Schooling and Academic Achievement in Time and Place[1]

Robert M. Hauser

University of Wisconsin-Madison

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"Much as age-grading changed the definition of a quality school system from one with high rates of failure to one with high rates of promotion, so in the 1940s, educators began to adopt the idea that automatic promotion, or as it would later be called 'social pro-motion,' of virtually all students was the sign of true educational quality."

Angus, Mirel, and Vinovskis (1988: 227)

Aage B. Sørensen was a wonderful friend and a stimulating and generous colleague. We had many common interests, especially in the areas of education and of social stratification. We also never hesitated to disagree with one another–indeed we both loved to disagree with one another, often and with passion. I especially recall a research conference in Hawaii in December 1980, at which scholars from Japanese and American universities were equally represented. Aage and I–among others–went at it hammer and tongs, much to the dismay of our Japanese colleagues, who were unaccustomed to such heated academic exchange. I can recall the two of us having a great laugh afterwards about the manifest distress that we had created. In this little essay I seek to honor Aage's important scientific contributions by taking them seriously enough to disagree–in hopes of extending and redirecting future research. I wish that Aage were still around to hassle me at every turn.

Aage B. Sørensen's research on schooling and academic achievement – like the vast share of research on the effects of education – is predicated on an ideal-typical conception of the process of schooling. The implicit idea is that students progress in lock step from grade to grade within a school, or within a set of schools in which progression from grade to grade is the norm. To be sure, schools are differentiated internally, e.g., by systems of academic tracking and other mechanisms of classroom assignment (Sørensen 1970), and schools and school systems are differentiated from one another, e.g., by their auspices (public or private), by geographic location, and by modes and degrees of integration between family and school organization (Sørensen and Morgan 2000). Thus, as demonstrated in much of Sørensen's work on education, the important theoretical and methodological task is to specify a mathematical model of learning and the implications of the model for estimation of the effects on current achievement – *at a specific grade level* – of prior learning, opportunities for learning, and student background factors. This is well illustrated in a number of Sørensen's papers across a span of about 25

years (Sørensen 1970; Sørensen and Hallinan 1977; Sørensen 1978; Sørensen and Hallinan 1983; Sørensen and Hallinan 1987; Sørensen and Morgan 2000), of which many are collaborations with Maureen Hallinan, Stephen Morgan, and others.

Sørensen's theoretical and methodological innovation in this work is his steadfast emphasis on the importance of opportunities to learn (Sørensen 1978; Sørensen and Hallinan 1977; Sørensen and Morgan 2000). He argues consistently that opportunity to learn increases learning by those who are best prepared to learn more than among those less well prepared. Thus, in the absence of strong countervailing organizational forces, greater opportunity to learn tends to increase inequality in educational outcomes. This is a powerful and persuasive idea, one that is cautionary, say, to analysts and policymakers who focus on opportunity to learn as a key variable in the equalization of educational outcomes. By virtue of its implication that learning will occur differentially, it also calls attention to the possibility that levels and rates of learning will interact with student background characteristics and their prior academic preparation.

Time enters Sørensen's educational models in one – but only one – important way. Academic achievement is measured at two (or more) points in time. This permits analyses of differential growth in achievement, or of differences in the level of achievement at a later time that depend on prior achievement and other relevant variables. School effects, in this setup, differentiate growth in achievement among students from one time of year to another or one grade level to another. The structure of data typically available in studies of academic achievement virtually dictates this research design. Of course, the conclusion that estimated parameters reflect true cause-effect relationships is problematic in this, as in almost all research designs based on observational data.

In his recent essay with Stephen Morgan (Sørensen and Morgan 2000), Sørensen notes the importance of assessing the effects of schooling *per se*–a process that occurs across time–in addition to comparing the effects of teaching methods and curricula:

> "... it is important to recognize that the absence of associations between school differences and learning does not support the conclusion that schools are unimportant. For example, if all schools successfully produce the same level of achievement among students on some outcome, no impact will be inferred from an examination of variation across schools with different characteristics. Nonetheless, the effect of schooling may still be powerful, especially if uniform achievement across schools compensates for inequality in outcomes that would otherwise arise from individual differences in family background and genetic endowments. The possible existence of such a research finding justifies a distinction between the effects of schools (i.e., the effect of variation among schools on outcomes) and the effect of schooling (i.e., the overall effect of the schooling process)" (p. 138).

There is a great deal to be said in favor of studying the effects of schooling, rather than school effects, not least among which is that we have good reason to think that the latter effects are large, while the former remain problematic more than three decades after the publication of the largest and most influential study in the field (Coleman et al. 1966). However, Sørensen and Morgan turn immediately from that observation to an exposition of models and methods for studying the effects of school-to-school differences.

Even in a world of lockstep grade progression, a focus on changes in academic achievement across time would create measurement problems in Sørensen's analytic approach. That is, the assumption is that, if y_1 and y_2 are measurements of academic achievement at times t_1 and t_2, it is appropriate to analyze the difference variable, $y_1 - y_2$. However, this analysis is appropriate only if y_1 and y_2 are on the same vertical scale. This is a serious problem in test construction – and one that has led to erroneous influences in at least one sociological analysis of school learning (Alexander, Entwisle, and Dauber 1994; Shepard, Smith, and Marion 1996; Alexander 1998; Shepard, Smith, and Marion 1998). In the absence of metric equivalence, it is of course possible to analyze y_2 in a model that includes y_1, among other explanatory variables.

There are far more serious theoretical and methodological problems in this research design. It ignores the pervasive violation of its simplifying assumptions about the progress of students through school. That is, a great deal of variation in educational opportunities and in opportunities to learn arise by dint of the movement of students from school to school and of the failure of students to progress from grade to grade. To be sure, for methodological and operational reasons, it would be far more difficult to follow students from school to school, to cope with the variable pace of progress through the grades, and to ascertain comparable measures of academic achievement and of opportunities to learn. Thus, the conventional model of change in academic achievement unfortunately rests on the conflation of an idealized conception of the educational process with a relatively simple design for data collection and analysis. This is convenient, but it misses an unknown–but probably very large component of inequality in opportunities to learn.

Student mobility from school to school is well-known to be a common and highly disruptive occurrence in elementary and secondary schooling–and especially among poor and minority students. For example, Rumberger and Larson (1998: 1-2) report:

> "A national longitudinal survey of U.S. eighth graders in 1988 found that 31 percent had changed schools two, or more times between the first and eighth grades and 10 percent changed schools two more times between the eighth and twelfth grades, not counting regular promotions between elementary, middle, and high schools [(National Center for Education Statistics 1995: Indicator 46)]. A more recent national study found that mare than 40 percent of all third graders had changed .Schools at least once since first grade and 17 percent had changed schools two or more times [(U.S. General Accounting Office 1994)]. In both studies student. mobility was higher among Latino, black, Native American. and poor children than among white, Asian, and middle-and high-income children."

However, I have not studied rates or consequences of student mobility, and I will say no more about them, except that they ought to be taken into account in analyses of school achievement and completion(Rumberger and Larson 1998).

