

Section 2

Learner Outcomes



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This List of Indicators includes all the indicators in Section 2 that appear on *The Condition of Education* web site (<http://nces.ed.gov/programs/coe>), drawn from the 2000–2004 print volumes. The list is organized by subject area. The indicator numbers and the years in which the indicators were published are not necessarily sequential.



Introduction: Learner Outcomes

The indicators in this section of *The Condition of Education* examine student achievement and other outcomes of education among students in elementary and secondary education, and among adults in the larger society when data are available. There are 17 indicators in this section: 7, prepared for this year's volume, appear on the following pages, and all 17, including indicators from previous years, appear on the web (see Web Site Contents on the facing page for a full list of the indicators). The indicators on student achievement show how students are performing on assessments in reading, writing, mathematics, and other academic subject areas, and the progress being made in improving their performance and closing their achievement gaps. The indicators in this section are organized into four subsections.

The indicators in the first subsection trace the gains in achievement and specific reading and mathematics skills of children through the early years of elementary education. The indicators in the second subsection report trends in student performance by age or grade in the later years of elementary education through high school.

Children enter school with varying levels of knowledge and skill. Measures of these early childhood competencies represent important indicators of students' future prospects both inside and outside of the classroom. As students proceed through school, it is important to know the extent to which they are acquiring necessary skills and becoming proficient in challenging subject matter. Academic outcomes are basically measured in three ways, although not necessarily using all three measures in an indicator: as the change in students' average

performance over time, as the change in the percentage of students achieving predetermined levels of achievement, and through international comparisons of national averages. Together, these measures, across indicators, help create a composite picture of academic achievement in U.S. schools.

In addition to academic achievement, there are culturally and socially desirable outcomes of education in the third subsection. One measure of these outcomes is an educated, capable, and engaged citizenry, which can be gauged by civic knowledge, community volunteerism, and voting participation. Other measures are patterns of communication and media use and the health status of individuals. One indicator on the following pages shows the association of education with health status. A new indicator on the following pages charts the extent to which young people may be experiencing difficulty in engaging in either school or work by showing the percentage who are neither enrolled nor employed.

The fourth subsection looks specifically at the economic outcomes of education. Economic outcomes refer to the likelihood of being employed, the salaries that employers are prepared to pay individuals with varying levels of skill and competence, the job and career satisfaction of employees, and other measures of economic well being and productivity.

The indicators on student achievement from previous editions of *The Condition of Education*, which are not included in this volume, are available at <http://nces.ed.gov/programs/coe/list/i2.asp>.



Early Childhood Outcomes

Students' Reading and Mathematics Achievement Through 3rd Grade

Children without family risk factors, such as poverty, experienced a larger gain in reading and mathematics mean scale scores than their peers from the start of kindergarten through 3rd grade.

The Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 collects information on a cohort of children who began kindergarten in fall 1998 and follows them through spring 2004, when most will have completed grade 5. The study assesses children's achievement in reading, mathematics, and general knowledge as they progress through school. From fall 1998 through the end of 3rd grade in spring 2002, children's average reading scale score increased 81 points, from 27 to 108. The corresponding increase in mathematics was 63 points, from a scale score of 22 in fall 1998 to 85 in spring 2002¹ (see supplemental table 8-1).

The number of family risk factors (household below poverty level, non-English primary home language, mother's highest education less than a high school diploma/GED, and single-parent household) is negatively associated with children's achievement gains in reading and mathematics. As the number of family risk factors increased, children experienced smaller gains from the start of kindergarten through the end of 3rd grade in both subject areas. For example, children with no family risk factors had an average gain of 84 points in reading, compared with

a 73-point gain among children with 2 or more family risk factors (NCES 2004–007).

Also, Black children demonstrated smaller gains in reading and mathematics than White, Hispanic, and Asian/Pacific Islander children. Multivariate analysis shows the same patterns of differences after accounting for differences in the number of family risk factors as well as other selected characteristics (i.e., sex, kindergarten program type, and types of schools attended) (NCES 2004–007, p. 20). While race/ethnicity is related to the number of family risk factors (Zill and West 2001, p. 18), after accounting for the factors examined here, race/ethnicity and the number of family risk factors are independently related to children's gains in reading and mathematics.

At the start of kindergarten in both reading and mathematics, Black children had lower mean achievement scores than other racial/ethnic groups, and children with family risk factors had lower achievement scores than their peers with fewer risk factors. These achievement gaps grew wider from the start of kindergarten in fall 1998 to the end of 3rd grade in spring 2002.

