

Appendix 2

Supplemental Notes





Contents

| | | |
|----------|--|-----|
| Note 1: | Commonly Used Variables | 214 |
| Note 2: | The Current Population Survey (CPS) | 222 |
| Note 3: | National Assessment of Educational Progress (NAEP) | 226 |
| Note 4: | International Assessments | 228 |
| Note 5: | NAEP, NELS, and HS&B Transcript Studies | 232 |
| Note 6: | Monitoring the Future | 236 |
| Note 7: | International Standard Classification of Education | 237 |
| Note 8: | Teacher Pipeline | 239 |
| Note 9: | Classification of Postsecondary Education Institutions | 241 |
| Note 10: | Students With Disabilities | 245 |
| Note 11: | The College Qualification Index | 248 |
| Note 12: | Price of College Attendance | 250 |
| Note 13: | Finance | 252 |
| Note 14: | Multivariate Linear Regression | 255 |

Note 1: Commonly Used Variables

Certain common variables, such as educational attainment, race/ethnicity, urbanicity, geographic region, poverty, and employment status are used by different surveys cited in *The Condition of Education 2002*. 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.

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, GED, or equivalent; Some college/vocational/technical; Bachelor's degree/College graduate; and Graduate or Professional degree.
- *National Education Longitudinal Study of 1988*: Less than high school; High school diploma, GED, or equivalent; Some postsecondary education; and Bachelor's degree or higher.
- *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 Doctorate degree—Ph.D, Ed.D, DBA.

- *National Assessment of Education Progress*: Did not finish high school; Graduated from high school; Some education after high school; and Graduated from college.

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

- *Current Population Survey*: None; 1st–4th grade; 5th–6th grade; 7th–8th grade; 9th grade; 10th grade; 11th grade; 12th grade, no diploma; High school graduate or the equivalent (e.g., GED); Some college, no degree; Associate degree, occupational; Associate degree, academic; Bachelor's degree; Master's degree; Professional degree; and Doctorate degree. Further information on the Current Population Survey can be found in *Supplemental Note 2*.
- *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; Bachelor's degree; Master's degree; Professional school degree; and Doctoral degree.

Within individual indicators, these categories may be collapsed to facilitate analysis. In *The Condition of Education 2002*, the previous definitions apply to *indicators 1, 10, 12, 14, 16, 20, 22, 23, 25, 29, and 40*.

PARENTS' EDUCATION

In the National Household Education Surveys Program (NHES), parents' education is de-

Note 1: Commonly Used Variables

Continued

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, 29, and 40* present NHES data by parents' education. Further information on the definition of parents' education in the Current Population Survey can be found in *Supplemental Note 2*.

RACE/ETHNICITY

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

- **American Indian/Alaska 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.
- **Black:** A person having origins in any of the Black racial groups of 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/Alaska Native).

Not all categories are shown in all indicators because of insufficient data in some of the smaller categories. In *The Condition of Education 2002*, the previous definitions apply to *indicators 1, 3, 6, 7, 8, 10, 11, 12, 14, 19, 20, 25, 27, 29, 30, 32, 34, 35, and 40*.

Indicator 39 uses classifications of race and ethnicity from the National Study of Postsecondary Faculty (NSOPF). Between the 1993 and 1999 administrations of NSOPF, the federal government changed the procedures that survey respondents use to identify their race/ethnicity. In the 1993 survey, respondents were asked to select the racial group from among five possible categories that best described themselves: White; Black; Asian/Pacific Islander; American Indian/Alaska Native; or other. Those who selected "other" were placed into one of the other four categories based on additional information provided. White or Black respondents who indicated "Hispanic or Latino" ethnicity were grouped together. The resulting categories are as follows: White, non-Hispanic; Black, non-Hispanic; Hispanic; Asian/Pacific Islander; and American Indian/Alaska Native.

For the 1999 NSOPF, respondents were permitted to indicate whether they are "Asian" or "Native Hawaiian or other Pacific Islander." Further, respondents were permitted to indicate as many categories for race as were applicable.

Note 1: Commonly Used Variables

Continued

To achieve comparability between the two studies, data on race and ethnicity for faculty in the latter survey were placed in the same categories used in the earlier survey. Only 0.9 percent of all respondents indicated multiple racial categories in the later survey, so the reassignment of these cases affected only a small proportion of respondents. The race/ethnicity variable for faculty in the 1999 survey was constructed as follows. First, the Asian and Native Hawaiian/Pacific Islander categories were combined. Next, cases were assigned to the first of the following categories that respondents had selected: Hispanic; Black/African American; Asian or other Pacific Islander; American Indian/Alaska Native; and White. Then, Asians or other Pacific Islanders who also indicated that they were of Hispanic or Latino origin and no other race were assigned to the Asian or other Pacific Islander group. Thus, the resulting race/ethnicity variable has five categories: non-Hispanic White; non-Hispanic Black or African American; Asian or other Pacific Islander; Hispanic; and non-Hispanic American Indian/Alaska Native. This strategy minimizes the number of non-Hispanic Whites in the sample, but as noted, the impact is minimal.

COMMUNITY TYPE

In the Bureau of the Census's Current Population Survey, community type is based on the concept of a metropolitan area (MA), a large population nucleus together with adjacent communities that have a high degree of economic and social integration with that nucleus. Metropolitan Statistical Areas (MSAs) are metropolitan areas (MAs) that are not closely associated with other MAs.

MSAs are designated and defined by the Office of Management and Budget, following standards established by the interagency Fed-

eral Executive Committee on Metropolitan Areas, with the aim of producing definitions that are as consistent as possible for all MSAs nationwide. (See http://www.census.gov/geo/www/cob/ma_metadata.html for more details.)