Rather, I will review some of my recent research on the extent and consequences of grade retention in American schools. Students are rarely pushed ahead–or "double-promoted"–in school, but they are very often retained in grade. Until President Clinton called for "an end to social promotion" in 1998 (Clinton 1998), retention in grade had long been ignored as an educational practice. However, by extending the length of elementary and secondary schooling–or reducing it through early

dropout–retention practices have large effects on academic achievement and ultimate educational attainment (Shepard and Smith 1989).

Rates of Grade Retention in the United States

To support its analyses of high-stakes testing for promotion and retention, the National Research Council's Committee on Appropriate Test Use assembled and analyzed data on rates, trends, and differentials in grade retention (National Research Council, Committee on Appropriate Test Use 1999: Table 6-1).[2] Perhaps the most striking fact from this effort to bring together existing data is that--despite the prominence of social promotion as an issue of educational policy--very little information about it is available.

No federal or independent agency monitors social promotion and grade retention. Occasional data on retention are available for some states and localities, but coverage is sparse, and little is known about the comparability of these data (Shepard and Smith 1989). For example, the denominators of retention rates may be based on beginning-of-year or end-of-year enrollment figures. The numerators may include retention as of the end of an academic year or as of the end of the following summer session. Some states include special education students in the data; others exclude them. In the primary grades, retention is usually an all-or-nothing matter; in high school, retention may imply that a student has completed some requirements but has too few credits to be promoted.

Some states do not collect retention data at all or collect very limited data. For example, the NRC study found that13 states--Colorado, Connecticut, Illinois, Kansas, Montana, Nebraska,

[2] This section of the text draws upon, but updates and expands selected sections of Hauser (2001).

Nevada, New Hampshire, New Jersey, North Dakota, Pennsylvania, Utah, and Wyoming--collect no statewide data on grade retention. Twenty-two states, plus the District of Columbia, provided data on retention at some grade levels, but in some cases the data were very limited. For example, New York State collects such data only at the 8th grade.

Retention rates are highly variable across states. They are unusually high in the District of Columbia, whose students are largely black. Rates are relatively low in some states, like Ohio, including states with relatively large minority populations, like South Carolina and Georgia. Retention rates tend to be relatively high in the early primary grades--though not in kindergarten--and in the early high school years.

The main federal source of information about education, The National Center for Education Statistics, provides essentially no statistics about grade retention or social promotion. For example, there are no data on this subject in current editions of its two major statistical compendia, the Digest of Education Statistics (National Center for Education Statistics 2002b) and the Condition of Education (National Center for Education Statistics 2002a).

One egregious exception to the lack of federal information about grade retention and promotion is an Education Department publication, Taking Responsibility for Ending Social Promotion: A Guide for Educators and State and Local Leaders (U.S. Department of Education 1999). While it also cites more reputable estimates of grade retention, the Guide features a "conservative" estimate from "1996 Current Population Statistics" that "only about 3 percent of students are two or more years over age for their grade (an indication that they have been retained at least once)" (p. 6). This estimate is indefensibly low for three reasons. First, it covers only currently enrolled students, ignoring persons of

normal school age who have fallen behind and dropped out. Second, by referring to K-12 students at all grade levels, it aggregates data for children in the primary grades, who have had few years at risk of retention, with data for children in higher grades, who have had many years at risk of retention. Third, by counting as "retained" only those students who are two or more years above the modal age for their grade, the Guide fails to include a large number of retained students. I cannot think of any rationale for this statistic, other than an effort to mislead the public about the true extent of grade retention.

The most uniform, current source of information on levels, trends, and differentials in grade retention is the Current Population Survey (CPS) of the U.S. Bureau of the Census. Using published data from the annual October School Enrollment Supplement of the CPS, it is possible to track the distribution of school enrollment by age and grade each year for groups defined by sex and race/ethnicity. These data have the advantage of comparable national coverage from year to year, but they say nothing directly about educational transitions or about the role of high-stakes testing in grade retention. We can only infer the minimum rate of grade retention by observing changes in the enrollment of children below the modal grade level for their age from one calendar year to the next. Suppose, for example, that 10 percent of 6-year-old children were enrolled below the 1st grade in October of 1994. If 15 percent of those children were enrolled below the 2nd grade in October of 1995, when they were 7 years old, we would infer that at least 5 percent were held back in the 1st grade between 1994 and 1995. Using this approach, the CPS data, and other data collected by the National Research Council's Committee on Appropriate Test Use, I review below trends in retention and social differentiation in retention.

Extended Kindergarten Attendance

Historically, there has been great variation in age at school entry in the United States. This variation had more to do with the labor demands of a farm economy and the availability of schooling to disadvantaged groups than with readiness for school. The variability declined as school enrollment completed its diffusion from middle childhood into younger and older ages (Duncan 1968; National Research Council, 1989).

The age at entry into graded school has gradually crept upward since the early 1970s, reversing one of the major historic trends contributing to the growth of schooling in the United States. The Census Bureau's statistics on grade enrollment by age show that, from the early 1970s to the late 1980s, entry into 1st grade gradually came later in the development of many children. However, for the past decade there has been little change in age at school entry. Figure 1 shows percentages of 6-year-old children who had not yet entered the 1st grade as of October of the given year.[3] Among 6-year-old boys, only 8 percent had not yet entered the 1st grade in 1971,[4] but 22 percent were not yet in the 1st grade in 1987, and 20 percent were not yet in the 1st grade in 2000. Among 6-year-old girls, only 4 percent had not yet entered the 1st grade in 1971, but 16 percent were not yet in the 1st grade in 1987 or in 2000. While boys are consistently more likely than girls to enter 1st grade after age

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[3] U.S. Bureau of the Census, *Current Population Reports*, "School Enrollment: Social and Economic Characteristics of Students" for various years. Percentages shown in Figure 1 are 3-year moving averages and do not agree exactly with the annual estimates reported in the text.

[4] The percentages include those enrolled below 1st grade level and a small share of 6-year-olds who were not enrolled in school. The data are virtually unchanged if non-enrolled children are eliminated from the analysis: Neither the trends nor the differences by race-ethnicity and gender are affected.

6, there are only small differences between blacks and whites in age at entry into graded school, and these differences consistently favor black children. That is, 6-year-old black children are slightly less likely than white children of the same age and sex to be enrolled below the 1st grade or not enrolled in school. Also, 6-year-old Hispanic boys are consistently more likely than white boys to have entered the 1st grade. However, 6-year-old Hispanic girls are less likely than white girls to have entered the 1st grade.

It is not clear why age at school entry has increased. One contributing factor has been the influence of state laws on minimum age at school entry. Another – suggested by the initially slow school entry of white boys – is that some parents "red shirt" their children at an early age in order to give them an advantage in athletic competition later on. Early school retention is yet a third potential explanation of the trend.