¹The fall kindergarten to spring 3rd-grade reading scale gains ranged from 16 to 125 points, with a mean of 81 points and a standard deviation of 16.8 points, and the mathematics scale gains ranged from 17 to 104 points, with a mean of 63 points and a standard deviation of 13.7 points.

²Family risk factors include living below the poverty level, primary home language was non-English, mother's highest education was less than a high school diploma/GED, and living in a single-parent household, as measured in kindergarten. See supplemental note 1 for more information on mother's education and poverty.

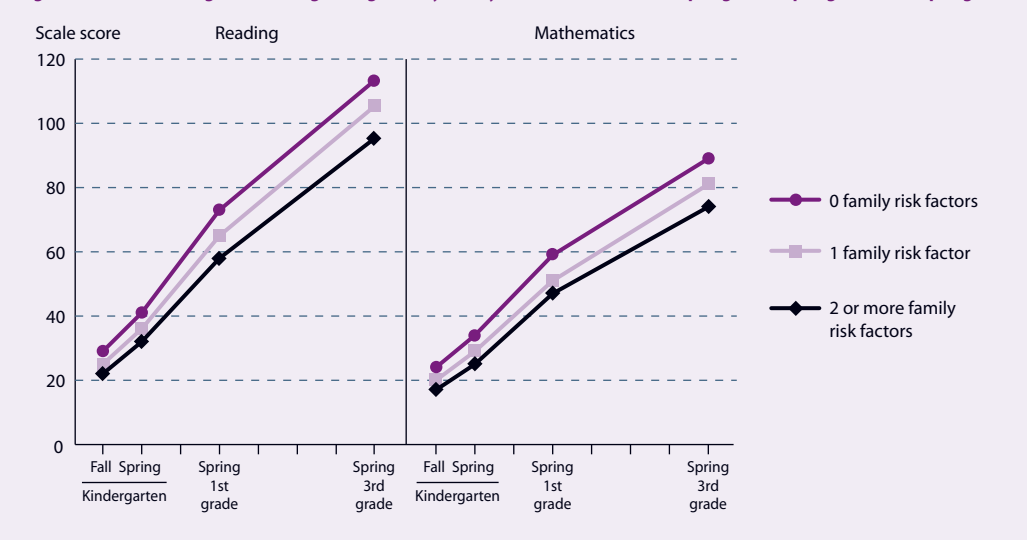
NOTE: The findings are based on children who entered kindergarten for the first time in fall 1998 and were assessed in fall 1998, spring 1999, spring 2000, and spring 2002. Estimates reflect the sample of children assessed in English in all assessment years (approximately 19 percent of Asian children and approximately 30 percent of Hispanic children were not assessed). The Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) was not administered in spring 2001, when most of the children were in 2nd grade. Although most of the sample was in 3rd grade in spring 2002, 10 percent were in 2nd grade, and about 1 percent were enrolled in other grades. See supplemental note 3 for more information on ECLS-K.

SOURCE: Rathbun, A, and West, J. (forthcoming). *From Kindergarten Through Third Grade: Children's Beginning School Experiences* (NCES 2004–007), tables A-4 and A-5. Data from U.S. Department of Education, NCES, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Longitudinal Kindergarten-First Grade Public-Use data file and Third Grade Restricted-Use data file, Fall 1998, Spring 1999, Spring 2000, and Spring 2002.

FOR MORE INFORMATION:
Supplemental Notes 1,3
Supplemental Table 8-1
NCES 2001–035



EARLY READING AND MATHEMATICS PERFORMANCE: Children's reading and mathematics scale scores for fall 1998 first-time kindergartners from kindergarten through 3rd grade, by family risk factors: Fall 1998, spring 1999, spring 2000 and spring 2002²





Academic Outcomes

Reading Performance of Students in Grades 4 and 8

While 8th-grade reading performance increased between 1992 and 2003, no difference was detected in the performance of 4th-graders.

The National Assessment of Educational Progress (NAEP) has assessed performance in reading in grades 4 and 8 in public and private schools since 1992, using the assessment reported here. The average reading scale score, which represents what students know and can do, of 4th-graders in 2003 was not significantly different from that in 1992. After decreasing in the late 1990s, the average score increased from 2000 to 2002, with the score in 2003 not significantly different from that in 2002. The average score of 8th-graders was higher in 2003 than in 1992 but decreased 1 point from 264 in 2002 to 263 in 2003.