In order to be designated as an MSA, an area must meet one or both of the following criteria: (1) include a city with a population of at least 50,000, or (2) include a Census Bureau-defined urbanized area and a total population of at least 100,000 (75,000 in New England). An MSA is comprised of one or more central counties and 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, MSAs are composed of cities and towns rather than entire counties.

All territory, population, and housing units inside of MSAs are characterized as *metropolitan*. *Central city* refers to the largest city in an MSA. Smaller cities may also qualify as central cities if they meet certain specified requirements concerning commuting patterns and population size. All areas within MSAs that do not qualify as central cities are classified as *outside a central city*. Any territory, population, or housing unit located outside of an MSA is defined as *nonmetropolitan*.

In the School Crime Supplement to the National Crime Victimization Survey (U.S. Department of Justice, Bureau of Justice Statistics), community type is based on the classification used by the Bureau of the Census and is designated by the following terms:

Note 1: Commonly Used Variables

Continued

- *Urban*: a central city of an MSA
- *Suburban*: outside of a central city of an MSA
- *Rural*: nonmetropolitan area

The National Health Interview Survey defines community type according to the following MSA categories:

- *MSA of 2,500,000 and above*
- *MSA of 1,000,000 2,499,999*
- *MSA under 1,000,000*
- *Non-MSA*

The National Household Education Surveys Program relies on Census classifications for community type. It designates each respondent's community type based on the community type of the majority of households in the respondent's residential ZIP Code. Community type is categorized as follows:

- *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, either inside or outside of urbanized areas.

In the Common Core of Data, community type is based on Metropolitan Status Codes. This is the eight-level Bureau of the Census classification of the locale served by a school relative to an MSA. Every school is placed in one of the following categories:

- *Central city, within a large MSA*: a central city of an MSA with a population of 400,000 or more or a population density of 6,000 or more persons per square mile.
- *Central city, within a small MSA*: a central city of an MSA but not designated as a large central city.
- *Suburb/urban fringe, within a large MSA*: a place within the MSA of a large central city.
- *Suburb/urban fringe, within a small MSA*: a place within the MSA of a small city.
- *Large town*: a place not within an MSA, but with a population of 25,000 or more and defined as urban.
- *Small town*: a place not within an MSA with a population of at least 2,500, but less than 25,000.
- *Rural, not within an MSA*: a place with a population of less than 2,500 outside an MSA.
- *Rural, within an MSA*: a place with a population of less than 2,500 within an MSA.

It is important to note that Metropolitan Status Codes are assigned only by school, and not by school district. For the purposes of the indicators in *The Condition of Education 2002*, which measure data by school district, the Metropolitan Status Code of the school district is determined by the modal status code of all schools within the school district. The surveys listed below use variations of the eight-level Census standards to categorize community type.

In the Baccalaureate and Beyond Longitudinal Study, community type is categorized as follows:

Note 1: Commonly Used Variables

Continued

- *Large central city*
- *Midsized central city*
- *Urban fringe of large city*
- *Urban fringe of mid-size city*
- *Large town*
- *Small town*
- *Rural*

In the National Assessment of Education Progress and the Schools and Staffing Survey, community type is categorized as follows:

- *Central city*: a large or midsized central city of an MSA.
- *Urban fringe/large town*: an urban fringe of a large or small central city; a large town; or a rural area within an MSA.
- *Rural/small town*: a small town or rural area outside of an MSA.

In *The Condition of Education 2002*, the definitions explained above apply to *indicators 4, 7, 10, 11, 12, 14, 29, 30, 31, 34, and 40*.

POVERTY

Indicator 4 uses poverty as defined by the Bureau of the Census, which uses a set of money income thresholds that vary by family size and composition to determine who is poor. If a family's income is less than the family's threshold, then that family, and every individual in it, is considered poor. The poverty thresholds are updated annually for inflation using the Consumer Price Index.

In *indicator 1*, data on household income and the number of people living in the house-

hold from the National Household Education Surveys Program, 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, 1999, and 2001 are shown in the table on the next page. Poverty thresholds from the Bureau of the Census for 1993 and 1999 are revised and may differ from previously published data (see table on next page).

Eligibility for the National School Lunch Program also serves as a measurement of poverty status. The National School Lunch Program is a federally assisted meal program operated in public and private nonprofit schools and residential child care centers. Eligibility for free or reduced-price lunch under the national Free School Lunch Act is one of four measures of poverty specified in the basic program requirements for Title I federal funding. To be eligible for free lunch, a student must be from a household with an income at or below 130 percent of the poverty level; to be eligible for reduced-price lunch, a student must be from a household with an income at or below 185 percent of the poverty level. In *The Condition of Education 2002*, eligibility for the National School Lunch Program applies to *indicators 7, 10, 11, 12, 30, 31, and 32*.

Note 1: Commonly Used Variables

Continued

Weighted average poverty thresholds, by household size: 1991, 1993, 1995, 1996, 1999, and 2001

| 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 | | NHES:2001 | |
| 2 | 9,933 | 2 | 11,239 |
| 3 | 12,158 | 3 | 13,738 |
| 4 | 15,569 | 4 | 17,603 |
| 5 | 18,408 | 5 | 20,189 |
| 6 | 20,804 | 6 | 23,528 |
| 7 | 23,552 | 7 | 26,754 |
| 8 | 26,267 | 8 | 29,701 |
| 9 or more | 31,280 | 9 or more | 35,060 |

SOURCE: U.S. Department of Education, NCES. National Household Education Surveys Program (NHES), 1991, 1993, 1995, 1996, 1999, and 2001.