Over the past two decades, attendance in kindergarten has been extended to two years for many children in American schools. There is no single name for this phenomenon. As Shepard (1991) reports, the names for such extended kindergarten classrooms include "junior-first," "prefirst," "transition," and "readiness room." There are also no distinct categories for the first and second years of kindergarten in Census enrollment data. Fragmentary reports suggest that, in some places, kindergarten retention may have been as high as 50 percent in the late 1980s (Shepard and Smith 1989; Shepard 1991). There are also reports of inappropriate use of cognitive tests in such decisions (Shepard 1991: 287; Shepard, Kagan, and Wurtz 1998). The degree to which early retention decisions originate with parents, e.g., to increase their children's chances for success in athletics, rather than with teachers or other school personnel is not known. Moreover, there are no regular national

estimates of the prevalence of kindergarten retention, and none of the available state data indicate exceptionally high kindergarten retention rates. From occasional national surveys, Karweit (1999) suggests that, "by first grade between 7 and 11 percent of children have been retained."

Excepting the ubiquitous tendency for girls to enter (and complete) primary and secondary school at earlier ages than boys, there is little sign of social differentiation in age at school entry. Instead, socially differentiated patterns of grade retention begin to develop after entry into graded school, and they persist through secondary school.

Retention in the Primary and Secondary Grades

Age-grade retardation refers to enrollment below the modal grade level for a child's age (and no broader meaning is either intended or implied). I have examined national rates of age-grade retardation by age, sex, and race ethnicity for three-year age groups at ages 6 to 17 from 1971 to 1996 and, also, at parallel tabulations for young children by single years of age, 1971 to 1996. In each case, I have organized the data by birth cohort (year of birth), rather than by calendar year, so it is possible to see the evolution of age-grade retardation throughout the schooling of a birth cohort, as well as changes in age-grade retardation rates from year to year.

The recent history of age-grade retardation is summarized in Figure 2. It shows age-grade retardation at ages 6 to 8, 9 to 11, 12 to 14, and 15 to 17 among children who reached ages 6 to 8 between 1962 and 2000. The horizontal axis shows the year in which an age group reached ages 6 to 8, so vertical comparisons among the trend lines at a given year show how age-grade retardation cumulated as a birth cohort grew older.

For example, consider children who were 6 to 8 years old in 1991 – the most recent cohort whose history can be traced all the way from ages 6 to 8 up through ages 15 to 17. At ages 6 to 8, 21.2 percent were enrolled below the modal grade for their age. By 1994, when this cohort reached ages 9 to 11, age-grade retardation grew to 26.2 percent, and it was 28.5 percent in 1997, when the cohort reached ages 12 to 14. By 2000, when the cohort reached ages 15 to 17, the percentage who were either below the modal grade level or had left school was 34.5 percent. Almost all of the growth in retardation after ages 12 to 14, however, was due to dropout (4.3 percent), rather than grade retention among the enrolled.

One could read the rate of enrollment below the modal grade at ages 6 to 8 as a baseline measure, that is, as if it did not necessarily indicate that grade retention had taken place. Relative to that baseline, increases in enrollment below the modal grade at older ages clearly show the net effects of retention in grade. This reading of the data would suggest that, in most birth cohorts, retention occurs mainly between ages to 6 to 8 and 9 to 11 or between ages 12 to 14 and 15 to 17.[5] This way of looking at the data surely understates the prevalence of grade retention, for much of it occurs within ages 6 to 8 and ages 15 to 17, that is, early in elementary school or during the high school years.

The series for ages 15 to 17 includes early school dropout, which is also shown as a separate series along the bottom of the figure. Dropout, rather than retention, evidently accounts for a substantial, but declining component of the increase in age-grade retardation between ages 12 to 14 and ages 15 to 17.

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[5] We ignore the logical possibility that age-retardation at younger ages could be counter-balanced by double-promotion at older ages.

The trend in age-grade retardation at ages 6 to 8, 9 to 11, 12 to 14, and 15 to 17 can be read across Figure 2 from left to right. Age-grade retardation increased in every age group from cohorts of the early 1970s through those of the middle to late 1980s. Age-grade retardation increased at ages 15 to 17 after the mid-1970s, despite the slow decline in the early school dropout component throughout the period. That is, grade retention increased while dropout decreased. Peak rates occurred earlier at older than at younger ages, suggesting that policy changes occurred in specific calendar years, rather than consistently throughout the life of successive birth cohorts. Among cohorts entering school after 1970, the percentage enrolled below the modal grade level was never less than 10 percent at ages 6 to 8, and it exceeded 20 percent for cohorts of the late 1980s. The trend-lines suggest that age-grade retardation has declined slightly for cohorts entering school after the mid-1980s, but rates have not approached the much lower levels of the early 1970s.

Overall, a large share of each birth cohort now experiences grade retention during elementary school. Among children aged 6 to 8 from 1982 to 1997, age-grade retardation has reached 24 to 29 percent by ages 9 to 11. There is also great geographic variability in age-grade retardation across the United States. For example, Figures 3 to 5 show my tabulations of October CPS data, parallel in structure to Figure 2, for the states of Texas, New York, and Utah. Obviously, retention is far more prevalent in Texas than in New York, while there is scarcely any age-grade retardation in Utah.

In summary, grade retention is pervasive in American schools. No national data are available to tell us the cumulative risk of grade retention across grades 1 to 12, but some states provide enough data to make such estimates (National Research Council, Committee on Appropriate Test Use 1999: Table 6-1). For example, Texas has regularly reported the percentages of students who are retained at

each grade level, and the rates are reported separately by race/ethnicity. Retention rates have been stable and high from 1990 onward, well before the new initiatives to "end social promotion." For example, if all Texas students were subject to the failure rates of 1996-97, 17 percent would fail at least once between the 1st and 8th grades, and 32 percent would fail at least once between the 9th grade and high school completion (Texas Education Agency 1998). Among African American students, the corresponding rates are 20 percent and 42 percent, and among Hispanic students they are 21 percent and 44 percent.

Social Differences in Retention

While there are similarities in the age pattern of grade retardation among major population groups—boys and girls and majority and minority groups—there are also substantial differences in rates of grade retardation among them, many of which develop well after school entry. Figure 6 shows rates of age-grade retardation of boys and girls at ages 6 to 8 and ages 15 to 17. Overall, the gender differential gradually increases with age from 5 percentage points at ages 6 to 8 to 10 percentage points at ages 15 to 17. That is, boys are initially more likely than girls to be placed below the modal grade for their age, and they fall further behind girls as they pass through childhood and adolescence.

The differentiation of age-grade relationships by race and ethnicity is even more striking than that by gender. Figures 7 and 8 show the development of age-grade retardation by race/ethnicity for children and youth aged 6 to 8 years old and 15 to 17 years old. Unlike the case of gender differentiation, at ages 6 to 8 the rates of age-grade retardation are very similar among whites, blacks, and Hispanics. As early as ages 9 to 11, the percentages enrolled below modal grade levels have typically been 5 to 10 percentage points higher among blacks or Hispanics than among whites. The

differentials continue to grow with age, and at ages 15 to 17, rates of grade retardation range from 40 to 50 percent among blacks and Hispanics, while they have gradually drifted up from 25 percent to 35 percent among whites. By ages 15 to 17, there is a differential between Hispanics and blacks, favoring the latter, and this appears to follow from high rates of early school dropout among Hispanics.

