

Appendix 2

Supplemental Notes





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Note 1: Commonly Used Variables

Certain common variables, such as educational attainment, race/ethnicity, urbanicity, and geographic region are used by different surveys cited in *The Condition of Education 2001*. The definitions for these variables can vary from survey to survey and sometimes vary between different time periods for a single survey. This supplemental note describes how several common variables, used in some indicators in this volume, are defined in each of the surveys that collected that information. In addition, this note describes in further detail certain terms used in some indicators and how monetary figures were adjusted using the Consumer Price Index (CPI) to reflect comparable information from different years.

EDUCATIONAL ATTAINMENT

For surveys that NCES sponsors, the categories of educational attainment are as follows:

- *National Household Education Surveys Program*: Less than high school diploma; High school diploma or GED; Some college/vocational/technical; Bachelor's degree/college graduate; and Graduate or professional degree.
- *Early Childhood Longitudinal Study*: Less than high school; High school diploma or equivalent; Some college, including vocational/technical; and Bachelor's degree or higher.
- *National Education Longitudinal Study of 1988 Eighth Graders*: Less than high school; High school diploma; GED; Some postsecondary education; and Bachelor's degree or higher.
- *High School and Beyond Longitudinal Study of 1980 Sophomores*: Less than high school graduate; High school; Certificate; Associate's; Bachelor's; Master's; Professional; and Doctorate.
- *Beginning Postsecondary Students Longitudinal Study*: Did not complete high school; Completed high school or equivalent; Less than 1 year of occupational/trade/technical or business school; One, but less than 2 years of occupational/trade/technical or business school; Two years or more of occupational/trade/technical or business school; Less than 2 years of college; Two or more years of college, including 2-year degree; Bachelor's degree—4- or 5-year degree; Master's degree or equivalent; MD/DDS/LLB/other advanced professional degree; and Doctoral degree—Ph.D, Ed.D, DBA.

For data from other agencies and organizations, the categories of educational attainment are as follows:

- *Current Population Survey*: Less than 1st grade; 1st, 2nd, 3rd, or 4th grade; 5th or 6th grade; 7th or 8th grade; 9th grade; 10th grade; 11th grade; 12th grade, no diploma; High school graduate, diploma or equivalent (e.g., GED); Some college, no degree; Associate degree, occupational/vocational; Associate degree, academic program; Bachelor's degree; Master's degree; Professional school degree; and Doctorate degree.
- *National Health Interview Survey*: Never attended/kindergarten only; Grades 1–11; 12th grade, no diploma; High school graduate; GED or equivalent; Some college, no degree; Associate degree: occupational, technical, or vocational program; Associate degree: academic program; Bachelor's degree; Master's degree; Professional school degree; and Doctoral degree.
- *Organisation for Economic Co-operation and Development (OECD)*: Early childhood education; Primary education; Lower secondary education; Upper secondary education; Nonuniversity higher educa-

Note 1: Commonly Used Variables

Continued

tion; University higher education; Graduate and professional higher education; and Undistributed. (See *Supplemental Note 9* for further information on these levels.)

Within individual indicators, these categories may be collapsed to facilitate analysis. In *The Condition of Education 2001*, the previous definitions apply to *Indicators 1, 4, 7, 8, 9, 15, 16, 17, 24, 25, 28, 29, 32, 41, 52, 53, 54, and 55.*

RACE/ETHNICITY

Classifications indicating racial/ethnic background are generally based on self-identification, as in data collected by the Bureau of the Census. These categories are in accordance with the Office of Management and Budget's standard classification scheme and are as follows:

- *American Indian/Alaskan Native:* A person having origins in any of the original peoples of North America and maintaining cultural identification through tribal affiliation or community recognition.
- *Asian/Pacific Islander:* A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippines, and Samoa. Please note that indicators based on the Early Childhood Longitudinal Study include Asian children, but not those classified as Pacific Islanders (i.e., Polynesian, Hawaiian, Samoan, Tongan, other Polynesian, Micronesian, Guamanian, other Micronesian and Pacific Islander, not specified).
- *Black:* A person having origins in any of the black racial groups in Africa. In *The Condition of Education*, this category

excludes persons of Hispanic origin except as specifically noted.

- *Hispanic:* A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
- *White:* A person having origins in any of the original peoples of Europe, North Africa, or the Middle East. In *The Condition of Education*, this category excludes persons of Hispanic origin except as specifically noted.
- *Other:* Any person that is not included in the above categories (White, Black, Hispanic, Asian/Pacific Islander, and American Indian/Alaskan Native).

Not all categories are shown in all indicators because of insufficient data in some of the smaller categories.

Indicator 44 uses the categories for race/ethnicity used in the 1999 Youth Risk Behavior Survey (YRBS). The 1999 YRBS asked high school students to self-classify themselves into one or more of the following categories: American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, or White. Students who selected more than one response were categorized as "Hispanic or Latino, regardless of race" if they selected "Hispanic or Latino" as one of their choices; they were categorized as "More than one race, not Hispanic or Latino," if they did not select "Hispanic or Latino" as one of their choices.

URBANICITY

1. In the Census Bureau's Current Population Survey, metropolitan status is based on the concept of a metropolitan area (MA), a large population nucleus together with adjacent

Note 1: Commonly Used Variables

Continued

communities that have a high degree of economic and social integration with that nucleus.

MAs are designated and defined by the Office of Management and Budget, following standards established by the inter-agency Federal Executive Committee on Metropolitan Areas, with the aim of producing definitions that are as consistent as possible for all MAs nationwide.

Each MA must contain either a place with a minimum population of 50,000 or an urbanized area, as defined by the Bureau of the Census, and a total MA population of at least 100,000 (75,000 in New England). An MA is composed of one or more central counties, and an MA can also include one or more outlying counties that have close economic and social relationships with the central county. An outlying county must have a specified level of commuting to the central counties and also must meet certain standards regarding metropolitan character, such as population density, urban population, and population growth. In New England, MAs are composed of cities and towns rather than whole counties. The following terms characterize MAs:

- *Metropolitan*: the territory, population, and housing units in MAs.
- *Inside a central city*: a subdivision of a metropolitan area, which includes only the area inside of the central city.
- *Outside a central city*: a subdivision of a metropolitan area, which includes only the area outside of the central city.
- *Nonmetropolitan*: the territory, population, and housing units located outside MAs.

2. In the National Household Education Surveys Program, urbanicity is based on the Census classification for the highest percentage of households in the respondent's residential ZIP Code. Urbanicity is designated by the following terms:

- *Urbanized area*: a place and the adjacent densely settled surrounding territory that combined have a minimum population of 50,000.
- *Urban, outside of urbanized areas*: incorporated or unincorporated places outside of urbanized areas that have a minimum population of 25,000, with the exception of rural portions of extended cities.
- *Rural*: all areas that are not classified as urban.

3. In the Fast Response Survey System, urbanicity is defined in accordance with Census standards:

- *City*: a central city of a Metropolitan Statistical Area (MSA).
- *Urban fringe*: a place within an MSA of a central city, but not primarily its central city.
- *Town*: a place not within an MSA, but with a population greater than or equal to 2,500 and defined as urban by the Bureau of the Census.
- *Rural*: a place with a population less than 2,500 and defined as rural by the Census.

4. In the Common Core of Data, urbanicity is based on Metropolitan Status Codes. This is the classification of an education agency's service area relative to an MSA.

Note 1: Commonly Used Variables

Continued

Every education agency is placed in one of the following categories:

- *Primarily serves a central city of an MSA*
 - *Serves an MSA but not primarily its central city*
 - *Does not serve an MSA*
5. In the Baccalaureate and Beyond Longitudinal Study, respondents who have taught are asked the locale of the school in which they held their last teaching job. Locale is categorized as follows:
- *Large central city*
 - *Mid-size central city*
 - *Urban fringe of large city*
 - *Urban fringe of mid-size city*
 - *Large town*
 - *Small town*
 - *Rural*
6. The National Health Interview Survey defines urbanicity according to the following metropolitan statistical area categories:
- *MSA of 2,500,000 and above*
 - *MSA of 1,000,000–2,499,999*
 - *MSA under 1,000,000*
 - *Non-MSA*

In *The Condition of Education 2001*, these definitions apply to *Indicators 15, 17, 42, 45, 55, and 56*.

GEOGRAPHIC REGION

Data from different surveys may use different regional classifications for states. The following regional classification system represents the four geographical regions determined by the Bureau of the Census. In *The Condition of Education 2001*, *Indicators 2, 3, 15, 17, 23, and 45* use this system.

Regional Classification	
Northeast	South
Connecticut	Alabama
Maine	Arkansas
Massachusetts	Delaware
New Hampshire	District of Columbia
New Jersey	Florida
New York	Georgia
Pennsylvania	Kentucky
Rhode Island	Louisiana
Vermont	Maryland
	Mississippi
	North Carolina
	Oklahoma
	South Carolina
	Tennessee
	Texas
	Virginia
	West Virginia
Midwest	West
Illinois	Alaska
Indiana	Arizona
Iowa	California
Kansas	Colorado
Michigan	Hawaii
Minnesota	Idaho
Missouri	Montana
Nebraska	Nevada
North Dakota	New Mexico
Ohio	Oregon
South Dakota	Utah
Wisconsin	Washington
	Wyoming

COMMUNITY SERVICE

For *Indicator 16*, the definition of community service encompassed any activity undertaken in the previous year for which the student was not paid. This included formal volunteering through a school or organization and also any

Note 1: Commonly Used Variables

Continued

informal volunteering, such as babysitting for a neighbor or visiting senior citizens. The activity could have been organized and/or required by a school or organization, or undertaken on the student's own prerogative. It included activities done on a regular or one-time basis.

USING THE CONSUMER PRICE INDEX (CPI) TO ADJUST FOR INFLATION

The Consumer Price Indexes (CPIs) represent changes in the prices of all goods and services purchased for consumption by urban households. Indexes vary for specific areas or regions, periods of time, major groups of consumer expenditures, and population groups. Finance indicators in *The Condition of Education* use the "U.S. All Items CPI for All Urban Consumers, CPI-U."

The CPI-U is the basis for both the calendar year CPI and the school year CPI. 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. The school year CPI is rounded to three decimal places. Data for the CPI-U are available on the Bureau of Labor Statistics Web site

(given below). Also, figures for both the calendar year CPI and the school year CPI can be obtained from the *Digest of Education Statistics 2000* (NCES 2001-034), an NCES annual publication.

Although the CPI has many uses, its principal function in *The Condition of Education* is to convert monetary figures (salaries, expenditures, income, and so on) into inflation-free dollars to allow comparisons over time. For example, due to inflation, the buying power of a teacher's salary in 1995 is not comparable to that of a teacher in 2000. In order to make such a comparison, the 1995 salary must be converted into 2000 constant dollars using the following formula: the 1995 salary is multiplied by a ratio of the 2000 CPI over the 1995 CPI.

$$1995 \text{ salary} * \frac{(2000 \text{ CPI})}{(1995 \text{ CPI})} = 1995 \text{ salary in } 2000 \text{ constant dollars}$$

For more detailed information on how the CPI is calculated or the other types of CPI indexes, go to the Bureau of Labor Statistics Web site (<http://www.bls.gov/cpihome.htm>).

In *The Condition of Education 2001*, this description of the CPI applies to *Indicators 18* and *56*.

Note 2: The Current Population Survey (CPS)

The CPS, a monthly survey of approximately 50,000 households in the United States, has been conducted for more than 50 years. The Bureau of the Census conducts the survey for the Bureau of Labor Statistics. The CPS collects data on the social and economic characteristics of the civilian, noninstitutional population, including information on income, education, and participation in the labor force.

Each month a “basic” CPS questionnaire is used to collect data on the labor force participation of each member age 15 and above in every sample household. In March and October of each year, the CPS includes additional questions about education. The Annual Demographic Survey or March CPS supplement is the primary source of detailed information on income and work experience in the United States. The March CPS is used to generate the annual Population Profile of the United States, reports on geographical mobility and educational attainment, and detailed analysis of money income and poverty status. Each October, in addition to the basic questions about education, interviewers ask supplementary questions about school enrollment for all household members age 3 and above.