Note 1: Commonly Used Variables

Continued

GEOGRAPHIC REGION

The following regional classification system represents the four geographical regions determined by the Bureau of the Census. In *The Condition of Education 2002*, indicators 2, 3, 4, 14, 19, 29, 32, and 43 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 |

EMPLOYMENT STATUS

Indicator 16 uses combined categories of employment status from the Current Population Survey to show data for all wage and salary workers. The Current Population Survey identifies the following categories of employment status:

- *Full-time*: includes those who usually work 35 hours or more per week.
- *Full-year*: includes those who work at least 50 weeks per year.
- *Part-time*: includes those who usually work 1–34 hours per week.
- *Part-year*: includes those who work 1–49 weeks per year.
- *Unemployed*: includes those who have no employment but are available for work.
- *Not in labor force*: includes those who are 15 years or older who are not classified as employed or unemployed. These persons include students, homemakers, those unable to work due to physical or mental illness, retired persons, and others.

Indicator 1 uses employment status classifications from the National Household Education Surveys Program, which uses variations on the Current Population Survey classifications. They are as follows:

- *Working 35 hours or more per week*
- *Working less than 35 hours per week*
- *Looking for work* (equivalent to unemployed)
- *Not in the labor force*

Note 1: Commonly Used Variables

Continued

Indicators 37 and 38 use classifications in the National Postsecondary Student Aid Study, which are as follows:

- *Student working to meet expenses*
- *Employee enrolled in school*
- *Student, not working*

Note 2: The Current Population Survey (CPS)

The Current Population Survey (CPS) is a monthly survey of approximately 50,000 households in the United States and 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 participation in the labor force about each member 15 years old and over 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 3 years old and over.

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 <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 20* 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 2000 is defined as the range between \$0 and \$15,300; middle income is defined as the range between \$15,301 and \$72,000; and high income is defined as \$72,001 and over. Therefore, the breakpoints between low and middle income and between middle and high income are \$15,300 and \$72,000, respectively.

Parental education

For *indicator 20*, 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 16, 19, 20, and 25*.

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 1970–2000

| 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 |
| 2000 | 15,300 | 72,000 |

— Not available.

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

Note 2: The Current Population Survey (CPS)

Continued

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 completed 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:

- 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.)
- Doctorate 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 also asked respondents if they have a high school degree or the equivalent, such as a GED. People who respond “yes” are classified as high school graduates. Prior to 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.

Prior to 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.

Note 2: The Current Population Survey (CPS)

Continued

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 for those in 1990 and 1991, before the 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.” Prior to 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 16 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 to 3 years of college.

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

Note 3: 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: to assess student performance reflecting current educational and assessment practices; and 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. Both assessments excluded certain subgroups of students identified as “special needs students,” including students with disabilities and students with limited English proficiency. In 1998 and 2000, the main NAEP assessment provided a separate assessment with provisions made for accommodations for these students.

MAIN NAEP

Indicators 7, 10, and 12 are based on the 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 standards developed within the field, using a consensus process involving educators, subject-matter experts, and other interested citizens.

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 for a comparison across time in mathematics, science, and reading. Assessment instruments from 1990 to 2000 were developed using the same framework, they share a common set of tasks, and the populations of students were sampled and assessed using comparable procedures. For some subjects that are not assessed frequently, such as civics and the arts, no trend data are available.

Main NAEP results are reported in terms of predetermined achievement levels. 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. These achievement levels have undergone several evaluations but remain developmental in nature and continue to be used on a trial basis. Until the Commissioner of NCES determines that the levels are reasonable, valid, and informative to the public, they should be interpreted and used with caution. The policy definitions of the achievement levels that apply across all grades and subject areas are:

- *Basic*: This level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
- *Proficient*: This level represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Note 3: National Assessment of Educational Progress (NAEP)

Continued

- *Advanced*: This level signifies superior performance.

MAIN NAEP MATHEMATICS COURSETAKING

The main NAEP assessments included questions asking students in grades 8 and 12 about their specific course-taking patterns. In 8th grade, students reported on the mathematics course they were currently taking. For reporting purposes, courses were grouped into lower level (group 1) courses and higher level (group 2) courses. Group 1 courses include 8th-grade mathematics and prealgebra. Group 2 courses include algebra I, algebra II, geometry, and integrated or sequential mathematics.

In grade 12, students reported on the courses they had taken in grades 9 through 12 and the year they had taken each course. For reporting purposes, course-taking patterns were grouped into three levels: low level, middle level, and high level. Low-level coursetaking included students who had taken no mathematics courses or had taken only courses among the following: general mathematics, business mathematics, applied mathematics, and introduction to algebra. Middle-level coursetaking included students who took algebra I in grade 9 and geometry in grade 10 but had not taken the most advanced courses, including trigonometry, precalculus, statistics, or calculus. High-level coursetaking included students who took one or more among the

following: trigonometry, precalculus, statistics, discrete or finite mathematics, and calculus. The three levels equate roughly with the mathematics pipeline detailed in *Supplemental Note 5*. Low-level courses are roughly equivalent to the nonacademic or low academic levels. Middle-level courses are roughly equivalent to the middle academic levels, and high-level courses are roughly equivalent to the advanced academic levels.

LONG-TERM TREND NAEP

The long-term trend NAEP measures student performance in reading, writing, science, and mathematics. Since the mid-1980s, the long-term NAEP has used the same instruments to provide a means to compare performance over time, but it does not necessarily reflect current teaching standards or curricula.

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

Indicator 8 uses data from the Long-Term Trend assessment in reading.

Note 4: International Assessments

TIMSS AND TIMSS-R

Under the auspices of the International Association for the Evaluation of Educational Achievement, the Third International Mathematics and Science Study (TIMSS) assessed, collected data, and reported results 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 42 countries in 1995. In 1999, the TIMSS study was repeated at the 8th-grade level for science and mathematics, resulting in the Third International Mathematics and Science Study–Repeat (TIMSS-R). Data presented in *indicator 13* are from the 1999 assessment.

TIMSS

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* used data from this population.

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. Results were reported for 42 countries in the survey of *population 2*.

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 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 (except for excluded students) then participated in the TIMSS testing in science and mathematics.

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

Note 4: International Assessments

Continued

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 who 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 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-old students.

