DOCUMENT RESUME

ED 312 783 EA 021 455

AUTHOR Kolstad, Andrew; Kaufman, Phillip
TITLE Dropouts Who Complete High School with a Diploma or GED.
PUB DATE Mar 89
NOTE 23p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 27-31, 1989).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Persistence; *Dropout Characteristics; Dropout Research; *Dropouts; *High School Graduates; High Schools; Out of School Youth; *Reentry Students; *Withdrawal (Education)
IDENTIFIERS *High School and Beyond (NCES)

ABSTRACT

Despite much research on dropouts, little information exists on the education of dropouts after they leave high school. That a substantial proportion of dropouts complete high school within a few years appears not to be widely known. Without understanding the nature and extent of this phenomenon, the severity and impact on society of the dropout problem may be overstated. According to survey data obtained from the third followup of the National Center for Education Statistics' High School and Beyond longitudinal study of 30,030 tenth grade students begun in 1980, 4 out of 9 dropouts (44 percent) returned and either completed high school diploma requirements or obtained a General Educational Development (GED) certificate by the spring of 1986. Of the dropouts who returned, approximately one-third received an institutional diploma and two-thirds passed the GED examination. Those dropouts who, in 1982, reported no further educational plans were less likely to complete high school later than were those who reported plans to pursue further education. Moreover, among early high school dropouts, only 28 percent later completed their education as compared to 42 percent of eleventh grade and 53 percent of twelfth grade dropouts who later obtained a diploma or GED certificate. (20 references) (KM)

Dropouts who complete high school with a diploma or GED

Andrew Kolstad
National Center for Education Statistics
555 New Jersey Ave. N.W.
Washington DC 20208

Phillip Kaufman
MPR Associates
1995 University Ave. Suite 225
Berkeley Ca. 94704

Paper prepared for presentation to the annual meetings of
the American Educational Research Association
San Francisco, California, March 27, 1989

Introduction The rate at which students drop out of school in this country is widely viewed as a major educational and economic problem. Depending on the method of calculation, high school dropout rates range from around 14 percent to almost 25 percent,[1] with blacks and Hispanics consistently showing higher rates of non-completion than whites, and males showing higher rates than females. One reason for concern over these numbers is the fact that dropping out of high school is associated with a wide variety of costs both to the individual and to society.[2] For the individual, failure to complete high school is associated with limited occupational and economic opportunities. Without a high school diploma the dropout faces increased chances of unemployment or the limited prospects of a low skill, low paying job. together with heightened feelings of inferiority and alienation.[3] The costs of dropping out of school are also high for society, which must bear the cost of the dropout's inability to find or hold a job. Leaving school prematurely is associated with increased expenditures for government assistance to individuals and families, higher rates of crime, and maintenance of costly programs for purposes of public employment and training.[4]

Despite much research on dropouts, little information exists on the education of dropouts after they leave high school. That a substantial proportion of dropouts complete high school within a few years appears not to be widely known. Without understanding the nature and extent of this phenomenon, the severity and impact on society of the dropout problem may be overstated. Dropouts need not return to high school in order to certify their learning. Dropouts can earn an alternative credential by passing the General

---

[1]Pallas, A. M. & Verdugo, R. (1986). *The measurement of high school dropouts.* U.S. Department of Education, unpublished report.

[2]Catterall, J.S. (1985). On the social costs of dropping out. *High School Journal* . 71 19-30.; Howe, H. (1984). *Giving equal chance in the excellence game.* Martin Buskin Memorial Lecture delivered to the Education Writers Association.

[3]Rumberger, R. W. (1981). *Why kids drop out of high school.* Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, California.

[4]Ehrlich, I. (1975). On the relation between education and crime. In Juster, F.T. (ed.). *Education, income, and human behavior.* New York: McGraw-Hill.; Steinberg, L. D., Blinde, P. L., & Chan, K. S. (1984). Dropping out among language minority youth. *Review of Educational Research.* 54, 113-132.