Interviewers initially used printed questionnaires. Since 1994, the Census Bureau has used Computer-Assisted Personal (and Telephone) Interviewing (CAPI and CATI) to collect data. CAPI allows interviewers to use a complex questionnaire and increases consistency by reducing interviewer error. Further information on the CPS can be found at the Census Bureau Web site (<http://www.bls.census.gov/cps>).

DEFINITION OF SELECTED VARIABLES

Family income

The October CPS collects data on family income, which is used in *Indicator 26* to measure

a student’s economic standing. Low income is the bottom 20 percent of all family incomes, high income is the top 20 percent of all family incomes, and middle income is the 60 percent in between. The table at the end of this note shows the real dollar amount (rounded to the nearest \$100) of the breakpoints between low and middle income and between middle and high income. For example, low income in 1999 was defined as the range between \$0 and \$14,700, middle income was defined as the range between \$14,701 and \$68,000, and high income was defined as \$68,001 or more. Therefore, the breakpoints between low and middle income and between middle and high income were \$14,700 and \$68,000, respectively.

Parental education

For *Indicators 4* and *26*, information on parents’ education was obtained by merging data from parents’ records with their children’s. Estimates of a mother’s and father’s education were calculated only for children who lived with their parents at the time of the survey. For example, estimates of a mother’s education are based on children who lived with “both parents” or with “mother only.” For children who lived with “father only,” the mother’s education was unknown; therefore, the “unknown” group was excluded in the calculation of this variable.

Educational attainment

Data from CPS questions on educational attainment are used for *Indicators 4, 18, 23, 26, and 31*.

From 1972 to 1991, two CPS questions provided data on the number of years of school completed: (1) “What is the highest grade . . . ever attended?” and (2) “Did . . . complete it?” An individual’s educational attainment was considered to be his or her last fully completed year of school. Individuals who com-

Note 2: The Current Population Survey (CPS)

Continued

pleted 12 years were deemed to be high school graduates, as were those who began but did not complete the first year of college. Respondents who completed 16 or more years were counted as college graduates.

Beginning in 1992, the CPS combined the two questions into the following question: “What is the highest level of school . . . completed or the highest degree . . . received?” In the revised response categories, several of the lower levels are combined in a single summary category such as “1st, 2nd, 3rd, or 4th grades.” Several new categories are used, including “12th grade, no diploma”; “High school graduate, high school diploma, or the equivalent”; and “Some college but no degree.” College degrees are now listed by type, allowing for a more accurate description of educational attainment. The new question emphasizes credentials received rather than the last grade level attended or completed if attendance did not lead to a credential. The new categories include the following:

- High school graduate, high school diploma, or the equivalent (e.g., GED)
- Some college but no degree
- Associate’s degree in college, occupational/vocational program
- Associate’s degree in college, academic program
- Bachelor’s degree (e.g., B.A., A.B., B.S.)
- Master’s degree (e.g., M.A., M.S., M.Eng., M.Ed., M.S.W., M.B.A.)
- Professional school degree (e.g., M.D., D.D.S., D.V.M., LL.B., J.D.)
- Doctoral degree (e.g., Ph.D., Ed.D.)

The change in questions in 1992 affects comparisons of educational attainment over time.

High school completion

The pre-1992 questions about educational attainment did not consider high school equivalency certificates (GEDs). Consequently, an individual who attended 10th grade, dropped out without completing that grade, and who subsequently received a high school equivalency credential would not have been counted as completing high school. The new question counts these individuals as if they are high school graduates. Since 1988, an additional question has been included in which respondents are asked if they have a high school degree or the equivalent, such as a GED. People who respond “yes” are classified as high school graduates. Before 1988, the majority of high school graduates did not fall into this category, and the overall increase in the total number of people counted as high school graduates is small.

Before 1992, the CPS considered individuals who completed 12th grade to be high school graduates. The revised question added a response category: “12th grade, no diploma.” Individuals who select this response are not counted as graduates. The number of individuals in this category in this publication is small.

Despite these changes in the procedures for assessing the completion of a high school degree or its equivalent, the overall impact is also likely to be small and, perhaps, insignificant.

College completion

Some students require more than 4 years to earn an undergraduate degree, so some researchers are concerned that the completion rate, based on the pre-1992 category “4th year or higher of college completed,” overstated the number of respondents with a bachelor’s degree (or higher). In fact, however, the completion rates among those ages 25–29 in 1992 and 1993 were similar to the completion rates among those in 1990 and 1991, before the

Note 2: The Current Population Survey (CPS)

Continued

change in the question's wording. In sum, there is little reason to believe that the change has affected the completion rates reported in this publication.

Some college

Based on the question used in 1992 and in subsequent surveys, an individual who attended college for less than a full academic year would respond "some college but no degree." Before 1992, the appropriate response would have been "attended first year of college and did not complete it"; the calculation of the percentage of the population with 1–3 years of college excluded these individuals. With the new question, such respondents are placed in the "some college but no degree" category. Thus, the percentage of individuals with some college might be larger than the percentage with 1–3 years of college because "some college" includes those who have not completed an entire year of college, whereas "1–3 years of college" does not include these people. Therefore, it is not appropriate to make comparisons between the percentage of those with "some college but no degree" using the post-1991 question and the percentage of those who completed "1–3 years of college" using the two pre-1992 questions.

EFFECTS OF CHANGES IN EDUCATIONAL ATTAINMENT QUESTIONS ON EARNINGS DATA

Indicator 18 presents estimates of annual median earnings for wage and salary workers with different levels of education. The discussion above suggests that the number of people with a high school diploma or its equivalent (but no further education), based on the post-1991 question, is larger than before because it includes all those with an equivalency certificate. In fact, however, the number of people in this category is smaller because it excludes those who completed 12th grade but did not receive a diploma and those who completed less than a full academic year of college. The latter group is now included in the pre-1992 category, "1–3 years of college."

The employment and earnings of respondents who were added and dropped from each category are similar; therefore, the net effect of the reclassification on employment rates and average annual earnings is likely to be minor. Thus, it is still useful to compare the employment rates and median annual earnings of recent cohorts with some college or an associate's degree with older cohorts who completed 1–3 years of college.

For further information on this issue, see Kominski and Siegel (1993).

Note 2: The Current Population Survey (CPS)

Continued

Dollar value (in current dollars) at the breakpoint between low- and middle- and between middle- and high-income categories of family income: October 1970–99

October	Breakpoints between:	
	Low- and middle-income	Middle- and high-income
1970	\$3,300	\$11,900
1971	—	—
1972	3,500	13,600
1973	3,900	14,800
1974	—	—
1975	4,300	17,000
1976	4,600	18,300
1977	4,900	20,000
1978	5,300	21,600
1979	5,800	23,700
1980	6,000	25,300
1981	6,500	27,100
1982	7,100	31,300
1983	7,300	32,400
1984	7,400	34,200
1985	7,800	36,400
1986	8,400	38,200
1987	8,800	39,700
1988	9,300	42,100
1989	9,500	44,000
1990	9,600	46,300
1991	10,500	48,400
1992	10,700	49,700
1993	10,800	50,700
1994	11,800	55,500
1995	11,700	56,200
1996	12,300	58,200
1997	12,800	60,800
1998	13,900	65,000
1999	14,700	68,000

— Not available.

NOTE: Amounts are rounded to the nearest \$100.

Note 3: The National Household Education Surveys Program (NHES)

The National Household Education Surveys Program (NHES), conducted in 1991, 1993, 1995, 1996, and 1999, collects data on education issues that cannot be addressed by collecting data on a school level. Each survey collects data from households on at least two topics, such as adult education, civic involvement, parental involvement in education, and early childhood education. The NHES will be conducted again in 2001 and will collect information in three topical areas: adult education and lifelong learning; participation in early childhood programs; and before- and after-school programs and activities for children in grades K–8. Additional information on the NHES can be obtained at the NCES Web site (<http://nces.ed.gov/nhes/>).

INTERVIEWING PROCEDURES

The NHES surveys the civilian, noninstitutionalized U.S. population in the 50 states and the District of Columbia. Interviews are conducted using computer-assisted telephone interviewing.

NHES collects data from adults as well as children. Data on young children are collected primarily by interviewing parents or guardians of children, and only infrequently by interviewing the children themselves. When such children are sampled to participate in NHES, the parent or guardian most knowledgeable about the child's care and education is interviewed. In 1996 and 1999, NHES also interviewed children in grades 6 through 12 with respect to their involvement in various civic and community activities.

Although NHES is conducted primarily in English, provisions are made to interview persons who speak only Spanish. Questionnaires are translated into Spanish, and bilingual interviewers, who are trained to complete the interview in either English or Spanish, are employed.

AGE OF THE CHILD

Indicator 52 presents information on preprimary education for 3-, 4-, and 5-year-olds by the child's age. NHES reports the "age of the child" for 1991 data as the age that child was on December 31, 1990; December 31, 1992 for 1993 data; December 31, 1994 for 1995 data; December 31, 1995 for 1996 data; and December 31, 1998 for 1999 data.

PARENTS' EDUCATION

Parents' education is defined as the highest level of education of the child's parents or nonparent guardians who reside in the household. The variable is based on the higher of the educational levels of the mother or female guardian or the father or male guardian. If only one parent resided in the household, that parent's education is used. *Indicators 1, 16, and 25* present data by parents' education.

PREPRIMARY ENROLLMENT RATES

Preprimary enrollment rates are calculated for *Indicator 1* by dividing the number of 3-, 4-, and 5-year-olds who (according to NHES data) were enrolled in center-based programs or kindergarten (as of December 31 of the year preceding the survey) by the total number of children ages 3, 4, and 5 in the United States as of the same date, according to the Bureau of the Census. Children who were enrolled in 1st grade or higher or who were in the "ungraded" category were excluded from the calculation of enrollment rates.

In 1999, NHES allowed respondents to indicate whether a child was enrolled only in a center-based program, only in kindergarten, or dually enrolled in both a center-based program and kindergarten. Respondents were allowed to indicate that a child was dually enrolled only if the respondent first indicated that the child was enrolled in kindergarten in

Note 3: The National Household Education Surveys Program (NHES)

Continued

a series of enrollment questions. If a respondent first stated that a child was enrolled in a center-based program, the respondent was not allowed to indicate that the child was also enrolled in kindergarten. Due to this limitation in response options, dual enrollment may be underestimated. In supplemental table 1-1, the estimates of enrollment in center-based programs or kindergarten are not affected by this consideration.

Indicator 1 presents data on preprimary enrollment rates including dual enrollment for 1999. The indicator does not present data on dual enrollment for the earlier years.

ADULT EDUCATION

The adult education and lifelong learning survey excluded those who are on active military duty, who are institutionalized, and who are enrolled full time in a high school program. Adults were only asked about their literacy activities for literature written in English. Some adults, whose primary language is not English, may engage in literacy activities with materials written in their primary language. The NHES questions did not assess these activities.

POVERTY

NHES data on household income and the number of people living in the household, combined with information from the Bureau of the Census on income and household size, are used to classify children as “poor” or “nonpoor.” Children in families whose incomes are at or below the poverty threshold are classified as “poor”; children in families with incomes above the poverty threshold are classified as “nonpoor.” The thresholds used to determine whether a child is “poor” or “nonpoor” differ for each survey year. The weighted average poverty thresholds for various household sizes for 1991, 1993, 1995, 1996, and 1999 are shown in the table on the following page.

It is not possible to determine whether respondents’ families are above or below the poverty threshold for 1991 or 1993 with the same accuracy as for 1995, 1996, and 1999. In the earlier years, respondents were asked to indicate where their incomes fell within broad categories. In later years, respondents were asked to provide more precise estimates of household income. *Indicator 1* presents data by children’s poverty status.

