Parity indexes.

Instruction (elementary and secondary) Instruction encompasses all activities dealing directly with the interaction between teachers and students. Teaching may be provided for students in a school classroom, in another location such as a home or hospital, and in other learning situations such as those involving cocurricular activities. Instruction may be provided through some other approved medium, such as the Internet, television, radio, telephone, and correspondence.

Instructional staff Full-time-equivalent number of positions, not the number of different individuals occupying the positions during the school year. In local schools, includes all public elementary and secondary (junior and senior high) day-school positions that are in the nature of teaching or in the improvement of the teaching-learning situation; includes consultants or supervisors of instruction, principals, teachers, guidance personnel, librarians, psychological personnel, and other instructional staff, and excludes administrative staff, attendance personnel, clerical personnel, and junior college staff.

Interest on debt Includes expenditures for long-term debt service interest payments (i.e., those longer than 1 year).

Interpolation See Linear interpolation.

L

Lag An event occurring at time $t + k$ ($k > 0$) is said to lag behind an event occurring at time t, the extent of the lag being k. An event occurring k time periods before another may be regarded as having a negative lag.

Lead time When forecasting a statistic, the number of time periods since the last time period of actual data for that statistic used in producing the forecast.

Level of school A classification of elementary/secondary schools by instructional level. Includes elementary schools, secondary schools, and combined elementary and secondary schools. See also Elementary school, Secondary school, and Combined elementary and secondary school.

Linear interpolation A method that allows the prediction of an unknown value if any two particular values on the same scale are known and the rate of change is assumed constant.

Local education agency (LEA) See School district.

M

Master's degree A degree awarded for successful completion of a program generally requiring 1 or 2 years of full-time college-level study beyond the bachelor's degree. One type of master's degree, including the Master of Arts degree, or M.A., and the Master of Science degree, or M.S., is awarded in the liberal arts and sciences for advanced scholarship in a subject field or discipline and demonstrated ability to perform scholarly research. A second type of master's degree is awarded for the completion of a professionally oriented program, for example, an M.Ed. in education, an M.B.A. in business administration, an M.F.A. in fine arts, an M.M. in music, an M.S.W. in social work, and an M.P.A. in public administration. Some master's degrees—such as divinity degrees (M.Div. or M.H.L./Rav), which were formerly classified as "first-professional"—may require more than 2 years of full-time study beyond the bachelor's degree.

Mean absolute percentage error (MAPE) The average value of the absolute value of errors expressed in percentage terms.

Migration Geographic mobility involving a change of usual residence between clearly defined geographic units, that is, between counties, states, or regions.

Model A system of postulates, data, and inferences presented as a mathematical description of a phenomenon, such as an actual system or process. The actual phenomenon is represented by the model in order to explain, predict, and control it.

N

Non-degree-granting institutions Postsecondary institutions that participate in Title IV federal financial aid programs but do not offer accredited 4-year or 2-year degree programs. Includes some institutions transitioning to higher level program offerings, though still classified at a lower level.

Nonresident alien A person who is not a citizen of the United States and who is in this country on a temporary basis and does not have the right to remain indefinitely.

Nursery school An instructional program for groups of children during the year or years preceding kindergarten, which provides educational experiences under the direction of teachers. See also Prekindergarten and Preschool.

O

Ordinary least squares (OLS) The estimator that minimizes the sum of squared residuals.

P

Parameter A quantity that describes a statistical population.

Part-time enrollment The number of students enrolled in postsecondary education courses with a total credit load less than 75 percent of the normal full-time credit load. At the undergraduate level, part-time enrollment typically includes students who have a credit load of less than 12 semester or quarter credits. At the postbaccalaureate level, part-time enrollment typically includes students who have a credit load of less than 9 semester or quarter credits.

Personal income Current income received by people from all sources, minus their personal contributions for social insurance. Classified as "people" are individuals (including owners of unincorporated firms), nonprofit institutions serving individuals, private trust funds, and private noninsured welfare funds. Personal income includes transfers (payments not resulting from current production) from government and business such as social security benefits and military pensions, but excludes transfers among people.

Postbaccalaureate enrollment The number of students working towards advanced degrees and of students enrolled in graduate-level classes but not enrolled in degree programs. See also Graduate enrollment.

Postsecondary education The provision of formal instructional programs with a curriculum designed primarily for students who have completed the requirements for a high school diploma or equivalent. This includes programs of an academic, vocational, and continuing professional education purpose, and excludes avocational and adult basic education programs.