Achievement levels, which identify what students should know and be able to do at each grade, provide another measure of student performance. The percentages of 4th- and 8th-graders performing at or above *Proficient* in reading were higher in 2003 than in 1992 (see supplemental table 9-1). The percentage of 8th-graders at or above *Basic* was higher in 2003 than in 1992. Scores at the 10th–90th percentiles reveal changes in the scale scores for lower- and higher-performing students. In 4th grade, scores at the 75th percentile were higher in 2003 than in 1992. There were increases in the student scores in grade 8 at the 10th–75th percentiles.

Certain subgroups outperformed others in reading in 2003. Females outperformed males in both grades (see supplemental table 9-2). White and Asian/Pacific Islander students had higher average scores than American Indian, Hispanic, and Black students in grades 4 and 8. Additionally, White students outperformed Asian/Pacific Islander students in grade 4, and Hispanic students outperformed Black students. The number of books in the home at both grades was positively associated with student achievement as was parents' education at grade 8. The level of poverty in the school, as measured by the percentage of students eligible for free or reduced-price lunch, was negatively associated with student achievement in both grades in 2003.

NAEP also provides a comparison of public schools among the states in grades 4 and 8. In grade 4, of the 42 states and jurisdictions that participated in 1992 and 2003, the average reading score increased in 13 and decreased in 5 (see supplemental table 9-3). In grade 8, of the 39 states and jurisdictions that participated in 1998 and 2003, 8 experienced an increase in achievement, and 7 experienced a decline.

*Significantly different from 2003.

¹Testing accommodations (e.g., extended time, small group testing) for children with disabilities and limited-English-proficient students were not permitted.

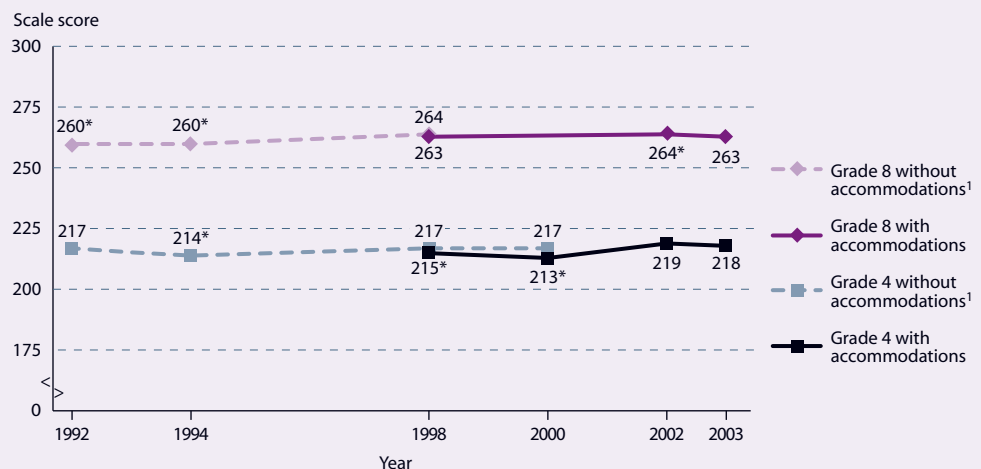
NOTE: In addition to allowing for accommodations, the accommodations-permitted results at grade 4 (1998–2003) differ slightly from previous years' results, and from previously reported results for 1998 and 2000, due to changes in sample weighting procedures. Beginning in 2002, the NAEP national sample was obtained by aggregating the samples from each state, rather than by obtaining an independently selected national sample. As a consequence, the size of the national sample increased, and smaller differences between years or between types of students were found to be statistically significant than would have been detected in previous assessments. The 2003 reading assessment did not include students in grade 12. See *supplemental note 4* for more information on the National Assessment of Educational Progress (NAEP).

SOURCE: U.S. Department of Education, NCES. (2003). *The Nation's Report Card: Reading Highlights 2003* (NCES 2004-452) and NAEP web data tool (<http://nces.ed.gov/nationsreportcard/naepdata/search.asp>). Data from U.S. Department of Education, NCES, National Assessment of Educational Progress (NAEP), selected years 1992–2003 Reading Assessments.



FOR MORE INFORMATION:
Supplemental Notes 1, 4
Supplemental Tables 9-1,
9-2, 9-3

READING PERFORMANCE: Average reading scale scores for 4th- and 8th-graders: Selected years 1992–2003





Academic Outcomes

Writing Performance of Students in Grades 4, 8, and 12

The writing performance of 4th- and 8th-graders improved between 1998 and 2002. Twenty-eight percent of 4th-graders, 31 percent of 8th-graders, and 24 percent of 12th-graders performed at or above the Proficient level in 2002.