Note 3: The National Household Education Surveys Program (NHES)

Continued

Weighted average poverty thresholds, by household size: 1991, 1993, 1995, 1996, and 1999

Household size	Poverty threshold	Household size	Poverty threshold
NHES:1991		NHES:1996	
2	\$8,865	2	10,233
3	10,860	3	12,516
4	13,924	4	16,036
5	16,456	5	18,952
6	18,587	6	21,389
7	21,058	7	24,268
8	23,582	8	27,091
9 or more	27,942	9 or more	31,971
NHES:1993		NHES:1999	
2	9,414	2	10,636
3	11,522	3	13,001
4	14,763	4	16,655
5	17,449	5	19,682
6	19,718	6	22,227
7	22,383	7	25,188
8	24,838	8	28,023
9 or more	29,529	9 or more	33,073
NHES:1995		SOURCE: U.S. Department of Education, NCES. National Household Education Surveys Program (NHES), 1991, 1993, 1995, 1996, and 1999.	
2	9,933		
3	12,158		
4	15,569		
5	18,408		
6	20,804		
7	23,552		
8	26,267		
9 or more	31,280		

Note 4: The National Assessment of Educational Progress (NAEP)

The National Assessment of Educational Progress (NAEP), administered regularly in a number of subjects since 1969, has two major goals: (1) to assess student performance reflecting current educational and assessment practices; and (2) to measure change in student performance reliably over time. To address these goals, the NAEP includes a main assessment and a long-term trend assessment. The assessments are administered to separate samples of students at separate times, use separate instrumentation, and measure different educational content. Consequently, results from the assessments should not be compared. Data presented in *The Condition of Education 2001* are from the long-term trend assessment.

LONG-TERM TREND NAEP

Indicators 10, 11, 12, 13, and 22 are based on the long-term trend NAEP. The long-term trend NAEP measures student performance in science, reading, writing, and mathematics. The long-term assessments have used the same instruments since their first administrations in the late 1960s and early 1970s for science, reading, and mathematics and in the early 1980s for writing. Accordingly, the long-term trend NAEP does not reflect current teaching standards or curricula. Nonetheless, the long-term trend NAEP facilitates comparisons of student performance over time.

Results from the long-term trend NAEP are presented as mean scale scores. Unlike the main NAEP, the long-term trend NAEP does not define achievement levels. Another important difference between the two assessments is that they collect data from different groups. In the main NAEP, results are reported for grades 4, 8, and 12. In most long-term trend assessments, average scores are reported by age. For science, read-

ing, and mathematics, students at ages 9, 13, and 17 are assessed.

The meaning of scale scores at different levels of the assessment scale is shown in supplemental table 10-5 for reading, supplemental table 12-5 for mathematics, and supplemental table 13-5 for science.

MAIN NAEP

The main NAEP periodically assesses students' performance in several subjects, following the curriculum frameworks developed by the National Assessment Governing Board (NAGB) and using the latest advances in assessment methodology. NAGB develops the frameworks using curriculum standards developed within the field, such as the mathematics standards developed by the National Council of Teachers of Mathematics.

The content and nature of the main NAEP evolves to match instructional practices, so the ability to measure change reliably over time is limited. As standards for instruction and curriculum change, so does the main NAEP. As a result, data from different assessments are not always comparable. Recent NAEP main assessment instruments have typically been kept stable for short periods of time, allowing trend results to be reported for, at most, three time points. For some subjects that are not assessed frequently, such as civics and art, no trend data are available.

NAEP results are reported in terms of predetermined achievement levels because each assessment reflects current standards of performance in each subject. The achievement levels define what students who are performing at Basic, Proficient, and Advanced levels of achievement should know and be able to do. NAGB establishes achievement levels whenever a new main NAEP framework is adopted.

Note 5: International Assessments, TIMSS, and TIMSS-R

Under the auspices of the International Association for the Evaluation of Educational Achievement (1997a, 1997b, 1997c, 1997d, 1998), the Third International Mathematics and Science Study (TIMSS) assessed and collected data for more than half a million students at five grade levels (the 3rd, 4th, 7th, and 8th grades plus the final year of secondary school), providing information on student achievement, student background characteristics, and school resources in 45 countries in 1995. In 1999, the TIMSS study was repeated at the 8th-grade level for both mathematics and science, resulting in the Third International Mathematics and Science Study – Repeat (TIMSS-R). Data presented in *The Condition of Education 2001* are taken from both the 1995 and 1999 assessment components (*Indicators 14 and 43*), as well as the Video Classroom Study (*Indicator 36*). This note provides descriptions for each of these components.

TIMSS ASSESSMENT COMPONENTS

The assessment components of TIMSS tested students in three populations:

- *Population 1*: Students enrolled in the two adjacent grades that contained the largest proportion of 9-year-old students at the time of the assessment—3rd- and 4th-grade students in most countries.
- *Population 2*: Students enrolled in the two adjacent grades that contained the largest proportion of 13-year-old students at the time of the assessment—7th- and 8th-grade students in most countries.
- *Population 3*: Students enrolled in their final year of secondary education, which ranged from 9th to 14th grade. In many countries, students in more than one grade participated in the study because the length of secondary education varied by type of program (e.g., academic, technical, vocational). No indicators in *The Condition*

of Education 2001 used data from this population.

Although internationally defined target populations were established, the results should be interpreted carefully because countries differed for various reasons in how they actually defined their populations and in their compliance with the TIMSS sampling guidelines. Consequently, reasons for differences in performance are not clear, and assumptions cannot easily be made about the relationship between performance and the differences among countries' samples.

All countries that participated in the study were required to administer assessments to the students in the two grades at *Population 2* but could choose whether to participate in the assessments of other populations. Forty-six countries participated in the survey of *Population 2*.

For all *Populations*, participating countries were required to meet sampling and other guidelines. In some situations, where it was not possible to implement testing for the entire International Desired Population (*Population 1, 2, or 3*), countries defined a National Desired Population, which excluded some portion of the International Desired Population. Countries were also permitted within their desired population to define a population that excluded a small percentage (less than 10 percent) of schools or students that would be difficult to test (e.g., small schools or schools located in a remote area). Only England exceeded the 10 percent level for *Populations 1 and 2*, excluding 12.1 and 11.3 percent of schools, respectively.

TIMSS used a two-stage sample design. For *Populations 1 and 2*, the first stage involved selecting, at a minimum, 150 public and private schools within each country. Nations were allowed to over sample to allow for analyses of particular national interest, and all collected data were appropriately weighted to account

Note 5: International Assessments, TIMSS, and TIMSS-R

Continued

for the final sample. Random sampling methods were then used to select from each school one mathematics class for each grade level within a population (generally 3rd and 4th for *Population 1* and 7th and 8th for *Population 2*). All of the students in these mathematics classes then participated in the TIMSS testing in mathematics and science.

The required participation rates from the samples for all *Populations* were at least 85 percent of both schools and students or a combined rate of 75 percent for schools and students. Countries that did not reach a 50 percent participation rate without the inclusion of replacement schools, or failed to reach the required rate even with the inclusion of replacement schools, failed to meet the sampling standards for participation.

TIMSS-R ASSESSMENT COMPONENTS

The TIMSS study was repeated at the 8th-grade level for both mathematics and science in 1999, resulting in TIMSS-R. All countries that participated in TIMSS in 1995 were invited to participate in TIMSS-R, as were countries that did not participate in 1995. In total, 38 countries collected data for TIMSS-R, including 26 that had participated in TIMSS and 12 that participated for the first time.

TIMSS-R used the same international sampling guidelines as TIMSS to ensure that the data are comparable between the two studies. In order for a country to be included in TIMSS-R, it had to meet several international guidelines. The sample was to be representative of at least 90 percent of students in the total population eligible for the study; therefore, exclusion rates had to be less than 10 percent. The required participation rates from the samples were to be at least 85 percent of both schools and students or a combined rate of 75 percent for schools and students. Countries that did not reach a participation rate of 50 percent without replacement schools, or that failed to reach the required rate even with the inclusion of replacement schools, failed to meet the sampling standards for participation. The table below details the countries that did not meet the complete sampling guidelines and the reason.

For TIMSS-R, the international desired population consisted of all students in the country who were enrolled in the upper of the two adjacent grades that contained the greatest proportion of 13-year-olds at the time of testing. In the United States and most countries, this corresponded to grade 8. If the national desired population of a nation fell below 65 percent, the country’s name is annotated to reflect

Countries covering less than 100 percent of the international desired population: 1999

Country	International desired population coverage	National desired population overall exclusion	Note on coverage
Israel	100	16.1	Exclusion rate more than 10 percent
Latvia	61	4	Exclusion of 39 percent of student population (non-Latvian-speaking students)
Lithuania	87	4.5	Exclusion of 13 percent of student population (non-Lithuanian-speaking students)

Note 5: International Assessments, TIMSS, and TIMSS-R

Continued

this fact. This differed slightly from the sampling method used in TIMSS in 1995. The TIMSS population consisted of students enrolled in the two adjacent grades that contained the largest proportion of 9-year-old or 13-year-old students at the time of assessment—3rd- and 4th-grade students in most countries for 9-year-olds and 7th- and 8th-grade students in most countries for 13-year-olds.

TIMSS-R used the same assessment framework designed for TIMSS. Approximately one-third of the original 1995 TIMSS assessment items were kept secure so that they could be included in the 1999 TIMSS-R assessment. For the two-thirds that were released to the public, a panel of international assessment and content experts and the national research coordinators of each participating country developed and reviewed replacement items that closely matched the content of the original items to provide trend data. The assessment and questionnaire items were developed and field-tested for similarity and to allow reliable comparisons between TIMSS and TIMSS-R.

VIDEOTAPE CLASSROOM STUDY

TIMSS included a Videotape Classroom Study that examined (1) teachers' beliefs about reform and how these beliefs related to instructional practices; (2) the organization and process of mathematics instruction; and (3) the mathematical content of lessons in 231 8th-grade classrooms in Germany, Japan, and the United States.

The Videotape Classroom Study selected this set of 8th-grade classrooms to be representative of the classrooms in the main study (NCES 1999–074). The final sample of schools in the study included 100 German classrooms, 81 U.S. classrooms, and 50 Japanese classrooms from 231 schools that were randomly selected from the original TIMSS sample. In the United

States, one 8th-grade classroom per school was randomly selected from the 8th-grade classrooms that participated in the TIMSS assessment. As an incentive to participate, videotaped U.S. teachers received a \$300 grant to be used for a purpose decided jointly by the teacher and principal. In Germany, 100 schools with a single 8th-grade classroom that participated in the TIMSS assessment were randomly selected for the study. Participating German teachers received a modest stipend for their participation. In Japan, only schools—not 8th-grade classrooms—were randomly selected. One-third of Japanese schools with 8th-grade classrooms that participated in the TIMSS assessment were asked to participate in the study, but in schools with more than one 8th-grade classroom, school principals selected the 8th-grade classroom for videotaping from among those in their school that had not participated in the TIMSS assessment. Participating Japanese teachers received a small token of appreciation and a videotape of their teaching. In all three countries, if a teacher in the original sample of schools refused to be videotaped, then the school was dropped from the study and an equivalent school was randomly selected.

Videotaping of U.S. and German classrooms took place between October 1994 and May 1995. In Japan, the academic year begins in April, so all videotaping was conducted between November 1994 and March 1995. Because the national curriculum in Japan devotes the first half of the academic year to algebra and the second half of the year to geometry, geometry lessons were over-represented in the sample of lessons from Japanese classrooms. To compensate for this, five additional Japanese classrooms were sampled in the following school year to increase the number of Japanese algebra lessons.