Postsecondary institutions (basic classification by level)

4-year institution An institution offering at least a 4-year program of college-level studies wholly or principally creditable toward a baccalaureate degree.

2-year institution An institution offering at least a 2-year program of college-level studies which terminates in an associate degree or is principally creditable toward a baccalaureate degree. Data prior to 1996 include some institutions that have a less-than-2-year program, but were designated as institutions of higher education in the Higher Education General Information Survey.

Less-than-2-year institution An institution that offers programs of less than 2 years' duration below the baccalaureate level. Includes occupational and vocational schools with programs that do not exceed 1,800 contact hours.

Prekindergarten Preprimary education for children typically ages 3–4 who have not yet entered kindergarten. It may offer a program of general education or special education and may be part of a collaborative effort with Head Start.

Preschool An instructional program enrolling children generally younger than 5 years of age and organized to provide children with educational experiences under professionally qualified teachers during the year or years immediately preceding kindergarten (or prior to entry into elementary school when there is no kindergarten). See also Nursery school and Prekindergarten.

Primary school A school with at least one grade lower than 5 and no grade higher than 8.

Private institution An institution that is controlled by an individual or agency other than a state, a subdivision of a state, or the federal government, which is usually supported primarily by other than public funds, and the operation of whose program rests with other than publicly elected or appointed officials.

Private nonprofit institution An institution in which the individual(s) or agency in control receives no compensation other than wages, rent, or other expenses for the assumption of risk. These include both independent nonprofit institutions and those affiliated with a religious organization.

Private for-profit institution An institution in which the individual(s) or agency in control receives compensation other than wages, rent, or other expenses for the assumption of risk (e.g., proprietary schools).

Private school Private elementary/secondary schools surveyed by the Private School Universe Survey (PSS) are assigned to one of three major categories (Catholic, other religious, or nonsectarian) and, within each major category, one of three subcategories based on the school's religious affiliation provided by respondents.

Catholic Schools categorized according to governance, provided by Catholic school respondents, into parochial, diocesan, and private schools.

Other religious Schools that have a religious orientation or purpose but are not Roman Catholic. Other religious schools are categorized according to religious association membership, provided by respondents, into Conservative Christian, other affiliated, and unaffiliated schools. Conservative Christian schools are those "Other religious" schools with membership in at least one of four associations: Accelerated Christian Education, American Association of Christian Schools, Association of Christian Schools International, and Oral Roberts University

Education Fellowship. Affiliated schools are those "Other religious" schools not classified as Conservative Christian with membership in at least 1 of 11 associations—Association of Christian Teachers and Schools, Christian Schools International, Evangelical Lutheran Education Association, Friends Council on Education, General Conference of the Seventh-Day Adventist Church, Islamic School League of America, National Association of Episcopal Schools, National Christian School Association, National Society for Hebrew Day Schools, Solomon Schechter Day Schools, and Southern Baptist Association of Christian Schools—or indicating membership in "other religious school associations." Unaffiliated schools are those "Other religious" schools that have a religious orientation or purpose but are not classified as Conservative Christian or affiliated.

Nonsectarian Schools that do not have a religious orientation or purpose and are categorized according to program emphasis, provided by respondents, into regular, special emphasis, and special education schools. Regular schools are those that have a regular elementary/secondary or early childhood program emphasis. Special emphasis schools are those that have a Montessori, vocational/technical, alternative, or special program emphasis. Special education schools are those that have a special education program emphasis.

Projection In relation to a time series, an estimate of future values based on a current trend.

Public school or institution A school or institution controlled and operated by publicly elected or appointed officials and deriving its primary support from public funds.

Pupil/teacher ratio The enrollment of pupils at a given period of time, divided by the full-time-equivalent number of classroom teachers serving these pupils during the same period.

R

R^2 The coefficient of determination; the square of the correlation coefficient between the dependent variable and its ordinary least squares (OLS) estimate.

Racial/ethnic group Classification indicating general racial or ethnic heritage. Race/ethnicity data are based on the *Hispanic* ethnic category and the race categories listed below (five single-race categories, plus the *Two or more races* category). Race categories exclude persons of Hispanic ethnicity unless otherwise noted.

White A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

Black or African American A person having origins in any of the black racial groups of Africa. Used interchangeably with the shortened term *Black*.