Educational Development (GED) credential, a program of the American Council on Education. A substantial portion of returning dropouts do so. For example, 712,920 dropouts attempted the GED test in 1986, with 73% scoring well enough to meet minimal completion requirements in their State. While there is some indication that holders of alternative credentials may not do as well after high school as regular day school graduates, little is actually known about the characteristics of students who hold these alternative high school credentials.[5]

The objective of this study is to describe and explore, using national survey data, the distinctions between dropouts who return to school and earn their diploma and dropouts who return and receive the GED as an alternative high school credential. Since 1980, the National Center for Education Statistics has been conducting the High School and Beyond (HS&B) study, a large longitudinal survey of a group of tenth graders from all over the United States, tracking them to follow their educational and career decisions. Based on earlier results from HS&B, we reported to AERA in 1986 that two years after the other members of the class of 1982 class had graduated, 38 percent of dropouts in this cohort had returned and completed school.[6] New results from the 1986 follow-up survey, four years after what would have been the normal graduation time, show that 44 percent of dropouts completed high school. For the first time, we can report that many more dropouts completed test-based GEDs (30.7 percent) than returned to high school to complete school-granted diplomas (13.5 percent).

Research on Dropouts Who Return to School. There are two general theoretical frameworks used in the study of high school dropouts. One, the social-psychological approach of the educational attainment literature, emphasizes the role of

[5]Passmore, D.L. (1987). *Employment of young GED recipients* (research Brief No. 14) Washington D.C. GED Testing Service of the American council on Education, Tugend, A.(1986, May 7) College study: GED students failing. *Education Week*, pp.1,10.

[6](Kolstad, A. and Owings, J. (1986) *Dropouts who change their minds about school*, Paper presented to the Annual Convention of the American Educational Research Association.

ambition, motivation, and ability in overcoming the limitations of socioeconomic resources. This approach directs attention to the social-psychological processes that influence the career decisions of young people.[7] In this way of thinking, dropping out of school always represents a failure of motivation, ambition, or resources. The second, the human capital approach in the economics of education literature, emphasizes the role of investment considerations in schooling decisions. In this way of thinking, there is a constraint on the optimum amount of schooling for an individual, in that a rational use of limited resources may make school-leaving the best decision.[8]

While these two orientations to the acquisition of schooling have been fruitful in generating research on high school dropouts, what can these frameworks tell us about why former dropouts change their minds about school? The educational attainments approach might hypothesize that the difficulties dropouts experience after leaving school might lead them to change their attitudes and renew their motivations to complete high school. The human capital approach might suggest looking for changes in a dropout's resources. But since the extent of completing high school after dropping out is not widely known, little research or thinking has gone into the study of education after high school for dropouts.

In one study of dropouts, Bachman, Green, and Wirtamen[9] were able to look at a subgroup of their sample of dropouts who were returned and completed, students they call 'Dropouts with Diplomas'. Although the number of returnees was too small (n=32) to make any statistically valid conclusions, Bachman et al.'s data on 'dropouts with diplomas' demonstrate some interesting patterns. The data tend to show that dropouts who return to school score slightly higher than the average for all dropouts on the measures that Bachman

---

[7]William T. Bielby, 1981, "Models of status attainment." Pp. 3-26 in D.J. Trieman and R.V. Robinson (eds), *Research in Social Stratification and Mobility, Volume 1*, Greenwich: JAI Press

[8]James Mincer, 1974, Schooling, Experience, and Earnings, New York: National Bureau of Economic Research

[9]Bachman, J. G., Green, S., & Wirtamen, I. D. (1971). *Youth in transition volume III, dropping out -- problem or symptom?* Ann Arbor: MI.

found predicted dropping out of school in the first place. Returnees were slightly higher on his socio-economic scale and scored higher on three tests of general intellectual ability. These data suggest that dropping out may be seen as but one point on a continuum of educational attainment. Dropouts who fit the common profile of the dropout (that is, they have low motivation, low self esteem, and low SES), were more likely to stay out. Those dropouts who did not fit the dropout profile (they have somewhat higher motivation, higher self esteem, and higher SES) were more likely to return to school.