After their classroom was videotaped, teachers were asked to complete a 28-item ques-

Note 5: International Assessments, TIMSS, and TIMSS-R

Continued

tionnaire. English, German, and Japanese versions of the questionnaire were created and judged to be equivalent by a group of researchers, each of whom was fluent in at least two of the languages. Over 90 percent of teachers in each country who were videotaped returned the questionnaire—91 percent in Germany, 94 percent in Japan, and 98 percent in the United States. Teachers were asked to describe the videotaped lesson, how typical that lesson was for their class, and their understanding of current reform efforts and to what extent these reforms were evident in the videotaped lesson.

Each of the videotaped lessons was examined to assess various elements of the lesson: the lesson's coherence, the type of reasoning required of students, the level of complexity of the lesson's content, the connections between parts of the lesson, and the kinds of tasks students were asked to engage in as part of the lesson. Examples of the type of comparisons made possible from these analyses are presented in supplemental tables 36-1, 36-2, and 36-3 as well as in chapters 3 and 4 of NCES 1999–074. (These chapters also explain in detail the elements and terms used in this indicator, most of which have technical definitions.)

A subset of lessons—15 in algebra and 15 in geometry—were also selected from each country for in-depth content analysis. (The subset for Japan included the five additional sampled

Japanese algebra lessons.) For this in-depth analysis, elements of the lessons (e.g., organization, content, interaction, and activities) were recorded graphically, so they could be rated by a panel without any references or clues (e.g., monetary units) to the national origin of the lesson. An independent panel of four experts in mathematics and mathematical teaching received these graphic representations or “Lesson Tables” and rated these lessons as containing overall low-, medium-, or high-quality mathematical content, among other analyses. It is important to stress that this panel did not watch the videotaped lessons directly and thus did not rate the quality of the teaching in the classroom. They rated only the quality of mathematical content and did so only on the basis of the Lesson Tables, which masked the lesson's national origin in order to reduce the possibility of rating bias. Their global ratings of quality were based on an overall understanding of the detailed analyses of the lesson's elements as well as an understanding of the quality of the mathematics contained in each lesson. Each panel member rated each lesson. Initial agreement among the panel members on the global ratings of the quality of the mathematical content was high. When there was disagreement on the rating, consensus was reached through discussion. Thus, while the ratings of the quality of the mathematical content are subjective, they are based on a series of expert analyses.

Note 6: NAEP, NELS, and HS&B Transcript Studies

Indicators 24, 33, 34, and 35 of this volume and *Indicator 40, The Condition of Education 2000* summarize course-taking data from transcripts of graduates of public high schools collected as part of the U.S. Department of Education's National Assessment of Educational Progress (NAEP), National Education Longitudinal Study of 1988 Eighth Graders (NELS), and the High School and Beyond study (HS&B). *Indicator 28* uses a variable called "academic rigor" that is based on these data and information about students' participation in Advanced Placement (AP) courses and tests. *Indicator 24* uses two variables, "high school mathematics curriculum" and "8th-grade mathematics proficiency levels," that are based on NELS data. *Indicator 29* uses data from the U.S. Department of Education's High School and Beyond Postsecondary Transcript File (described at the end of this note).

NAEP, NELS, AND HS&B

For the purpose of comparing the academic challenge or difficulty of high school graduates' completed courses, the data from the NAEP, NELS, and HS&B transcript studies have been classified according to their course title into various levels of academic "pipelines." Created by researchers at the University of Michigan (Burkam, Lee, and Smerdon 1997), academic pipelines organize courses in mathematics, science, English, and foreign language into levels based on the normal progression and difficulty of courses within these subject areas. Each level has been constructed to include courses of similar academic challenge and difficulty or at the same stage in the progression of learning in that subject area. In the mathematics pipeline, for example, algebra I is placed at a level lower in the pipeline hierarchy than is algebra II because algebra I is less difficult than (and is traditionally taken before) algebra II.

Classifying transcript data into these levels allows one to conclude that high school graduates who have completed courses at the higher levels of a pipeline have completed more advanced coursework than graduates whose courses fall at the lower level of the pipeline. Tallying the percentage of graduates who completed courses at each level permits comparisons of the degree of academic challenge and difficulty of completed coursework among graduates of a given year, as well as among different graduating classes. This system of classification does not, however, allow one to make statements about the rigor of the coursework completed by students because courses with the same name in different districts and states can have different content and different expectations for performance.

Likewise, this system of classification does not provide information on the highest level of coursework graduates *attempted* in a subject area. The pipeline is used only to classify *completed* courses in a subject area. The pipeline also does not provide information on how many courses graduates completed in a particular subject area. Graduates are placed at a particular level in the pipeline based on the level of their highest completed course, regardless of whether they completed courses that would fall lower in the pipeline. Thus graduates who completed year 3 of (or 11th-grade) French did not necessarily complete the first 2 years.

For an analysis of the comparability of transcript studies from 1982 through 1994, see NCES 98-532.

Mathematics pipeline

Originally developed by Burkam, Lee, and Smerdon (1997), the mathematics pipeline progresses from no mathematics courses or non-academic courses to low, middle, and advanced academic coursework. Each level in the pipeline represents the highest level of mathematics

Note 6: NAEP, NELS, and HS&B Transcript Studies

Continued

coursework that a graduate completed in high school. Thus, a graduate whose highest course is at the low academic level progressed no further in the mathematics pipeline and did not complete a traditional algebra I course, a prerequisite for higher level mathematics in high school.

The mathematics pipeline has eight levels: no mathematics; nonacademic; low academic; middle academic I; middle academic II; advanced I; advanced II; and advanced III. Middle levels I and II and advanced levels I, II, and III can be combined to create one middle level and one advanced level, respectively, thus creating a five-level pipeline (no mathematics; nonacademic; low academic; middle academic; and advanced).

Indicator 24 uses a modified version of this pipeline. This modified version

- merges the three lowest levels into the category “no mathematics/nonacademic”;
- retains the middle academic levels I and II as distinct categories; and
- uses the combined advanced academic level to create a four-level pipeline.

Indicator 40, The Condition of Education 2000 uses the entire pipeline.

Indicator 35 uses only the highest level of the five-level pipeline—advanced academic mathematics.

No mathematics

No coursework completed in mathematics by graduate, or only basic or remedial-level mathematics completed. It is thus possible for a graduate to have taken one or more courses in mathematics, but to be placed in the no mathematics level.

Nonacademic level

Highest completed courses are in general mathematics or basic skills mathematics, such as general mathematics I or II; basic mathematics I, II, or III; consumer mathematics; technical or vocational mathematics; and mathematics review.

Low academic level

Highest completed courses are preliminary courses (e.g., prealgebra) or mathematics courses of reduced rigor or pace (e.g., algebra I taught over the course of 2 academic years). Considered to be more academically challenging than nonacademic courses, courses at this level include prealgebra; algebra I, part I; algebra I, part II; and geometry (informal).

Middle academic level

The middle academic level is divided into two sublevels, each of which is considered to be more academically challenging than the nonacademic and low academic levels, though level I is not considered as challenging as level II.

- Middle academic level I

Highest completed courses include algebra I, plane geometry, plane and solid geometry, unified mathematics I and II, and pure mathematics.

- Middle academic level II

Highest completed course is algebra II or unified mathematics III.

Advanced academic level

The advanced academic level is divided into three sublevels, each of which is considered more academically challenging than the nonacademic, low academic, and middle academic levels, though level I is not considered as challenging as level II, nor level II as challenging as level III.

Note 6: NAEP, NELS, and HS&B Transcript Studies

Continued

- Advanced academic level I

Highest completed course is algebra III, algebra/trigonometry, algebra/analytical geometry, trigonometry, trigonometry/solid geometry, analytical geometry, linear algebra, probability, probability/statistics, statistics, statistics (other), or an independent study.

- Advanced academic level II

Highest completed course is precalculus or an introduction to analysis.

- Advanced academic level III

Highest completed course is Advanced Placement (AP) calculus, calculus, or calculus/analytical geometry.

Science pipeline

Unlike mathematics and other subjects, such as foreign languages, coursework in science does not follow a common or easily defined sequence. Depending on a school's curriculum, students can choose from several courses with minimal sequencing requirements. Consequently, the method used to construct the science pipeline differs from that used to construct the mathematics pipeline. First, all science courses were placed in one of four groups based on subject matter: (1) life science (biology); (2) chemistry; (3) physics; and (4) all other physical sciences (e.g., geology, earth science, physical science). Second, a pipeline was constructed for each of these four groups. Third, the pipelines for chemistry, physics, and all other physical sciences were combined into a single pipeline (a physical science pipeline). Finally, the physical science and life science pipelines were combined to create a single science pipeline. The final pipeline has seven levels: no science; primary physical science; secondary physical science; biology; chemistry I or physics I; chemistry I and physics I; and chemistry II or physics II.

Indicator 40, The Condition of Education 2000 uses the entire pipeline.

Indicator 35 combines the three highest levels into the category "advanced science."

No science

Includes graduates who did not complete any courses in science or who completed only basic or remedial-level science. It is possible for a graduate to have taken one or more courses in science but to be placed in the no science level.

Primary physical science

Highest completed course is in basic physical sciences: applied physical science, earth science, college preparatory earth science, and unified science.

Secondary physical science

Highest completed course is astronomy, geology, environmental science, oceanography, general physics, basic biology I, or consumer or introductory chemistry.

Biology

Highest completed course is general biology I; secondary life sciences (including ecology, zoology, marine biology, and human physiology); or general or honors biology II, and advanced biology. Advanced biology includes International Baccalaureate (IB) biology 2, IB biology 3, AP biology, field biology, genetics, biopsychology, biology seminar, biochemistry and biophysics, biochemistry, botany, cell and molecular biology, cell biology, microbiology, anatomy, and miscellaneous specialized areas of life sciences.

Chemistry I or Physics I

Highest completed course is introductory chemistry, chemistry I, organic chemistry, physical chemistry, consumer chemistry, general physics, or physics I.

Note 6: NAEP, NELS, and HS&B Transcript Studies

Continued

Chemistry I and Physics I

Highest completed courses include one level I chemistry course (see above) and one level I physics course (see above).

Chemistry II or Physics II

Highest completed course is chemistry 2, IB chemistry 2, IB chemistry 3, AP chemistry, physics 2, IB physics, AP physics B, AP physics C: mechanics, AP physics C: electricity/magnetism, or physics 2 without calculus.

English pipeline

Unlike mathematics or science, English language and literature courses do not fit neatly into an ordered hierarchical framework. Instead of building on previously studied content, the English curriculum is stratified by the level of academic challenge and intensity of work required within a specific content area rather than among different courses. For example, within the general English curriculum, most schools have three tracks that vary by level of academic challenge: below-grade level or low academic level courses, at-grade or regular courses, and above-grade or honors courses. Thus, unlike the mathematics and science pipelines that are based on progress within content continuum (e.g., algebra I, geometry, algebra II, trigonometry, and calculus), the English pipeline is constructed to reflect the proportion of coursework completed by graduates in each track. It reflects the quality of a graduate's English coursetaking rather than the progression from low-level to more challenging coursework (Burkam 2001).

The English pipeline has eight categories: no English coursework; 75 percent or more low academic level courses; 50 percent or more, but less than 75 percent low academic level courses; some, but less than 50 percent low academic level courses; regular, no low academic level or honors courses; some, but less than 50 per-

cent honors courses; 50 percent or more, but less than 75 percent honors courses; and 75 percent or more honors courses.

Indicator 35 combines the three highest levels into the category “advanced English.”

Indicators 33 and *34* use a modified version of this pipeline. This modified version merges the two lowest categories of the low academic level into the category “50 percent or more low academic level courses.”

No English

No courses classified as English ever completed by graduate. It is possible for a graduate to have taken one or more unclassified English courses and to be placed in the “no English” level. For the most part, these graduates completed only coursework in English as a Second Language.

Low academic level

The low academic level is divided into three sublevels.

- 75 percent or more low academic level English courses

The number of completed courses classified as low academic level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage between 75 and 100.

- 50 percent or more, but less than 75 percent low academic level courses

The number of completed courses classified as low academic level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage of 50 or greater and less than 75.