In recent years, gender and race-ethnic differentials in age-grade retardation, even at young ages, are a consequence of school experience and not primarily of differentials in age at school entry. Social differentials in age-grade relationships are vague at school entry, but a hierarchy is clearly established by age 9, and it persists and grows through the end of secondary schooling. This growth can only be explained by grade-retention. By age 9, there are sharp social differentials in age-grade retardation, favoring whites and girls relative to blacks or Hispanics and boys. By ages 15 to 17, close to 50 percent of black males have fallen behind in school—30 percentage points more than at ages 6 to 8—but age-grade retardation has never exceeded 30 percent among white girls of the same age. These rates and differentials in age-grade retardation are characteristic of a schooling regime in which social promotion is perceived to be the norm. Both the rates and differentials could become much larger as new policies of achievement testing and accountability are put in place.

There is much more to be said about social and economic differentials in grade retention. For example, Hauser, Pager, and Simmons (2000) find that socioeconomic background and family structure account for virtually all of the race-ethnic differentials in grade retention over the period from 1972 to 1999. However, their findings, like those reported above, are characteristic of a schooling regime in which social promotion is perceived to be the norm. Both the rates and differentials could become much larger as new policies of achievement testing and accountability are put in place.

Effects of Grade Retention

Retention in grade is not a negative outcome if it benefits students. But are there positive consequences of being held back in school? Do students do better after repeating a grade, or would they have fared just as well or better if promoted with their peers? Research data indicate that simply repeating a grade does not generally improve achievement (Holmes 1989; House 1989; Jimerson 2001). Furthermore, there is overwhelming evidence that retention increases school dropout (Gampert and Opperman 1988; Grissom and Shepard 1989; Anderson 1994; Darling-Hammond and Falk 1995; Luppescu, Bryk, Deabster, Easton, and Thum 1995; Reardon 1996; Hauser et al. 2000). Indeed, the latter findings might be traced back to Ayres' seminal observations about the link between promotion, age, and school-leaving (Ayres 1909: 139-140).[6]

Grade retention is not merely ubiquitous, but it has great consequences for subsequent academic achievement and school continuation. This is the reason that non-movement from grade to grade–along with movement from school to school–should be included in research on academic achievement and opportunities for learning.

Conclusion

As time passes, students who begin school at a given time and place are typically dispersed widely across schools and grade levels. Modes and rates of dispersion are variable. They tend to vary with student preparation and background characteristics–precisely the characteristics that are likely to affect rates of learning and opportunities to learn. There is, to be sure, real scientific value in studies of

[6] See Hauser (2001)for a detailed review of the effects of grade retention.

student achievement that adopt the stylized assumptions of uniform cohort progression through schools. However, uniform progression of school cohorts is to the progress of all students through schools as the "Ozzie and Harriet" family is to all American families (Hernandez 1993). Thus, a full account of variations in student learning in relation to opportunities must take account of the realities of dispersion in time and place.

Where does this leave work like that of Aage Sørensen, that of others who will continue to study the determinants of levels and changes in academic achievement? In my opinion, research designs should be elaborated to cover the departure of students from the ideal-typical window of observation. Student moves, and student failure, should not be regarded as unfortunate losses of longitudinal data, but as essential opportunities to study some of the most important features of the process of schooling as it actually occurs. This is very difficult to accomplish, both for operational reasons–the cost and difficulty of spreading the process of measurement across multiple venues–and for technical reasons–the problem of assuring comparable measurement across grade levels. One partially successful example is Alexander and Entwisle's (Alexander et al. 1994; Alexander, Entwisle, and Kabbani 2001) study of a cohort of Baltimore school entrants–which followed all students across time–but not across the boundaries of the Baltimore school system. Another is the recent study of grade retention in Texas (Lorence, Dworkin, Toenjes, and Hill 2002), in which student records were followed across time within the state–but, again, with coverage loss due to geographic mobility. It is no accident that studies of the effects of school retention have come closest to representing the realities of the schooling process in American society. In the context of our new educational policies, such research designs will be all the more necessary.

