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ABSTRACT

This is the second annual report to Congress required by the Hawkins-Stafford Elementary and Secondary School Improvement Amendments of 1988 (P.L. 100-297). It presents data on high school dropout and retention rates for 1989 and time series data since 1968. It also examines high school completion and graduation rates. Two kinds of dropout rates are reported: (1) the event dropout rate; and (2) the status dropout rate. The event dropout rate represents the proportion of students who leave school during a single year. In the past 3 years the rate has been 4.5 percent for students in grades 10-12, which represents about 429,000 per year. The status dropout rate represents the proportion of individuals who are not enrolled in school and have not completed high school. In October 1989, 12.6 percent of 16- to 24-year-olds were status dropouts, representing about 4 million. A third kind of dropout rate--the cohort rate--was not covered because no new data have become available since the last report. Nationally, the status dropout rate has been declining since the late 1960s and the event dropout rate since the late 1970s. The status dropout rate for Blacks has declined by almost half over the last two decades and is now only 1.4 percentage points above the White rate. Hispanic dropout rates show no consistent trend since 1972 and remain high. High school graduation/completion rates ranged from 68 to 86 percent in 1989, depending on the age range of the group surveyed and whether an equivalency certificate is counted. Several possibilities for improving the accuracy and extending the relevance of the data are discussed. Data are presented in 12 tables and 9 graphs. Time series and standard error tables and technical notes are included in two appendixes. (MYM)

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**NCES 90-659**

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ED 90-659

# Dropout Rates in the United States: 1989

U.S. DEPARTMENT OF EDUCATION  
OFFICE OF EDUCATIONAL RESEARCH AND IMPROVEMENT  
NATIONAL CENTER FOR EDUCATION STATISTICS

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# **Dropout Rates in the United States: 1989**

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**National Center for Education Statistics**

"The purpose of the Center shall be to collect, and analyze, and disseminate statistics and other data related to education in the United States and in other nations."—Section 406(b) of the General Education Provisions Act, as amended (20 U.S.C. 1221e-1).

September 1990

## FOREWORD

The National Center for Education Statistics (NCES) collects and publishes information on the condition of education in the United States. The Hawkins-Stafford Elementary and Secondary School Improvement Amendments of 1988 (P.L. 100-297) mandated specifically that NCES collect and publish data about dropping out of school. One of these mandates requires NCES annually to report dropout and retention rates for a 12-month period to the appropriate committees of Congress on the second Tuesday after Labor Day, beginning in 1989. This report was prepared pursuant to that mandate and is NCES' second annual report on dropout rates.

This report presents the data for 1989 on high school dropout and retention rates. This report also examines high school completion and graduation rates. At the conclusion of the report is a discussion of current, ongoing data collection efforts by NCES that have a direct bearing on the issues of high school dropouts and graduates.

The report is based on the best and most current national data available at this time. It utilizes the Current Population Survey conducted by the Bureau of the Census to develop event and status dropout rates. NCES is currently pursuing an extensive, integrated program to expand and improve data collected about dropouts in response to the provisions of P.L. 100-297. These efforts were described in an earlier report, *Activities to Plan and Implement the Reporting of School Dropout and Retention Indicators: Status Report to the United States Congress on Activities Related to Section 406 (G) of the General Education Provisions Act (GEPA) as Amended by Public Law 100-297*, May 1989.

I hope the information in this report will be useful in discussions about this critical national issue.

Emerson J. Elliott  
Acting Commissioner of  
Education Statistics

## ACKNOWLEDGMENTS

This report was prepared under the direction of Jeffrey Owings, Chief, Longitudinal and Household Studies Branch, Elementary/Secondary Education Statistics Division. Many individuals made substantial contributions to the preparation of this report. Without the assistance of Paul Siegel, Chief, Education and Social Stratification Branch, Population Division, Bureau of the Census, and Rosalind Bruno of his staff, the sections of this report based on CPS data could not have been prepared. They provided data tapes, special tabulations, and guidance in interpreting the data. Robert Kominski, Survey Research Advisor, Population Division, Bureau of the Census, also provided guidance and technical expertise.

Numerous members of the NCES staff provided assistance in preparing various parts of the report. Jeanne Griffith, Jeffrey Owings, and Susan Ahmed reviewed drafts and table shells during initial stages of the project. Nabeel Absalam, Susan Ahmed, and Mike Cohen provided statistical advice.

The report was reviewed by Susan Ahmed, Marilyn McMillen, and Peggy Quinn of NCES; James Catterall, UCLA; Laura Salganik, Pelavin Associates; and Robert Kominski, Bureau of the Census. Their efforts and contributions are greatly appreciated.

## EXECUTIVE SUMMARY

This second annual report to Congress by the National Center for Education Statistics presents data for 1989 on high school dropout and retention rates and time series data since 1968. This report also examines high school completion and graduation rates.

### Types of Dropout Rates

There are a variety of ways in which to calculate dropout rates. Three types of dropout rates were discussed in the first annual report: event rates, status rates, and cohort rates.

- Event rates measure the proportion of students who drop out in a single year without completing high school.
  - Event rates are important because they reveal how many students are leaving high school each year and how each year's rates compare with previous ones.
- Status rates measure the proportion of the population who have not completed high school and are not enrolled at one point in time, regardless of when they dropped out.
  - Status dropout rates are important because they reveal the extent of the dropout problem in the population and, therefore, suggest the magnitude of the challenge for further training and education that will permit these individuals to participate more fully in the economy and the life of the nation.
  - Status dropout rates are much higher than event dropout rates because they represent the cumulative impact of the annual dropout rates over a number of years.
- Cohort rates measure what happens to a single group (or cohort) of students over a period of time.

This report updates the data on event and status rates presented in last year's report. Because new longitudinal data are not yet available, updated cohort rates are not presented in this report.

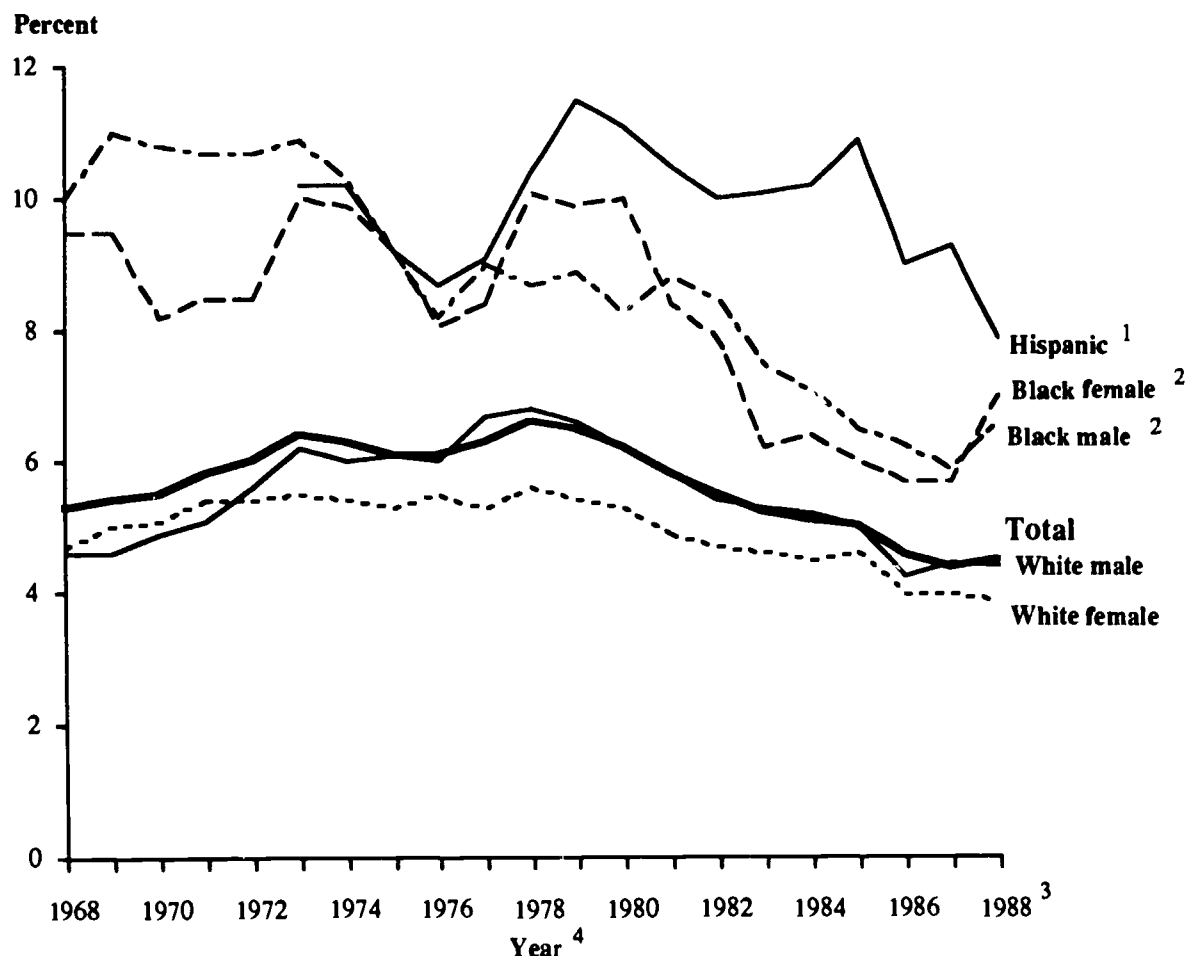


## Event and Status Dropout Rates

### *Event Rate*

- On average, 4.5 percent of 15- to 24-year-olds in grades 10 to 12 annually dropped out of school over the last three years (1987 to 1989). Approximately 429,000 students dropped out each year over the three-year period.
- The event dropout rate has fallen over the last decade. In the late 1970s, the annual event dropout rate (three-year average) was over six percent. By 1988, the three-year average rate was 4.5 percent per year (Figure A).
- The single-year event rate for 1989 was not statistically different from the three-year average rate for 1986-88, nor were there significant differences between the rate for 1989 and the rate for 1986-88 for males, females, or members of different racial or ethnic groups.
- The school retention rate for 1987-89—the proportion of students graduating or remaining in school from one year to the next—was 95.5 percent.
- For the period 1987-89, the event rate was higher in the central cities (6.2 percent) than in suburbs (3.7 percent) or rural areas (4.0 percent). Furthermore, the rates for blacks (6.8 percent) and Hispanics (7.9 percent) were greater than for whites (4.1 percent).
- While blacks and Hispanics, students living in central cities, and older students were more likely to drop out than other students, the majority of students who dropped out over the last three years were white, were 15- to 19-years old, and lived in suburbs or nonmetropolitan areas.

**Figure A. -- Three-year average event dropout rates for grades 10-12, ages 14-24, by race/ethnicity, by sex: 1968 to 1988**



<sup>1</sup> Hispanics may be of any race.

<sup>2</sup> Given the relatively large standard errors of these estimates, the apparent increases in black male and female dropout rates between 1986-88 and 1987-89 are *not statistically significant* and may be caused solely by sampling error in the estimates.

<sup>3</sup> Due to a procedural change in CPS, the rate for 1988 is for 15- to 24-year-olds only. The event dropout rate for grades 10-12 is not affected by changing the age group from 14-24 to 15-24.

<sup>4</sup> The year represents the middle of the three years over which rates are averaged. Thus the rate for 1988 is the average of the single-year rates for the 12-month periods ending October 1987, 1988, and 1989.

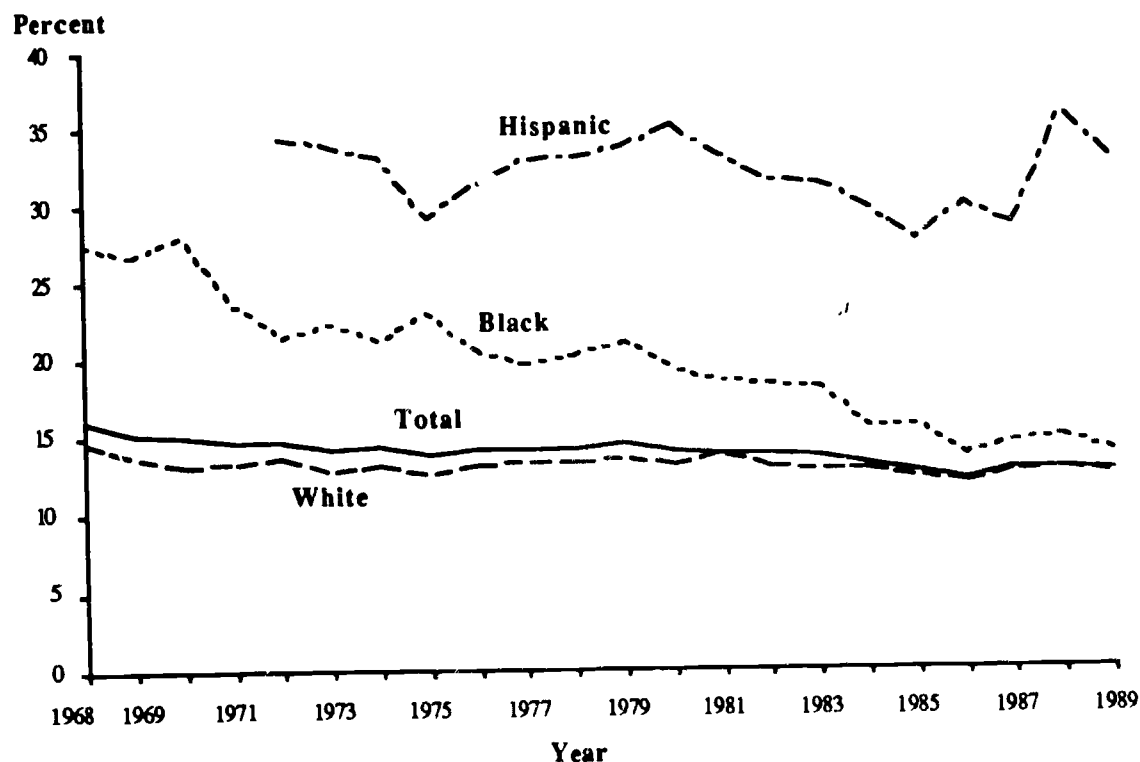
Note: The moving three-year averages plotted in this figure portray general trends in dropout rates over time. However, the change from one three-year average to the next, i.e. from 1986-88 to 1987-89, should not be interpreted as representing the change from one year to the next, i.e. from 1987 to 1988.

SOURCE: R. Kominski, "Estimating the National High School Dropout Rate," *Demography*, Vol. 27 No. 2, May 1990; U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

### *Status Rate*

- In 1989, approximately 4 million persons in the United States ages 16 to 24 had not completed high school and were not currently enrolled in school. This represented about 12.6 percent of all persons in this age group.
- The percentage of young persons who are status dropouts has generally declined over the last two decades. In 1968, approximately 16 percent of persons 16 to 24 were not enrolled and had not completed high school, compared with less than 13 percent in 1989 (Figure B).
- The 1989 status rate for all persons ages 16 to 24 was not statistically different from the 1988 rate, nor were there significant differences between the 1988 and 1989 rates for males, females, or members of different racial or ethnic groups.
- Persons in central cities, in the southern or western regions of the country, and persons of Hispanic origin were more likely to be status dropouts than were other persons. About one-third of all Hispanics 16 to 24 had not finished high school and were not enrolled in school.

**Figure B. -- Percentage of status dropouts, ages 16-24, by race/ethnicity:  
October 1968 to 1989**



NOTE: Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

## High School Completion and Graduation

- Graduation rates vary according to two factors: 1) the age group examined (e.g. 18- and 19-year-olds, 18- to 24-year-olds), and 2) how high school graduation is defined (e.g. inclusion or exclusion of recipients of high school equivalency certificates). Consequently, even when using the same data source, graduation/completion rates for 1989 ranged from 68 percent to 86 percent depending on how the rate was calculated.