The National Assessment of Educational Progress (NAEP) assessed the performance of 4th-, 8th-, and 12th-graders in public and private schools in writing in 1998 and 2002, using the assessment reported here. Average scale scores increased at grades 4 and 8 from 1998 to 2002. In contrast, no significant change was detected at grade 12 (see supplemental table 10-1).

Achievement levels, which indicate what students should know and be able to do, provide another way to assess performance. In 2002, 28 percent of 4th-graders, 31 percent of 8th-graders, and 24 percent of 12th-graders performed at or above the Proficient level in writing. The percentages of 4th-graders at or above Basic and Proficient and 8th-graders at or above Proficient were higher in 2002 than in 1998. The percentage of 12th-graders at or above Basic decreased over the period. Although only 2 percent of students in each grade performed at Advanced in 2002, at all three grades, the percentage represented an increase.

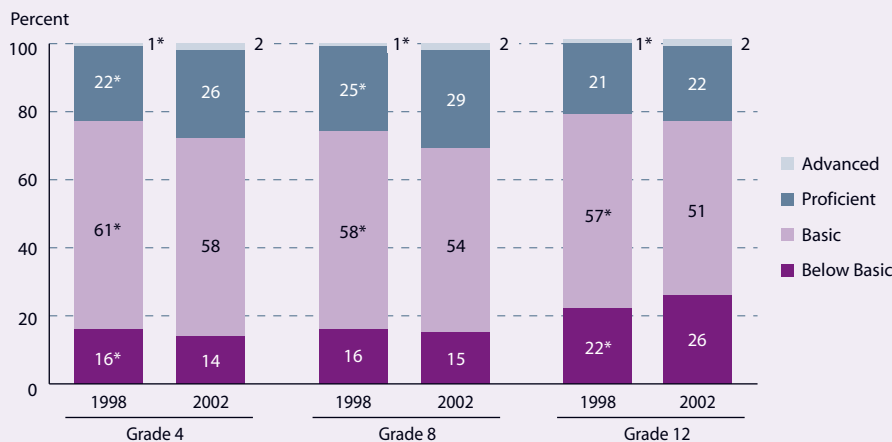
Average scores at selected percentiles provide another measure of achievement. At grade 4, writing scale scores increased at all percentile levels from 1998 to 2002. At grade 8, scale scores increased

at the 50th, 75th, and 90th percentiles, indicating performance gains for middle- to high-performing students. At grade 12, scores at the 10th and 25th percentiles decreased, while scores at the 90th percentile increased, indicating lower-performing students scored lower in 2002 than in 1998 and higher-performing students scored higher.

In 2002, writing performance differed among subgroups. Females outperformed males at all three grades (see supplemental table 10-2). Asian/Pacific Islander and White students had higher average scale scores than their Black and Hispanic peers at all three grades, and Asian/Pacific Islanders had higher average scores than Whites at grade 4. In addition, parental education was positively related to academic achievement in grades 8 and 12, and the percentage of students in a school eligible for free or reduced-price lunch was negatively related to student achievement at all three grades.

NAEP also provided a comparison of public school students by state and jurisdiction in 4th grade in 2002 and in 8th grade in 1998 and 2002. Of the 36 states and jurisdictions participating in grade 8 in 1998 and 2002, 16 showed score increases (see supplemental table 10-3).

WRITING PERFORMANCE: Percentage distribution of students performing at each writing achievement level, by grade: 1998 and 2002



*Significantly different from 2002.

NOTE: Detail may not sum to totals because of rounding. See supplemental note 4 for more information on the National Assessment of Educational Progress (NAEP), including information on achievement levels.

SOURCE: U.S. Department of Education, NCES. (2003). *The Nation's Report Card: Writing 2002* (NCES 2003-529), table 2.1 and NAEP web data tool (<http://nces.ed.gov/nationsreportcard/naepdata/>). Data from U.S. Department of Education, NCES, National Assessment of Educational Progress (NAEP), 1998 and 2002 Writing Assessments.

FOR MORE INFORMATION:
Supplemental Notes 1,4
Supplemental Tables 10-1,
10-2, 10-3





Academic Outcomes

Mathematics Performance of Students in Grades 4 and 8

The mathematics performance of 4th- and 8th-graders increased steadily from 1990 to 2003. For both grades, the average scale scores in 2003 were higher than in all previous assessments.