TIMSS-R utilized 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.

CIVIC EDUCATION STUDY

Indicator 15 is based on data from the International Association for the Evaluation of Educational Achievement's two-part study of civic education in 28 countries in 1994 (NCES 2001–096). The first phase summarized what experts in each participating country believed 14-year-olds should know about a number of topics related to democratic institutions, including elections, individual rights, national identity, political participation, and respect for ethnic and political diversity. Phase two of the study assessed a nationally representative sample of 14-year-olds in 28 countries in 1999.

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 over 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 4: International Assessments

Continued

Fourteen-year-olds were chosen as the target population because testing an older group would have meant a substantial loss of students who had ended their secondary education. For sampling purposes, countries were instructed to select the grade in which most 14-year olds were enrolled at the time of the study. In the United States, this was 9th grade. In the United States, the assessment was administered to almost 3,000 students in 124 public and private schools. The overall sample design was intended to approximate a self-weighting sample of students as much as possible, with each 9th-grade student in the United States having an approximately equal probability of being selected within the major school strata.

The assessment produced a “total civic knowledge” scale that consists of two subscales: civic content and civic skills. Civic content items assessed knowledge of key civic principles and pivotal ideas (e.g., key features of democracies). Civic skills items assessed skills in using civic-related knowledge (e.g., understanding a brief political article or a political cartoon). In addition, the assessment measured students’ concepts of democracy, citizenship, and government, attitudes toward civic issues, and expected political participation. The assessment also included school, teacher, and student background questionnaires. These provided characteristics of the individual student, the school context, and a picture of how civic education was delivered through the school curriculum.

PROGRAM FOR INTERNATIONAL STUDENT ASSESSMENT

Indicator 9 is based on data collected as part of the Program for International Student Assessment (PISA). This assessment, first conducted in 2000, focused on 15-year-olds’ capabilities in reading literacy, mathematics literacy, and science literacy. PISA is spon-

sored by the Organization for Economic Cooperation and Development (OECD), an intergovernmental organization of 30 industrialized countries that serves as a forum for member countries to cooperate in research and policy development on social and economic topics of common interest. PISA is a triannual study of reading literacy, mathematics literacy, and science literacy, providing a more detailed examination for one of the subjects in each test cycle. The 2000 assessment focused on reading literacy through a mix of multiple choice, short answer, and extended response questions.

In 2000, 32 countries participated in PISA, including 28 of the 30 OECD countries and 4 non-OECD countries. The Netherlands, an OECD country, participated in the assessment, but technical problems with its sample prevented its results from being included. Because PISA is an OECD initiative, all international averages presented for PISA are the average of the participating OECD countries’ results.

To implement PISA 2000, each participating country selected a nationally representative sample of 15-year-olds. Each student completed an approximately 90-minute assessment and a 20- to 30-minute questionnaire designed to gather information about his or her background and experiences related to reading, mathematics, and science literacy. Principals in schools where students participated in the PISA assessment also completed a questionnaire about their schools. The United States had a relatively high standard error compared to other countries in the study due to the size of the original sample of students and the response rate.

What is reading, mathematics, and science literacy?

PISA seeks to represent the overall yield of learning for 15-year-olds. PISA assumes that by the age of 15, young people have had a

Note 4: International Assessments

Continued

series of learning experiences, both in and out of school, that allow them to perform at particular levels in reading, mathematics, and science literacy. Formal education will have played a major role in student performance, but other factors, such as learning opportunities at home, also play a role. PISA's results provide an indicator of the overall performance of a country's educational system, but they also provide information about other factors that influence performance. By assessing students near the end of compulsory schooling in key knowledge and skills, PISA provides information about how well prepared students will be for their future lives as they approach an important transition point for education and work. PISA thus aims to show how well equipped 15-year-olds are for their futures based on what they have learned to that point.

Reading literacy seeks to measure the extent to which students can “construct, extend, and reflect on the meaning of what they have read” across a wide variety of texts associated with a wide variety of situations. Reading literacy tasks were developed using three dimensions: content or structure, referring to types of texts such as continuous and non-continuous texts; processes, including retrieving information, understanding texts, interpreting texts, and reflecting on content and forms of texts; and situations, distinguishing the use for which texts are constructed or the context in which knowledge and skills are applied. For further description of this study and reading, science, and mathematics literacy, see U.S. Department of Education (NCES 2002–115) and the Organization for Economic Cooperation and Development (2001a).

Note 5: NAEP, NELS, and HS&B Transcript Studies

At least two methods exist to classify the academic challenge or difficulty of the coursework that high school graduates complete. One method is to measure the *highest level* of coursework completed in different subjects (e.g., whether a graduate's most academically challenging mathematics course was algebra I, trigonometry, or calculus). The other method is to measure the *number* of courses completed in different subjects (e.g., whether a graduate completed two, three, or four courses in mathematics). Based on these two methods, analysts have created different taxonomies to categorize the academic challenge or difficulty of the completed coursework in graduates' high school transcripts. This supplemental note describes two of these taxonomies, which are used in the analyses of individual indicators in *The Condition of Education*.

Indicators 20, 25, and 27 use an “academic pipeline” to classify course-taking data according to the highest level of coursework completed. These data come from transcripts of graduates of public high schools, which were collected as part of the U.S. Department of Education's National Assessment of Educational Progress (NAEP), National Education Longitudinal Study of 1988 (NELS), and the High School & Beyond study (HS&B). *Indicators 23 and 24* use a taxonomy of “academic rigor” to classify course-taking data, partly according to the number of courses completed. The same data sources are used for these indicators along with information about students' participation in Advanced Placement (AP) courses and tests.

ACADEMIC PIPELINES

Academic “pipelines” organize transcript data in English, science, mathematics, and foreign language into levels based on the normal progression and difficulty of courses

within these areas. Each level includes courses either 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 completed before) algebra II.