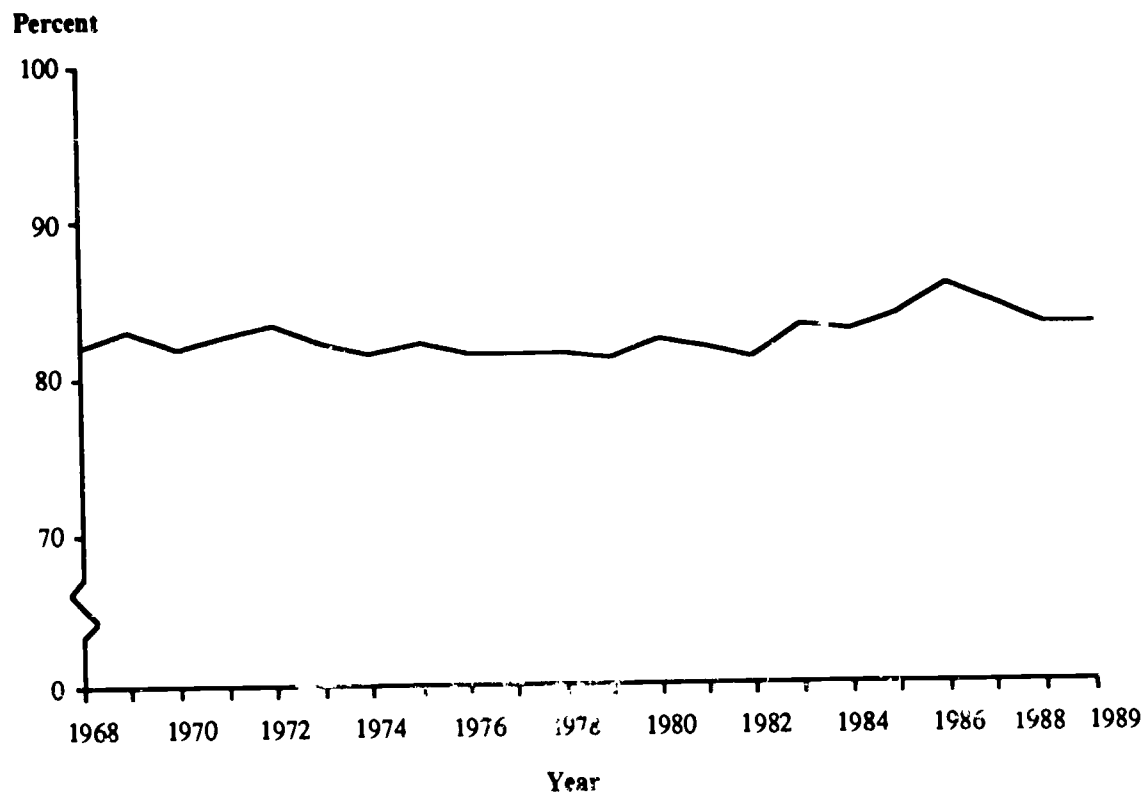
**Table A. -- Graduation and completion rates, by age: 1989**

	Age		
	18-19	20-21	22-24
	(As percent of age group)		
High school diploma	68	79	82
Diploma or equivalency certificate	72	83	86

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

- Generally, graduation rates are higher for older age groups (e.g. 20- to 24-year-olds) than for younger ones (e.g. 18- and 19-year-olds).
- The high school graduation rate is lower if those holding a high school equivalency certificate are not considered high school graduates than if all high school completers, regardless of the method of completion, are counted as graduates.
- In considering who is a potential graduate at a specific point in time, if those still enrolled in high school were excluded from the population base, then the completion rates for 18- to 19-year-olds would be substantially higher. Therefore, the high school completion rate, defined as the percentage of persons age 18 to 19 not currently enrolled in high school (or below) who have completed high school by receiving a high school diploma or equivalency certificate, was 83 percent in 1989. This rate was fairly constant from 1968 to 1982, at about 82 percent (Figure C). However, between 1982 and 1989 there was a small but statistically significant increase in the completion rate—to 83 percent in 1989.

**Figure C. -- High school completion rates for persons 18- and 19-years old not currently enrolled in high school or below: October 1968 to 1989**



SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

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## INTRODUCTION

The rate at which students drop out of school nationwide is well-recognized as a major educational and economic problem. Parents, educators, business executives, and policymakers acknowledge that leaving school early profoundly handicaps the dropouts themselves and puts the entire nation at risk. At a time when the nation's economy is demanding more highly skilled and educated workers, the prospects for a high school dropout's future employment seem especially bleak. Furthermore, the proportion of students who are at risk of school failure—those from non-English language backgrounds, who come from single-parent households, or who come from poor families—is on the rise in our nation's schools.<sup>1</sup> This increase has some policymakers concerned about the possibility of higher dropout rates in the future—a prospect that would have devastating consequences for a nation that can ill-afford poorly educated workers.

The President and the Governors are making a concerted effort to address this issue by focusing on high school completion as one of their primary education concerns. Of the six national education goals they have adopted, one is to raise the high school graduation rate to at least 90 percent by the year 2000. As a first step in reaching that goal, the President and the Governors have set the following two objectives concerning high school completion:

- The nation must dramatically reduce its dropout rate and 75 percent of those students who drop out will successfully complete a high-school degree or its equivalent.
- The gap in high-school graduation rates between American students from minority backgrounds and their nonminority counterparts will be eliminated.<sup>2</sup>

Policymakers both within and outside of the Federal government need standard, reliable time series data on high school dropouts. However, accurate and reliable estimates of dropout rates have been difficult to produce or to find. Over the last few years the National Center for Education Statistics (NCES) has taken steps to ensure that policymakers will have accurate data on the size and nature of the dropout population. Specifically, in 1988 the Hawkins-Stafford Elementary and Secondary School Improvement Amendments (P.L. 100-297) (20 U.S.C. 1221e-1) included a provision that NCES report a dropout rate for a 12-month period to Congress every year starting in 1989.

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<sup>1</sup>A. Pallas, G. Natriello, and E. McDill, "The Changing Nature of the Disadvantaged Population: Current Dimensions and Future Trends," *Educational Researcher*, June-July 1989.

<sup>2</sup>Office of the Press Secretary, the White House, "National Education Goals," Press release, January 31, 1990.

Last year, NCES published the first mandated annual report to Congress on dropout and retention rates.<sup>3</sup> The present publication is the second annual high school dropout report to Congress. It contains three main sections. The first section updates data on two measures—event and status dropout rates—presented in the first annual report. For a third measure—the cohort dropout rate—no new data are available. These rates were reported in some detail in last year's high school dropout report and will not be repeated here.<sup>4</sup> The second section of the report discusses the Current Population Survey's data on high school completion and graduation. The third section describes new NCES data collection efforts related to high school dropouts and provides preliminary results on at-risk students from the National Education Longitudinal Study of 1988. At the end of the report, technical appendices provide a discussion of the statistical methodology used in this report and also present standard errors for all estimates.

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<sup>3</sup>M. Frase, *Dropout Rates in the United States: 1988*, U.S. Department of Education, National Center for Education Statistics, September 1989.

<sup>4</sup>Cohort rates measure what happens to a single group (or cohort) of students over a period of time. Overall 17.3 percent of the 1980 sophomore class had not completed high school by June 1982—14.8 percent of white students, 22.2 percent of black students, and 27.9 percent of Hispanic students. By 1988, about 46 percent of these dropouts—eight percent out of the 17.3 percent who had dropped out—had returned to school and either earned a high school diploma or its equivalent. In addition, about 12 percent of the dropouts—or two percent of the cohort—were actively pursuing a high school diploma or its equivalent as of 1986.

## EVENT AND STATUS DROPOUT RATES IN 1989

### Event Rates

Event dropout rates measure the proportion of individuals who have dropped out of school over a 12-month period. Using the October Current Population Survey (CPS), data are available on the number or proportion of students who were enrolled in high school one October, are not enrolled in high school the following October, but who also have not completed high school—that is, the number or proportion of students who dropped out from October one year to October of the next year.<sup>5</sup> However, the single-year event rates are relatively unstable and imprecise due to the small sample size of potential dropouts in CPS. Therefore, to increase the power to detect differences in event rates among subgroups and over time, three-year average event rates—the average of three successive years—are calculated (see Appendix B). The event dropout rates and school retention rates are shown below for the most recent years, along with trends in the average event dropout rate from 1967-69 to 1987-89.

### *Average Event Rate 1987-89*

Figure 1 shows the three-year average rates and the single-year rates for the years 1967 to 1989.<sup>6</sup> Table 1 shows the event rate for single years 1967 to 1989 and three-year averages for years 1986-88 and 1987-89.<sup>7</sup> The single-year rates are included in Table 1 to demonstrate how the three-year averages are calculated and are included in Figure 1 to demonstrate the effect of using a three-year average over a single-year rate. The three-year average for 1986-88 is simply the sum of the rates for 1986, 1987, and 1988 divided by

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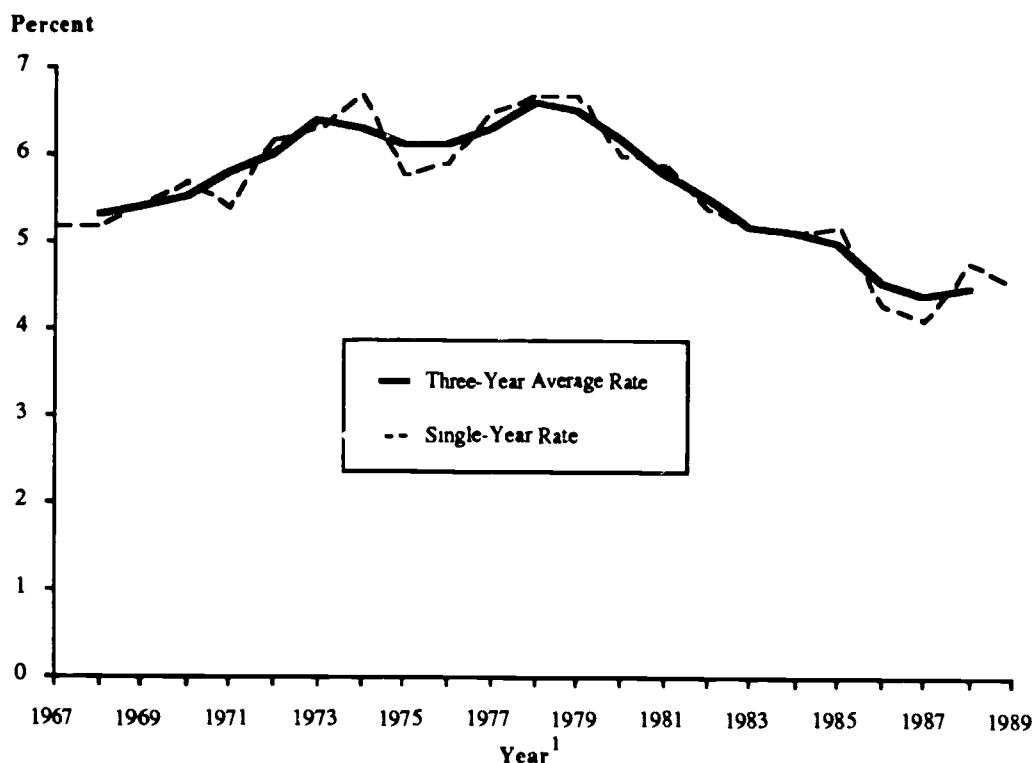
<sup>5</sup>Specifically, the numerator of the single-year event rate for 1989 is the number of persons 15 to 24 years of age who were enrolled in high school in October 1988, were not enrolled in high school in October 1989, and who also did not complete high school (i.e. had not received a high school diploma or an equivalency certificate) between October 1988 and October 1989. The denominator of the event rate is the number of all persons 15- to 24-years old enrolled in high school in October 1988.

<sup>6</sup>Supporting data and standard errors for all figures are provided in Appendix A of this report.

<sup>7</sup>Table 1 in last year's report presented data on persons 14 to 24 in grades 10 to 12 and 8 to 12. Due to a 1989 change in procedures for the Current Population Survey's October Education Supplement, event rates for only 15- to 24-year-olds are now available. While dropping the 14-year-olds from the survey has not affected the size of the grade 10 to 12 rate, the grade 8 to 12 rate is substantially affected. Therefore, for compatibility only the grade 10 to 12 rate is reported in this year's report. The first report also focused on the rate for grades 10 to 12.

three. The average rate for 1987-89 is the sum of the rates for 1987, 1988, and 1989 divided by three.<sup>8</sup>

**Figure 1. -- Three-year average event dropout rates and single-year event dropout rates for grades 10-12, ages 14-24: 1967 to 1989**



<sup>1</sup> The year represents the middle of the three years over which rates are averaged. Thus the rate for 1988 is the average of the single-year rates for the 12-month periods ending October 1987, 1988, and 1989.

Note: Prior to 1989, these data were collected for 14- to 24-year-olds. However, beginning in 1989, the data are only collected for 15- to 24-year-olds. Therefore, the three-year rate for 1988 and the single-year rate for 1989 are for 15- to 24-year-olds only. The event dropout rate for grades 10-12 is not affected by changing the age group from 14-24 to 15-24.

SOURCE: R. Kominski, "Estimating the National High School Dropout Rate," *Demography*, Vol. 27, No. 2, May 1990; U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

<sup>8</sup>The 1986-88 rate and the 1987-89 rate have two years in common—1987 and 1988. Therefore, the difference between the 1986-88 rate and the 1987-89 rate is due to differences between 1986 and 1989. The difference between the two three-year averages, 1986-88 and 1987-89, is equal to one-third of the difference between the end points of the time series: 1986 and 1989.

On average, 4.5 percent of 15- to 24-year-olds dropped out of grades 10 to 12 per year over the last three years (1987 to 1989). Therefore, the school retention rate for 1987-89, or the proportion of students graduating or remaining in school from one year to the next, was 95.5 percent. The event dropout rate represents approximately 429,000 students dropping out annually over the three-year period. Table 1 also shows that the percentage of students dropping out in 1989 is essentially unchanged from the annual average rate for the three-year period from 1986-88. Furthermore, there are no significant differences among the rates for single years between 1986 and 1989.

**Table 1. -- Event dropout and retention rates for ages 15-24 in grades 10-12: 1986-1989**

Type of rate and year ending	Rate (percent)
<b>Event dropout rate</b>	
Single year	
1986	4.3
1987	4.1
1988	4.8
1989	4.5
Three-year average	
1986-1988	4.4
1987-1989	4.5
<b>School retention rate</b>	
Single year	
1986	95.7
1987	95.9
1988	95.2
1989	95.5
Three-year average	
1986-1988	95.6
1987-1989	95.5

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished data.

**Table 2. -- Average event dropout and retention rates (three-year average) and distribution of dropouts from grades 10-12, ages 15-24, by sex, race/ethnicity, age, region, and metropolitan status: 1987-89**

	Event dropout rate	School retention rate	Percent of all dropouts
	(percent)		
Total	4.5	95.5	100.0
<b>Sex</b>			
Male	4.7	95.3	53.1
Female	4.2	95.8	46.9
<b>Race/ethnicity</b>			
White	4.1	95.9	74.5
Black	6.8	93.2	23.2
Hispanic <sup>1</sup>	7.9	92.1	14.0
<b>Age<sup>2</sup></b>			
15	3.0	97.0	2.1
16-17	2.8	97.2	36.7
18-19	6.1	93.8	47.8
20-24	21.2	78.8	13.4
<b>Region</b>			
Northeast	3.2	96.8	14.4
Midwest	4.4	95.6	26.0
South	5.1	94.9	38.3
West	4.9	95.1	21.1
<b>Metropolitan status</b>			
Central city	6.2	93.8	38.5
Suburban	3.7	96.3	40.2
Non-metropolitan	4.0	96.0	21.4

<sup>1</sup> Hispanics may be of any race.