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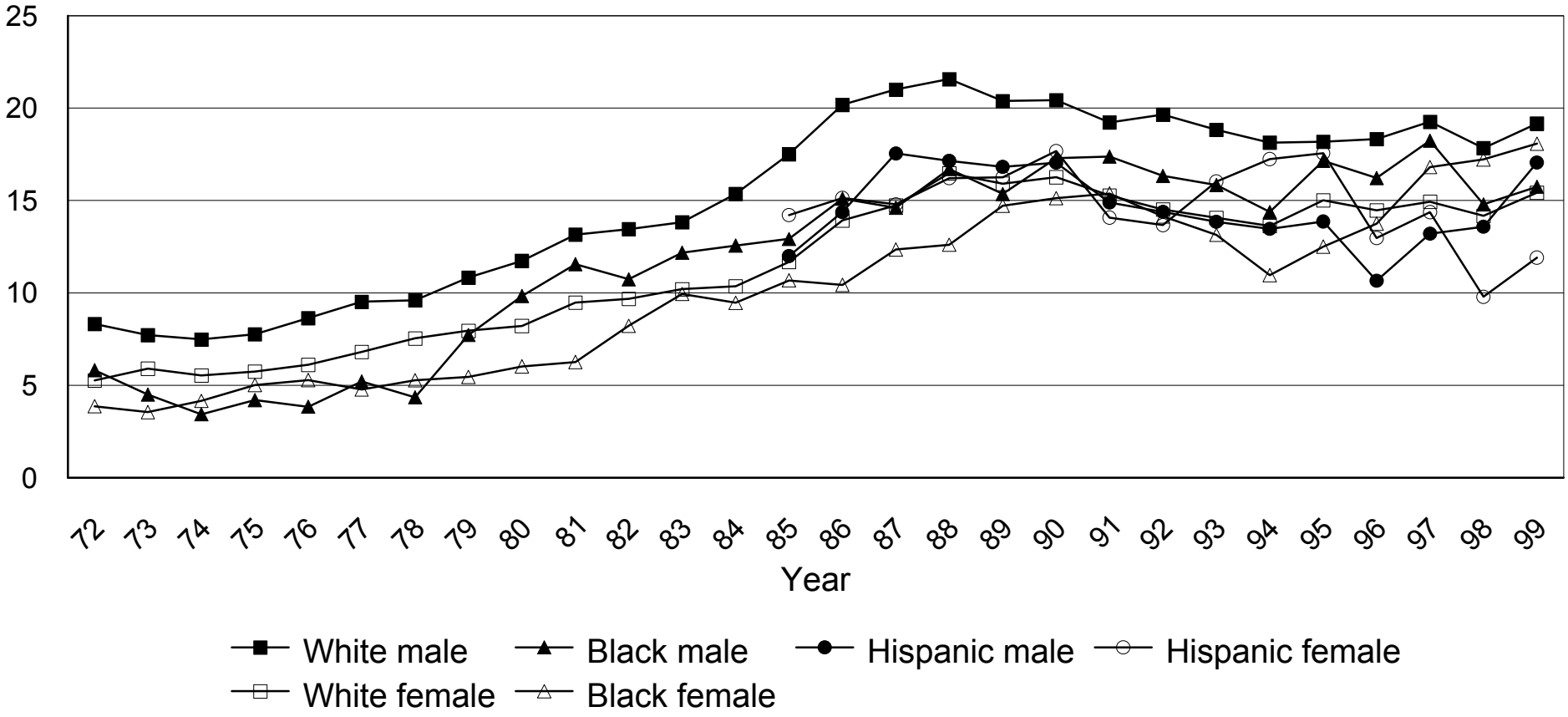
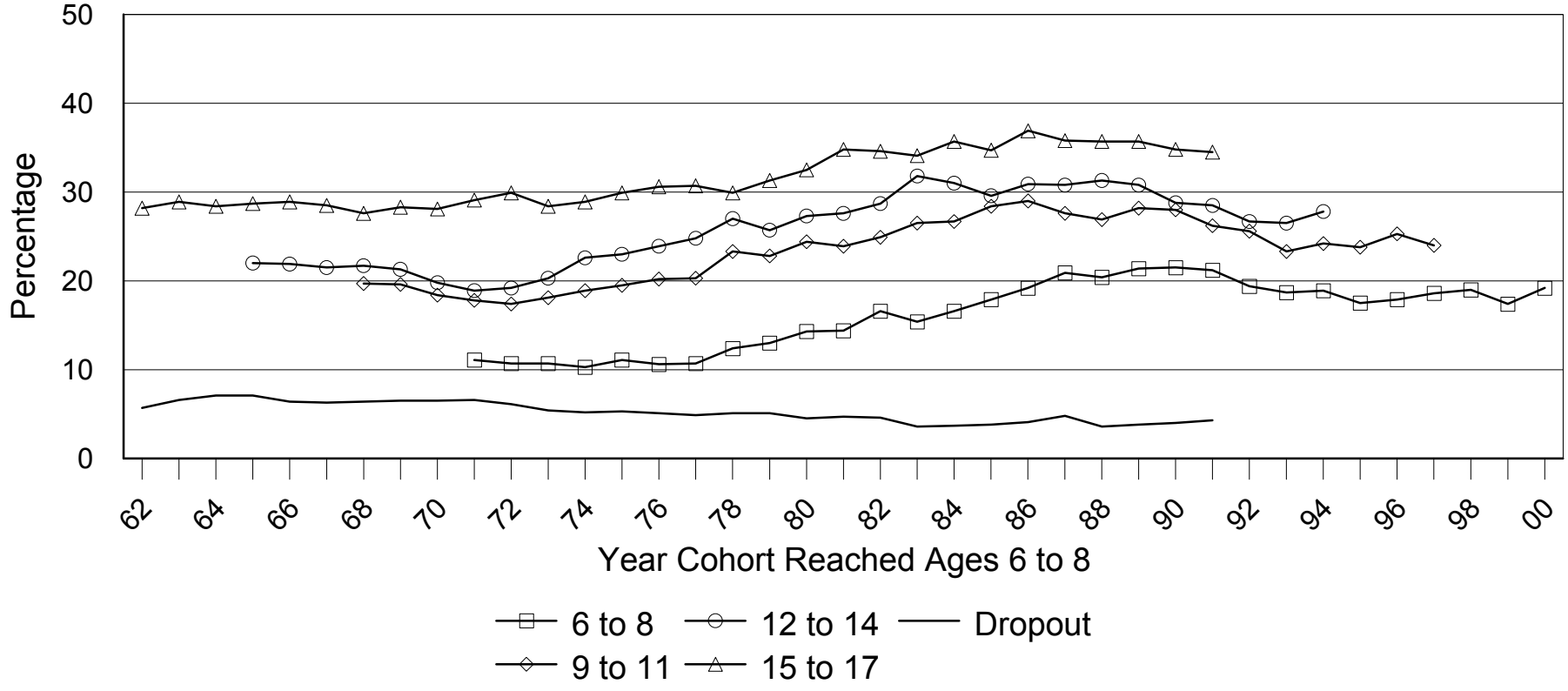
Figure 1
Percentage of Six Year Old Children Who Have Not Entered First Grade, 1972 to 1999



Source: U.S. Bureau of the Census, Current Population Reports, Series P-20. Entries are three-year moving averages.

Figure 2
Percentage of Children Enrolled Below Modal Grade for Age
by Age Group and Year in which Cohort was 6 to 8 Years Old



Source: U.S. Bureau of the Census, Historical Statistics,
Table A-3, persons 6 to 17 years old.
Dropouts are included in the series at ages 15 to 17.