Borus and Carpenter[10] drew on the National Longitudinal Survey of Youth Labor Market Experience (NLS), a longitudinal study of youth ages 14 to 21 in 1979, conducted by the U.S. Department of Labor, to examine dropouts who returned to school. They found that older youth, and those unable to specify their curriculum field were less likely to return. They found that youths expecting to attend college and youths who were never married were more likely to return. Unfortunately, the Borus, et al. study did not control for many important intervening variables such as race and ability, nor did they examine the impact of in-school experiences on decisions to return or stay out.

Two studies used the second follow-up to the High School and Beyond Study of the Sophomore Class of 1980. Kolstad and Owings[11] found that Hispanic and black dropouts were less likely to finish high school than were majority white students, that dropouts from a family with below average socio-economic resources were less likely to finish than those from above average backgrounds, and that dropouts with poorer test scores were less likely to finish than those with better test scores. Kaufman[12] went beyond the basic descriptive techniques that Kolstad and Owings used in their study, using in addition multivariate

---

[10]Borus, M. E., Crowley, J.E., Rumberger, R.W., Santos, R., & Shapiro, D. (1979). *Findings of the national longitudinal survey of young Americans, 1979*. Youth Knowledge Report 2.7 Washington DC: Government Printing Office.

[11]Kolstad, A. and Owings, J. (1986) *Dropouts who change their minds about school*. Paper presented to the Annual Convention of the American Educational Research Association.

[12]Kaufman, P. (1988) *Dropouts who return to school*, Unpublished Dissertation Thesis, Department of Psychology, Claremont Graduate School.

analytical techniques with the same data. Kaufman examined differences in several social and psychological measures as well as in basic demographic measures between dropouts who had completed their education and dropouts who had not. Several factors discriminated between these groups: the students' SES, their expectations and aspirations of eventual educational attainment, their academic ability, the student's race, urbanicity of high school, and income. Furthermore, Kaufman found that the group of dropouts who returned to complete school were decidedly more like non-dropouts on almost all measures than were dropouts who did not complete. In fact, all three groups (the two dropout groups plus the group who completed on schedule) could be ordered on most measures, with non-dropouts scoring highest, returnee-completers next highest, then dropouts who did not complete.

Since no data were available to distinguish between dropouts who returned to school and received a regular diploma from those dropouts who received a GED, both the Kolstad and Owings study and the Kaufman study were unable to explore differences in mode of completing high school. New data from the 1986 Third Follow-Up survey now permit such exploration. The contribution of this paper is to examine differences between dropouts who return to school and earn their high school diploma and dropouts who return to school and earn a GED.

Data Source. This study uses data from the third follow-up to the High School and Beyond (HS&B) longitudinal study. The HS&B survey data pertaining to individual students were obtained mainly from student-completed questionnaires--which is to say, they are self-reported data. In addition, the data include students' scores on a special battery of aptitude and achievement tests. Apart from the test scores, the major data categories include personal and family background, educational experiences and accomplishments, behavior in the school setting, certain aspects of behavior outside the school, educational expectations and aspirations, and personal attitudes and opinions. A

full description of the study design and procedures is contained in the Data File Users Manual on the 1980 sophomore cohort .[13]

Several characteristics of the HS&B study had a direct bearing on this analysis. Among the key factors, of course, are the size and composition of the sample; but in addition, certain aspects of the sampling plan are relevant in interpreting the results. Only a few aspects of HS&B sampling are touched on here. The HS&B sampling plan is based on a two-stage design, in which a stratified probability sample of public and private high schools was drawn at the first stage and random samples of 36 sophomore students within each school were drawn at the second stage. The resulting baseline sophomore-cohort sample consisted of 30,030 students attending 1,015 high schools.