<sup>2</sup> Age when a person dropped out may be one year younger, because the dropout event could occur at any time over a 12-month period.

NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished data.

Table 2 shows the 1987-89 event dropout rate and school retention rate for persons with varying demographic characteristics. Dropout rates were generally higher for black and Hispanic students than for white students and were higher for students 20- to 24-years

old than for younger students.<sup>9</sup> The average event rate also varied by the region in which the student (or former student) resided at the time of the survey; and it was affected by whether the student lived in a city, a suburb of a city, or a nonmetropolitan area.<sup>10</sup> Students living in the South compared with those in the Northeast and students residing in central cities compared with other students were more likely to have dropped out.<sup>11</sup>

While black and Hispanic students, students living in central cities, and older students were more likely to drop out than other students in grades 10 to 12, the majority of all students are white, do not live in central cities, and are under 20 years of age. Therefore, the majority of students who dropped out over the last three years were not minority students and did not live in central cities. On average, 75 percent were white, 87 percent were 15- to 19-year-olds, and 62 percent lived in the suburbs or nonmetropolitan areas.

The data shown in Table 3 seem to indicate that event rates for whites, blacks, and Hispanics varied within regions and metropolitan areas. Generally, the data fit well-known patterns concerning high school dropouts. However, given the small sample sizes of minorities in the CPS, none of the observed differences in rates within or between racial or ethnic categories are statistically significant.

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<sup>9</sup>The racial/ethnic categories in the tables and figures based on CPS data are not mutually exclusive. Most Hispanics are double-counted because Hispanic origin is considered an ethnic classification in CPS. In terms of race, most Hispanics are included in the white category based on self-identification, but some are included in the black category and a few identify themselves as "other," which is not shown in these tables and figures.

<sup>10</sup>There are four Census regions used in this report: Northeast, Midwest, South, and West. The Northeast consists of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania. The Midwest consists of Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa, Minnesota, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. The South consists of Delaware, Maryland, DC, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas. The West consists of Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii.

<sup>11</sup>The statistical significance of these comparisons were assessed with Student's t-test with a Bonferroni correction for multiple comparisons. For a full discussion of the statistical methods used in this report, see Appendix B.



**Table 3. -- Average event dropout rate (three-year average) for grades 10-12, ages 15-24, by region and metropolitan status by race/ethnicity: 1987-89**

Region and metropolitan status	Race/ethnicity			
	Total	White	Black	Hispanic <sup>1</sup>
	(percent)			
Total	4.5	4.1	6.8	7.9
Region				
Northeast	3.2	2.8	6.2	8.4
Midwest	4.4	3.9	8.1	9.7
South	5.1	4.6	6.8	8.4
West	4.9	5.2	4.6	7.2
Metropolitan status				
Central city	6.2	5.3	8.5	7.8
Suburban	3.7	3.7	4.8	8.3
Non-metropolitan	4.0	3.9	4.8	7.0

<sup>1</sup> Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

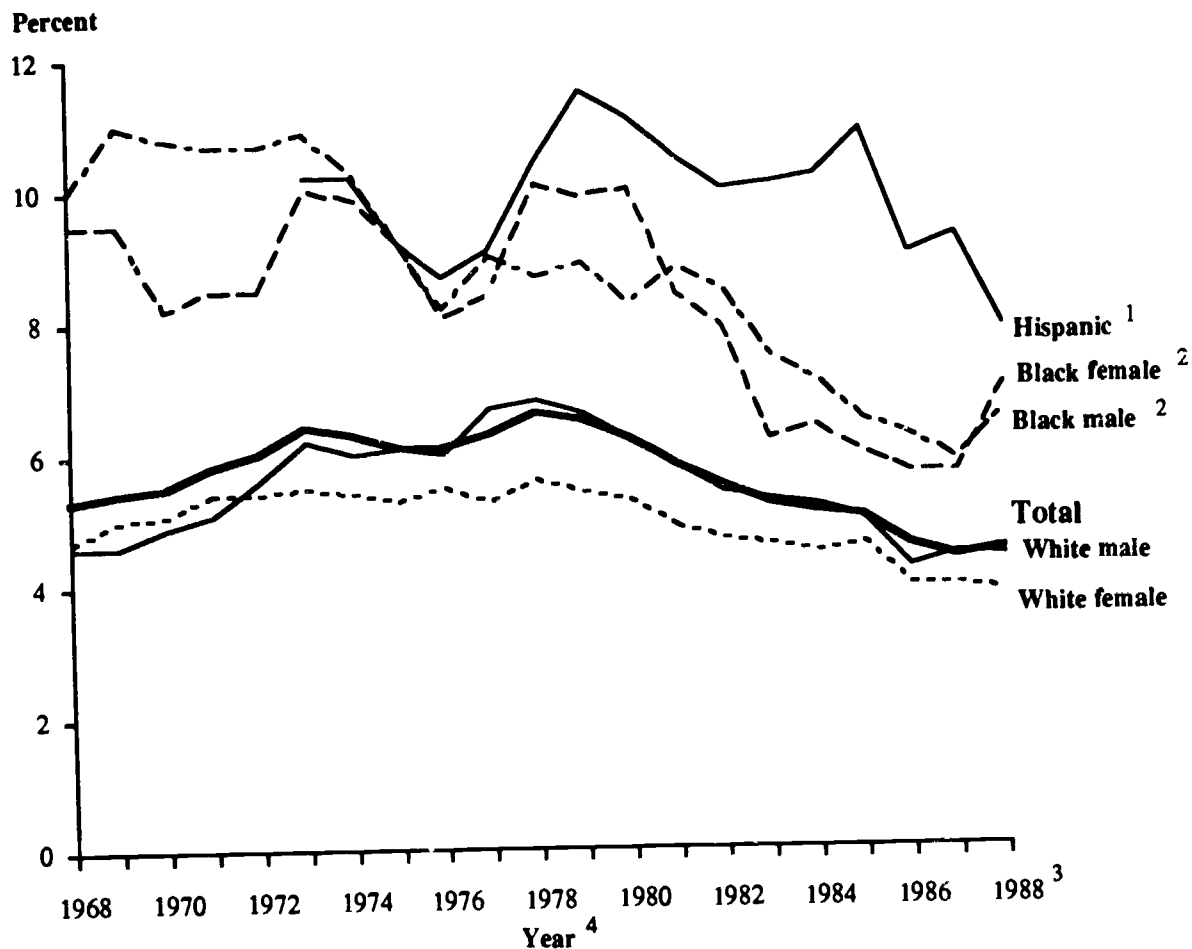
### *Trends over Time*

The incidence of dropping out has fallen over the last decade (Figure 2). In the late 1970s, the annual dropout rate (three-year average) was over 6 percent. By 1988, the rate was only 4.5 percent per year.<sup>12</sup> Furthermore, dropout rates for black male students have generally fallen during the last decade. For example between 1977 and 1979 about nine percent of black male students 14 to 24 dropped out of high school each year. In the three-year period (1986-88), approximately six percent of black male students dropped out each year. However, given the relatively large standard errors of these estimates, the apparent increase in black female dropout rates between 1986-88 and 1987-89 is *not statistically significant* and may be caused solely by sampling error in the estimates.<sup>13</sup> Estimates of the Hispanic dropout rate have been rather erratic over this period with little apparent statistical pattern.

<sup>12</sup>The statistical significance of the trends presented in this section was assessed using weighted least squares regression analyses on the trends in three-year average rates. For a full discussion of the statistical methods used in this report, see Appendix B.

<sup>13</sup>The apparent rise in black female rates is *not* due to the elimination of 14-year-olds in the 1989 CPS. A sensitivity analysis using the 1988 CPS showed little impact on the black female rate when the 14-year-olds were dropped from the analysis. The rate for 14- to 24-year-olds was 6.3798 while the rate for 15- to 24-year-olds was 6.3988.

**Figure 2. -- Three-year average event dropout rates for grades 10-12, ages 14-24, by race/ethnicity by sex: 1968 to 1988**



<sup>1</sup> Hispanics may be of any race

<sup>2</sup> Given the relatively large standard errors of these estimates, the apparent increases in black male and female dropout rates between 1986-88 and 1987-89 are *not statistically significant* and may be caused solely by sampling error in the estimates.

<sup>3</sup> Due to a procedural change in CPS, the rate for 1988 is for 15- to 24-year-olds only. The event dropout rate for grades 10-12 is not affected by changing the age group from 14-24 to 15-24.

<sup>4</sup> The year represents the middle of the three years over which rates are averaged. Thus the rate for 1988 is the average of the single-year rates for the 12-month periods ending October 1987, 1988, and 1989.

Note: The moving three-year averages plotted in this figure portray general trends in dropout rates over time. However, the change from one three-year average to the next, i.e. from 1986-88 to 1987-89, should not be interpreted as representing the change from one year to the next, i.e. from 1987 to 1988.

SOURCE: R. Kominski, "Estimating the National High School Dropout Rate," *Demography*, Vol. 27, No. 2, May 1990; U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

## Status Rates

In contrast to event dropout rates that measure the proportion of students dropping out over the course of a single year, status dropout rates measure the proportion of individuals who are dropouts at any one given time regardless of when they dropped out of school. For example, using CPS, the number or proportion of individuals in a specified age range who, as of October of any given year, have not completed high school and are not currently enrolled in school can be calculated.<sup>14</sup> This section presents the 1989 status dropout rates for 16- to 24-year-olds and examines trends in the status rate from 1968 to 1989.

### Status Rate: 1989

In 1989 about 4 million persons in the United States ages 16 to 24 were high school dropouts (Table 4). This represented approximately 12.6 percent of all persons in this age group. The proportion of dropouts in 1989 was essentially unchanged from the previous year's rate of 12.9 percent and 1987's rate of 12.7 percent.<sup>15</sup>

**Table 4. -- Rate and number of status dropouts, ages 16-24: October 1987, 1988, and 1989**

	October		
	1987	1988	1989
Status dropout rate (percent)	12.7	12.9	12.6
Number of status dropouts (in thousands)	4,251	4,231	4,038
Population (in thousands)	33,452	32,893	32,007

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

<sup>14</sup>The numerator of this rate is the number of individuals in a specified age range who, as of October of any given year, have not completed high school and are not currently enrolled in school. The denominator is the number of persons in that age group in October of that year.

<sup>15</sup>The differences in the number of status dropouts and in the number of persons in the population 16- to 24-years old between 1989 and 1988 are not statistically significant.

**Table 5. -- Rate and number of status dropouts, ages 16-24, by sex, race/ethnicity, age, region, and metropolitan status: October 1989**

	Status dropout rate (percent)	Number of status dropouts (in thousands)	Population (in thousands)
Total	12.6	4,038	32,007
Sex			
Male	13.6	2,145	15,783
Female	11.7	1,893	16,224
Race/ethnicity			
White	12.4	3,254	26,233
Black	13.8	645	4,661
Hispanic <sup>1</sup>	33.0	1,142	3,460
Age			
16	3.9	127	3,313
17	7.8	267	3,433
18	14.4	520	3,621
19	13.7	512	3,740
20	16.5	570	3,452
21	15.5	524	3,376
22	12.7	438	3,460
23	15.1	559	3,697
24	12.9	518	3,914
Region			
Northeast	9.3	602	6,503
Midwest	9.0	724	8,049
South	15.1	1,660	10,967
West	16.2	1,052	6,489
Metropolitan status			
Central city	15.4	1,591	10,329
Suburban	10.7	1,601	14,960
Non-metropolitan	12.6	848	6,719

<sup>1</sup> Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

Table 5 shows the status dropout rates for persons with different demographic characteristics. In 1989, there were more male than female dropouts. About 14 percent of the males and approximately 12 percent of females had not completed high school and were not enrolled in school. Persons in central cities, in the southern or western regions of the

country, and of Hispanic origin were more likely to be status dropouts than others. About one-third of all Hispanics age 16 to 24 had not finished high school and were not enrolled in school. There were no significant differences between white and black status dropout rates.<sup>16</sup>

Table 6 indicates that the general racial/ethnic trends seen in Table 5 vary according to place of residence.<sup>17</sup> For example, while overall black and white dropout rates did not differ significantly, blacks in the Northeast were more likely than whites to be dropouts; and whites in the West were more likely than blacks to be dropouts. However, regional variation in status dropout rates among racial and ethnic groups may reflect, in part, regional variation in the composition of these racial and ethnic groups. For example, in the West, Hispanics make up a large proportion of persons categorized as "white" and Hispanics are much more likely to have not completed high school than other groups.<sup>18</sup> Current Population Survey data show that Hispanics make up almost 30 percent of whites in the West, while they represent less than 10 percent of whites in other regions.

**Table 6. -- Status dropout rate, ages 16-24, by region and metropolitan status by race/ethnicity: October 1989**

Region and metropolitan status	Total	Race/ethnicity		
		White	Black	Hispanic <sup>1</sup>
		(percent)		
Total	12.6	12.4	13.8	33.0
Metropolitan status				
Central city	15.4	16.1	14.2	35.2
Suburban	10.7	10.4	12.8	32.8
Non-metropolitan	12.6	12.3	14.3	20.8
Region				
Northeast	9.3	8.6	12.5	24.8
Midwest	9.0	8.1	15.2	28.5
South	15	15.2	14.8	30.8
West	16.2	17.5	7.0	37.5

<sup>1</sup> Hispanics may be of any race.

NOTE: Detail may not sum to total due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

<sup>16</sup>The white population includes a substantial proportion of Hispanics, who have much higher dropout rates. When this analysis is conducted for non-Hispanic whites and blacks, the differences in status rates are statistically significant. About 9.4 percent of non-Hispanic whites in 1989 were status dropouts compared to 13.5 percent of non-Hispanic blacks.

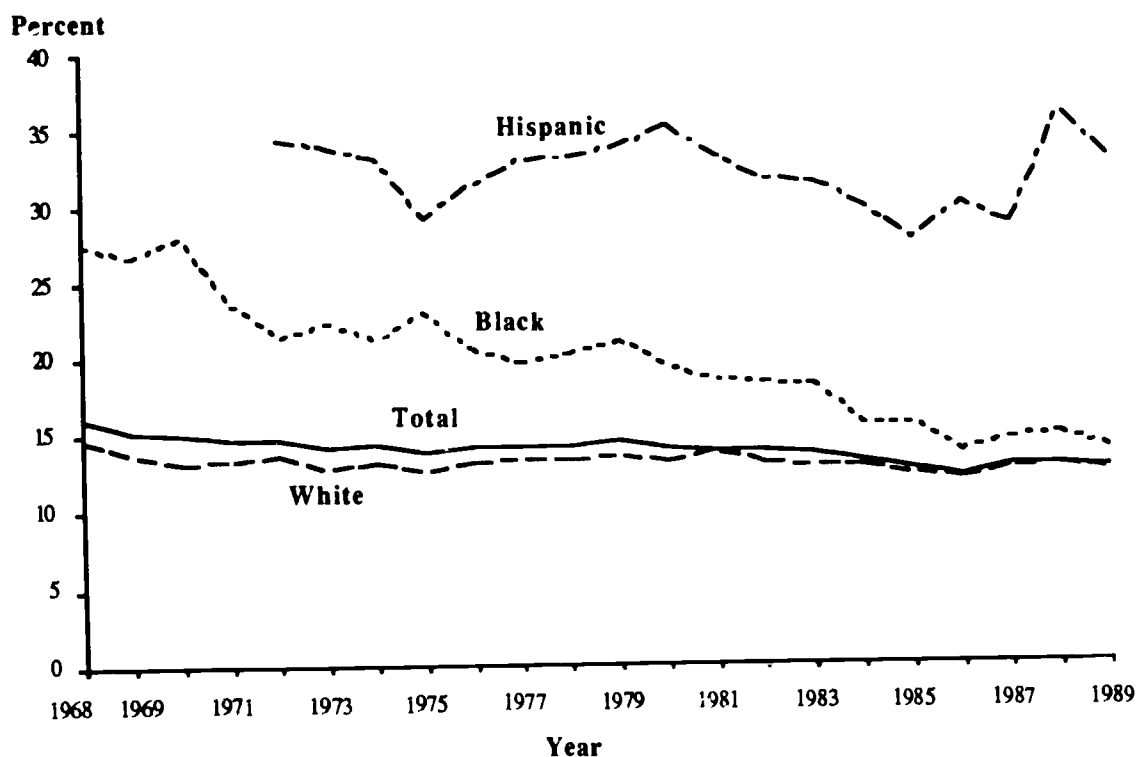
<sup>17</sup>While there is some variation among blacks and Hispanics in the status dropout rates by metropolitan status, none of these comparisons are statistically significant.