Figure 3. Percentage Below Modal Grade for Age, Texas: 1968-70 to 1996-98

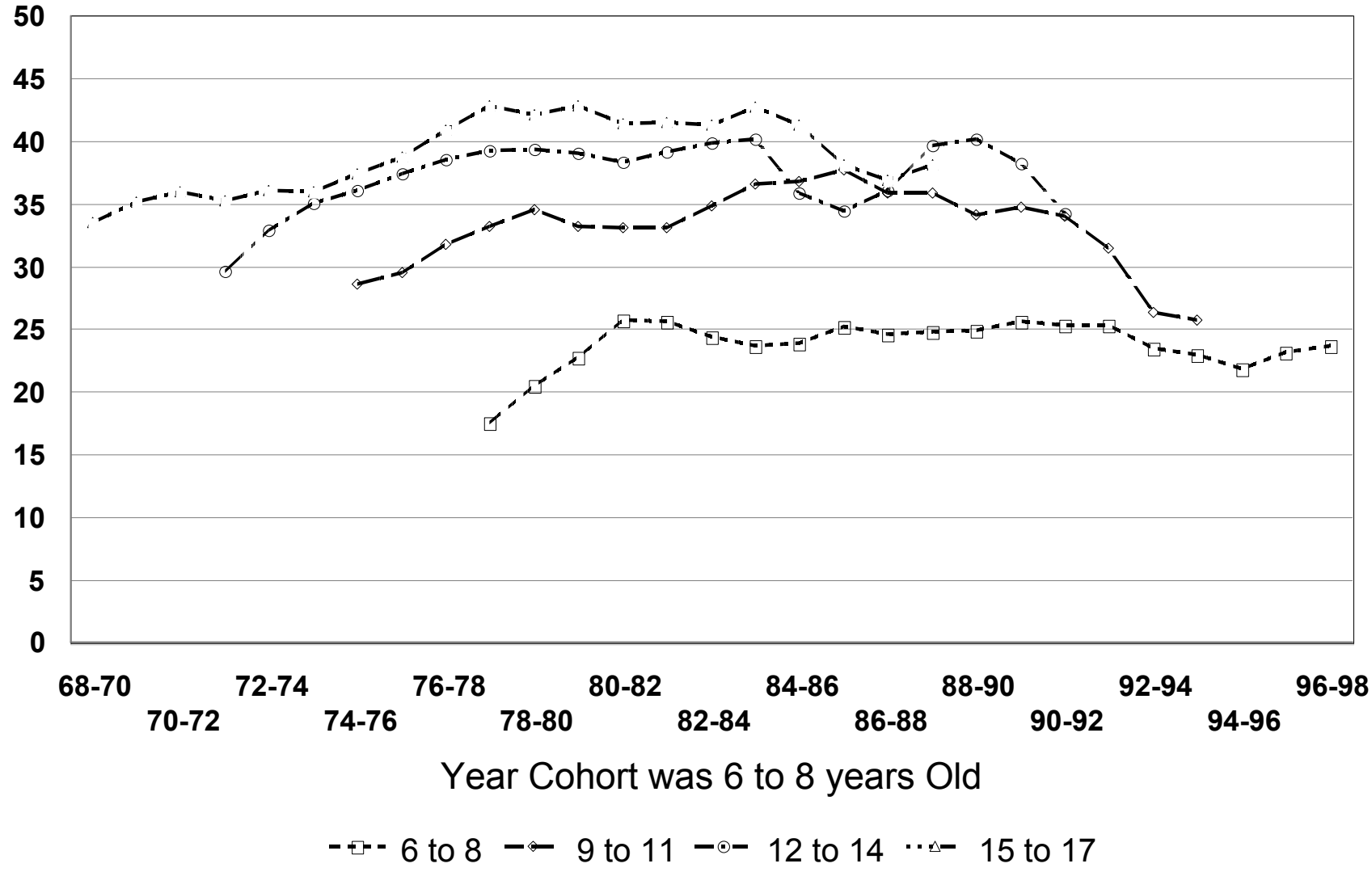


Figure 4. Percentage Below Modal Grade for Age, New York: 1968-70 to 1996-98

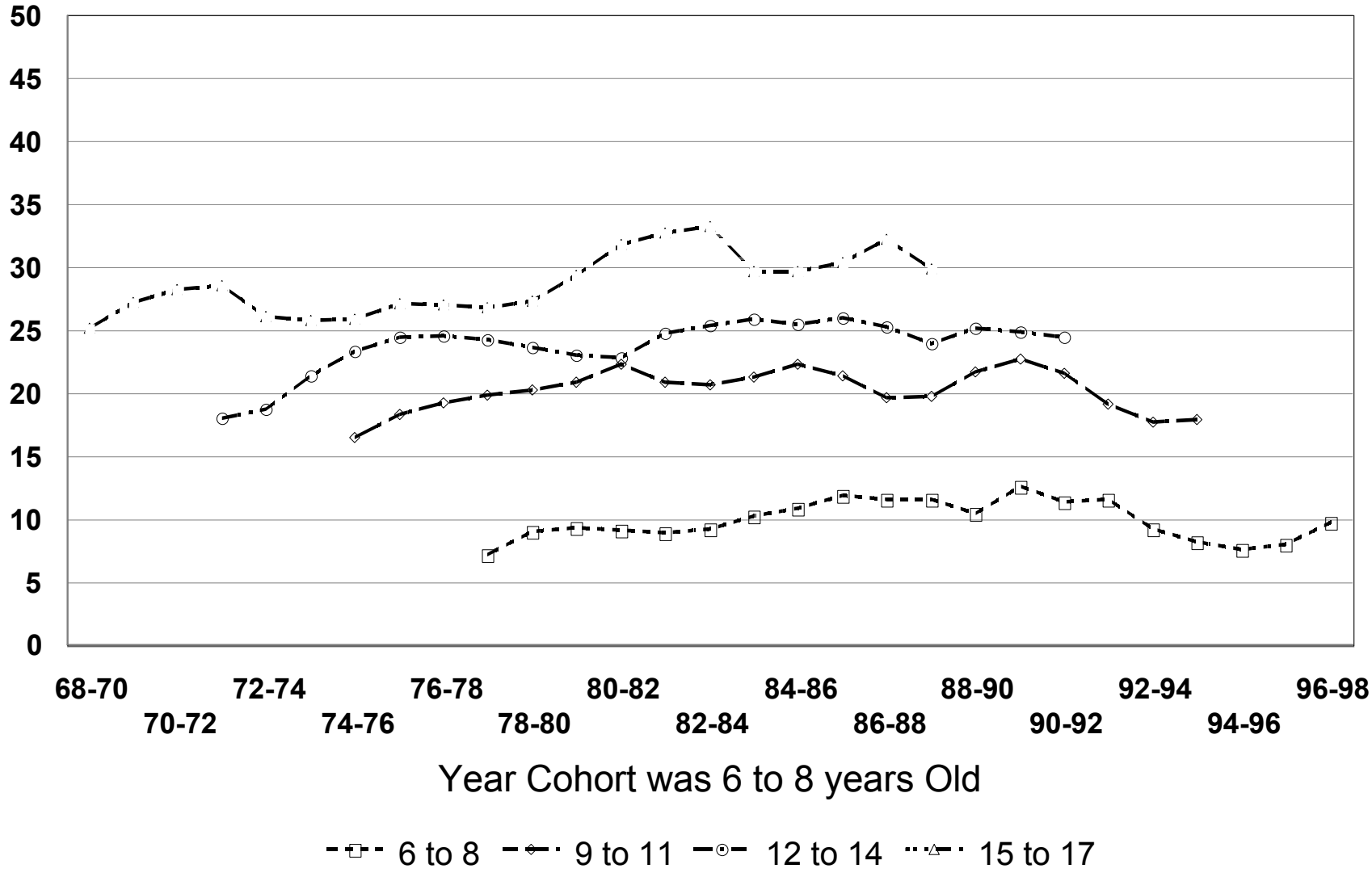