Note 6: NAEP, NELS, and HS&B Transcript Studies

Continued

- Some, but less than 50 percent low academic level courses

The number of completed courses classified as low academic level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage less than 50.

Regular

All completed English courses classified at grade level; no low academic level or honors courses.

Advanced academic level

The advanced academic level is divided into three sublevels.

- Some, but less than 50 percent honors courses

The number of completed courses classified as honors level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage less than 50.

- 50 percent or more, but less than 75 percent honors courses

The number of completed courses classified as honors level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage 50 or greater and less than 75.

- 75 percent or more honors courses

The number of completed courses classified as honors level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage between 75 and 100.

Foreign language pipeline

As in mathematics, coursework in a foreign language follows an ordered, sequential path. Most high school students who study a foreign language progress along such a path, which is typically a sequence of four year-long courses in the language. Not all students do this, however. Some students begin their studies in the middle of a sequence because they have prior knowledge of the language. Some repeat the same year of study. And a few (about 7 percent of 1988 graduates) study more than one language (NCES 2001–325). The highest level of completed coursework in the foreign language pipeline thus may not indicate the total number of years a graduate has studied a foreign language or languages.

The foreign language pipeline also does not classify all foreign language study: only courses in French, German, Latin, and Spanish are counted because these are the most commonly offered foreign languages. The next four most commonly offered foreign languages (Italian, Japanese, Hebrew, and Russian) each accounted for less than 1 percent of 1988 graduates who studied foreign languages in the unweighted NELS:88 sample that was used to create the pipeline (NCES 2001–325). Adding these four languages to the four most common languages made less than 0.1 percent difference in the percentage of graduates who studied a single language, though it made more difference (yet less than 1 percent) in the percentage of graduates who never studied a language and who studied more than one language. In 1998, the total percentage of students who studied one of these next four most commonly offered languages was 4.5 percent.

The foreign language pipeline usually has seven categories: never took a foreign language; completed less than 1 year of 9th-grade instruction; year 1 (1 year of 9th-grade instruction); year 2

Note 6: NAEP, NELS, and HS&B Transcript Studies

Continued

(1 year of 10th-grade instruction); year 3 (1 year of 11th-grade instruction); year 4 (1 year of 12th-grade instruction); and AP instruction.

Indicators 33 and 34 use a modified version of this pipeline. This modified version

- merges the two categories “completed less than 1 year of 9th-grade instruction” and “year 1” into the category “year 1 or less”;
- adds the category “low academic level,” which totals the percentage of graduates who completed year 1 or less and those who completed year 2; and
- adds the category “advanced academic level,” which totals the percentage of graduates who completed year 3 and higher.

Never took foreign language

No courses classified as foreign language study ever completed by graduate. Only courses in the four most common languages (French, German, Latin, and Spanish) are counted as foreign language study, so it is possible for a graduate to have taken one or more courses of some other foreign language and to be placed in this category.

Completed less than 1 year of 9th-grade instruction

Graduate completed less than a full Carnegie unit (1 academic year of coursework) of foreign language instruction.

Year 1 (1 year of 9th-grade instruction)

Graduate completed either a full Carnegie unit (1 academic year of coursework) of 9th-grade (year 1) foreign language instruction, or completed half a Carnegie unit of 10th-grade (year 2) foreign language instruction.

Year 2 (1 year of 10th-grade instruction)

Graduate completed either a full Carnegie unit (1 academic year of coursework) of 10th-grade (year 2) foreign language instruction, or completed half a Carnegie unit of 11th-grade (year 3) foreign language instruction.

Year 3 (1 year of 11th-grade instruction)

Graduate completed either a full Carnegie unit (1 academic year of coursework) of 11th-grade (year 3) foreign language instruction, or completed half a Carnegie unit of 12th-grade (year 4) foreign language instruction.

Year 4 (1 year of 12th-grade instruction)

Graduate completed either a full Carnegie unit (1 academic year of coursework) of 12th-grade (year 1) foreign language instruction or completed half a Carnegie unit of 13th-grade (year 5) foreign language instruction.

AP instruction

Graduate completed an AP foreign language course.

ACADEMIC RIGOR OF HIGH SCHOOL COURSEWORK

The overall difficulty of students’ coursework in high school is an indicator of their academic preparation for postsecondary education. Using previous research as a guide (Adelman 1999; Burkam, Lee, and Smerdon 1997), the variable “academic rigor” was created for *Indicator 28* to reflect the following:

- the number of courses students had completed in the academic subjects of mathematics, science, English, social studies, and foreign language;
- the level or intensity of courses that students had taken in mathematics and science; and

Note 6: NAEP, NELS, and HS&B Transcript Studies

Continued

- whether students had taken any honors or AP courses.

When information on honors/AP coursetaking was missing, *Indicator 28* used AP test-taking as supplementary data. It was assumed that, if AP records indicated that students had taken an AP test, students had taken a honors/AP course.

For *Indicator 28*, the two middle categories were combined:

- *Core New Basics or below*: Student completed no more than 4 years of English and 3 years each of mathematics, science, and social studies.
- *Beyond Core New Basics I*: Student completed at least 4 years of English and 3 years each of mathematics (including algebra 1 and geometry), science (including 2 years of biology, chemistry, or physics), and social studies.
- *Beyond Core New Basics II*: Student completed at least 4 years of English and 3 years each of mathematics (including algebra 2), science (including biology, chemistry, and physics), and social studies.
- *Rigorous*: Student completed at least 4 years each of English and mathematics (including precalculus), 3 years each of science (including biology, chemistry, and physics) and social studies, 3 years of foreign language, and 1 honors/AP course or AP test score.

HIGH SCHOOL MATHEMATICS CURRICULUM

The high school mathematics curriculum variable used in *Indicator 24* is based on the number and level of mathematics courses reported on the high school transcripts of the participants in the 1988 National Education Longitudinal

Study (NELS). The grouping of curriculum levels as reported in this indicator was taken from NCES 2000–153. This report defines four levels of mathematics courses completed by 1992 high school graduates as follows:

- *No mathematics/nonacademic*: student did not take any mathematics courses; took non-academic or low academic courses, including those classified as “general mathematics” or “basic skills mathematics”; low academic courses that comprise preliminary (e.g., prealgebra) or reduced rigor/pace mathematics courses (e.g., algebra I that is spread over 2 academic years and “informal geometry”).
- *Algebra I/geometry*: student completed 2 years of mathematics, including algebra I and geometry, or 2 years of unified mathematics.
- *Algebra II*: student completed an additional year of mathematics, including algebra II, or a 3rd year of a unified mathematics program.
- *Advanced (beyond algebra II)*: student took at least one of any courses labeled as “advanced,” including courses in trigonometry, probability, statistics, introductory analysis or precalculus, algebra III, or calculus.

EIGHTH-GRADE MATHEMATICS PROFICIENCY LEVELS

The 8th-grade mathematics proficiency variable used in *Indicator 24* is based on mathematics tests taken by the NELS participants in 1988 (the base year of the survey) when they were in the 8th grade. The tests were designed in such a way that results could be reported as simple numbers and as performance levels. The 8th-grade proficiency levels reported in this indicator are limited to 1992 high school graduates.

Note 6: NAEP, NELS, and HS&B Transcript Studies

Continued

- *Below Level 1:* student cannot perform simple arithmetical operations on whole numbers.
- *At Level 1, but below Levels 2 and 3:* student can perform at level 1, but below level 2.
- *At Level 1 and 2, but below Level 3:* student can perform simple operations with decimals, fractions, and roots, but cannot perform at level 3.
- *Proficient at all 3 levels:* student can perform at lower levels and can do simple problem solving, requiring conceptual understanding or the development of a solution strategy.

COLLEGE REMEDIATION AND DEGREE COMPLETION

In *Indicator 29*, which compares the postsecondary achievement of students who had taken varying patterns of remedial courses in college, transcript data from the U.S. Department of Education's High School and Beyond Post-

secondary Transcript File were organized according to the number and type of remedial courses completed. Five mutually exclusive categories of remedial coursework were created. Students were placed in these categories as follows. Students with (1) any remedial courses were first identified; then (2) students with two or fewer remedial mathematics courses only; then (3) students with two or more courses in English, mathematics, or other courses other than reading (but not solely two courses in mathematics); then (4) students with only one remedial course other than reading or mathematics; and (5) students with no remedial courses.

Courses defined as remedial include precollege mathematics; arithmetic-based business mathematics; remedial writing; remedial speech; basic reading (but not speed reading); business English: punctuation and grammar; English-as-a-second language; and basic academic skills. For a description of how courses were coded from the High School and Beyond Postsecondary Transcript File, see Adelman (1999).

Note 7: The Baccalaureate and Beyond Longitudinal Study

The Baccalaureate and Beyond (B&B) Longitudinal Studies track the experiences of a cohort of college graduates who received baccalaureate degrees in a given year. B&B data presented in *The Condition of Education 2001* were collected from the first B&B cohort: students, identified in the National Postsecondary Student Aid Study (NPSAS:1993), who completed a bachelor's degree in 1992–93.

The B&B data used for *Indicators 42* and *59* are from the initial and follow-up surveys of the 1992–93 cohort. As part of the initial survey, these students were asked about their future employment and education expectations as well as about their undergraduate education. The B&B:1993 First Follow-up in 1994 (B&B:1993/1994) collected information about their job search activities after graduation as well as information concerning their education and employment experiences after graduation. Individuals who had shown an interest in becoming teachers were asked additional questions about their pursuit of this career, and if teaching, about their current teaching position. In addition, the First Follow-up collected undergraduate transcripts whenever possible. The Second Follow-up in 1997 (B&B:1993/1997) collected information on education, employment, and other experiences since the previous interview.

TEACHER PIPELINE

The “teacher pipeline” is an analytical framework that organizes graduates by the number of steps they have taken toward becoming teachers. All bachelor's degree recipients are considered eligible to enter the teacher pipeline except those who had taught or been certified to teach before getting their bachelor's degree. (Excluded graduates in the analysis of *Indicator 42* constituted 3 percent of all 1992–93 graduates.)

For the purposes of analysis in *Indicator 42*, graduates were classified as “in the teacher pipeline” if they reported that they (1) taught in an elementary or secondary school, (2) became certified to teach, (3) applied for a teaching position, (4) completed a student-teaching assignment as an undergraduate, or (5) were considering teaching at the time of either the 1994 or the 1997 follow-up interview. In 1994, 1 year after completing the 1992–93 degree, one-quarter of 1992–93 bachelor's degree recipients had entered the teacher pipeline (though only 8 percent actually taught). By 1997, 4 years after completing the degree, more than one-third (36 percent) had entered the teacher pipeline and 13 percent had actually taught.

Graduates in the teaching pipeline were further subdivided according to whether they prepared to teach and whether they actually taught. For the purposes of analysis, graduates were defined as “prepared to teach” if their undergraduate transcripts indicated that they had completed a student-teaching assignment or if they reported having earned a teaching certificate at the probationary level or higher. (This label does not indicate that the graduate necessarily majored in education or the subject in which they taught.)

These definitions and classifications for organizing B&B data into the teacher pipeline are the same as those used in NCES 2000–152.

COLLEGE ENTRANCE EXAMINATION SCORES

For *Indicator 42*, college entrance examination scores were used as a proxy measure for academic caliber. Scholastic Assessment Test (SAT) scores were used primarily, but when unavailable, ACT scores were used if they were available. When possible, scores were collected from the Educational Testing Service or the degree-granting institution. However, some self-reported

Note 7: The Baccalaureate and Beyond Longitudinal Study

Continued

scores were also used. For respondents with SAT scores available, a quartile ranking was calculated based upon the distribution of ETS-supplied SAT scores of graduates in the B&B sample who had scores. If no SAT score was available, the quartile ranking of the respondent's ACT composite score was used. These ACT quartiles were determined by converting the SAT quartile scores to equivalent ACT scores using a concordance table (Marco, Abdel-Fattah, and Baron 1992).