<sup>18</sup>Many persons of Hispanic background may not have dropped out of school in the United States, but instead may have come to this country as 'dropouts' and never entered the United States' school system

### Trends over Time

The percentage of young persons who are status dropouts has generally declined over the last two decades (Figure 3). In 1968, approximately 16 percent of persons age 16 to 24 had not completed high school, while in 1989, less than 13 percent were dropouts.<sup>19</sup>

Figure 3. -- Percentage of status dropouts, ages 16-24, by race/ethnicity: October 1968 to 1989



NOTE: Hispanics may be of any race.

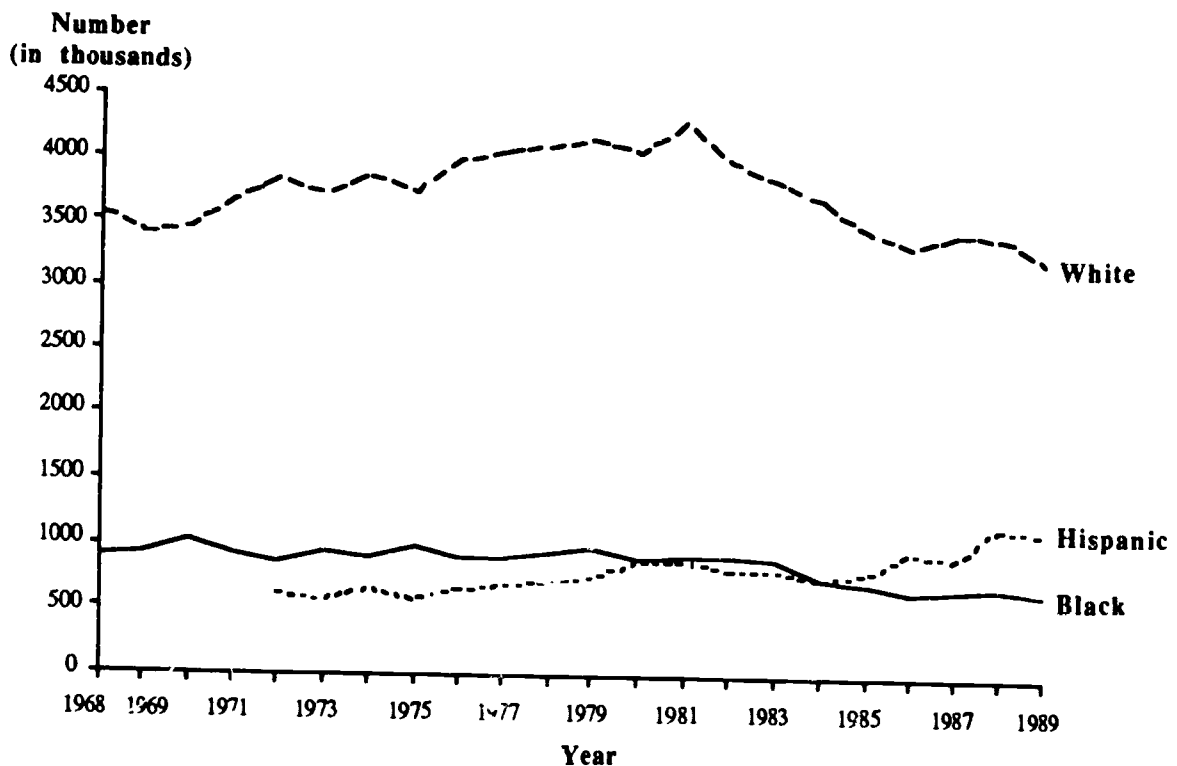
SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

Figure 3 also shows that the percentage of blacks who were status dropouts has decreased substantially over the last two decades—from 27 percent in 1968 to 14 percent in 1989, while the status dropout rate for whites has decreased slightly—from 15 percent in 1968 to 12 percent in 1989. Although the actual estimates are erratic, the Hispanic

<sup>19</sup>The statistical significance of the trends presented in this section was assessed using weighted least squares regression analyses on the trends in three-year average rates. For a full discussion of the statistical methods used in this report see Appendix B.

proportion has remained fairly constant.<sup>20</sup> However, Hispanics now make up a greater proportion of all dropouts (Figure 4). This is caused partially by the changing composition of the population age 16 to 24. While the population of whites 16- to 24-years old has decreased from approximately 31 million in 1980 to around 26 million in 1989, the population of Hispanics ages 16 to 24 has increased from approximately 2.5 million in 1980 to around 3.5 million in 1989.<sup>21</sup> (The black population has held constant at approximately 5 million persons.) Consequently, Hispanic students make up a larger proportion of the population; therefore, even without decreases in dropout rates for whites and blacks, Hispanics would constitute a larger proportion of dropouts.

Figure 4. -- Number of status dropouts, ages 16-24, by race/ethnicity: October 1968 to 1989



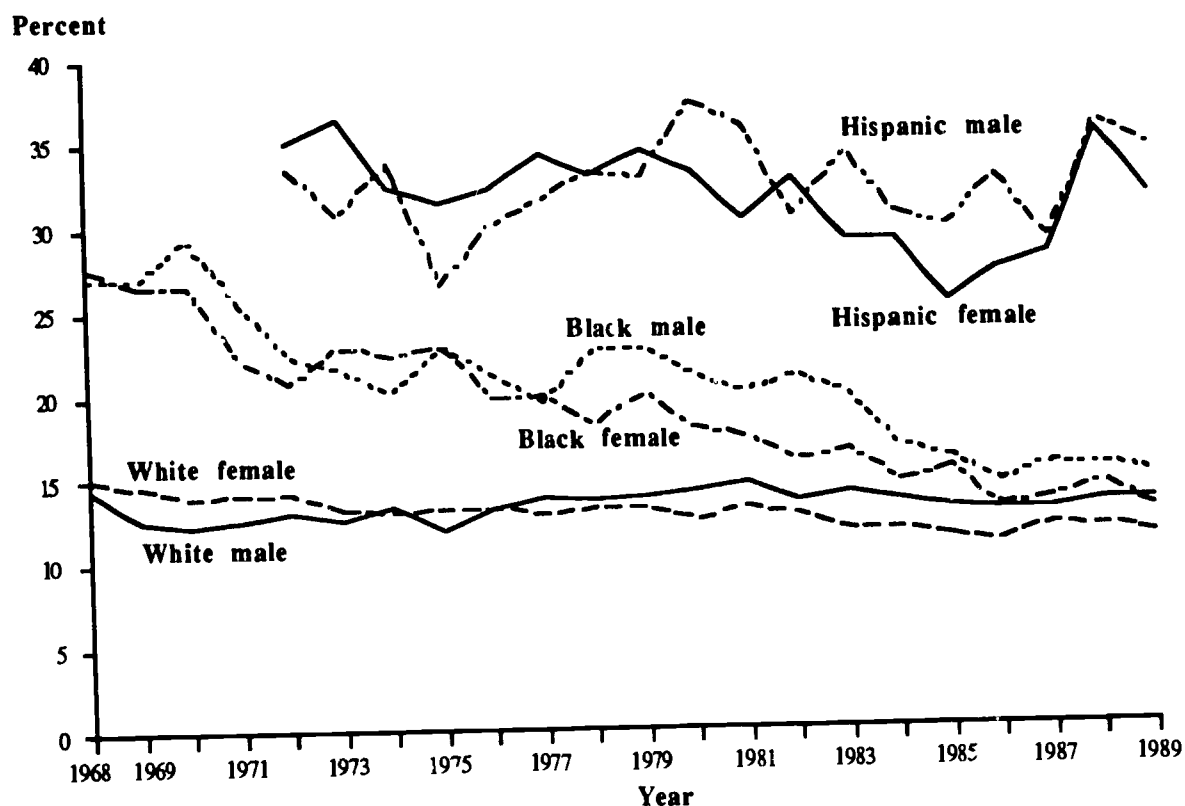
NOTE: Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

<sup>20</sup>The erratic nature of the Hispanic proportion reflects, in part, the small sample size of Hispanics in CPS.  
<sup>21</sup>In this analysis, white and Hispanic categories are not mutually exclusive. That is, Hispanics can be of any race and most Hispanics identify themselves as white. Therefore, the decline in the number of white dropouts would appear even greater if Hispanics were not included among whites.

The relationship between white male and white female status rates changed over the last 21 years (Figure 5). Rates for white women were generally higher than those for white males until 1976 and were lower than for white males since 1977.<sup>22</sup> White female rates dropped from around 15 percent in 1968 to only 11 percent in 1989. White male rates have remained fairly constant from 1968 to 1989, while black male rates have declined from 27.1 percent in 1968 to 14.9 percent in 1989. Over the same period black female rates have declined to essentially the same rates as those for white males. The black female status rate in 1989 was 12.9 percent compared with the white male rate of 13.4 percent.

Figure 5. -- Status dropout rate, ages 16-24, by race/ethnicity, by sex: October 1968 to 1989



NOTE: Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

<sup>22</sup>As was shown in some detail in last year's report, some of the difference in male and female trends may reflect the influence of the military buildup during the Vietnam War. Since CPS covers only the civilian, noninstitutionalized population, the CPS estimates for the number of 16- to 24-year old males in the population and the number of male dropouts do not reflect the large proportion of males in this age group in military service during the period 1968 to 1974.



## Summary

According to the data presented in this section, the national dropout rates—both status and event rates—have been declining over the last decade. In 1979, approximately 14.6 percent of persons 16 to 24 were status dropouts, while in 1989, 12.6 percent had left school without completing high school. The three-year average event rates declined by over two percentage points in the past decade—from 6.6 percent a year for 1977-79 to 4.5 percent per year for 1987-89.

However, even though the data indicate that the dropout rate has declined over the last decade, it is important to emphasize that the “dropout problem” is still serious. During 1989, students in large numbers continued to drop out of high school before obtaining a degree or an alternative credential. Over the last three years, over 400,000 students a year dropped out of high school. Furthermore, in 1989 over 4 million 16- to 24-year-olds were dropouts. For these young people, entering a work force that offers fewer employment opportunities for the unskilled is a dismal prospect indeed.

## HIGH SCHOOL COMPLETION AND GRADUATION RATES

Another set of rates, frequently used to derive estimates of dropout rates, are measures of related concepts, high school completion or graduation. A completion rate measures the proportion of some population group which has completed high school. However, it is not correct to conclude that (100 - completion rate) is a dropout rate. A noncompleter is not necessarily a dropout. Students who, based on their age or grade in a prior year, might be expected to have completed high school may not yet have completed high school and never have been a dropout. For example, students may take longer than the norm to finish high school because they repeat courses or grades, because of illness or injury, or because they started school at an older age than other students.

However, while completion rates cannot be used to derive dropout rates, they are of interest for other reasons. The culmination of staying in school (i.e. not dropping out) is finishing high school. Therefore, it is important to know what proportion of young people are achieving that end and how long it is taking them to reach it. In addition, one of the national education goals set by the President and the Governors is that, by the year 2000, the high school graduation rate will increase to at least 90 percent. Therefore, this section presents data from the October CPS on high school completion and graduation.

### Completion and Graduation Rates

The last section demonstrated that a variety of dropout rates can be calculated. In a similar manner, there are a variety of ways in which to calculate graduation rates. Moreover, the questions involved in developing high school graduation rates parallel those in developing dropout measures. For example, event rates, status rates, and cohort rates all have explicit definitions of who is included in the base (i.e., in the denominator) as potential dropouts (e.g. 15- to 24-year-olds, 18- to 19-year-olds, the class of 1982), and what "dropping out" means (i.e., the numerator). Similarly, in developing a graduation rate, explicit definitions are required of who is included as "potential graduates," and what it means to "graduate." The impact of these two factors are shown in this section for one type of graduation rate, a status rate based on CPS data.<sup>23</sup>

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<sup>23</sup>See Appendix B of last year's report for an extended discussion of different types of graduation and completion rates currently in use.

### Who is Included?

One issue in the development of a graduation rate is who to include in the base population. Since there are persons working to complete high school well into their 30s and 40s, the age group chosen will affect the graduation rate. Using an older rather than a younger age group as a base will generally produce a higher graduation rate (Table 7). In 1987, approximately 74 percent of all persons age 18 to 19 had completed high school. By 1989, 83 percent of those persons, now 20 or 21, had completed high school. Overall, in 1989, approximately 82 percent of persons 18 to 24 had finished high school in some form.

**Table 7. -- Proportion completing high school by age: 1970 to 1989**

October	Age				
	18-19	20-21	22-24	25-29	30-34
1970	73.3	81.9	80.7	77.0	73.0
1975	73.7	82.4	85.0	84.2	79.1
1980	73.7	83.0	84.3	85.7	85.1
1985	74.6	84.9	85.5	85.6	87.1
1986	74.6	84.1	85.3	85.6	87.2
1987	73.6	84.3	84.4	85.5	86.9
1988	71.5	84.8	85.1	85.9	87.0
1989	71.6	82.9	86.0	86.4	86.6

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

An important consideration in defining potential graduates is the proportion of people who are "overage" and still enrolled in high school—that is, the proportion of students older than traditional graduation age who have not yet completed high school, but are still enrolled in school. A major reason for the relatively low completion rates for 18- to 19-year-olds shown in Table 7 is that many of them are still enrolled in high school or below. In 1989, approximately 14 percent of 18- to 19-year-olds were still enrolled in school at or below the twelfth grade (Table 8). (About one percent of persons 20 to 21 were still enrolled in high school.) The proportion of overage minority high school students is even larger. For example, Current Population Survey data indicate that in 1989 one-quarter of all black and Hispanic males 18 to 19 had not completed high school, but were still enrolled in school below the college level.

In defining who is a potential graduate, if those still enrolled in school were excluded from the population base, then the completion rates for 18- to 19-year-olds and for minority students would be substantially higher. That is, if the completion rate for a specific age cohort were defined as the ratio of all completers to all persons *not currently enrolled in high school or below*, the rate would be higher than if it were defined as the ratio of all completers to *all persons in the age group*. By this definition the completion rate for 18- to 19-year-olds was 83 percent in 1989.

### What Does It Mean to Graduate?

The data presented in Table 7 represent completion, not graduation, rates. In the past, CPS did not differentiate high school graduates with regular diplomas from high school completers with alternative high school credentials (such as a GED). Other data sources show that a substantial number of high school completers hold alternative credentials. For example, in 1986, almost seven percent of the high school completers from the high school class of 1982 held alternative credentials.<sup>24</sup> Therefore, estimates of the number and proportion of high school completers in CPS will be higher than estimates based on measures of regular high school graduates.