Figure 5. Percentage Below Modal Grade for Age, Utah: 1968-70 to 1996-98

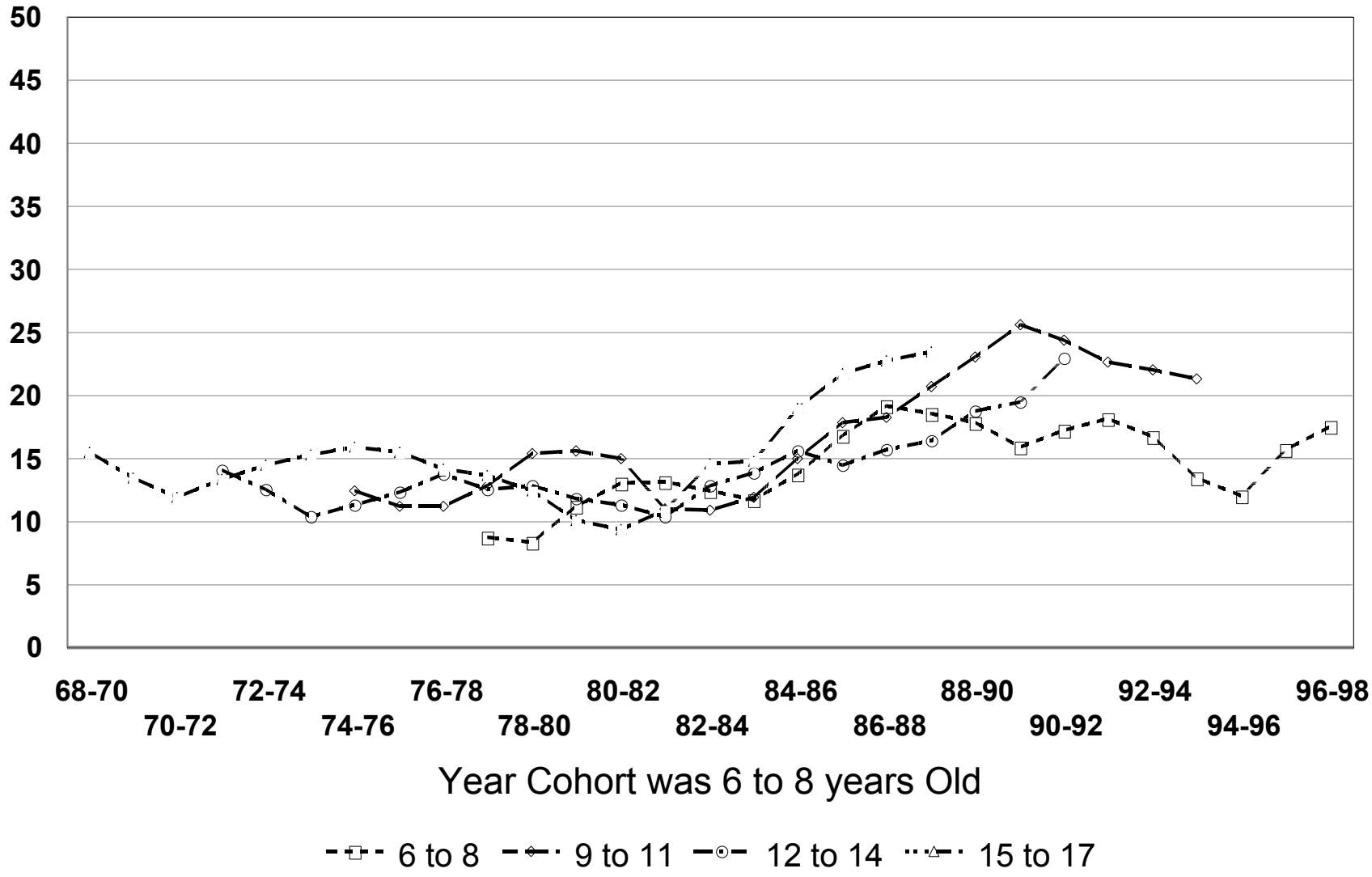
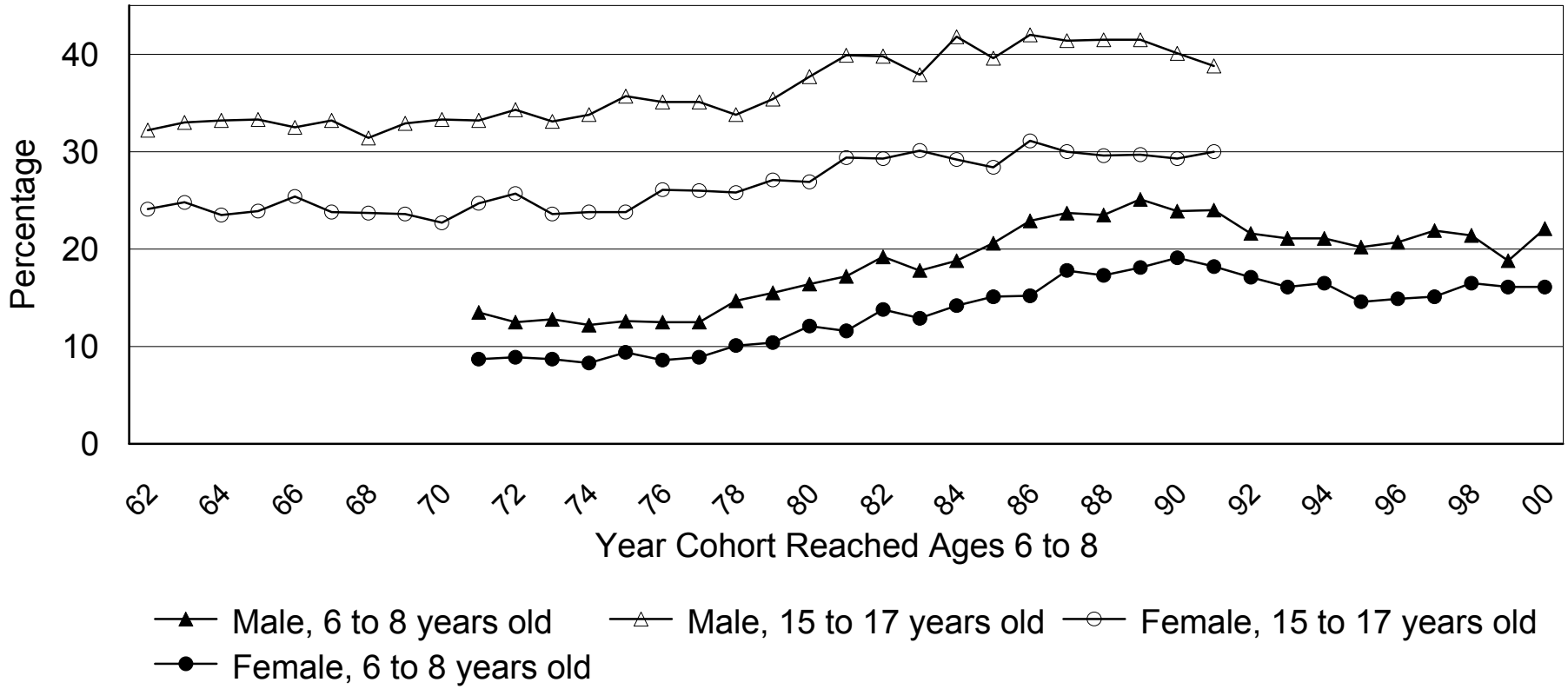
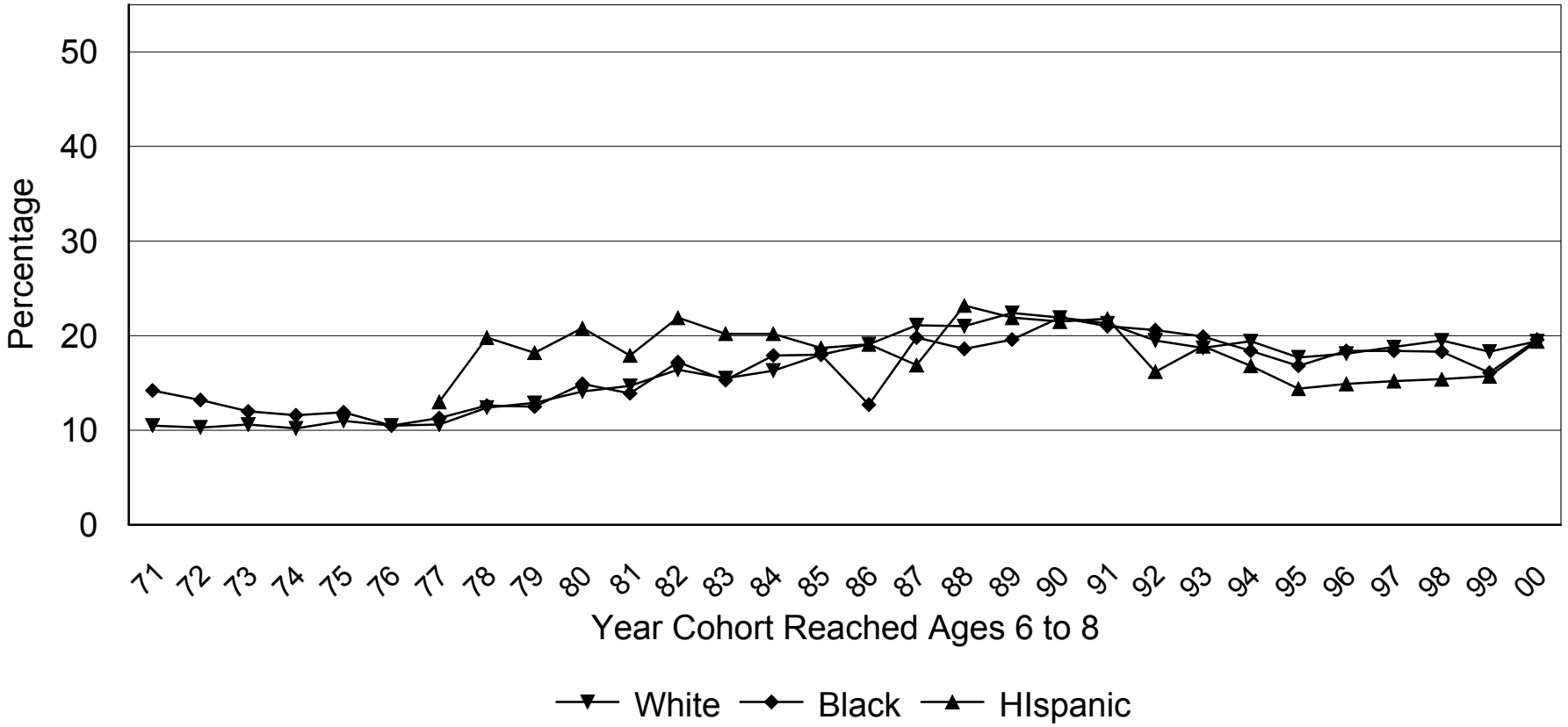