GENERAL STUDY DESIGN

The Baccalaureate and Beyond (B&B) Longitudinal Study is based on the National Postsecondary Student Aid Study (NPSAS)—a large, nationally representative sample of institutions, students, and parents. For each NPSAS that serves as the base year for a B&B cohort, the sample is structured to provide an optimum sample of graduating seniors in all majors. This allows the accurate identification of baccalaureate degree completers and provides additional information concerning both past education experiences and future education and employment expectations. Data from all components of NPSAS (the Student Record Abstract, the Student Interview, and the Parent Survey) are available as base-year data for the B&B sample.

B&B:1993 is designed to follow those baccalaureate degree completers identified in NPSAS for about 10 years. About 11,000 students who completed their degree in the 1992–93 academic year were included in the first B&B (B&B:1993/1994). In addition to the student interview data, B&B:1993/1994 collected postsecondary transcripts covering the undergraduate period. These transcripts provide information on progress and persistence at the undergraduate level. The Second B&B Follow-up, which collected data 4 years after the students received their bachelor's degree, took place between April and December 1997 (B&B:1993/1997).

COMPONENTS

Base Year (1993) — NPSAS:1993

Student Record Abstract (from institutional records)

Year in school; major field of study; type and control of institution; attendance status; tuition and fees; admission test scores; financial aid awards; cost of attendance; student budget information and expected family contribution for aided students; grade-point average; age; date first enrolled.

Student Interview

Level; major field of study; financial aid at other schools attended during year; other sources of financial support; monthly expenses; reasons for selecting the school they attended; current marital status; age; race/ethnicity; sex; highest degree expected; employment and income; community service, expectations for employment after graduation, expectations for graduate school, plans to enter the teaching profession.

Parent Interview

Parents' marital status; age; highest level of education achieved; income; amount of financial support provided to children; types of financing used to pay child's educational expenses; current employment (including occupation and industry).

First Follow-up (1994) — B&B:1993/1994

Student Interview

Employment after degree completion; job search activities; expectations for and entry into teaching; teacher certification status; job training and responsibilities; expectations/entry into graduate school; enrollment after degree; financial aid; loan repayment/status; income, family formation and responsibilities; community service.

Note 7: The Baccalaureate and Beyond Longitudinal Study

Continued

Undergraduate Transcripts

Undergraduate coursework; institutions attended; grades; credits attempted and earned; academic honors earned. (All information as reported by the institution and converted to semester credits and 4.0 grade scale for comparability between institutions.)

Second Follow-up (1997)—B&B:1993/1997

Student Interview

Employment history; enrollment history; job search strategies at degree completion (each

new degree completed); career progress; current status in graduate school; non-Federal aid received; additional job training; entry into/persistence in/resignation from teaching career; teacher certification status; teacher career paths; income; family formation and responsibilities; community service.

Department Aid Application/Loan Records

Types and amounts of federal financial aid received; total federal debt accrued; loan repayment status.

Note 8: Other Surveys

THE NATIONAL STUDY OF POSTSECONDARY FACULTY

Indicators 46, 47, 48, 49, 50, and 51 use data collected for the National Study of Postsecondary Faculty (NSOPF), which the National Center for Education Statistics sponsors. With support from the National Endowment for the Humanities (NEH), NSOPF:1988 was conducted in 1987–88 with a sample of 480 institutions (including 2-year, 4-year, doctorate-granting, and other colleges and universities); over 3,000 department chairpersons; and over 11,000 faculty. NSOPF:1993, which received support from the NEH and the National Science Foundation, was limited to surveys of institutions and faculty in 1992–93. NSOPF:1993 included a sample of 974 public and private, not-for-profit degree-granting postsecondary institutions and 31,354 faculty and instructional staff. NSOPF:1999 was designed to provide a national profile of faculty, including data on their professional backgrounds, responsibilities, workloads, salaries, benefits, and attitudes. NSOPF:1999, which collected data in 1998–99, included 960 degree-granting postsecondary institutions and an initial sample of 28,704 faculty and instructional staff from these institutions. Additional information on NSOPF:1988 and NSOPF:1993 is available at the NCES Web site (<http://nces.ed.gov/surveys/nsopf/>).

EARLY CHILDHOOD LONGITUDINAL STUDY

Indicators 8 and 9 are based on the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K). ECLS-K is an ongoing effort by the U.S. Department of Education, National Center for Education Statistics. Launched in fall 1998, the study follows a nationally representative sample of approximately 22,000 children from kindergarten through 5th grade. The purpose of the ECLS-K is twofold: to be both descriptive and analytic. First, the ECLS-K provides descriptive data on a national basis of (1) children’s status at entry into school;

(2) children’s transition into school; and (3) their progression through 5th grade. Second, the ECLS-K provides a rich data set that enables researchers to study how a wide range of family, school, community, and individual variables affect early success in school.

The approximately 22,000 children selected for participation in the study were enrolled in about 1,000 kindergarten programs during the 1998–99 school year. These children were selected from both public and private kindergartens, offering full- and part-day programs. The sample consists of children from different racial/ethnic and socioeconomic backgrounds and includes an oversample of Asian/Pacific Islander children, private kindergartens, and private school kindergartners. All kindergarten children within the sampled schools were eligible for the sampling process, including language minority and special education students. The sample design for the ECLS-K is a dual-frame, multistage sample. First, 100 Primary Sampling Units (PSUs), which are counties or groups of counties, were selected. Schools within the PSUs were then selected; public schools from a public school frame and private schools from a private school frame. In fall 1998, approximately 23 kindergartners were selected within each of the sampled schools.

Data on the kindergarten cohort were collected in the fall and spring of the kindergarten year from the children, their parents, and their teachers. In addition, information was collected from their schools and school districts in the spring of the kindergarten year. During the 1999–2000 school year, when most of the cohort moved to the 1st grade, data were again collected from a 30 percent subsample of the cohort in the fall and from the full sample in the spring.

Trained evaluators assessed children in their schools and collected information from parents over the telephone. Teachers and school

Note 8: Other Surveys

Continued

administrators were contacted in their school and asked to complete questionnaires. The children, their families, their teachers, and their schools provided information on children's cognitive, social, emotional, and physical development. Information was also collected on the children's home environment, home educational practices, school and classroom environments, curricula, and teacher qualifications. Additional surveys of the sampled children are planned for spring 2002 (3rd grade) and spring 2004 (5th grade).

Indicator 8 uses standard deviation to discuss the relative importance of the gain in reading and mathematics average scale scores across grades. A standard deviation shows the dispersion of scores from the mean. In a normal distribution, approximately 68 percent of the scores are within plus or minus one standard deviation from the mean. Ninety-five percent of the scores are within plus or minus two standard deviations from the mean. In simpler terms, a standard deviation alerts the reader that there is an appreciable difference between the two numbers, rather than simply a statistically significant difference. The ECLS-K scale scores ranged from 0–64 for mathematics and from 0–72 for reading; the use of standard deviations provides the reader with more information about the relative size of the change.

For additional information on the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, visit the ECLS-K Web site (<http://nces.ed.gov/ecls/kindergarten/studybrief.htm>).

MONITORING THE FUTURE

Indicators 19, 20, and 21 are based on the Monitoring the Future (MTF) Survey. With support from the National Institute on Drug Abuse, the University of Michigan's Institute for Social Research has administered the MTF Survey annually since 1975 to measure trends

among U.S. youth on a range of topics. In addition to education-related questions, the survey includes items on demographic characteristics; job experience and other employment topics; drug, alcohol, and tobacco use, and other health topics; values and attitudes about social issues, family, religion, and politics; and personality variables. A nationally representative sample of high school seniors has been surveyed since 1975, and 8th-graders and 10th-graders were added in 1991. Some follow-up subsamples include college students and other young adults. Data analyzed in this volume are from the 12th-grade survey only. Seniors in public and private schools in the 48 contiguous states are included in the samples.

The MTF Survey has remained generally consistent over time in purpose and scope, sample design and methods, and content. Nonetheless, the addition of 8th- and 10th-grade samples noted above marked a significant change, and a small number of questions are added or dropped from time to time. In the sampling process, geographic areas are selected first, then high schools in each selected area are chosen, and finally students are sampled within selected schools. Surveys are administered in regular class periods to the students present, and students are encouraged to participate and finish the entire set of questions. The main group of sampled students who do not participate are those absent from class when the survey is given; field representatives estimate that only about 1 percent of students who are in class fail to complete and submit their questionnaires.

The NCES guideline for response rates provides that if the total response rate (school participation rate times survey rate times item rate) falls below 70 percent, estimates for any such items (variables) will not be published without nonresponse bias analysis. Although total response rates for the MTF Survey are generally above 70 percent, for some items this rate

Note 8: Other Surveys

Continued

is below 70 percent. The participation rate of schools in the original sample ranges from 66 percent to 80 percent from year to year, although schools that refuse are generally replaced by other schools matched on basic characteristics. The overall student response rates for data sets used in this volume varied from 82 percent (for 1998) to 86 percent (for 1990). The response rates for survey items used in this volume ranged from about 83 to 96 percent.

For *Indicator 19*, some small differences appear between the 1990 MTF estimates published in *The Condition of Education 2000* and those in this volume. In last year's *Condition*, the estimates (of 1980 and 1990 data) were calculated by MTF staff using the full version of the student weight variable, while this year's MTF estimates were all calculated from the distributed data set that includes only a bracketed version of the weight variable (provided to protect confidentiality). The slight differences in weights account for the different estimates.

There are several ways to obtain further information about the MTF Surveys:

E-mail: MTFinfo@isr.umich.edu

Go to MTF's Web site (and linked pages):

<http://monitoringthefuture.org/>

Call ISR staff: (734) 764-8354

Write to:

Institute for Social Research
University of Michigan
426 Thompson St.
Ann Arbor, MI 48104-2321

OTHER SURVEYS

Information on other surveys referenced in this volume may be found at the Web sites listed below:

For *Indicators 2 and 56*, see the Common Core of Data (CCD) (<http://nces.ed.gov/ccd/>). This site also contains information regarding CCD component surveys such as the Public Elementary/ Secondary School Universe Survey, Local Education Agency (School District) Universe Survey, and National Public Education Financial Survey.

For *Indicator 6*, see the National Postsecondary Student Aid Study (NPSAS:1996) (<http://nces.ed.gov/npsas/>).

For *Indicator 17*, see the National Health Interview Survey, 1997 (<http://www.cdc.gov/nchs/nhis.htm>).

For *Indicator 24*, see the National Education Longitudinal Study of 1988 Eighth Graders, "Third Follow-up" (NELS:1988/1994) (<http://nces.ed.gov/surveys/nels88/>).

For *Indicators 27 and 28*, see the Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:1996/1998) (<http://nces.ed.gov/surveys/bps/>).

For *Indicator 30*, see the Higher Education General Information Survey (HEGIS), 1970–71, "Degrees and Other Formal Awards Conferred" survey and Integrated Postsecondary Education Data System (IPEDS), 1997–98, "Completions" survey (<http://nces.ed.gov/ipeds/c9697/>).

For *Indicators 39 and 45*, see the Fast Response Survey System (FRSS) (<http://nces.ed.gov/surveys/frss/>).

For *Indicator 44*, see the National Health Interview Survey—Youth Risk Behavior Survey, 1993, 1995, 1997, and 1999 (<http://www.cdc.gov/nccdphp/dash/yrbs/>).

Note 9: International Standard Classification of Education

Indicators 32 and 57 use the International Standard Classification of Education (ISCED), which is designed to facilitate comparisons among educational systems in different countries. Many countries report education statistics to UNESCO and the Organisation for Economic Co-operation and Development (OECD) using the ISCED. In this classification system, education is divided into levels.

Education preceding the first level (early childhood education) where it is provided usually begins at age 3, 4, or 5 (sometimes earlier) and lasts from 1 to 3 years. In the United States, this level includes nursery school and kindergarten.