Since 1988, the October Supplement to CPS has asked about the type of high school credential held by high school completers, age 24 and under.<sup>25</sup> In 1989, approximately 68 percent of persons 18 to 19 had completed high school by receiving a high school diploma (Table 8). An additional 3.6 percent completed high school by means of an equivalency test (such as a GED). For those persons 22 to 24, approximately 82 percent had received a diploma, while approximately four percent had received an alternative credential.

**Table 8. -- High school completion status and method of completion, by age: 1988 and 1989**

Year and completion status	Age		
	18-19	20-21	22-24
	(percent)		
Total completed high school			
1988	71.5	84.8	85.1
1989	71.6	82.9	86.0
Received diploma			
1988	68.4	80.6	80.9
1989	68.0	78.8	81.8
Received alternative credential			
1988	3.1	4.2	4.6
1989	3.6	4.1	4.1
Enrolled in high school or below			
1988	13.9	0.6	0.3
1989	14.4	0.9	0.4
Dropouts			
1988	14.6	14.6	14.6
1989	14.0	16.0	13.7

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

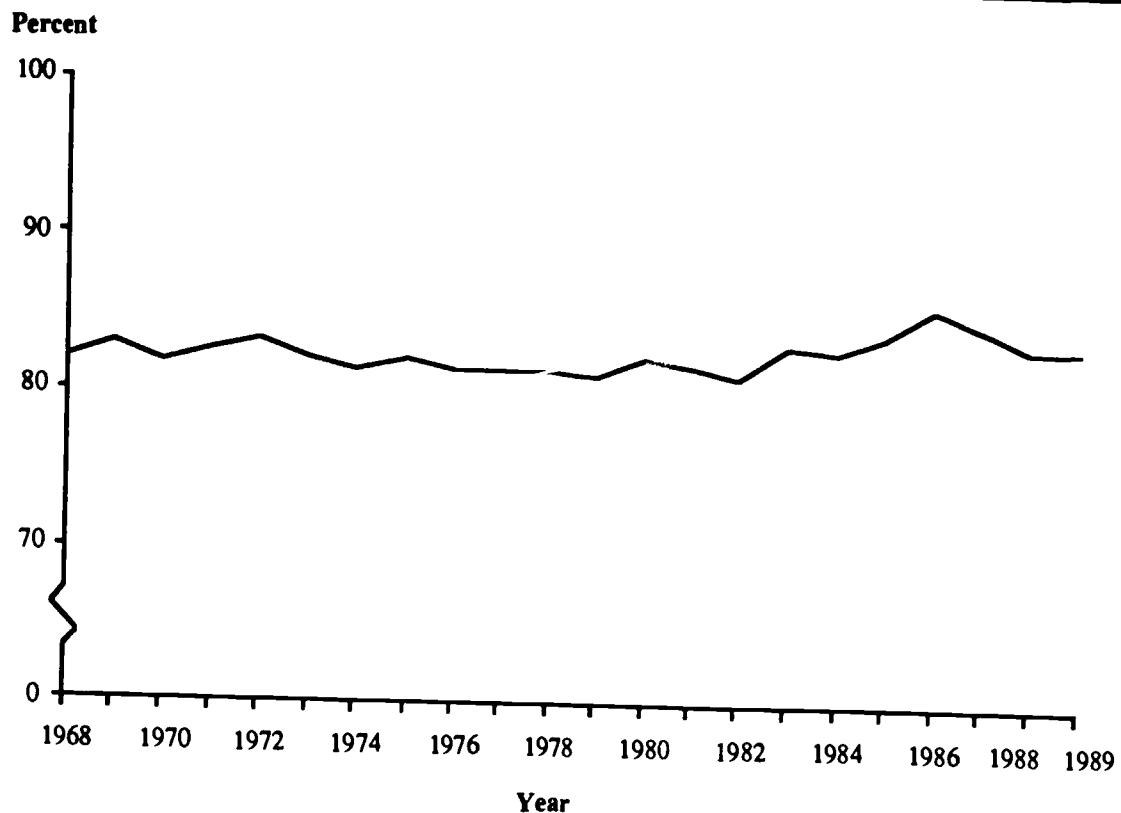
U.S. Department of Education, National Center for Education Statistics, High School and Beyond Study, unpublished tabulations.

Question on the education supplement is: "Did...complete high school by means of an equivalency test, GED?"

### Trends over Time

Figure 6 shows the trend over time for the high school completion rate defined as the percentage of persons age 18 to 19 not currently enrolled in high school or below, who have completed high school by receiving a high school diploma or an equivalency certificate. From 1968 to 1982, the rate remained fairly constant at about 82 percent. However, between 1982 and 1989, there was a small but statistically significant increase in the completion rate—to about 83 percent in 1989.<sup>26</sup>

Figure 6. -- High school completion rates for persons 18- and 19-years old not currently enrolled in high school or below: October 1968 to 1989



SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

<sup>26</sup>The statistical significance of the trends presented in this section was assessed using weighted least squares regression analyses on the trends in three-year average rates. For a full discussion of the statistical methods used in this report, see Appendix B.

## Summary and Discussion

Table 9 illustrates how graduation rates are affected by the specific definition of "potential graduates" and the definition of "graduation" from high school. Using the same data source, the graduation/completion rates in 1989 ranged from 68 percent to 86 percent. That is, 68 percent of all persons 18- to 19-years old had high school diplomas. However, over 86 percent of persons age 22 to 24 not currently enrolled in high school or below had completed high school by receiving either a high school diploma or an equivalency certificate.

**Table 9. -- Alternative high school completion and graduation rates: 1989**

Type of rate	Age		
	18-19	20-21	22-24
	(As percent of age group)		
Completion	71.6	82.9	86.0
Graduation	68.0	78.8	81.8
	(As percent of those in age group not currently enrolled in high school or below)		
Completion	83.2	83.6	86.2
Graduation	79.0	79.5	82.1

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

These are not the only types of graduation rate possible, nor is CPS the only data set available. For example, cohort rates could be calculated by using a specific grade cohort (e.g. ninth or tenth graders) as a base and examining the proportion of students within this cohort who graduate on time. School districts, using institutional records, often adopt this approach.<sup>27</sup> Furthermore, longitudinal data, such as those collected by the High School and Beyond Study or the National Education Longitudinal Study, follow specific grade cohorts through their educational careers and beyond. These data sets allow analysts to examine not only graduation rates for these specific cohorts, but also the characteristics and experiences of those who drop out. Longitudinal data can also be used to see what proportion of dropouts later return to school to complete high school by earning a high school diploma or an equivalency certificate.<sup>28</sup>

<sup>27</sup>The Secretary's Wall Chart measure is a pseudo-cohort rate. It uses the number of high school graduates in a single year as the numerator and the number of ninth graders four years earlier as a base. It is a pseudo-cohort measure because this year's graduates were not necessarily ninth grade students 4 years ago.

<sup>28</sup>Data from the High School and Beyond Study indicate that a substantial proportion of dropouts return to school. See the chapter on Returning to School presented in last year's report for an extended discussion of these students.

Nevertheless, regardless of the specific definition of a graduation rate or the data set used, the older the cohort used to define the population base, the higher is the graduation rate. Furthermore, if graduation from high school is defined as holding a high school diploma and not an equivalency certificate, then the graduation rate is lower than the completion rate for the same population group.

## STATUS OF POSSIBLE FUTURE NCES DATA COLLECTION EFFORTS

NCES has made a great deal of progress over the last several years in developing reliable and policy-relevant data on school dropouts. The next section discusses four NCES surveys which may collect extensive and accurate dropout data in the near future.

### National Education Longitudinal Study of 1988

The National Education Longitudinal Study of 1988 (NELS:88) is the third in the series of longitudinal studies conducted by NCES. To address a wider range of issues related to the transition of students through school and beyond, NELS:88 began with a cohort of eighth graders. A nationally representative sample of 1,000 schools (800 public and 200 private) was drawn and a random sample of 26,000 eighth-grade students was selected. In 1988, base-year data were collected from students, parents, school administrators, and teachers. Beginning in 1990, subsamples of the eighth-grade cohort will be followed at two-year intervals.

NELS:88 is a nationally representative sample of 1988 eighth-grade students with substantial oversampling of special populations, including Hispanics, Asian/Pacific Islanders, and language-minority students. Because all students identified as dropouts will be followed, the dropout sample should also be nationally representative of students who left school after the spring of eighth grade.

NELS:88 will collect data on family, occupational, and educational histories over time; therefore, the study will be a valuable source of data about dropouts and how they compare with nondropouts. Although the sample was not designed to be representative of States, it will be representative of the four Census regions. This data base will not be representative of dropouts who left school before spring of eighth grade or those who attended special schools (e.g., alternative, handicapped) in the eighth grade.

#### *Base-Year Results*

NELS:88 base-year survey data collection has been completed, and currently analyses of base-year data are being conducted. While there is very little data on early school leavers in the base year, the survey provides information about the number of eighth-grade students at risk of school failure. The specific factors that define a student as "at-risk" of dropping out of school are well documented in the research literature.<sup>29</sup> For example, students with limited English proficiency, from low-income families, and from families in

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<sup>29</sup>A. Pallas, G. Natriello, and E. McDill, "The Changing Nature of the Disadvantaged Population: Current Dimensions and Future Trends," *Educational Researcher*, June-July 1989.



which their parents or siblings dropped out of high school are more likely than students without these characteristics to become dropouts themselves.

From the data in the base year of NELS:88, the presence of these risk factors can be determined for each student (Table 10). For example, about 10 percent of all eighth graders in 1988 had a sibling who had dropped out of school, and about 21 percent lived in households in which the family income was less than \$15,000. For black and Hispanic students, these percentages were much higher. About 16 percent of Hispanic students and 13 percent of black students had a sibling who had dropped out of school. Almost one-half of black students (47 percent) and over one-third of Hispanic students lived in households with incomes of less than \$15,000. One-third of Hispanic students had parents who both did not have a high school diploma.

**Table 10. -- Percentage of eighth graders with various risk factors, by selected background characteristics: 1988**

Background characteristics	Parent is single	Parents have no h.s. diploma <sup>1</sup>	Limited English proficiency	Family income less than \$15,000	Has a sibling who dropped out	Home alone more than 3 hrs. <sup>2</sup>
Total	22.3	10.5	2.3	21.3	10.0	13.6
Sex						
Male	22.0	10.1	2.4	20.0	10.3	14.3
Female	22.5	11.0	2.2	22.2	9.8	13.0
Race/ethnicity						
Asian/Pacific Islander	14.2	8.8	7.1	17.8	6.1	15.9
Hispanic	23.4	33.4	8.8	37.5	16.0	16.3
Black	46.5	15.8	1.6	47.0	13.0	19.5
White	17.7	6.2	0.8	14.1	8.8	12.0
American Indian and Native Alaskan	31.1	13.4	8.6	40.1	15.1	18.6

<sup>1</sup> Neither of student's parents has high school diploma.

<sup>2</sup> Time spent after school each day at home with no adult present.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *National Education Longitudinal Study of 1988—A Profile of the American Eighth Grader NELS:88 Student Descriptive Summary*, June 1990.

These risk factors have been hypothesized to have cumulative effects. That is, students with multiple risk factors are more likely to drop out than students with only one risk factor. For example, students whose parents did not complete high school and who also live in low-income households are thought to be more at risk than those who live in low-income households but do not exhibit the other risk factors associated with leaving

school early. Table 11 shows the percentage of students with no risk factors, only one risk factor, and multiple risk factors. About 41 percent of black eighth graders, and about 37 percent of Hispanic eighth grade students had two or more risk factors. Black and Hispanic students were more than twice as likely to have two or more risk factors than were their Asian or white counterparts.

**Table 11. -- Percentage of eighth graders with one or more risk factors<sup>1</sup>, by selected background characteristics**

Background characteristics	No risk factors	Only one risk factor	Two or more risk factors
Total	53.3	26.3	20.4
Sex			
Male	53.2	27.0	19.7
Female	53.4	25.5	21.1
Race/ethnicity			
Asian/Pacific Islander	57.5	27.3	15.2
Hispanic	32.0	31.5	36.6
Black	28.4	30.7	40.9
White	61.5	24.5	14.0
Native American and Native Alaskan	35.3	33.2	31.5

<sup>1</sup> Risk factors include single-parent family, parents dropped out, limited English proficiency, low family income, sibling dropout, and home alone more than three hours after school.

NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *National Education Longitudinal Study of 1988—A Profile of the American Eighth Grader: NELS:88 Student Descriptive Summary*, March 1990.

### *Future Dropout Data From NELS*

The first followup data from NELS have been collected and are now being coded and edited. Most of the NELS:88 students are now in high school, and for the first time, data will be available on students who dropped out of school between eighth and tenth grades. For the purposes of NELS:88, an event history definition of dropping out will be used, gathering information on the timing of dropout decisions. Using this definition, dropouts who later return to school can be distinguished from those who do not return.

As part of this survey, each dropout identified in 1990 completed a special dropout questionnaire and took a battery of tests. For each dropout, the data set will include base-year student, parent, teacher, and school data along with first followup data stressing the reasons for dropping out and the dropout's employment history after leaving school. The

plan is to follow dropouts every two years for the next eight to ten years. In the second followup, those students who drop out of school between 1990 and 1992 (approximately 10th to 12th grade as in High School and Beyond) will also be identified and followed.

### **High School and Beyond**

High School and Beyond (HS&B) is NCES' national longitudinal survey of 1980 high school seniors and sophomores. A probability sample of 1,015 high schools was selected with a target number of 36 seniors and 36 sophomores in each school. Over 58,000 students—30,000 sophomores—participated in the base-year survey. Students completed questionnaires and took a battery of cognitive tests. Subsamples of the two cohorts were resurveyed in the springs of 1982 (1st follow-up), 1984 (2nd follow-up), and 1986 (3rd follow-up). High school transcripts were obtained in 1982 for more than half the sophomore cohort. HS&B is representative of the nation's high school sophomores of 1980 (for Census regions as well as nationally) with substantial oversampling of special populations. Over 2,000 of the sophomore cohort were identified as dropouts at the time of the first follow-up (spring of 1982).

Fourth follow-up data from HS&B will be collected in the Fall of 1992. With the release of these data further information will become available on the occupational and educational status of high school dropouts from the sophomore class of 1980. Furthermore, some of the members of this cohort who were dropouts at the time of the last follow-up in 1986 may have returned and completed high school by the Fall of 1992.

### **Common Core of Data**

The Common Core of Data (CCD) administered by NCES is an annual universe survey of the State-level education agencies in the 50 States, the District of Columbia and the outlying areas. Statistical information is collected on public schools, staff, students, and finance. CCD does not presently collect data on dropouts, but NCES is field testing such a data collection.

A pilot test of dropout data collection is taking place in 27 States and three territories (a total of approximately 290 school districts) for the 1989-90 school year. If the dropout statistics are added to the CCD, it will be possible to report the number of dropouts from public schools and an event dropout rate for school districts, States, major subpopulations, and the Nation. Data will be collected by grade for grades 7 to 12, and rates by grade can be reported. An evaluation of the pilot test will be completed by Spring of 1991.

The CCD dropout reporting system will have three components: a dropout definition, a protocol for districts and States to follow for reporting dropout statistics to NCES, and a protocol for NCES to follow for summarizing and publishing these statistics. Data will be gathered through State education agencies based on administrative records maintained at school districts and schools. The measure will be a one-year cross-section. This is to be a universe count; no samples are planned. The current plans for the definition and protocols are described below. These are subject to change depending on the outcome of the pilot test and its evaluation.