Classifying transcript data into these levels allows one to infer 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 levels 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 conclusive 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 varying 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.

Note 5: NAEP, NELS, and HS&B Transcript Studies

Continued

Mathematics Pipeline

The mathematics pipeline progresses from no mathematics courses or nonacademic courses to low, middle, and advanced academic coursework. Each level in the pipeline represents the highest level of mathematics coursework that a graduate completed in high school. Thus, a graduate whose highest course is at the low academic level progressed no farther 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 academic).

No mathematics

No coursework completed in mathematics by graduates, 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 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; however, level I is not considered as challenging as level II, nor level II as challenging as level III.

- *Advanced academic level I:* Highest completed courses are 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.

Note 5: NAEP, NELS, and HS&B Transcript Studies

Continued

- *Advanced academic level III:* Highest completed courses are 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 are placed in one of four groups based on subject matter: life science (biology); chemistry; physics; and all other physical sciences (e.g., geology, earth science, physical science). Second, a pipeline is constructed for each of these four groups. Third, the pipelines for chemistry, physics, and all other physical sciences are combined into a single pipeline (a physical science pipeline). Finally, the physical science and life science pipelines are combined to create a single science pipeline. The final pipeline has seven levels: no science; primary physical science; secondary physical science and basic biology; general biology; chemistry I or physics I; chemistry I and physics I; and chemistry II or physics II or advanced biology.

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 and basic biology

Highest completed courses are astronomy; geology; environmental science; oceanography; general physics; basic biology I; or consumer or introductory chemistry.

General biology

Highest completed courses are general biology I; secondary life sciences (including ecology, zoology, marine biology, and human physiology); or general or honors biology II.

Chemistry I or physics I

Highest completed courses are introductory chemistry; chemistry I; organic chemistry; physical chemistry; consumer chemistry; general physics; or physics I.

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 or advanced biology

Highest completed courses are advanced biology; International Baccalaureate (IB) biology II; IB biology III; 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 II; IB chemistry II; IB chemistry III; AP chemistry; physics II; IB physics; AP physics B; AP physics C: mechanics; AP physics C: electricity/magnetism; or physics II without calculus.

Note 5: NAEP, NELS, and HS&B Transcript Studies

Continued

ACADEMIC RIGOR

To measure the “academic rigor” of coursework, four levels of academic rigor have been constructed, using the following criteria:

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

When information on honors/AP coursetaking is missing, AP testtaking is used as supplementary data. It is assumed that, if AP records indicated that students had taken an AP test, students had taken a honors/AP course.

Classifying transcript data into these four levels allows one to conclude that high school graduates who meet the criteria of more “rigorous” levels have completed more academically challenging and difficult coursework than graduates who meet only the criteria of less “rigorous” levels. The primary differences between this taxonomy and that using “academic pipelines” is that this taxonomy classifies students who have completed a set number of courses at the “rigorous” level,

whereas the “academic pipelines” do not indicate how many courses a student has taken—they indicate only the highest level of coursework completed.

For *indicator 23*, the following four levels are used. For *indicator 24*, the two middle levels are combined.

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

Note 6: Monitoring the Future

The University of Michigan's Institute for Social Research has collected and administered the Monitoring the Future (MTF) data 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-grade and 10th-grade surveys were added in 1991. Data analyzed in this volume come from the 8th-, 10th-, and 12th-grade surveys. Students in public and private schools in the 48 contiguous states are included in the samples.

The MTF study has remained generally consistent over time in purpose and scope, sample design and methods, and content. However, a small number of questions are added or dropped from time to time. In the sampling process, geographic areas are selected first, then schools in each selected area are chosen, and finally students are sampled within selected schools. Surveys are administered in regular class periods, 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 hand in the questionnaire.

The NCES guideline for response rates provides that if the total response rate (school participation rate times student participation rate times item response rate) falls below 70 percent, estimates for any such items (variables) will not be published unless a nonresponse bias analysis has been conducted. The total response rates calculated in this way for the MTF study are all below 70 percent. However, a more liberal response rate, defined by multiplying the student participation rate by the item rates, often produces rates above 70 percent. The participation rate of sampled schools ranged from about 66 percent to 80 percent from year to year, although schools that refuse are generally replaced by other schools matched on basic characteristics. The student response rates for the data files used in this volume ranged from 83 percent (for 1991 and 2000 12th-graders) to 90 percent (for 1991 8th-graders). The response rates for questionnaire items used in this volume ranged from about 89 to 99 percent.

Further information about these surveys can be obtained in several ways.

E-mail: MTFinfo@isr.umich.edu
Go to MTF's Web Site (and linked pages)
at: <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

Note 7: International Standard Classification of Education

Indicator 41 uses 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 Organization for Economic Cooperation and Development (OECD) using the ISCED. In this classification system, education is divided into levels as follows:

- *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 who conduct 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 secondary 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: national boundaries between lower and upper secondary education; and 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.
- *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.

Note 7: International Standard Classification of Education

Continued

cal and is intended to provide sufficient qualifications for gaining entry 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 coun-

tries (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.

- *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 nongraded 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.

SOURCE: Organization for Economic Cooperation and Development, Center for Educational Research and Innovation. (2001). *Education at a Glance: OECD Indicators, 2001*.

Note 8: Teacher Pipeline

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. The B&B data presented in *The Condition of Education 2002* 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 *indicator 31* 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 expectations for education 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 to become teachers. All bachelor's degree recipients are considered eligible to enter the teacher pipeline except those who had taught or been certified to teach 1 year or more before getting their bachelor's degree. (Excluded graduates in the analysis of *indicator 31* constituted 3 percent of all 1992–93 graduates [NCES 2000–152, p. iv].)