Tracking surveys have followed up these former sophomores every two years--1982, 1984, and 1986. The first follow-up was able to identify those sophomores in 1980 who had dropped out by 1982. By the second and third follow-ups in 1984 and 1986, some of the students identified as dropouts in 1982 had returned to earn a high school diploma or pass the GED for a high school equivalency certificate.

Because the HS&B study began in the spring of their sophomore year, HS&B data yield no information on students who would have been in the sophomore class of 1980 had they not dropped out prior to that time. Estimates based on other data sources indicate that the number of such early dropouts may be substantial. The inability of any HS&B study to cover these early dropouts is one of the most serious limitations of this project.

The 1982 HS&B transcript data include information on educational experiences not available from the student questionnaires, items that are useful for confirming dropout status, for determining the timing of dropping out, and for identifying students who

[13]Sebring, Penny, Barbara Campbell, Martin Glusberg, Bruce Spencer, and Melody Singleton. (1987). High School and Beyond 1980 Sophomore Cohort Third Follow-Up (1986) Data File User's Manual. Washington DC: U.S. Department of Education.

dropped out after the date of the first follow-up survey. In addition, the data permit dating when the dropping out event occurred.

Definition of dropping out and completion. The present study defined a dropout as anyone with a prolonged absence from school. The absence could have been detected in the survey data in several ways. If the former sophomores were no longer enrolled in high school at the time of the 1982 First Follow-Up survey; reported that they had dropped out for a while before transferring to another school; were shown by transcripts collected in the fall of 1982 not to have graduated in June; were shown by the transcripts to have been absent for at least a semester; or reported that they had not finished high school in the 1984 Second Follow-Up survey, the students were identified as dropouts. For our study, students took on the status of dropout if they had been identified as a dropout by meeting any of these criteria.

The present study defined graduation for former dropouts using their answers to a question in the 1986 Third Follow-up survey in which respondents told NCES how and when they had completed school (a regular diploma, returning after a period of being a dropout, or by passing the GED test). The answer required identifying oneself as a dropout, which did not always agree with our survey records as a dropout. About half of our high school graduates responded as if they had not dropped out, though their graduation dates were late and our records indicated that they had dropped out.

Descriptive results. The major finding of this study is that four out of nine dropouts (44 percent) in the High School and Beyond survey returned and either completed the requirements for a high school diploma or passed the test entitling them to a General Educational Development (GED) high school equivalency certificate by the time of the spring 1986 survey. This quantity represents an increase of six percentage points over the 38 percent who had returned and completed high school two years earlier. Among the

dropouts who returned, about a third completed a diploma and the remaining two-thirds passed the GED examination.

Several factors are related to the likelihood of completing high school. Table 1 shows the percentage of dropouts who completed high school as of 1986 (via diplomas, GEDs, or the two modes combined) as a function of several demographic factors. The table shows small male-female differences in high school completion in either mode (males 45.0 percent vs. females 43.4 percent). Hispanic dropouts were less likely to complete high school in either mode than blacks or whites (34.4 percent vs. 42.7 and 46.6 percent).

Table 1.-- Completion status in 1986 of dropouts from the sophomore class of 1980 by selected variables

Variable	Percent Graduated	Percent Passed GED	Total Percent Completed	Percent Did Not Complete	Number of cases
Sex					
Male	13.7	31.4	45.0	55.0	898
Female	13.4	30.0	43.4	56.6	819
Race					
White	13.5	33.1	46.6	53.4	1029
Black	17.8	24.9	42.7	57.3	289
Hispanic	7.2	27.2	34.4	65.6	319
Other race	16.7	26.7	43.4	56.6	80
Race by Sex					
Black					
Male	14.7	28.4	43.1	56.9	152
Female	20.7	21.6	42.3	57.7	137
White					
Male	13.8	32.3	46.1	53.9	530
Female	13.1	34.1	47.2	52.8	499
Hispanic					
Male	7.3	32.2	39.5	60.5	166
Female	7.1	19.7	26.8	73.2	153
Other race					
Male	24.4	25.9	50.2	49.8	50
Female	3.4	28.2	31.7	68.3	30

Table 1.-- (cont.)