Hispanic or Latino A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. Used interchangeably with the shortened term *Hispanic.*

Asian A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. Prior to 2010–11, the Common Core of Data (CCD) combined Asian and Pacific Islander categories.

Native Hawaiian or Other Pacific Islander A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. Prior to 2010–11, the Common Core of Data (CCD) combined Asian and Pacific Islander categories. Used interchangeably with the shortened term *Pacific Islander.*

American Indian or Alaska Native A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.

Two or more races A person identifying himself or herself as of two or more of the following race groups: White, Black, Asian, Native Hawaiian or Other Pacific Islander, or American Indian or Alaska Native. Some, but not all, reporting districts use this category. "Two or more races" was introduced in the 2000 Census and became a regular category for data collection in the Current Population Survey (CPS) in 2003. The category is sometimes excluded from a historical series of data with constant categories. It is sometimes included within the category "Other."

Region See Geographic region.

Regression analysis A statistical technique for investigating and modeling the relationship between variables.

Regular school A public elementary/secondary or charter school providing instruction and education services that does not focus primarily on special education, vocational/technical education, or alternative education.

Resident population Includes civilian population and armed forces personnel residing within the United States; excludes armed forces personnel residing overseas.

Revenue All funds received from external sources, net of refunds, and correcting transactions. Noncash transactions, such as receipt of services, commodities, or other receipts in kind are excluded, as are funds received from the issuance of debt, liquidation of investments, and nonroutine sale of property.

Revenue receipts Additions to assets that do not incur an obligation that must be met at some future date and do not

represent exchanges of property for money. Assets must be available for expenditures.

Rho A measure of the correlation coefficient between errors in time period *t* and time period *t* minus 1.

S

Salary The total amount regularly paid or stipulated to be paid to an individual, before deductions, for personal services rendered while on the payroll of a business or organization.

School A division of the school system consisting of students in one or more grades or other identifiable groups and organized to give instruction of a defined type. One school may share a building with another school or one school may be housed in several buildings. Excludes schools that have closed or are planned for the future.

School district An education agency at the local level that exists primarily to operate public schools or to contract for public school services. Synonyms are "local basic administrative unit" and "local education agency."

Secondary enrollment The total number of students registered in a school beginning with the next grade following an elementary or middle school (usually 7, 8, or 9) and ending with or below grade 12 at a given time.

Senior high school A secondary school offering the final years of high school work necessary for graduation.

Serial correlation Correlation of the error terms from different observations of the same variable. Also called Autocorrelation.

Special education school A public elementary/secondary school that focuses primarily on special education for children with disabilities and that adapts curriculum, materials, or instruction for students served.

Standard error of estimate An expression for the standard deviation of the observed values about a regression line. An estimate of the variation likely to be encountered in making predictions from the regression equation.

Student An individual for whom instruction is provided in an educational program under the jurisdiction of a school, school system, or other education institution. No distinction is made between the terms "student" and "pupil," though "student" may refer to one receiving instruction at any level while "pupil" refers only to one attending school at the elementary or secondary level. A student may receive instruction in a school facility or in another location, such as at home or in a hospital. Instruction may be provided by direct student-teacher interaction or by some other approved medium such as television, radio, telephone, and correspondence.

Student membership Student membership is an annual headcount of students enrolled in school on October 1 or the school day closest to that date. The Common Core of Data (CCD) allows a student to be reported for only a single school or agency. For example, a vocational school (identified as a "shared time" school) may provide classes for students from a number of districts and show no membership.

T

Teacher see Instructional staff.

Time series A set of ordered observations on a quantitative characteristic of an individual or collective phenomenon taken at different points in time. Usually the observations are successive and equally spaced in time.

Time series analysis The branch of quantitative forecasting in which data for one variable are examined for patterns of trend, seasonality, and cycle.

Type of school A classification of public elementary and secondary schools that includes the following categories: regular schools, special education schools, vocational schools, and alternative schools. See also Regular school, Special education school, Vocational school, and Alternative school.

U

Unadjusted dollars See Current dollars.

Undergraduate students Students registered at an institution of postsecondary education who are working in a baccalaureate degree program or other formal program below the baccalaureate, such as an associate's degree, vocational, or technical program.

Ungraded student (elementary/secondary) A student who has been assigned to a school or program that does not have standard grade designations.

V

Variable A quantity that may assume any one of a set of values.

Y

Years out In forecasting by year, the number of years since the last year of actual data for that statistic used in producing the forecast.

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