For the purposes of analysis in *indicator 31*, graduates were classified as “in the teacher pipeline” if they reported that they taught in an elementary or secondary school; became certified to teach; applied for a teaching position; completed a student-teaching assignment as an undergraduate; or 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 had 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 graduates 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 31*, 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 degree-granting institution, but some

Note 8: Teacher Pipeline

Continued

self-reported scores were also used. Respondents with SAT scores available in the B&B sample were assigned to a quartile ranking based on their scores' quartile ranking among all SAT scores from the same administration. 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).

Note 9: Classification of Postsecondary Education Institutions

The U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) employs various categories to classify postsecondary institutions. This note outlines the different categorizations used in *indicators 5, 24, 35, 38, 39, and 44*.

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 from across this broad universe of postsecondary institutions would not be appropriate. Thus, postsecondary institutions are placed in one of three levels, based on the highest award offered at the institution:

- *4-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 postbaccalaureate, postmaster's, or post-first-professional certificate.
- *2-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 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 according to these criteria: degree-granting versus nondegree-granting; type of financial control; and 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 a state agency recognizes or authorizes. *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 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 offer a program of study at least 300-clock hours in length; have accreditation recognized by the U.S. Department of Education; have been in business for at least 2 years; and have a Title IV participation agreement with the U.S. Department of Education.

- *Indicator 5* includes 4-year and 2-year degree-granting institutions in its analysis.
- *Indicators 24, 35, 38, and 44* include the categories of 4-year and 2-year degree-granting institutions and of public and private financially controlled institutions in their analyses.
- *Indicator 39* includes public and private degree-granting institutions in its analysis.

Note 9: Classification of Postsecondary Education Institutions

Continued

CARNEGIE CLASSIFICATION

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 degree-granting 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, 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 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 35* and *39* use the Carnegie Classifications (reprinted below) to subdivide the IPEDS groupings (e.g., 4-year institutions—an IPEDS grouping—may be subdivided into research, doctoral, master’s, and/or other institutions, which are Carnegie Classifications). The following key provides a guide to each

indicator’s category labels and what Carnegie Classification categories they include:

Indicator 35

- *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 included in the two categories above.
- *2-year institutions* include 2-year or Associate of Arts Colleges.

Indicator 39

- *Public research institutions* include Research Universities I and II that are coded as public.
- *Public doctoral institutions* include Doctoral Universities I and II that are coded as public.
- *Public medical institutions* include Professional Schools and Specialized Institutions that are coded as public and as medical schools and medical centers.
- *Private not-for-profit doctoral institutions* include Doctoral Universities I and II that are coded as private not-for-profit.

Note 9: Classification of Postsecondary Education Institutions

Continued

- *Private not-for-profit liberal arts institutions* include Baccalaureate Colleges I and II that are coded as private not-for-profit.
- *Public two-year institutions* include 2-year or Associate of Arts Colleges that are coded as public.
- *Other institutions* include public and private not-for-profit comprehensive universities, private not-for-profit 2-year institutions, public liberal arts colleges, and other specialized institutions.

Carnegie Classification Categories (1994 Definitions)

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 and are less restrictive in admissions."

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."

Note 9: Classification of Postsecondary Education Institutions

Continued

Carnegie Classification Categories (1994 Definitions¹)—Continued

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 10: 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 4 categories of educational environments and 13 categories of disabilities. *Indicator 28* uses 12 of these categories, which are defined by OSERS as follows. (For more detailed definitions, see U.S. Department of Education 2001i.)

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 basis or schedule.

DISABILITY TYPES

Autism

A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident be-

fore 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 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.
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.

Note 10: Students With Disabilities

Continued

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 term includes impairments caused by congenital anomaly (e.g., club-foot, 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;

Note 10: Students With Disabilities

Continued

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.

Note 11: The College Qualification Index

WHO IS PREPARED FOR COLLEGE?

The college qualification index used in *indicator 21* was developed for *Access to Postsecondary Education for the 1992 High School Graduates* (NCES 98–105). The index measures a student’s readiness to attend a 4-year institution and uses up to five sources of information about a student’s preparation: high school grade-point average (GPA) in academic courses, senior class rank, scores on the cognitive test battery of the Second Follow-up to the National Education Longitudinal Study (NELS) of 1988, and scores on the ACT or SAT college entrance examination. Since admission standards and requirements vary widely among 4-year colleges and universities, the analysis for the indicator examined the actual distribution of these five measures of academic aptitude and achievement among those graduating seniors who did attend a 4-year institution. Approximately half (45 percent) of the NELS graduating seniors had data available for four or five of the criteria: class rank, GPA, the NELS test, and ACT or SAT scores. For about one-third of the students, only three data sources were available because they lacked ACT or SAT scores. All of these students had NELS test scores, however. In order to identify as many students as possible who were potentially qualified academically to attend a 4-year college, students were assigned the highest level of qualification yielded by any of the five criteria that were available.

Students were classified in a two-stage process. The initial classification was determined as follows:

- *Very highly qualified:* those whose highest value on any of the five criteria would put them among the top 10 percent of 4-year college students (specifically the NELS 1992 graduating seniors who enrolled in 4-year colleges and universities) for that criterion. Minimum values were GPA=3.7, class rank percentile=96, NELS test percentile=97, combined SAT=1250, composite ACT=28.
- *Highly qualified:* those whose highest value on any of the five criteria would put them among the top 25 percent of 4-year college students (but not the top 10 percent) for that criterion. Minimum values were GPA=3.6, class rank percentile=89, NELS test percentile=90, combined SAT=1110, composite ACT=25.
- *Somewhat qualified:* those whose highest value on any of the five criteria would put them among the top 50 percent (but not the top 25 percent—i.e., in the second quartile) of 4-year college students for that criterion. Minimum values were GPA=3.2, class rank percentile=75, NELS test percentile=76, combined SAT=960, composite ACT=22.
- *Minimally qualified:* those whose highest value on any of the five criteria would put them among the top 75 percent (but not the top 50 percent—i.e., in the third quartile) of 4-year college students for that criterion. Minimum values were GPA=2.7, class rank percentile=54, NELS test percentile=56, combined SAT=820, composite ACT=19.
- *Marginally or not qualified:* those who had no value on any criterion that would put them among the top 75 percent of 4-year college students (i.e., all values were in the lowest quartile). In addition, those in vocational programs (according to their high school transcript) were classified as not college qualified. This procedure affected the classification of less than 1 percent of students. Few students in vocational programs met any of the criteria for a higher classification.