Figure 6
Percentage Enrolled Below Modal Grade at Ages 6 to 8 and at Ages 15 to 17 by Sex and Year Cohort Reached Ages 6 to 8



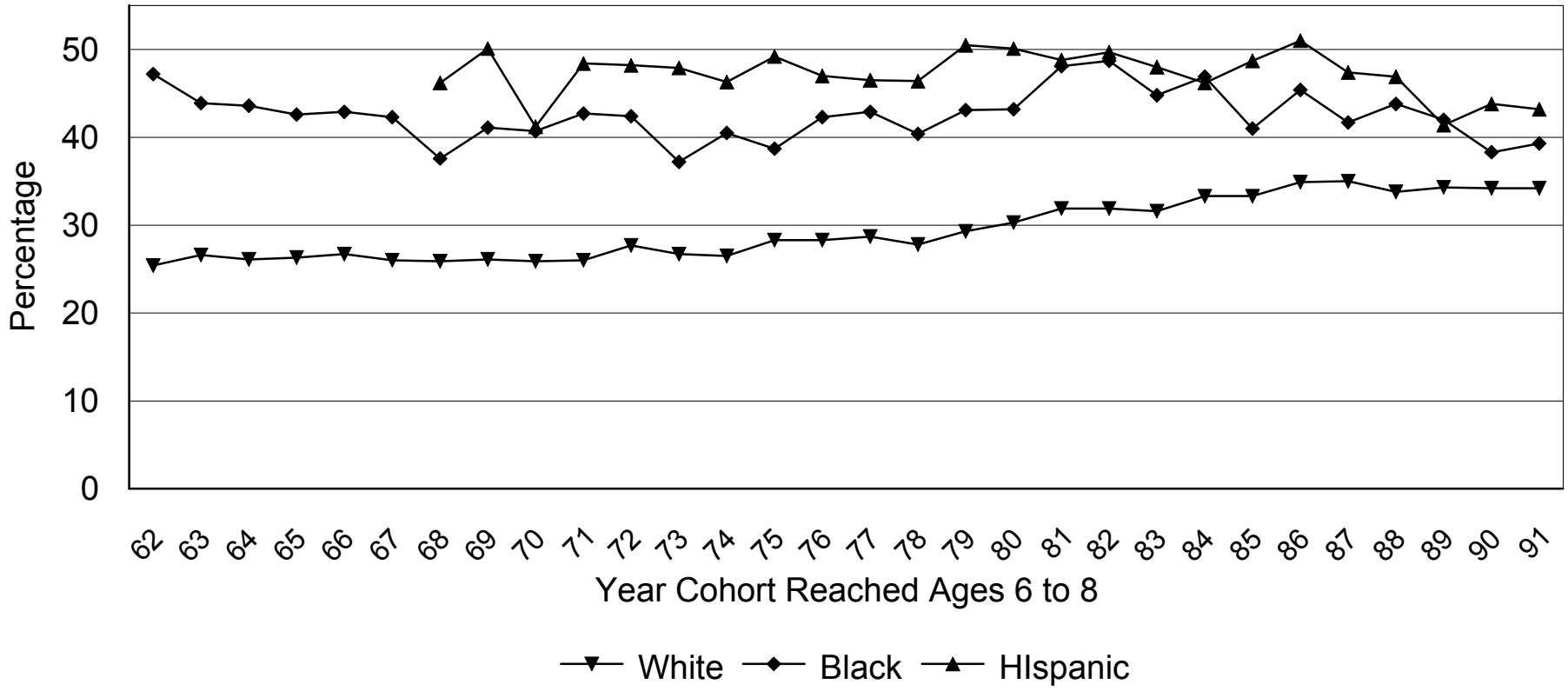
Source: U.S. Bureau of the Census, Historical Statistics,
Table A-3, persons 6 to 8 and 15 to 17.
Dropout is counted as age-grade retardation at ages 15 to 17.

Figure 7
Percentage Enrolled Below Modal Grade
at Ages 6 to 8 by Race-Ethnicity and Year



Source: U.S. Bureau of the Census, Historical Statistics,
Table A-3, persons 6 to 8.

Figure 8
Percentage Enrolled Below Modal Grade or Dropping Out by Ages 15 to 17
By Year Cohort Reached Ages 6 to 8 by Race-Ethnicity



Source: U.S. Bureau of the Census, Historical Statistics,
Table A-3, persons 15 to 17.
Dropout is counted as age-grade retardation at ages 15-17.