The National Assessment of Educational Progress (NAEP) has assessed performance in mathematics in grades 4 and 8 in public and private schools since 1990, using the assessment reported here. Average scale scores, which represent what students know and can do, for 4th- and 8th-graders were higher in 2003 than in all previous assessments. The average score in grade 4 increased from 226 in 2000 to 235 in 2003, and the average score in grade 8 increased from 273 to 278.

Achievement levels, which identify what students should know and be able to do at each grade, provide another measure of student performance. The percentages of 4th- and 8th-graders at or above *Basic* and *Proficient* and at *Advanced* in mathematics were higher in 2003 than in 1990 (see supplemental table 11-1).

Scores at the 10th through 90th percentiles reveal changes in the mathematics scale scores for lower- and higher-performing students. In both grade 4 and 8, student scores at each percentile level were higher in 2003 than in any previous assessment, except for the 75th and 90th percentiles at grade 8 in 2000 where accommodations were not permitted.

Certain subgroups outperformed others in mathematics in 2003. Males, on average, scored higher than females in grades 4 and 8 (see supplemental table 11-2). In both grades, Asian/Pacific Islander students had higher scores than White students, both groups of students achieved higher scores than Black, Hispanic, and American Indian students, and Hispanic and American Indian students outperformed Black students. In grade 8, student coursetaking and parents' education were positively associated with student achievement. The level of poverty in the school, as measured by the percentage of students eligible for free or reduced-price lunch, was negatively associated with student achievement in both grades in 2003.

NAEP also provides a state comparison of public schools in grades 4 and 8. In grade 4, all 42 states and jurisdictions that participated in 1992 and 2003 experienced an increase between the 2 years, and the national average increase for public schools was 15 points (see supplemental table 11-3). In grade 8, the average score for all 38 participating states and jurisdictions increased from 1990 to 2003, and the national average increase for public schools was 14 points.

*Significantly different from 2003.

¹Testing accommodations (e.g., extended time, small group testing) for children with disabilities and limited-English-proficient students were not permitted.

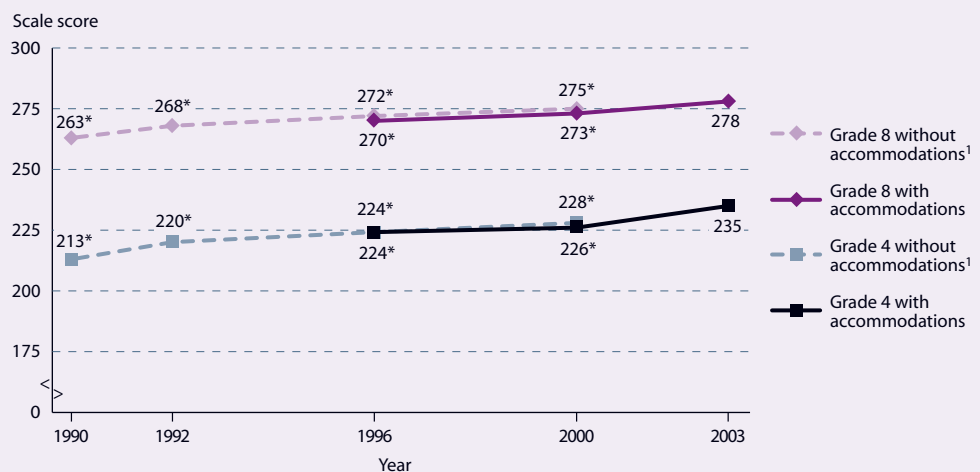
NOTE: In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. The NAEP national sample in 2003 was obtained by aggregating the samples from each state, rather than by obtaining an independently selected national sample. As a consequence, the size of the national sample increased, and smaller differences between years or between types of students were found to be statistically significant than would have been detected in previous assessments. The 2003 mathematics assessment did not include students in grade 12. See supplemental note 4 for more information on the National Assessment of Educational Progress (NAEP).

SOURCE: U.S. Department of Education, NCES. (2003). *The Nation's Report Card: Mathematics Highlights 2003* (NCES 2004–451) and NAEP web data tool (<http://nces.ed.gov/nationsreportcard/naepdata/search.asp>). Data from U.S. Department of Education, NCES, National Assessment of Educational Progress (NAEP), selected years 1990–2003 Mathematics Assessments.



FOR MORE INFORMATION:
Supplemental Notes 1,4
Supplemental Tables 11-1,
11-2, 11-3

MATHEMATICS PERFORMANCE: Average mathematics scale scores for 4th- and 8th-graders: Selected years 1990–2003





Social and Cultural Outcomes

Education and Health

The better educated a person is, the more likely that person is to report being in “excellent” or “very good” health, regardless of income.