*Definition.*<sup>30</sup> A school dropout is an individual who was enrolled in school at some time during the previous school year, was not enrolled at the beginning of the current school year, has not graduated from high school or completed an approved educational program, and does not meet any of the following exclusionary conditions:

- death;
- temporary absence due to suspension or illness;
- transfer to another public school district, private school, or a State or District approved education program.

For the purposes of this definition:

- A school year is the twelve-month period of time beginning with the normal opening of school in the fall;
- An individual has graduated from high school or completed an approved education program upon receipt of formal recognition from school authorities;
- A State or District approved education program may include special education programs, home-based instruction, and school-sponsored GED preparation.

*Protocol: State and Local.* The reporting protocols for States and districts are based on applying the definition at the district level and transmitting the resulting counts, through the State, to NCES. This process will be incorporated into the data collection for the Common Core of Data (CCD). States will be requested to count and report dropouts at the district level from grades 7 through 12, and to identify each dropout by sex and by race/ethnicity, as well as by grade. Counts are requested for every cell representing a combination of sex, race and grade. There are 60 such cells. The format also calls for reporting membership counts for sex, by race and by grade, so that dropout rates can be calculated for those cells.

*Protocol: NCES.* The final component of the system includes the summarization and reporting of data by NCES. The basic procedure will be to aggregate dropout counts and enrollments so that dropout rates can be reported at the State, regional, and national levels. This will be done for the individual cells, for specific sub-populations, and for the total population. In addition, NCES will calculate an overall measure of the dropout rate across grades 9 through 12 at the State level.

The major potential weakness is the accuracy of the counts, due to uncertainty about the ability of school personnel to differentiate "true" dropouts from students who transfer to another school. There may also be incentives to under-report dropouts, which could distort counts. Both potential sources of error will be evaluated. Validation studies are an integral part of the pilot test and are being conducted by an independent contractor. The breadth of the data set is limited to the variables of race/ethnicity, grade, and sex. Data will be useful for monitoring change down to the school district level and can be linked to limited school district characteristics gathered through CCD. The coverage of public schools will only be

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<sup>30</sup> This is a statistical definition, which is being field tested as the basis for collecting comparable national and state dropout data. It is similar to the definition developed for the purposes of the School Dropout Demonstration Assistance Program, established under Sec. 6201 (a) of the Hawkins-Stafford School Improvement Amendments.

limited by SEA/LEA willingness and ability to adopt the new reporting system and definition.

The pilot test data collection covers the school year 1989-1990. The refinements and evaluation will continue through 1990-91. If the system is successful, it would be implemented for school year 1991-92 and would be an annual collection. The first data would be available in late November 1993.

### **National Household Education Survey**

NCES, recognizing that current school-based surveys (e.g., NELS:88, HS&B, and CPS) cannot provide all of the data needs of policy makers on the issue of dropouts, has recently completed a pilot study of different methodologies for collecting school enrollment and educational attainment data on 14- to 21-year olds, as part of the field test for the National Household Education Survey (NHES). Data from this pilot test are now being analyzed and studied. Once these data are summarized, a decision will be made regarding the feasibility of using the NHES as a vehicle for collecting dropout data in the future.

As presently designed, NHES uses a two-tiered telephone interview procedure to first screen households and then to survey individuals. Through the NHES it is possible to oversample minority households and to collect a wider range of information than is currently available through the CPS. A limitation of the NHES for the study of dropouts is that it only screens household with telephones in order to identify dropouts.

During the pilot test (October to December 1989), data were gathered from samples of dropouts and nondropouts about their demographic characteristics, family background, education and employment history, marital and family formation history, family income, school experiences, and participation in education programs after leaving high school. The pilot study was designed to enable NCES to evaluate the merits of using a random digit dialing telephone survey methodology to collect this information and the possible limitations of such a data collection design (e.g., the bias in the survey estimates associated with restricting the sample to only those households with telephones and the amount of non-response found at each level of the survey design).

## SUMMARY AND CONCLUSIONS

This report has presented data on high school dropout and completion rates in the United States. Two types of dropout rates have been described—event and status rates—as well as several graduation/completion rates. In addition, the report has outlined the status of NCES data collection efforts related to dropouts.

### Dropout Rates

*Rates.* Two types of dropout rates were examined in this report.

1) The *event dropout rate* represents the share of students who leave school without completing high school during a single year. Over the past three years for which data are available (October 1987 through October 1989), the average event dropout rate has been 4.5 percent per year for students in grades 10-12. The *average number of event dropouts* from grades 10-12 in the three years between October 1987 and October 1989 was approximately 429,000 per year.

2) The *status dropout rate* represents the proportion of individuals at any given point in time who are not enrolled in school and have not finished high school. In October 1989, 12.6 percent of 16- to 24-year-olds were status dropouts. This represented about 4 million persons in this age group who had not completed high school and were not currently enrolled in school.

The status dropout rate is a cumulative rate; it is much higher than the event rate because it counts as dropouts all individuals who have not finished high school (and are not currently enrolled in school), regardless of when they last attended school.

A third type of dropout rate—a cohort rate—was discussed in the first annual dropout report. Because no new data were available this year on cohort rates, such rates were not presented in this year's report.

*Trend.* Nationally, dropout rates have been declining: since the late 1960s, for status rates and, since the late 1970s, for event rates. The status rate in 1989 was about one-fifth lower than it had been twenty years ago—16.2 percent in 1968 and 12.6 percent in 1989. The event rate declined about one-third between 1978 and 1988, from 6.8 percent to 4.5 percent.

For status dropout rates, the rates for blacks have declined considerably over the last two decades—from 27.4 percent in 1968 to 13.8 percent in 1989. Furthermore, the differences between dropout rates for whites and blacks have narrowed over the same time period—from a difference of about 12.7 percentage points in 1968 to a difference of 1.4 percentage points in 1989. Data on Hispanics are available beginning in 1972. Hispanic

dropout rates—event and status—have shown no consistent trend since then, remaining high throughout the period.

### High School Completion and Graduation

The calculation of graduation rates is affected by the specific definition of “potential graduates” used and what is considered to constitute “graduation” from high school. Different definitions applied to the same data source yield graduation/completion rates ranging from 68 to 86 percent in 1989.

Many students do not complete high school until their early 20s, and sometimes not until their 30s or 40s. Therefore, the older the cohort used to define the population base, the higher is the graduation rate. For example, while only 72 percent of all 18- to 19-year-olds had completed high school in some form in 1989, 86 percent of 22- to 24-year-olds had a high school diploma or an equivalency certificate.

Furthermore, if graduation from high school is defined as holding a high school diploma (and equivalency certificates are not included), then the graduation rate is lower than the completion rate which includes equivalency certificates for the same population group. For example, while 83 percent of all 20- to 21-year olds had completed high school, only 79 percent of all 20- to 21-year olds had a high school diploma in 1989.

### New Data Sources

The data presented in this report on dropout and high school completion rates provide important insights for educators and policy-makers. However, there are several weaknesses in these data. For example, the relatively small sample sizes in CPS result in imprecise estimates of dropout and completion rates for important subgroups, including minority subpopulations and subregional areas. Furthermore, the cross-sectional nature of the data do not allow the examination of factors that lead to dropping out of school and its consequences. Therefore, NCES is working to improve the availability of reliable and policy-relevant data on dropouts.

In particular, the National Education Longitudinal Survey of 1988 (NELS:88) base-year data have been collected and analyses are now being conducted. While dropout data are not available from the base-year survey, data from the first followup survey will become available during the spring of 1991. These data will provide insights into the critical transition of students from eighth to tenth grade, and will provide estimates of the number and proportion of students who drop out during this period.

The Common Core of Data (CCD) is field testing a dropout data collection in 27 States and three territories. If the collection of dropout data is added to CCD, it will be possible to report the number of dropouts from public schools and an event rate for school districts, States, the Nation, and major subpopulations.

Furthermore, several other surveys, including High School and Beyond and the National Household Education Survey, may provide additional sources of data on dropouts and high school completers in the future.

## Conclusion

In terms of the number of young people involved, the data reveal that the dropout problem is substantial. On the other hand, dropout rates have been falling for the past ten years. Furthermore, many dropouts complete high school in some manner within a few years after dropping out.

Dropout rates for some groups and in some locations are higher than in others. Generally, dropout rates are higher for blacks and Hispanics, in cities, and in the South and West. In particular, dropout rates are highest for young Hispanics and have not declined in recent years, while overall rates and those for blacks have been declining.



**APPENDIX A**  
**Time Series and Standard Error Tables**

**Table A1. Data for Figure 1 and Figure A: Three-year average event dropout rates and single-year rates for grades 10-12, ages 14-24: 1968 to 1988**

Year <sup>1</sup>	Three-year average rate	Single-year rate
	(percent)	
1967	†	5.2
1968	5.3	5.2
1969	5.4	5.4
1970	5.5	5.7
1971	5.8	5.4
1972	6.0	6.2
1973	6.4	6.3
1974	6.3	6.7
1975	6.1	5.8
1976	6.1	5.9
1977	6.3	6.5
1978	6.6	6.7
1979	6.5	6.7
1980	6.2	6.0
1981	5.8	5.9
1982	5.5	5.4
1983	5.2	5.2
1984	5.1	5.1
1985	5.0	5.2
1986 <sup>2</sup>	4.5	4.3
1987	4.4	4.1
1988 <sup>3</sup>	4.5	4.8
1989 <sup>3</sup>	†	4.5

† Not available.

<sup>1</sup> The year represents the middle of the three years over which rates are averaged. Thus the rate for 1988 is the average of the single-year rates for the 12-month periods ending October 1987, 1988, and 1989.

<sup>2</sup> The decline in the 1986 rates in part reflect new editing procedures by the Bureau of the Census for cases with missing data on school enrollment items. The effect of the editing changes for 1986, a bridge year in which the data were edited using both the old and new procedures, was to decrease the single-year event rate from 4.7 percent (old procedure) to 4.3 percent (new procedure). The three-year rate for 1986 was calculated using one year (1985) based on the old editing procedures and two years (1986 and 1987) based on the new editing procedures.

<sup>3</sup> The three-year average for 1988 and the single-year rate for 1989 are based on data for 15- to 24-year-olds only.

NOTE: Some data different from previously published figures.

SOURCE: R. Kominski, "Estimating the High School Dropout Rate," *Demography*, Vol. 27, No. 2, May 1990; U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A2. Data for Figure 2: Three-year average event dropout rates for grades 10-12, ages 14-24, by race/ethnicity by sex: 1968 to 1988**

Year <sup>1</sup>	Race/ethnicity and sex				
	White		Black		Hispanic <sup>2</sup>
	Male	Female	Male	Female	
	(percent)				
1968	4.6	4.7	10.0	9.5	†
1969	4.6	5.0	11.0	9.5	†
1970	4.9	5.1	10.8	8.2	†
1971	5.1	5.4	10.7	8.5	†
1972	5.6	5.4	10.5	8.0	†
1973	6.2	5.5	10.9	10.0	10.2
1974	6.0	5.4	10.3	9.9	10.2
1975	6.1	5.3	9.2	9.2	9.2
1976	6.0	5.5	8.2	8.1	8.7
1977	6.7	5.3	9.0	8.4	9.1
1978	6.8	5.6	8.7	10.1	10.4
1979	6.6	5.4	8.9	9.9	11.5
1980	6.2	5.3	8.3	10.0	11.1
1981	5.8	4.9	8.8	8.4	10.5
1982	5.4	4.7	8.5	7.9	10.0
1983	5.3	4.6	7.5	6.2	10.1
1984	5.2	4.5	7.1	6.4	10.2
1985	5.0	4.6	6.5	6.0	10.9
1986 <sup>3</sup>	4.2	4.0	6.2	5.7	9.0
1987	4.4	4.0	5.9	5.7	9.3
1988 <sup>4</sup>	4.4	3.9	6.6	7.0	7.9

† Not available.

<sup>1</sup> The year represents the middle of the three years over which rates are averaged. Thus the rate for 1988 is the average of the single-year rates for the 12-month periods ending October 1987, 1988, and 1989.

<sup>2</sup> Hispanics may be of any race.

<sup>3</sup> The decline in the 1986 rates in part reflect new editing procedures by the Bureau of the Census for cases with missing data on school enrollment items. The effect of the editing changes for 1986, a bridge year in which the data were edited using both the old and new procedures, was to decrease the single-year event rate from 4.7 percent (old procedure) to 4.3 percent (new procedure). The three-year rate for 1986 was calculated using one year (1985) based on the old editing procedures and two years (1986 and 1987) based on the new editing procedures.

<sup>4</sup> The three-year average for 1988 is based on data for 15- to 24-year-olds only.

NOTE: Some data different from previously published figures.

SOURCE: R. Kominski, "Estimating the High School Dropout Rate," *Demography*, Vol. 27, No. 2, May 1990; U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A3. Data for Figure 3 and Figure B: Percentage of status dropouts, ages 16-24, by race/ethnicity: October 1968 to 1989**

Year	Total	Race/ethnicity		
		White	Black	Hispanic <sup>1</sup>
1968	16.2	14.7	27.4	†
1969	15.2	13.6	26.7	†
1970	15.0	13.2	27.9	†
1971	14.7	13.4	23.7	†
1972	14.6	13.7	21.5	34.3
1973	14.1	12.9	22.3	33.7
1974	14.3	13.2	21.3	33.0
1975	13.9	12.6	22.8	29.2
1976	14.1	13.3	20.4	31.3
1977	14.1	13.4	19.7	32.9
1978	14.2	13.4	20.2	33.1
1979	14.6	13.6	21.2	33.8
1980	14.1	13.3	19.3	35.2
1981	13.9	13.8	18.5	33.1
1982	13.9	13.1	18.4	31.7
1983	13.7	12.9	18.1	31.5
1984	13.1	12.7	15.6	29.8
1985	12.6	12.2	15.7	27.6
1986	12.2	12.0	14.1	30.1
1986 <sup>2</sup>	12.1	11.9	13.7	30.0
1987 <sup>2</sup>	12.7	12.5	14.5	28.6
1988 <sup>2</sup>	12.9	12.7	14.9	35.8
1989 <sup>2</sup>	12.6	12.4	13.8	33.0

† Not available.

<sup>1</sup> Hispanics may be of any race.

<sup>2</sup>Numbers for these years reflect new editing procedures instituted by the Bureau of the Census in 1986 for cases with missing data on school enrollment items.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A4. Data for Figure 4: Number of status dropouts, ages 16-24, by race/ethnicity: October 1968 to 1989**

Year	Race/ethnicity		
	White	Black	Hispanic <sup>1</sup>
	(in thousands)		
1968	3,560	910	†
1969	3,419	927	†
1970	3,457	1,022	†
1971	3,662	918	†
1972	3,838	873	609
1973	3,713	940	579
1974	3,866	895	654
1975	3,743	993	572
1976	3,995	912	645
1977	4,067	897	699
1978	4,101	934	723
1979	4,166	988	757
1980	4,067	911	886
1981	4,297	913	889
1982	4,001	917	823
1983	3,852	895	816
1984	3,700	766	762
1985	3,474	725	796
1986	3,368	671	965
1986 <sup>2</sup>	3,348	650	963
1987 <sup>2</sup>	3,443	687	924
1988 <sup>2</sup>	3,422	697	1,168
1989 <sup>2</sup>	3,254	645	1,142

† Not available.

<sup>1</sup> Hispanics may be of any race.

<sup>2</sup>Numbers for these years reflect new editing procedures instituted by the Bureau of the Census in 1986 for cases with missing data on school enrollment items.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports, Series P-20*, and unpublished tabulations.