Education at the first level (primary education) usually begins at age 5, 6, or 7 and continues for about 5 or 6 years. For the United States, the first level starts with 1st grade and ends with 6th grade.

Education at the secondary level (lower secondary education) begins at about age 11 or 12 and continues for about 3 years. For the United States, the second level starts with 7th grade and typically ends with 9th grade.

Education at the lower secondary level continues the basic programs of the first level, although teaching is typically more subject focused, often employing more specialized teachers who conduct classes in their field of specialization. The main criteria for distinguishing lower secondary education from primary education depend on whether programs begin to be organized in a more subject-oriented pattern, using more specialized teachers conducting classes in their field of specialization. If there is no clear breakpoint for this organizational change, the lower secondary education begins at the end of 6 years of primary education. In countries with no clear division between lower secondary and upper secondary education, and where lower second-

ary education lasts for more than 3 years, only the first 3 years following primary education are counted as lower secondary education.

Education at the third level (upper secondary education) begins at about age 14 or 15 and lasts for approximately 3 years. For the United States, the third level starts with 10th grade and ends with 12th grade. Upper secondary education is the final stage of secondary education in most OECD countries. Instruction is often organized along subject-matter lines, in contrast to the lower secondary level, and teachers typically must have a higher level, or more subject-specific, qualification. There are substantial differences in the typical duration of programs both across and between countries, ranging from 2 to 5 years of schooling. The main criteria for classifications are (1) national boundaries between lower and upper secondary education; and (2) admission into educational programs, which usually requires the completion of lower secondary education or a combination of basic education and life experience that demonstrates the ability to handle the subject matter in upper secondary schools. In *Indicator 32*, a person who completed secondary education refers to a person who successfully completed an education program at this level.

Education at the fifth level (nonuniversity higher education) is provided at community colleges, vocational/technical colleges, and other degree-granting institutions in which programs typically take 2 years or more, but less than 4 years, to complete.

Education at the sixth level (university higher education) is provided in undergraduate programs at 4-year colleges and universities in the United States and, generally, at universities in other countries. Education at this level is largely theoretical and is intended to provide sufficient qualifications for gaining entry

Note 9: International Standard Classification of Education

Continued

into advanced research programs and professions with high-skill requirements. Entry into sixth-level programs normally requires the successful completion of an upper secondary education; admission is competitive in most cases. The minimum cumulative theoretical duration at this level is 3 years of full-time enrollment. Completion of research projects or theses may be involved. The faculty must have advanced research credentials.

Education at the seventh level (graduate and professional higher education) is provided in graduate and professional schools that generally require a university degree or diploma as a minimum condition for admission. Programs at the seventh level lead to the award of an advanced research qualification, such as a Ph.D. The theoretical duration of these programs is 3 years of full-time enrollment in most countries (for a cumulative total of at least 7 years at levels six and seven), although the length of actual enrollment is often longer. The programs at the seventh level are devoted to advanced study and original research. In *Indicator 32*, a person who completed higher education refers to a person who completed undergraduate or advanced research programs.

Education at the ninth level (undistributed) is a classification reserved for enrollments, expenditures, or programs that cannot be unambiguously assigned to one of the aforementioned levels.

Some countries, for example, assign non-graded special education or recreational nondegree adult education programs to this level. Other countries assign nothing to this level, preferring instead to allocate enrollments, expenditures, and programs to levels as best they can.

For *Indicator 32*, students in France who successfully completed secondary education and those who have a level of qualification corresponding to a short program that focuses on vocational training at the upper secondary level are included in the percentage of the population who completed secondary education. For the United Kingdom, data on attainment at the upper secondary level include a sizable proportion of persons (about 7 percent of the population) whose highest level of attainment was achieved at age 16. Although the programs that they have completed do not formally satisfy the duration criterion for completion of the upper secondary level, this group is included in the percentage of the population who completed secondary education for reasons of consistency with the national qualification criteria.

SOURCE: Organisation for Economic Co-operation and Development. *Education at a Glance: OECD Indicators 2000*, 2000.

Note 10: Classification of Postsecondary Education Institutions

The U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) uses various categories to group postsecondary institutions. This note outlines the different categorizations used in *Indicators 5, 47, 48, 50, and 51*.

BASIC IPEDS CLASSIFICATIONS

The term “postsecondary institutions” is the category used to refer to institutions with formal instructional programs and a curriculum designed primarily for students who have completed the requirements for a high school diploma or its equivalent. For many analyses, however, comparing all institutions across this broad universe of postsecondary institutions would not be appropriate. Thus postsecondary institutions are broadly classified into one of three levels, based on the highest award offered at the institution:

- *Four-year-and-above institutions:* Institutions or branches that award at least a 4-year degree or higher award in one or more programs, or a post-baccalaureate, post-master's, or post-first-professional certificate.
- *Two-year but less-than-4-year institutions:* Institutions or branches that confer at least a 2-year formal award (certificate, diploma, or associate's degree), or that have a 2-year program creditable toward a baccalaureate degree.
- *Less-than-2-year institutions:* Institutions or branches that only have programs lasting less than 2 years that result in a terminal occupational award or are creditable toward a degree at the 2-year level or higher.

Postsecondary institutions are further divided across these categories according to three cri-

teria: (1) degree-granting versus nondegree-granting; (2) type of financial control; and (3) Title IV-participating versus not Title IV-participating.

Degree-granting institutions offer associate's, bachelor's, master's, doctor's, and/or first-professional degrees that are recognized or authorized by a state agency. *Nondegree-granting* institutions offer other kinds of credentials and exist at all three levels. The number of 4-year nondegree-granting institutions is small compared with the number at both the 2-year but less-than-4-year and less-than-2-year levels.

IPEDS classifies institutions at each of the three levels of institutions by type of financial control: *public; private, not-for-profit; or private, for-profit* (e.g., proprietary schools). Thus IPEDS divides the universe of postsecondary institutions into nine different “sectors.” In some sectors (for example, 4-year private, for-profit institutions), the number of institutions is small relative to that in other sectors. Institutions in any of these sectors can be degree- or nondegree-granting.

Institutions in any of these sectors can also be Title IV participating or not. For an institution to participate in federal Title IV Part C financial aid programs, it must (1) offer a program of study at least 300-clock hours in length; (2) have accreditation recognized by the U.S. Department of Education; (3) have been in business for at least 2 years; and (4) have a Title IV participation agreement with the Department of Education.

Indicator 47 includes only 4-year degree-granting institutions in its analysis.

Indicators 5, 48, 50, and 51 include the categories of 4-year and 2-year degree-granting institutions in their analyses.

Note 10: Classification of Postsecondary Education Institutions

Continued

CARNEGIE CLASSIFICATION

Another system of grouping 2- and 4-year institutions is the Carnegie Classification system. The Carnegie Classification groups American colleges and universities by their purpose and size. First developed in 1970 by the Carnegie Commission on Higher Education, the classification system does not establish a hierarchy among 2- and 4-year institutions; instead it groups colleges and universities with similar programs and purposes to facilitate meaningful comparisons and analysis. The Carnegie Classification system has been revised four times—in 1976, 1987, 1994, and 2000—since it was created. The 1994 classification, which is used for indicators in this volume, divides institutions of higher education into 10 categories, with the 10th category—Professional Schools and Specialized Institutions—subdivided into 10 subcategories (see table of definitions on the next page).

The information used to classify institutions into the Carnegie categories comes from survey data. The 1994 version of Carnegie Classifications relied on data from IPEDS, the National Science Foundation, The College Board, and the 1994 Higher Education Directory published by Higher Education Publications, Inc.

For the purposes of analysis, *Indicators 47, 48, 50, and 51* use the Carnegie Classifications (reprinted on the following page) to subdivide the IPEDS groupings. The following key provides a guide to each indicator's category labels and what Carnegie Classification categories they include the following:

Indicator 47

- *4-year doctoral institutions* include Research Universities I and II and Doctoral Universities I and II.

- *4-year nondoctoral institutions* include Master's (Comprehensive) Universities and Colleges I and II, Baccalaureate Colleges I and II, and Professional Schools and Specialized Institutions that offer 4-year degrees.
- *All 4-year institutions* include all the institutions in the two categories above.

Indicator 48

- *4-year doctoral institutions* include Research Universities I and II and Doctoral Universities I and II.
- *4-year nondoctoral institutions* include Master's (Comprehensive) Universities and Colleges I and II, Baccalaureate Colleges I and II, and Professional Schools and Specialized Institutions that offer 4-year degrees.
- *2-year institutions* include 2-year or Associate of Arts Colleges.

Indicator 50

- *Research institutions* include Research Universities I and II.
- *Doctoral institutions* include Doctoral Universities I and II.
- *Comprehensive institutions* include Master's (Comprehensive) Universities and Colleges I and II.
- *Private liberal arts colleges* include only Baccalaureate Colleges I and II that are coded as private institutions.
- *Public 2-year colleges* include only 2-year or Associate of Arts Colleges that are coded as public institutions.
- *Other institutions* include Baccalaureate Colleges I and II that are coded as public institutions, 2-year or Associate of Arts Colleges that are coded as private institutions,

Note 10: Classification of Postsecondary Education Institutions

Continued

and Professional Schools and Specialized Institutions.

Indicator 51

- *Research institutions* include Research Universities I and II.
- *Doctoral institutions* include Doctoral Universities I and II.
- *Comprehensive institutions* include Master's (Comprehensive) Universities and Colleges I and II.
- *Private liberal arts colleges* include only Baccalaureate Colleges I and II that are coded as private institutions.
- *Public 2-year colleges* include only 2-year or Associate of Arts Colleges.

Carnegie Classification Categories (1994 Definitions¹)

Research Universities I

"These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees² each year. In addition, they receive annually \$40 million or more in federal support."³

Research Universities II

"These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees² each year. In addition, they receive annually between \$15.5 million and \$40 million in federal support."³

Doctoral Universities I

"In addition to offering a full range of baccalaureate programs, the mission of these institutions includes a commitment to graduate education through the doctorate. They award at least 40 doctoral degrees annually in five or more disciplines."⁴

Doctoral Universities II

"In addition to offering a full range of baccalaureate programs, the mission of these institutions includes a commitment to graduate education through the doctorate. They award annually at least 10 doctoral degrees—in three or more disciplines—or 20 or more doctoral degrees in one or more disciplines."⁴

Master's (Comprehensive) Universities and Colleges I

"These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award 40 or more master's degrees annually in three or more disciplines."

Master's (Comprehensive) Universities and Colleges II

"These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award 20 or more master's degrees annually in one or more disciplines."

Baccalaureate Colleges I

"These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs. They award 40 percent or more of their baccalaureate degrees in liberal arts fields and are restrictive in admissions."

Baccalaureate Colleges II

"These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs. They award less than 40 percent of their baccalaureate degrees in liberal arts fields or are less restrictive in admissions."

Note 10: Classification of Postsecondary Education Institutions

Continued

Carnegie Classification Categories (1994 Definitions¹)—Continued

Two-Year or Associate of Arts Colleges

“These institutions offer associate of arts certificate or degree programs and, with few exceptions, offer no baccalaureate degrees.”

Professional Schools and Specialized Institutions

“These institutions offer degrees ranging from the bachelor’s to the doctorate. At least 50 percent of the degrees awarded by these institutions are in a single discipline.” They are divided into the following subcategories:

- Theological seminaries, bible colleges, and other institutions offering degrees in religion;
- Medical schools and medical centers;
- Other separate health professional schools;
- Schools of engineering and technology;
- Schools of business and management;
- Teachers’ colleges;
- Other specialized institutions; and
- Tribal colleges.

¹Carnegie Foundation for the Advancement of Teaching (1994). In December 2000, the Carnegie Foundation released an updated version of its classification system of institutions of higher education. The new scheme is available at the Carnegie foundation Web site (<http://www.carnegiefoundation.org/Classification/index.htm>).

²Doctoral degrees include Doctor of Education, Doctor of Juridical Science, Doctor of Public Health, and the Ph.D. in any field.