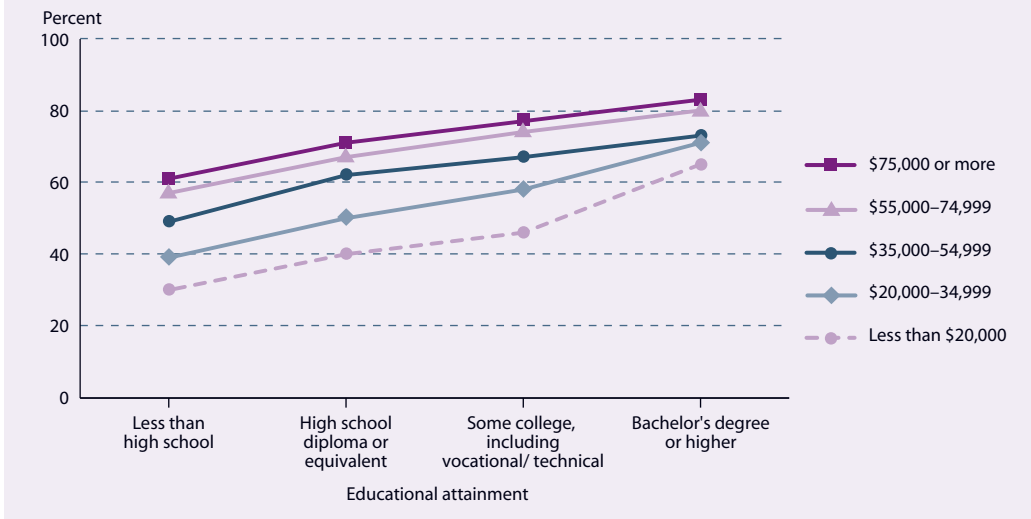
Education and health are positively related. In the National Health Interview Survey, the National Center for Health Statistics annually surveys people concerning their health. One question asks respondents to rate their own health. In 2001, the better educated a person was, the more likely that person was to report being in “excellent” or “very good” health. Among adults age 25 and above, 78 percent of those with a bachelor’s degree or higher reported being in excellent or very good health, compared with 66 percent of those with some education beyond high school, 56 percent of high school completers, and 39 percent of those with less than a high school education (see supplemental table 12-1).

Family income, age, and poverty status are also related to health. The more family income a person has and the farther above the poverty level, the more likely that person is to report being in excellent or very good health. In 2001, 40 percent of people living below the poverty threshold reported being in excellent or very good health, compared with 46 percent of near-

poor (100–199 percent of poverty level) and 69 percent of nonpoor (twice the poverty level) people. Age is inversely related to health: as age increases, the likelihood of reporting being in excellent or very good health decreases.

Education remains positively related to health, independent of the relationship between health and either family income, age, or poverty status. For example, within each income range, people with a bachelor’s degree or higher reported being in better health than people with some education beyond high school, who, in turn, reported being in better health than high school completers. Those with less than a high school education reported being less healthy than their peers with more education. In 2001, among all adults age 25 and above with a family income between \$20,000 and \$34,999, 72 percent with a bachelor’s degree or higher reported being in excellent or very good health, compared with 58 percent of those with some education beyond high school, 50 percent of high school completers, and 39 percent of those with less than a high school education.

EDUCATION AND HEALTH: Percentage of the population age 25 and above who reported being in excellent or very good health, by educational attainment and family income: 2001



NOTE: Includes those who responded “excellent” or “very good” on a scale of “excellent,” “very good,” “good,” “fair,” and “poor.”

SOURCE: U.S. Department of Health and Human Services, Centers for Disease Control, National Center for Health Statistics, National Health Interview Survey, 2001, previously unpublished tabulation (October 2003).

FOR MORE INFORMATION:
Supplemental Notes 1,3
Supplemental Table 12-1
Bjorner et al. 1996
Lantz et al. 2001





Social and Cultural Outcomes

Youth Neither Enrolled nor Working

In 2003, 13 percent of all persons ages 16–24 were neither enrolled in school nor working, a decrease from 1986. The gap between the percentage of poor youth and others neither enrolled nor working decreased over this period.