Note 11: The College Qualification Index

Continued

Next, adjustments were made for programs of rigorous academic coursework, defined as including at least 4 years of English; 3 years each of science, mathematics, and social studies; and 2 years of a foreign language. Those who had taken a program of rigorous academic courses were moved into one higher level of qualification. In addition, students initially placed in the “very highly qualified” category who had not taken the rigorous academic coursework were placed into the “highly qualified” category.

Students were identified as “college qualified” if they were at least minimally qualified according to this index. It is important to recognize that some “marginally or not qualified” students enrolled at a 4-year institution. Admission standards vary widely and admission may be based on factors other than academic preparation (for example, some public 4-year institutions are open to any in-state high school graduate).

Note 12: Price of College Attendance

The sample used for *indicator 44* consists of dependent full-time, full-year students who attended one postsecondary institution during the 1999–2000 academic year. During that year, approximately 28 percent of all undergraduates were dependent and attended 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 \$31,000, \$54,000, and \$84,000.
- **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, 1999;
 - (2) a veteran of the U.S. Armed Forces;
 - (3) enrolled in a graduate or professional program (beyond a bachelor’s degree);
 - (4) married;
 - (5) an orphan or ward of the court; or
 - (6) had legal dependents, other than a spouse.

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

- **Tuition and fees:** Indicates the tuition the student was charged for the academic year, as reported by the institution in the National Postsecondary Student Aid Study

(NPSAS). If the 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 1999–2000. 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 1999–2000, including employer tuition reimbursements. The total amount of grants may not equal the sum of individual components since some students receive more than one type of grant.
- **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* (NCES 98–013). The 1998 definition was total price minus total aid, which

Note 12: Price of College Attendance

Continued

includes loans that students or their families must repay. The present definition more accurately reflects the price that students and their families pay. Differences between the net price shown in the text table and net price calculated by subtracting grants from total price are due to rounding.

Note 13: Finance

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 2001* (NCES 2002–130), 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 2002*, this description of the CPI applies to *indicators 16, 42, and 43*.

CLASSIFICATIONS OF REVENUE

In *indicator 43*, revenues are classified by source (local, state, or federal). Revenues from federal sources include direct grants-in-aid from the federal government; federal grants-in-aid through a state or an intermediate agency; and other revenue in lieu of taxes that would have accrued had the tax base been subject to taxation. Revenues from state sources include those that can be used without restriction; those for categorical purposes; and revenues in lieu of taxation. Revenues from local sources include revenues from a local education agency (LEA), including taxes levied or assessed by an LEA; revenues from a local government to an LEA; tuition received; transportation fees; earnings on investments from LEA holdings; net revenues from food services (gross receipts less gross expenditures); net revenues from student activities (gross receipts less gross expenditures); and other revenues (e.g., textbook sales, donations, property rentals).

General formula assistance is a type of revenue from state sources. It includes revenue from general state assistance programs such as foundation, minimum or basic formula support, principal apportionment, equalization, flat or block grants, and state public school fund distributions. It also includes state revenue dedicated from major state taxes, such as income and sales taxes.

Note 13: Finance

Continued

MEASURES OF PUBLIC EFFORT TO FUND EDUCATION

The first index (Resources per student) in *indicator 42* is revenue per student, which is public revenue for elementary and secondary education divided by the total number of public and private elementary and secondary students, or public revenues for postsecondary education in degree-granting institutions divided by the total number of students enrolled in these institutions. No adjustments are made for part-time enrollment.

The second measure (Collective effort) is total public revenue divided by total personal income for the United States. It measures the amount of public resources provided for education in relation to available societal resources.

Algebraically,

Collective effort = Public Revenue/Personal Income

Alternatively,

$$\begin{aligned} \text{Collective effort} &= \frac{\text{Public Revenue/}}{\text{Enrollment}} * \frac{\text{Enrollment/}}{\text{Personal Income/}} * \frac{\text{Enrollment/}}{\text{Population}} \\ &= \frac{\text{Revenue per Student}}{\text{Per Capita Income}} * \frac{\text{Enrollment/}}{\text{Population}} \end{aligned}$$

Hence, the index for collective effort can also be expressed as revenue per student relative to the public's capacity (per capita income), adjusted for the enrollment ratio in the population. The latter adjustment is important for isolating the changes in revenue per student that are exclusively due to changes in public revenue, rather than enrollment levels. For example, if both total public revenue for education and per capita income remain constant, collective effort as described above remains unchanged. However, revenue per student can still increase if the number of students falls. Hence, if the ratio of revenue per

student to per capita income were not adjusted for the decline in the percentage of students, it would mistakenly signal an increase in collective effort. The index used for *indicator 42* implicitly adjusts for changes in the percentage of students in the population and gives an accurate index for collective effort.

Educational revenue is in 1999 dollars based on the Consumer Price Index (CPI), prepared by the Bureau of Labor Statistics, U.S. Department of Labor. Personal income is in constant 1999 dollars adjusted by CPI for the calendar year.