**Table A5. Data for Figure 5: Status dropout rate, ages 16-24, by race/ethnicity, by sex: October 1968 to 1989**

Year	Race/ethnicity and sex					
	White		Black		Hispanic <sup>1</sup>	
	Male	Female	Male	Female	Male	Female
	(percent)					
1968	14.4	15.0	27.1	27.6	†	†
1969	12.6	14.6	26.9	26.6	†	†
1970	12.2	14.1	29.4	26.6	†	†
1971	12.6	14.2	25.5	22.1	†	†
1972	13.1	14.2	22.3	20.8	33.6	35.0
1973	12.5	13.3	21.6	22.9	30.7	36.4
1974	13.4	13.1	20.1	22.3	33.8	32.3
1975	12.0	13.2	22.8	22.8	26.6	31.5
1976	13.2	13.3	21.2	19.7	30.2	32.3
1977	13.9	12.8	19.5	20.0	31.5	34.2
1978	13.6	13.2	22.5	18.2	33.2	33.0
1979	14.0	13.1	22.5	20.0	33.0	34.5
1980	14.2	12.3	21.1	17.9	37.2	33.2
1981	14.5	13.2	20.0	17.2	35.9	30.4
1982	13.6	12.7	21.1	16.0	30.6	32.7
1983	14.1	11.7	19.8	16.5	34.3	29.1
1984	13.5	11.8	16.7	14.5	30.6	29.1
1985	13.0	11.3	16.1	15.3	29.8	25.2
1986	12.9	11.1	14.9	13.4	32.8	27.2
1986 <sup>2</sup>	12.8	11.1	14.4	13.0	32.7	27.2
1987 <sup>2</sup>	13.0	12.0	15.7	13.5	29.0	28.1
1988 <sup>2</sup>	13.5	11.9	15.4	14.4	36.0	35.5
1989 <sup>2</sup>	13.4	11.4	14.9	12.9	34.4	31.6

† Not available.

<sup>1</sup> Hispanics may be of any race.

<sup>2</sup> Numbers for these years reflect new editing procedures instituted by the Bureau of the Census in 1986 for cases with missing data on school enrollment items.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A6. Data for Figure 6 and Figure C: High school completion rates for persons 18- and 19-years old not currently enrolled in high school or below, October 1968 to 1989.**

Year	High school completion rate (percent)
1968	82.1
1969	83.0
1970	81.9
1971	82.7
1972	83.5
1973	82.2
1974	81.5
1975	82.1
1976	81.5
1977	81.4
1978	81.5
1979	81.2
1980	82.4
1981	81.9
1982	81.2
1983	83.4
1984	82.8
1985	83.9
1986	86.0
1986 <sup>1</sup>	85.9
1987 <sup>1</sup>	84.7
1988 <sup>1</sup>	83.1
1989 <sup>1</sup>	83.2

<sup>1</sup>Numbers for these years reflect new editing procedures instituted by the Bureau of the Census in 1986 for cases with missing data on school enrollment items.

SOURCE: U.S. Department of Commerce, Bureau of the Census "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A7. Standard errors and sample sizes for Table 2: Average event dropout and retention rates (three-year average) and distribution of dropouts from grades 10-12, ages 15-24, by sex, race/ethnicity, age, region, and metropolitan status: 1987-89**

	Event dropout rate		Percent of all dropouts	
	Standard error (percent)	Sample size (in thousands)	Standard error (percent)	Sample size (in thousands)
Total	0.28	28,407	†	1,268
Sex				
Male	0.40	14,420	0.92	674
Female	0.38	13,980	0.94	592
Race/ethnicity				
White	0.29	22,981	0.65	947
Black	0.85	4,320	1.44	292
Hispanic <sup>1</sup>	1.26	2,264	1.63	179
Age <sup>2</sup>				
15	1.26	917	1.04	26
16-17	0.28	16,717	0.84	467
18-19	0.57	10,006	1.11	611
20-24	3.29	767	2.74	166
Region				
Northeast	0.51	5,747	2.20	182
Midwest	0.53	7,532	2.74	329
South	0.50	9,581	3.04	487
West	0.65	5,541	2.55	268
Metropolitan status				
Central city	0.60	7,435	3.05	487
Suburban	0.37	13,253	3.07	511
Non-metropolitan	0.70	6,408	2.57	270

† Not applicable

<sup>1</sup> Hispanics may be of any race.

<sup>2</sup> Age when a person dropped out may be one year younger, since the dropout event could occur at any time over a 12-month period.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Survey*, unpublished data.



**Table A8. Standard errors for Table 3: Average event dropout rate (three-year average) from grades 10-12, ages 15-24, by region and metropolitan status by race/ethnicity: 1987-89**

Region and metropolitan status	Race/ethnicity			
	Total	White	Black	Hispanic <sup>1</sup>
	(percent)			
Total	0.28	0.29	0.85	1.26
Region				
Northeast	0.51	0.53	2.05	3.34
Midwest	0.53	0.53	2.04	4.65
South	0.50	0.56	1.17	2.33
West	0.65	0.73	2.27	1.80
Metropolitan status				
Central city	0.60	0.70	1.28	1.76
Suburban	0.37	0.38	1.38	2.04
Non-metropolitan	0.70	0.57	1.72	4.08

<sup>1</sup> Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

**Table A9. Standard errors for Table 5: Rate and number of status dropouts, ages 16-24, by sex, race/ethnicity, age, region, and metropolitan status: October 1989**

	Status dropout rate (percent)	Number of status dropouts (in thousands)
Total	0.28	95
Sex		
Male	0.41	65
Female	0.38	62
Race/ethnicity		
White	0.31	81
Black	0.81	40
Hispanic <sup>1</sup>	1.29	41
Age		
16	0.51	17
17	0.70	24
18	0.89	32
19	0.85	32
20	0.96	33
21	0.95	32
22	0.86	30
23	0.90	33
24	0.81	32
Region		
Northeast	0.55	36
Midwest	0.49	39
South	0.52	57
West	0.70	45
Metropolitan status		
Central city	0.54	56
Suburban	0.38	57
Non-metropolitan	0.62	41

<sup>1</sup> Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

**Table A10. Standard errors for Table 6: Status dropout rate, ages 16-24, by region and metropolitan status by race/ethnicity: October 1989**

Region and metropolitan status	Total	Race/ethnicity		
		White	Black	Hispanic <sup>1</sup>
(percent)				
Total	0.28	0.31	0.81	1.29
Metropolitan status				
Central city	0.54	0.37	0.84	1.26
Suburban	0.38	0.84	1.52	2.40
Non-metropolitan	0.62	0.66	2.04	5.69
Region				
Northeast	0.55	0.57	1.87	3.80
Midwest	0.49	0.50	1.89	5.25
South	0.52	0.60	1.14	2.89
West	0.70	0.77	2.14	2.32

<sup>1</sup> Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

**Table A11. Standard errors for Table 7: Proportion completing high school by age: 1970 to 1989**

October	Age				
	18-19	20-21	22-24	25-29	30-34
1970	0.73	0.61	0.50	0.41	0.45
1975	0.73	0.61	0.45	0.36	0.41
1980	0.78	0.64	0.49	0.37	0.39
1985	0.77	0.61	0.48	0.37	0.36
1986	0.79	0.65	0.49	0.36	0.35
1987	0.80	0.64	0.50	0.37	0.36
1988	0.80	0.65	0.51	0.36	0.35
1989	0.80	0.69	0.50	0.36	0.35

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A12. Standard errors for Table 8: High school completion status and method of completion by age: 1988 and 1989**

Year and completion status	Age		
	18-19	20-21	22-24
	(percent)		
<b>Total completed high school</b>			
1988	0.80	0.65	0.51
1989	0.80	0.69	0.50
<b>Received diploma</b>			
1988	0.98	0.78	0.61
1989	0.98	0.83	0.60
<b>Received alternative credential</b>			
1988	0.37	0.40	0.32
1989	0.39	0.40	0.31
<b>Enrolled in high school or below</b>			
1988	0.62	0.14	0.08
1989	0.62	0.17	0.09
<b>Dropouts</b>			
1988	0.63	0.64	0.50
1989	0.61	0.67	0.50

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

**Table A13. Standard errors for Table 9: Alternative high school completion and graduation rates: 1989**

Type of rate	Age		
	18-19	20-21	22-24
(As percent of age group)			
Completion	0.80	0.69	0.50
Graduation	0.83	0.75	0.56
(As percent of those in age group not currently enrolled in high school or below)			
Completion	0.72	0.68	0.50
Graduation	0.78	0.75	0.56

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished tabulations.

**Table A14. Standard errors for Table 10: Percentage of eighth graders with various risk factors, by selected background characteristics: 1988**

Background characteristics	Parent is single	Parents have no h.s. diploma <sup>1</sup>	Limited English proficiency	Family income less than \$15,000	Has a sibling who dropped out	Home alone more than 3 hrs. <sup>2</sup>
Total	0.44	0.43	0.29	0.58	0.28	0.27
Sex						
Male	0.55	0.50	0.30	0.67	0.37	0.37
Female	0.52	0.47	0.316	0.66	0.35	0.36
Race/ethnicity						
Asian/Pacific Islander	1.20	1.03	0.99	1.59	0.84	1.13
Hispanic	1.07	1.69	1.05	1.77	0.89	0.81
Black	1.10	0.97	0.46	1.52	0.74	0.83
White	0.38	0.30	0.14	0.46	0.31	0.29
Native American/ Native Alaskan	3.63	2.22	4.86	5.12	3.05	2.78

<sup>1</sup> Neither of student's parents have high school diploma.

<sup>2</sup> Time spent after school each day at home with no adult present.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *National Education Longitudinal Study of 1988—A Profile of the American Eighth Grader: NELS:88 Student Descriptive Summary*, June 1990.

**Table A15. Standard errors for Table 11: Percentage of eighth graders with one or more risk factors<sup>1</sup>, by selected background characteristics**

Background Characteristics	No risk factors	One risk factor	Two or more risk factors
Total	0.64	0.35	0.51
Sex			
Male	0.75	0.51	0.57
Female	0.72	0.47	0.61
Race/ethnicity			
Asian/Pacific Islander	1.72	1.32	1.26
Hispanic	1.34	0.98	1.47
Black	1.12	0.90	1.22
White	0.58	0.40	0.40
Native American/ Native Alaskan	3.74	2.98	3.47

<sup>1</sup> Risk factors include single-parent family, parents dropped out, limited English proficiency, low family income, sibling dropout, and home alone more than three hours after school.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *National Education Longitudinal Study of 1988—A Profile of the American Eighth Grader: NELS:88 Student Descriptive Summary*, June 1990.



**Table A16. Standard errors for Table A1: Three-year average event dropout rates and single-year rates for grades 10-12, ages 14-24: 1968 to 1988**

Year <sup>1</sup>	Three-year average rate	Single-year rate
	(percent)	
1967	†	0.3
1968	0.3	0.3
1969	0.3	0.3
1970	0.3	0.3
1971	0.3	0.3
1972	0.3	0.3
1973	0.3	0.3
1974	0.3	0.3
1975	0.3	0.3
1976	0.3	0.3
1977	0.3	0.3
1978	0.3	0.3
1979	0.3	0.3
1980	0.3	0.3
1981	0.3	0.3
1982	0.3	0.3
1983	0.3	0.3
1984	0.3	0.3
1985	0.3	0.3
1986	0.3	0.3
1987	0.3	0.3
1988 <sup>2</sup>	0.3	0.3
1989 <sup>2</sup>	†	0.3

† Not available.

<sup>1</sup> For the three-year average, the year represents the middle of the three years over which rates are averaged. Thus the rate for 1987 is the average of the single-year rates for the 12-month periods ending October 1986, 1987, and 1988.

<sup>2</sup> The three-year average for 1988 and the single year rate for 1989 are based on data for 15- to 24-year-olds only.

SOURCE: R. Kominski, "Estimating the High School Dropout Rate," *Demography*, Vol. 27, No. 2, May 1990; U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A17. Standard errors for Table A2: Average event dropout rates for grades 10-12, ages 14-24, by race/ethnicity by sex: 1968 to 1988**

Year	Race/ethnicity and sex				
	White		Black		Hispanic <sup>1</sup>
	Male	Female	Male	Female	
	(percent)				
1968	0.4	0.4	1.6	1.5	†
1969	0.4	0.4	1.8	1.5	†
1970	0.4	0.4	1.6	1.5	†
1971	0.4	0.4	1.6	1.3	†
1972	0.4	0.4	1.6	1.3	†
1973	0.4	0.4	1.6	1.5	2.1
1974	0.4	0.4	1.5	1.5	2.1
1975	0.4	0.4	1.5	1.3	1.9
1976	0.4	0.4	1.3	1.3	1.8
1977	0.4	0.4	1.3	1.3	1.8
1978	0.4	0.4	1.3	1.3	1.9
1979	0.4	0.4	1.3	1.3	1.9
1980	0.4	0.4	1.3	1.3	1.9
1981	0.4	0.4	1.3	1.3	1.8
1982	0.4	0.4	1.5	1.3	1.9
1983	0.4	0.4	1.3	1.2	1.9
1984	0.4	0.4	1.3	1.2	1.9
1985	0.4	0.4	1.3	1.2	1.6
1986	0.4	0.4	1.2	1.2	1.5
1987	0.4	0.4	1.2	1.2	1.5
1988 <sup>2</sup>	0.4	0.4	1.2	1.2	1.3

† Not available.

<sup>1</sup> Hispanics may be of any race.

<sup>2</sup> The three-year average for 1988 is based on data for 15- to 24-year-olds only.

SOURCE: R. Kominski, "Estimating the High School Dropout Rate," *Demography*, Vol. 27, No. 2, May 1990; U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A18. Standard errors for Table A3: Percentage of status dropouts, ages 16-24, by race/ethnicity: October 1968 to 1989**

Year	Total	Race/ethnicity		
		White	Black	Hispanic <sup>1</sup>
1968	.34	.35	1.25	†
1969	.32	.33	1.21	†
1970	.31	.32	1.19	†
1971	.30	.31	1.10	†
1972	.30	.31	1.04	1.82
1973	.29	.30	1.03	1.84
1974	.29	.30	1.02	1.70
1975	.28	.29	1.03	1.65
1976	.28	.30	.97	1.65
1977	.28	.30	.95	1.64
1978	.28	.30	.95	1.62
1979	.28	.30	.96	1.61
1980	.28	.29	.93	1.53
1981	.27	.30	.89	1.46
1982	.28	.29	.88	1.47
1983	.28	.29	.88	1.47
1984	.27	.30	.83	1.46
1985	.27	.29	.86	1.34
1986	.27	.29	.81	1.31
1986 <sup>2</sup>	.27	.29	.80	1.31
1987 <sup>2</sup>	.28	.30	.83	1.28
1988 <sup>2</sup>	.28	.31	.84	1.35
1988 <sup>2</sup>	.28	.31	.81	1.17
1989 <sup>2</sup>	.28	.31	.81	1.29

† Not available.

<sup>1</sup> Hispanics may be of any race.

<sup>2</sup> Numbers for these years reflect new editing procedures instituted by the Bureau of the Census in 1986 for cases with missing data on school enrollment items.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A19. Standard errors for Table A4: Number of status dropouts, ages 16-24, by race/ethnicity: October 1968 to 1989**

Year	Race/ethnicity		
	White	Black	Hispanic <sup>1</sup>
	(in thousands)		
1968	84	41	†
1969	83	42	†
1970	83	44	†
1971	86	43	†
1972	88	42	32
1973	86	44	32
1974	88	43	34
1975	87	45	32
1976	90	43	34
1977	90	43	35
1978	91	44	35
1979	91	45	36
1980	90	44	39
1981	93	44	39
1982	90	44	38
1983	88	44	38
1984	86	41	37
1985	84	40	39
1986	83	39	42
1986 <sup>2</sup>	83	38	42
1987 <sup>2</sup>	83	39	41
1988 <sup>2</sup>	85	39	40

† Not available.