This indicator provides information on the transitions of youth when most are finishing their education and joining the workforce. This is a critical period for young people as they are achieving their educational goals and choosing their career paths. In 2003, 13 percent of persons ages 16–24 were neither enrolled in school nor working, a decrease from 16 percent in 1986 (see supplemental table 13-1). A person may be not enrolled in school or working for many reasons, including the fact that they are looking for but are unable to find work or that they have left the workforce temporarily or permanently to start a family.

In 2003, the percentages of White and Asian/Pacific Islander youth not enrolled in school or working were lower than the percentages of Hispanic, Black, and American Indian youth. The percentage of Hispanic youth was lower than the percentages of Black and American Indian youth. Between 1986 and 2003, the percentages of Black, White, and Hispanic youth ages 16–24 who were not enrolled in school or working decreased, while the percentages of American Indian and Asian/Pacific Islander youth showed no clear trend between 1988 and 2003.

The percentage of youth neither enrolled nor working in 2003 was positively related to their poverty status. From 1986 to 2003, however, the rate among poor youth decreased more than the rate among “near poor”¹ while the rate for “nonpoor” youth showed no measurable change, thus narrowing the gap between poor youth and others. Education was also related to youth being neither enrolled nor working: in 2003, 44 percent of youth not currently in high school with less than a high school diploma were not enrolled or working, compared with 9 percent of those with a bachelor’s or higher degree. The percentage of youth neither enrolled nor working decreased from 1986 to 2003 among those not currently in high school who were not high school completers.

Females ages 16–24 were more likely than males to be neither enrolled in school nor working in 2003 (15 and 11 percent, respectively). The rate for females decreased from 1986 to 2003, while no change was detected for males. Age was also related to the rate at which youth were neither enrolled nor working: 3 percent of those ages 16–17 were neither enrolled nor working in 2003, compared with 18 percent of those ages 23–24.

¹“Near-poor” is defined as having an income 100–199 percent of the poverty level, and “nonpoor” is defined as having an income twice the poverty level or more. See *supplemental note 1* for more information on poverty.

²American Indian includes Alaska Native, Black includes African American, Pacific Islander includes Native Hawaiian, and Hispanic includes Latino. Racial categories exclude Hispanic origin. Other race/ethnicities are included in the total but are not shown separately.

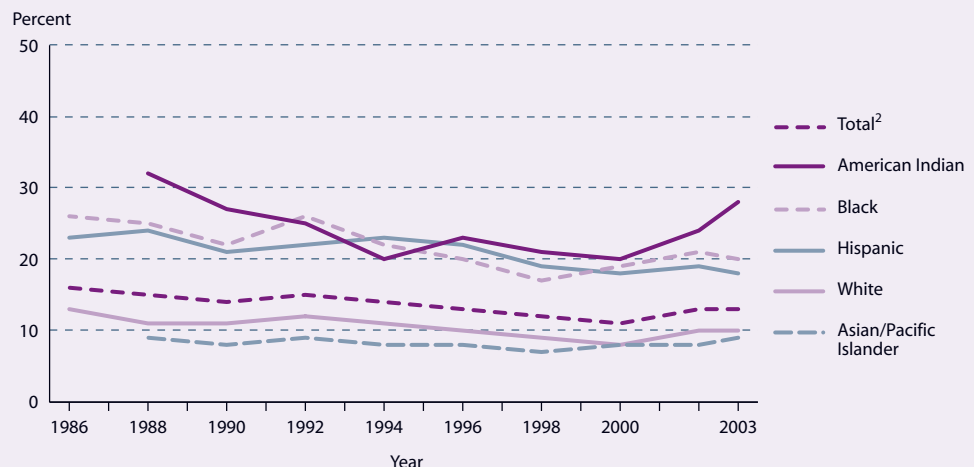
NOTE: In 1994, the survey methodology for the Current Population Survey (CPS) was changed and weights were adjusted. See *supplemental note 2* for more information and for an explanation of the category “neither enrolled in school nor working.”

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), March Supplement, selected years 1986–2003, previously unpublished tabulation (December 2003).



FOR MORE INFORMATION:
Supplemental Notes 1, 2
Supplemental Table 13-1

YOUTH EMPLOYMENT: Percentage of persons ages 16–24 who were neither enrolled in school nor working, by race/ethnicity: Selected years 1986–2003





Economic Outcomes

Annual Earnings of Young Adults

The earnings of young adults with at least a bachelor's degree increased over the past 20 years relative to their counterparts with less education.

Full-time male and female workers ages 25–34 have lower median annual earnings in constant dollars in 2002 than in 1971 at all education levels, except those with a bachelor's or higher degree (see supplemental table 14-1). Among those with a bachelor's degree or higher, no significant difference in earnings was detected among males, and earnings were higher in 2002 than in 1971 among females.