Revenue data from elementary/secondary and postsecondary education are based on different accounting systems and are not entirely comparable. For example, public revenues for elementary and secondary education represent additions to assets (cash) from taxes, appropriation, and other funds, which do not incur an obligation that must be met at some future date (loans) in all public schools. These include revenues that are spent on construction of buildings and other investments in the physical plant. Due to the difficulty in constructing a comparable time series, public funds given to private schools (for Head Start, disabled children, etc.) are excluded. For postsecondary education, educational and general public revenues are those available from public sources at both public and private institutions for the *regular or customary activities* of an institution that are part of, and contributory to, or necessary to its instruction or program. *In contrast, revenue from (unrestricted and restricted) grants and contracts at all government levels are excluded.* Overall, public revenue at postsecondary institutions include salaries and travel of faculty and administrative or other employees; purchase of supplies or materials for current use in classrooms, libraries, laboratories, or offices; and operation and maintenance of the educational plant. Unlike public

Note 13: Finance

Continued

revenues for elementary/secondary education, postsecondary public revenues, as defined in *indicator 42*, do not include public funds used for expansion of a physical plant. As a result, readers should focus on the changes over time within the elementary/secondary and postsecondary education measures rather than making comparisons across levels.

Note 14: Multivariate Linear Regression

Indicator 39 shows that differences exist between the base salaries of full-time male and female faculty and among racial/ethnic groups, but these differences do not reflect other characteristics that may explain why one group is paid more than another. In other words, it is unclear whether the salaries of sex or racial/ethnic groups vary in ways that can be accounted for by their differences in other characteristics, such as the types of institutions at which they teach, their academic rank and tenure status, their levels of experience, or their research activities. Many such characteristics vary together, so it is necessary to conduct an analysis that considers these interrelationships simultaneously in order to understand the net differences, if any, in salaries by sex and race/ethnicity.

A multiple linear regression was used to obtain the average base salaries of different sex and racial/ethnic groups while holding constant for other faculty characteristics, including type of institution, age, teaching field, level of students taught, tenure status, academic rank, highest degree attained, years since receiving highest degree, number of for-credit classes taught, percentage of time engaged in teaching, percentage of time engaged in research, and total number of recent publications. The results of this analysis are presented in the second column of supplemental table 39-1. These data indicate the average base salaries, considering the various faculty characteristics described above.

To determine the average base salary for female faculty while controlling for other variables, consider a hypothetical case in which a person's base salary is predicted based on three variables—sex, age, and employment status. The categories of these three variables are as follows:

| | |
|-------------------|--------|
| Sex | Coding |
| Female | 1 |
| Male | 2 |
| Age | Coding |
| Less than 35 | 1 |
| 35–44 | 2 |
| 45–54 | 3 |
| More than 54 | 4 |
| Employment status | Coding |
| Full-time | 1 |
| Part-time | 2 |

The three variables are first recoded into a series of dummy variables that have only two values, with the value of “1” representing one group and value of “0” representing another. For each variable, the number of dummy variables is equal to the total number of categories in that variable minus 1. Thus, a variable that has two categories (such as sex) is recoded into one dummy variable (i.e., $2-1=1$), and a variable that has four categories (such as age) is recoded into three dummy variables (i.e., $4-1=3$). The dummy variables for sex, age, and employment status are as follows:

| | |
|-------------------|-------|
| Sex | G |
| Female | 1 |
| Male | 0 |
| Age | A_1 |
| Less than 35 | 1 |
| Not less than 35 | 0 |
| Age | A_2 |
| 35–44 | 1 |
| Not 35–44 | 0 |
| Age | A_3 |
| 45–54 | 1 |
| Not 45–54 | 0 |
| Employment status | E |
| Full-time | 1 |
| Part-time | 0 |

Note 14: Multivariate Linear Regression

Continued

The following is a multivariate linear regression equation, where \hat{Y} represents average faculty base salary, b_0 is the estimated intercept, b_1 is the estimated regression coefficient for sex (G), b_2 is the estimated regression coefficient for the first age dummy variable (A_1), b_3 is the estimated regression coefficient for the second age dummy variable (A_2), b_4 is the estimated regression coefficient for the third age dummy variable (A_3), and b_5 is the estimated regression coefficient for employment status (E):

$$\hat{Y} = b_0 + b_1G + b_2A_1 + b_3A_2 + b_4A_3 + b_5E$$

Suppose the regression equation results are as follows:

$$\hat{Y} = 63,000 - 5,000G - 8,000A_1 - 3,000A_2 - 2,000A_3 + 2,000E$$

Next, suppose the unadjusted mean values of sex (G), age (A_1, A_2, A_3), and employment status (E) are as follows:

| Variable | Mean |
|----------|-------|
| G | 0.411 |
| A_1 | 0.073 |
| A_2 | 0.253 |
| A_3 | 0.360 |
| E | 0.540 |

To determine the adjusted base salary for female faculty, one substitutes the “1” in the variable sex (G) and the mean values for the other variables, age (A_1, A_2, A_3) and employment status (E). This results in the following equation:

$$\hat{Y} = 63,000 - 5,000 \cdot 1.000 - 8,000 \cdot 0.073 - 3,000 \cdot 0.253 - 2,000 \cdot 0.360 + 2,000 \cdot 0.540 = 57,017$$

To determine the adjusted base salary for male faculty, one substitutes the “0” in the variable sex (G) and the mean values for the other two variables, age (A_1, A_2, A_3) and employment status (E). This results in the following equation:

$$\hat{Y} = 63,000 - 5,000 \cdot 0.000 - 8,000 \cdot 0.073 - 3,000 \cdot 0.253 - 2,000 \cdot 0.360 + 2,000 \cdot 0.540 = 62,017$$

Thus, in this hypothetical case, the average base salaries for females and males, after controlling for age and employment status, are \$57,017 and \$62,017, respectively. The difference (of \$5,000) represents the salary gap between males and females that is equal on the other characteristics (i.e., age and employment status in this case) included in the model. In other words, even if age and employment status are the same for male and female faculty, male faculty earn about \$5,000 more than their female colleagues in this hypothetical case.

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