³Total federal obligation figures are available from the National Science Foundation’s annual report, *Federal Support to Universities, Colleges, and Nonprofit Institutions*. The years used in averaging total federal obligations are 1989, 1990, and 1991.

⁴The academic year for determining the number of degrees awarded by institutions was 1983–84.

Note 11: Fields of Study

DEFINITIONS OF FIELDS OF STUDY

Following the procedure used in the *Digest of Education Statistics*, the list of fields making up each category are based on the 1990 Classification of Instructional Program (CIP) codes in order to provide consistent data for 1970–71 and 1997–98. These fields are referred to in *Indicator 30*.

Agriculture and natural resources: agricultural business and production; agricultural sciences; and conservation and renewable natural resources.

Biological/life sciences: biology; biochemistry and biophysics; botany; cell and molecular biology; microbiology/bacteriology; zoology; and other biological sciences.

Business management and administrative services: business management/administrative services; marketing operations/marketing and distribution; and consumer and personal services.

Communications: communications, general; advertising; journalism; broadcast journalism; public relations and organizational communications; radio and television broadcasting; other communications; and communications technologies.

Computer and information sciences: computer and information sciences, general; computer programming; data processing technology/technician; information science and systems; computer systems analysis; and other computer and information sciences.

Education: education.

Engineering: engineering; engineering-related technologies; construction trades; and mechanics and repairers from 1969–70 through 1997–98.

English language and literature/letters: English language and literature, general; comparative literature; English composition; English creative writing; American literature; English literature; speech and rhetorical studies; English technical and business writing; and English language and literature/letters, other.

Health professions and related sciences: chiropractic; communication disorders sciences; community health liaison; dentistry; dental services; health services administration; health and medical assistants; health and medical diagnostic and treatment services; medical laboratory technologies; predentistry; premedicine; prepharmacy; preveterinary; medical basic sciences; mental health services; nursing; optometry; pharmacy; epidemiology; rehabilitation and therapeutic services; veterinary medicine; and other health professions.

Mathematics: mathematics; statistics.

Physical sciences: physical sciences, general; astronomy; astrophysics; atmospheric science and meteorology; chemistry; geology; miscellaneous physical sciences; physics; science technologies; and other physical sciences.

Psychology: psychology.

Social sciences and history: social sciences, general; anthropology; archeology; criminology; demography and population studies; economics; geography; history; international relations and affairs; political science and government; sociology; urban affairs/studies; and social sciences and history; other.

Visual and performing arts: visual and performing arts, general; crafts, folk art, and artisanry; dance; design and applied art; theatre arts and stagecraft; film/video and photographic arts; fine arts and art studies; music; and visual and performing arts; other.

Note 12: Students With Disabilities

The U.S. Department of Education's Office of Special Education and Rehabilitative Services (OSERS) collects information on students with disabilities as part of the implementation of the Individuals with Disabilities Education Act (IDEA). OSERS classifies students with disabilities according to 12 categories of disabilities and 4 categories of educational environments. *Indicator 40* uses all these categories, which are defined by OSERS as follows.

DISABILITY TYPES

Autism

A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences.

Deaf-blindness

Concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational problems that the student cannot be accommodated in special education programs solely for children with deafness or for children with blindness.

Emotional disturbance

A condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance:

- (1) an inability to learn that cannot be explained by intellectual, sensory, or health factors;

- (2) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers;
- (3) inappropriate types of behavior or feelings under normal circumstances;
- (4) a general pervasive mood of unhappiness or depression; and
- (5) a tendency to develop physical symptoms or fears associated with personal or school problems.

The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance.

Hearing impairments

An impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance, in the most severe case because the child is impaired in processing linguistic information through hearing.

Mental retardation

Significantly subaverage general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child's educational performance.

Multiple disabilities

Concomitant impairments (such as mental retardation-blindness, mental retardation-orthopedic impairment, etc.), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. The term does not include deaf-blindness.

Orthopedic impairments

A severe orthopedic impairment that adversely affects a child's educational performance. The

Note 12: Students With Disabilities

Continued

term includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member, etc.); impairments caused by disease (e.g., poliomyelitis, bone tuberculosis, etc.); and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures).

Other health impairments

Having limited strength, vitality or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that

- (1) is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, and sickle cell anemia; and
- (2) adversely affects a child's educational performance.

Specific learning disabilities

A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include learning problems that are primarily the result of visual, hearing, or motor disabilities; of mental retardation; of emotional disturbance; or of environmental, cultural, or economic disadvantage.

Speech or language impairments

A communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment, that adversely affects a child's educational performance.

Traumatic brain injury

An acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.

Visual impairments

An impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness.

EDUCATIONAL ENVIRONMENTS FOR STUDENTS WITH DISABILITIES

Regular classroom: includes children who receive special education services in programs designed primarily for nondisabled children.

Separate facility (public and private): includes children who receive special education services in a separate program from their nondisabled peers.

Residential facility (public and private): includes children who are served in publicly or privately operated programs in which children receive care 24 hours a day.

Homebound/hospital: includes children who are served in either a home or hospital setting, including those receiving special education and related services in the home and provided by a professional or paraprofessional who visits the home on a regular schedule.

Note 13: Allocation of Faculty Time

The National Study of Postsecondary Faculty (NSOPF:1993), conducted in 1992–93, included anyone who was designated as faculty, whether or not their responsibilities included instruction, and other personnel with instructional responsibilities. The analysis for *Indicator 51* includes only those respondents with faculty status and some instructional responsibilities. Instructional responsibilities include teaching one or more classes for credit or advising or supervising students' academic activities.

TIME ALLOCATION

Survey respondents were asked to estimate the percentage of total working hours they spent on each of the following activities:

Teaching: Includes teaching; grading papers; preparing courses; developing new curricula; advising or supervising students; or working with student organizations or intramural sports.

Research/scholarship: Includes research; reviewing or preparing articles or books; attending or

preparing for professional meetings or conferences; reviewing proposals; seeking outside funding; giving performances or exhibitions in the fine or applied arts; or giving speeches.

Administration: Performing managerial or other organizationally supportive activities.

Professional growth: Includes taking courses or pursuing an advanced degree or other professional development activities to remain current in their field of practice.

Outside consulting or freelance work: Conducting outside consulting or other employment.

Service/other: Includes providing legal or medical service or psychological counseling to clients or patients; providing paid or unpaid community or public service, or service to professional societies/associations; or participating in other activities or work not listed above.

The last three activities on this list were combined into an “other” category for the indicator.

Note 14: Price of College Attendance

Indicators 25 and 58 focus on the real and perceived price of attending college.

Indicator 25 is based on a national sample of 6th-through 12th-grade students and their parents who participated in the Youth and Parent Surveys, respectively, of the National Household Education Surveys Program (see *Supplemental Note 3*) in 1999. The indicator examines the perceptions of those students and their parents who thought the student would attend postsecondary education (i.e., 92 percent of the respondents in the Youth Survey). Excluded from the analysis are students who, or whose parents, did not think the student would continue his or her education after high school, and a few students whose grade level could not be determined. The sample is representative of 6th- through 12th-grade students but *not* of parents.

STUDENTS' AND PARENTS' ESTIMATES OF TUITION AND FEES

The Youth and Parent Surveys asked students and parents who thought the student would attend school after high school at what level (4-year, 2-year or less), in what sector (public or private), and whether the student was likely to attend in or out of the state of residence. Respondents were then asked if they had obtained information about tuition and mandatory fees at a specific institution. If they had not received such information, they were asked if they could provide a “fairly accurately estimate” of “1 year’s tuition and mandatory fees” at the type of institution the student might attend. Those who had obtained information about tuition and fees at a specific institution or who had indicated they could provide a fairly accurate estimate were then asked to indicate that amount. Students and parents who were undecided about the institution the student might attend were asked if they could provide a “fairly accurate estimate” of the average amount of 1 year’s tuition and mandatory fees at a public 4-

year institution in their state. All respondents were subsequently asked if their estimates included other fees, such as room and board.

Chart data: National averages

Students’ and parents’ estimates of tuition and fees included in the chart for *Indicator 25* are based on respondents who provided estimates for public 4-year institutions in their state of residence and whose estimates *did not* include room and board. The actual averages are based on the average in-state tuition charged undergraduates in 1998–99 as reported by the College Board.

Supplemental table data: Accuracy of estimates

In contrast to the data in the chart for *Indicator 25*, which includes information on estimated tuition and fees for in-state, public 4-year institutions, data in supplemental table 25-1 and those discussed in the indicator’s last paragraph reflect perceptions about average tuition and fees at whatever institution, either public or private, in-state or out-of-state, at all levels, a student might attend. Tuition and fees at public institutions vary from state to state, so students’ and parents’ estimates of tuition and fees were compared with the average tuition and fees for the type of institution the student planned to attend *within* the state of residence. Actual state-level average tuition and fees were obtained from the Department of Education’s Integrated Postsecondary Education Data System (IPEDS) for 1997–98 (adjusted for inflation to 1998–99 levels). If respondents indicated that out-of-state attendance was likely at a public 4-year institution, their estimates of tuition and fees were compared with double the average in-state tuition and fees for public 4-year institutions in their state of residence (there were no average out-of-state tuition and fees available in IPEDS). If respondents’ estimates included fees for room and board, the average room and board fees for the type of in-

Note 14: Price of College Attendance

Continued

stitution they planned to attend were subtracted from their initial estimates. Fees for room and board were also obtained from IPEDS. “Accurate estimates” were those that fell within 25 percent of the actual average. Estimates greater than 25 percent were identified as overestimates, and those less than 25 percent were identified as underestimates.

NET PRICE

The sample used for *Indicator 58* consists of dependent full-time, full-year students who attended one postsecondary institution during the 1995–96 academic year. During that year, approximately 20 percent of all undergraduates were dependent and full time, full year (defined as 8 or more months of attendance). The specific terms used in the indicator are as follows:

Family income: The four income categories, “low income,” “lower middle,” “upper middle,” and “high income,” are calculated on the basis of family income for dependent students and correspond to the four quartiles of the distribution of parental family income. The quartile cutpoints for dependent student income are \$25,000, \$47,000, and \$71,000.

Dependency status: Students were considered dependent for purposes of federal financial aid programs unless institutional records indicated they were

- (1) age 24 or older as of December 31, 1995 (born before January 1, 1972);
- (2) a veteran of the U.S. Armed Forces;
- (3) enrolled in a graduate or professional program (beyond a bachelor’s degree) in 1995–96;
- (4) married;
- (5) an orphan or ward of the court; or
- (6) had legal dependents, other than spouse.

If any of these conditions were met, the student was classified as independent for purposes of financial aid.

Tuition and fees: Indicates tuition the student was charged for the academic year, as reported by the institution in the National Postsecondary Student Aid Study (NPSAS). If tuition was not reported, it was estimated based on the average per credit or per term charges for other students at the institution according to their class level, degree program, and attendance status.

Total price refers to the attendance-adjusted student budget at the sampled NPSAS institution for students who attended only one institution during 1995–96. The student budget is the sum of tuition and fees and the sum of nontuition items, including room and board, transportation, books and supplies, and other expenses. For students attending at least half time but less than full time, nontuition items are reduced to 75 percent of the allowance for full-time, full-year students, to 50 percent for students with unknown attendance status, and to 25 percent for students attending less than half time. The actual tuition is added to the estimated nontuition items. Students who attended more than one institution are excluded from the tables.

Grants: Total amount of all grants and scholarships, federal, state, institutional, and other, received during 1995–96, including employer tuition reimbursements.

Net price: Total price for the student, which includes tuition and fees and nontuition items minus total grants. Net price does not include loans that must be repaid or the future price of interest payments on such loans. This definition of net price differs from an earlier version that appeared in *The Condition of Education 1998*. The 1998 definition was total price minus total aid, which includes loans that students or their families must repay. The present definition more accurately reflects the price that students and their families pay.

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