For both males and females, earnings increase with education: full-time workers with at least a bachelor's degree have higher median earnings than those with less education. For example, in 2002, male college graduates earned 65 percent more than male high school completers¹ (see supplemental table 14-2). Females with a bachelor's or higher degree earned 71 percent more than female high school completers. Males and females who dropped out of high school earned 23 and 27 percent less, respectively, than male and female high school completers.

The median earnings of young adults who have at least a bachelor's degree declined in the 1970s relative to their counterparts who were

high school completers, before increasing between 1980 and 2002. Males with a bachelor's degree or higher had earnings 19 percent higher than male high school completers in 1980 and had earnings 65 percent higher in 2002. Among females, those with at least a bachelor's degree had earnings 34 percent higher than female high school completers in 1980, compared with earnings 71 percent higher in 2002.

Gaps in median earnings between male and female full-time workers ages 25–34 exist at all levels of educational attainment, but these gaps have narrowed. In 1971, for example, males earned 56 percent more than females, but by 2002 this percentage had declined to 18 percent (see supplemental table 14-3).

There is considerable variation in earnings within education levels. For example, in 2002, among males ages 25–34 with at least a bachelor's degree, those in the highest income quarter earned \$40,511 more than those in the lowest quarter (see supplemental table 14-4). The comparable gap for females was \$26,040.

¹Includes those who earned a high school diploma or a General Education Development (GED) certificate.

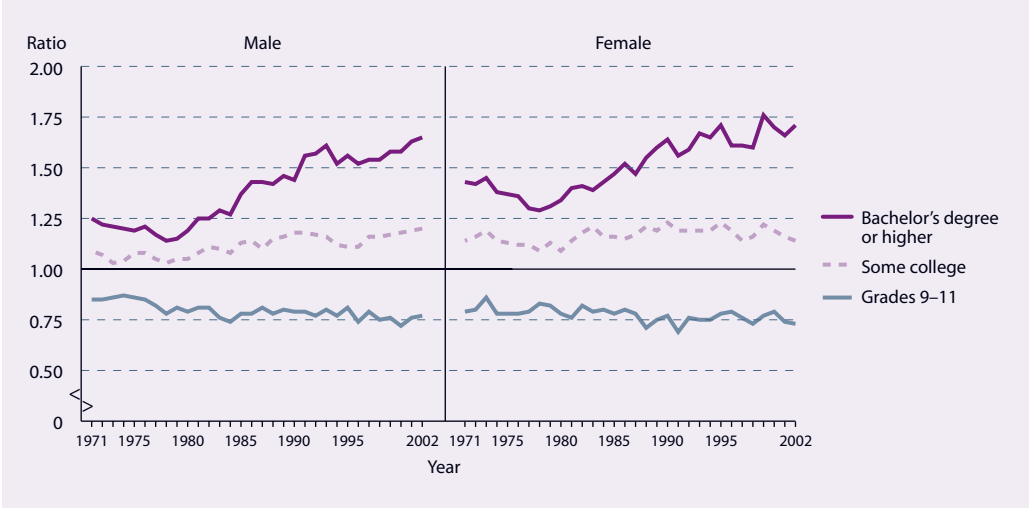
NOTE: The ratio in the graph is the median annual earnings of full-time, full-year workers ages 25–34 at a certain level of educational attainment divided by the median annual earnings of those who have completed high school. This ratio is most useful when compared to the ratio for high school completers (1.0). For example, the ratio of 1.65 for males in 2002 whose highest education level was a bachelor's or higher degree indicates that they earned 65 percent more than males who had a high school diploma or GED. The ratio of 0.73 for females in 2002 whose highest education level was grades 9–11 indicates that they earned 27 percent less than females who had a high school diploma or GED. The Current Population Survey (CPS) questions used to obtain educational attainment were changed in 1992. In 1994, the survey methodology for the CPS was changed and weights were adjusted. See supplemental note 2 for further discussion.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), March Supplement, 1972–2003, previously unpublished tabulation (December 2003).

FOR MORE INFORMATION:
Supplemental Notes 2, 9
Supplemental Tables 14-1,
14-2, 14-3, 14-4



ANNUAL EARNINGS: Ratio of median annual earnings of all full-time, full-year wage and salary workers ages 25–34 whose highest educational level was grades 9–11, some college, or a bachelor's degree or higher, compared with those with a high school diploma or GED, by sex: 1971–2002



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