<sup>1</sup> Hispanics may be of any race.

<sup>2</sup>Numbers for these years reflect new editing procedures instituted by the Bureau of the Census in 1986 for cases with missing data on school enrollment items.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A20. Standard errors for Table A5: Status dropout rate, ages 16-24, by race/ethnicity, by sex: October 1968 to 1989**

Year	Race/ethnicity and sex					
	White		Black		Hispanic <sup>1</sup>	
	Male	Female	Male	Female	Male	Female
	(percent)					
1968	.50	.48	1.83	1.70	†	†
1969	.47	.46	1.79	1.65	†	†
1970	.45	.45	1.78	1.61	†	†
1971	.44	.44	1.65	1.47	†	†
1972	.44	.44	1.54	1.40	2.64	2.50
1973	.42	.43	1.49	1.43	2.59	2.59
1974	.43	.42	1.47	1.41	2.45	2.37
1975	.41	.42	1.51	1.40	2.32	2.34
1976	.42	.42	1.45	1.31	2.41	2.26
1977	.43	.41	1.39	1.30	2.35	2.30
1978	.42	.41	1.46	1.25	2.33	2.26
1979	.43	.41	1.45	1.29	2.30	2.25
1980	.43	.40	1.41	1.23	2.21	2.12
1981	.43	.41	1.34	1.19	2.12	2.02
1982	.42	.41	1.36	1.15	2.09	2.07
1983	.43	.40	1.33	1.17	2.17	2.00
1984	.43	.40	1.24	1.12	2.12	2.01
1985	.43	.40	1.24	1.20	1.92	1.83
1986	.43	.40	1.21	1.10	1.85	1.83
1986 <sup>2</sup>	.43	.40	1.20	1.08	1.85	1.83
1987 <sup>2</sup>	.44	.42	1.24	1.10	1.78	1.84
1988 <sup>2</sup>	.45	.42	1.23	1.14	1.88	1.95
1989 <sup>2</sup>	.45	.42	1.22	1.09	1.81	1.83

† Not available.

<sup>1</sup> Hispanics may be of any race.

<sup>2</sup> Numbers for these years reflect new editing procedures instituted by the Bureau of the Census in 1986 for cases with missing data on school enrollment items.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**Table A21. Standard errors for Table A6: High school completion rates for persons 18- and 19-years old not currently enrolled in high school or below, October 1968 to 1989.**

Year	Standard error (percent)
1968	0.77
1969	0.74
1970	0.74
1971	0.72
1972	0.69
1973	0.70
1974	0.70
1975	0.69
1976	0.69
1977	0.69
1978	0.69
1979	0.69
1980	0.68
1981	0.69
1982	0.70
1983	0.69
1984	0.71
1985	0.70
1986	0.67
1987	0.69
1988	0.72
1989	0.72

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October (various years)," *Current Population Reports*, Series P-20, and unpublished tabulations.

**APPENDIX B**  
**Technical Notes**

## Definition of Who is a Dropout

One of the concerns being addressed in the new data collections on dropouts is the development and implementation of a nationally consistent definition of a dropout. Currently, there is considerable variation across local, state and Federal data collections on such issues as:

- Whether those below the legal school-leaving age are identified as dropouts;
- Whether students entering the military or correctional institutions are considered dropouts;
- Whether those in GED programs or with an equivalency certificate are considered dropouts;
- Whether those not graduating with their class (but never leaving school) are considered dropouts; and
- Whether those leaving high school early to enter college are considered dropouts.

The dropout definitions embedded in the existing data sources—CPS, HS&B, and NELS:88—are neither consistent with one another nor with the new definition that NCES is trying to develop through its Common Core of Data (CCD). Furthermore, as outlined below, there have been changes in CPS procedures in 1986 and 1988. There will be some discontinuities in dropout reporting as the new and more consistent data become available.

## Defining and calculating event dropout rates using CPS

The October Supplement to the Current Population Survey (CPS) is the only current national data source that can be used to estimate an annual national dropout rate (event) or the number of dropouts nationally regardless of when they dropped out (status). CPS is a nationally representative sample survey of all households. The survey is conducted in approximately 60,000 dwelling units in 729 primary sampling units. Dwelling units are in-sample for four successive monthly interviews, out-of-sample for the next eight months, and then returned to the sample for the following four months. An adult member of each household serves as the informant for that household. Data for each member of the household are supplied by the informant. In addition, supplementary questions regarding school enrollment are asked about eligible household members 3 years old and over. Some interviews are conducted by telephone.

The sampling frame is a complete list of dwelling-unit addresses at the Census updated by demolitions and new construction and field listings. The population surveyed excludes members of the Armed Forces, inmates of correctional institutions, and patients in long-term medical or custodial facilities; it is referred to as the civilian, non-institutionalized population. Typically, about four percent of dwelling units are not interviewed, because occupants are not at home after repeated callbacks, or for some other reason.

The October Supplement obtains information about school enrollment and educational attainment for each member of a household. To identify dropout events, it also asks about enrollment one year prior to the interview. From CPS it is possible to obtain the number and proportion of dropouts, defined either as an event or a status, and some information



about the characteristics of dropouts. A variety of questionnaire items are used in calculating these dropout rates, including:

- Is ... attending or enrolled in regular school?
- What grade or year is ... attending?
- Was ... attending or enrolled in a regular school or college in October, 198-, that is of October of last year?
- What grade or year was ... attending last year?
- What is the highest grade or year ... has attended?
- Did ... complete that grade?

Based on the responses of the household informant to these items, event dropouts are defined as those not currently enrolled in school, who were enrolled a year ago and are not high school graduates. To calculate an event rate using CPS, the number of dropouts is divided by an estimate of the number of students enrolled the previous October. Since the CPS survey takes place the first full week in October and relatively few students drop out during the first month of school, the CPS event rates approximate rates for a school year. What is not captured in the CPS rate is students who drop out and return to school within the 12-month period and students who enrolled after the first week of October the previous year. The definition being field tested in the Common Core of Data (CCD) by NCES includes all students enrolled at any time during the previous school year, as does the definition developed by the U.S. Department of Education in connection with the Dropout School Demonstration Assistance Project.

The limitations of CPS as a data source on dropouts stem from the size of the sample and the survey's broad scope. Because CPS collects no information on school characteristics and experiences, its uses in addressing dropout issues are primarily for providing some insights into who drops out and estimating national dropout rates. It is also the only source of time series data on dropout rates. Data are available since 1967 to calculate event rates and earlier for status rates.

Very few household members who dropped out in the past 12 months appear in the sample—approximately 350-400 in the CPS sample households each October. Because the number is low, national estimates of dropout rates for a single year cannot be very precise and estimates for subgroups such as racial/ethnic groups even less precise. Therefore, the CPS data are not very helpful for monitoring year-to-year changes in dropout rates, since only large changes are statistically significant. The problem is more severe for subgroups, including regions, the only subnational geographic level at which CPS is representative for the entire country.

In previous years, CPS asked the question on enrollment the previous October about individuals 14 years and older. As of October 1989, CPS asks this question only about individuals 15 years and older. Because many students and some dropouts are less than 15 in grades below the tenth grade, this report focuses on dropout rates for grades 10-12. Included in the grade 10-12 rate are students who completed the 9th grade the previous year, but did not return in the fall to begin 10th grade.

A limitation of CPS as a data source on dropout events is the lack of precision in the estimates of event dropout rates, especially below the national level. For a change in the

national dropout event rate from one 12-month period to another to be significant at the 0.05 level, assuming 1988 rates and sample sizes, the change would have to be greater than 0.9 percent. For blacks, it would need to be at least 2.9 percent and for Hispanics, 5.1 percent. These changes seem relatively large compared to the actual event rates in 1988—4.8 percent nationally, 6.3 percent for blacks and 10.6 percent for Hispanics, and the actual changes in rates over the past twenty years—5.2 percent in 1967 to 4.8 percent in 1988.

However, this limitation can be reduced by combining the data for three years, calculating a three-year-average event rate, and comparing the previous three-year average rate to the current single-year rate. The three-year averages, because they are based on larger sample sizes, have the properties of being somewhat less erratic and having smaller standard errors than the single-year rates. For example, the standard error for the single-year event rate in 1989 was .33, while the standard error for the three-year average rate was .28. Therefore, these estimates are more precise and differences over time and between groups are easier to detect. To look for changes over time, three-year averages which do not overlap, i.e. do not have any years in common, can be compared.

A minor disadvantage to this approach is that a three-year average cannot be calculated for the most recent year in which there are data. Thus, the last three years of CPS data are 1987, 1988, and 1989, and they are used to calculate an event rate for 1988. That 1988 rate represents the average of the rates for three periods: October 1986-October 1987, October 1987-October 1988, and October 1988-October 1989. (Data covering the period October 1989 to October 1990 will be collected in the first week of October 1990.) However, the single-year rate for 1989 can be compared to the most recent non-overlapping three-year average rate for 1986-88.

Beginning with 1986, to improve the quality of the data the Bureau of the Census has instituted new editing procedures for cases with missing data on school enrollment items. The effect of the editing changes for 1986, a bridge year in which the data were edited using both the old and new procedures, was to increase the number of students enrolled in school and decrease the number of students enrolled last year but not enrolled in the current year. The new editing procedures lowered the 1986 event rate for grades 10-12, ages 14 to 24, by about 0.4 percent, from 4.69 to 4.28 percent. While a difference of 0.4 percent is large relative to the observed year-to-year changes in the event rate, it is not statistically significant. However, it can affect the assessment of the significance of differences between rates in years before and after the editing change. For example, the difference between the 1985 (5.2 percent) and 1986 event rates is significant based on the new 1986 rate (4.3 percent) but not on the old rate (4.7 percent). The changes in the editing procedures made less difference in the status dropout rates for 16- to 24-year-olds—12.2 percent based on the old procedures and 12.1 based on the new.

### Accuracy of Estimates

The estimates in this report are derived from samples and are subject to two broad classes of error — sampling and nonsampling error. Sampling errors occur because the data are collected from a sample of a population rather than from the entire population. Estimates based on a sample will differ somewhat from the values that would have been obtained from a universe survey using the same instruments, instructions, and procedures. Nonsampling errors come from a variety of sources and affect all types of surveys, universe as well as sample surveys. Examples of sources of nonsampling error include design, reporting, and processing errors and errors due to nonresponse. The effects of nonsampling errors are more difficult to evaluate than those that result from sampling

variability. As much as possible, procedures are built into surveys in order to minimize nonsampling errors.

The standard error is a measure of the variability due to sampling when estimating a parameter. It indicates how much variance there is in the population of possible estimates of a parameter for a given sample size. Standard errors can be used as a measure of the precision expected from a particular sample. The probability that a complete census would differ from the sample by less than the standard error are about 68 out of 100. The chances that the difference would be less than 1.65 times the standard error are about 90 out of 100; that the difference would be less than 1.96 the standard error, about 95 out of 100.

Standard errors for rates and number of persons based on CPS data were calculated using the following formulas:

#### Single-year rate:

$$\text{s.e.} = \sqrt{(b/N)(p)(100-p)},$$

where  $p$  = the percentage ( $0 < p < 100$ ),  
 $N$  = the population on which the percentage is based, and  
 $b$  = the parameter associated with the characteristic;  
 $b$  is equal to 2,312 for total or white population 14 to 34 years old and  
 2,600 for black or Hispanic population 14 to 34.

#### Number of persons

$$\text{s.e.} = \sqrt{(bx)(1 - x/T)},$$

where  $x$  = the number of persons (i.e., dropouts),  
 $T$  = population in the category (i.e., blacks 16 to 24), and  
 $b$  = as above.

#### Three-year average rate

$$\text{s.e.} = \sqrt{V(y_t)},$$

where  $x_t$  = single-year rate at time  $t$   
 $y_t$  = three-year average of  $x_{t-1}$ ,  $x_t$ ,  $x_{t+1}$  and;

$$\begin{aligned} V(y_t) &= V\left(\frac{x_{t-1} + x_t + x_{t+1}}{3}\right) \\ &= \frac{1}{9} [V(x_{t-1}) + V(x_t) + V(x_{t+1}) + 2 \text{cov}(x_{t-1}, x_t) + 2 \text{cov}(x_{t-1}, x_{t+1}) \\ &\quad + 2 \text{cov}(x_t, x_{t+1})] \end{aligned}$$

where  $\text{cov}(x_{t-1}, x_t) = \text{cov}(x_t, x_{t+1}) = \rho V(x) \approx .35V(x)$  and  
 $\text{cov}(x_{t-1}, x_{t+1}) = 0$

(The correlation of .35 is based on estimates of sample overlap provided by the Bureau of the Census.)

Standard errors for many of the estimates in the tables appear in Appendix A.

## Methodology and Statistical Procedures

The comparisons in the text have all been tested for statistical significance to ensure that the differences are larger than those that might be expected due to sampling variation. Two types of comparisons have been made in the text.

*Differences in two estimated percentages.* The Student's *t* statistic can be used to test the likelihood that the differences between two percentages are larger than would be expected by sampling error.

$$t = \frac{P_1 - P_2}{\sqrt{se_1^2 + se_2^2}}$$

where  $P_1$  and  $P_2$  are the estimates to be compared and  $se_1$  and  $se_2$  are their corresponding standard errors.

As the number of comparisons on the same set of data increases, the likelihood that the *t* value for at least one of the comparisons will exceed 1.96 simply due to sampling error increases. For a single comparison, there is a five percent chance that the *t* value will exceed 1.96 due to sampling error. For five tests, the risk of getting at least one *t* value that high increases to 23 percent and for 20 comparisons, 64 percent.

One way to compensate for this danger when making multiple comparisons is to adjust the alpha level to take into account the number of comparisons being made. For example, rather than establishing an alpha level of 0.05 for a single comparison, the alpha level is set to ensure that the likelihood is less than 0.05 that the *t* value for any of the comparisons exceeds the critical value by chance alone when there are truly no differences for any of the comparisons. This Bonferroni adjustment is calculated by taking the desired alpha level and dividing by the number of possible comparisons, based on the variable(s) being compared. The *t* value corresponding to the revised, lower alpha level must be exceeded in order for any of the comparisons to be considered significant. For example, to test for differences in dropout rates between whites, blacks, and Hispanics, the following steps would be involved:

- Establish the number of comparisons — in this case three (whites and blacks; whites and Hispanics; and blacks and Hispanics). The number of two-way comparisons that can be made equals  $[(n)(n-1)]/2$ , where *n* is the number of variable categories. Thus, with three categories the number of possible comparisons is  $[(3)(2)]/2 = 3$ .
- Divide the desired alpha level, 0.05, by the number of comparisons, e.g. three, to obtain the new alpha level ( $0.05/3 = 0.0166$ ).
- Consult a table of *t* statistics (or the standard normal table for *z* values if the *N* is large) to find the *t* value that corresponds to that alpha ( $t = 2.39$  for alpha = 0.0166).

All comparisons in this report were tested using the Bonferroni adjustment for the *t* tests. Where categories of two variables were involved, the number of comparisons used to make the Bonferroni adjustment was based on the relationship(s) being tested.

*Trends over time.* Regression analysis was used to test for trends in the CPS time series data. This was done using the regression capability of LOTUS 1-2-3. The three-year average rate estimates were regressed on a variable representing time and a dummy variable controlling for changes in the editing procedure (0 = years 1968 to 1985, 1 = 1986 to 1988). The estimates were weighted by the inverse of their standard errors. All statements about trends in this report are statistically significant at the 0.05 level.