Variable	Percent Graduated	Percent Passed GED	Total Percent Completed	Percent Did Not Complete	Number of cases
Postsecondary educational plans[1]					
None	9.7	23.4	33.2	66.8	1006
Voc/Tech	23.9	29.3	53.2	46.8	350
Lt 4Yr	12.4	56.8	69.2	30.8	176
BA/BS	17.8	53.6	71.4	28.6	102
Adv Deg	16.7	45.4	62.1	37.9	83
Grade dropped out of school					
Left HS in 10th	3.3	24.7	28.0	72.0	331
Left HS in 11th	8.4	34.0	42.4	57.6	752
Left HS in 12th	22.2	31.1	53.4	46.6	621
Had children before dropping out?					
No	15.7	31.2	46.8	53.2	894
Yes	10.9	30.1	41.1	58.9	823
Had children by male/female					
No					
Male	13.5	32.8	46.2	53.8	621
Female	20.3	27.8	48.1	51.9	273
Yes					
Male	14.2	28.1	42.3	57.7	277
Female	8.9	31.4	40.3	59.7	546

1. As of their senior year in high school

While there were no overall completion differences by sex, some sex differences appeared within black and Hispanic groups. Among Hispanics, young female dropouts were less likely to pass the GED test than young male dropouts (19.7 percent vs. 32.2 percent). Among blacks, female dropouts were more likely to earn a high school diploma than were male dropouts (20.7 percent vs. 14.7 percent).

Plans for further schooling are related to subsequently completing high school. The dropouts were asked about their plans for further schooling in the spring of 1982, about the time they and their classmates were due to graduate from high school. Those who reported no plans for further schooling (the majority of dropouts) were less likely to complete high school (33.2 percent), than those who planned to obtain vocational/technical training (53.2

percent), or those who planned to go obtain an associate or bachelors degree (about 70 percent).

The timing of dropping out also is related to later completion of high school. Among those who dropped out early in high school (in ninth or tenth grade), the proportion later completing was 28 percent, compared to 42 percent of those who dropped out in eleventh grade and 53 percent of those who left in twelfth grade.

The responsibility of children affects the educational paths of young male and female dropouts in different ways. Among young women, dropouts with children are less likely than those without to earn a high school diploma (8.9 percent vs. 20.3 percent), while among young men, dropouts with children are about equally likely as those without to earn a diploma (14.2 percent vs. 13.5 percent).

Dropping out and returning to school are decisions that can occur at any time. As time goes by during which dropouts can change their minds and complete high school, more and more do so. A survey that measures completion status at a single point in time has an inevitable arbitrariness in its reported percentages, since another survey might measure the same processes of completing high school after a different time interval. Unequal intervals then make comparable percentages impossible. A better method for describing and comparing the process of returning to complete high school, one that is independent of the timing of surveys, is to plot the proportion of dropouts who complete high school as a function of the time at which completion occurs.

Figures 1 and 2 plot the proportion of dropouts who completed high school as a function of age, based on the dates when the dropouts reported that they finished high school. The proportion of students completing high school is shown on the vertical axis of each plot, while the age of the students at graduation is shown on the horizontal axis. Because the number of dropouts who have not yet graduated and were not lost to sample

attrition shrinks over time, the precision of the estimates decreases to the right of the figure. The two columns of plots compare completion via diploma with completion via the GED test, while the three rows compare white, black, and Hispanic dropouts.[14]

Within Figure 1, male and female dropouts are shown separately. In general, the more detailed patterns shown in the plots reproduce the findings of the percentage table discussed above. For example, the plots show Hispanic dropouts less likely to complete high school in either mode than blacks or whites. However, some new patterns emerge from examining the timing of high school completion.

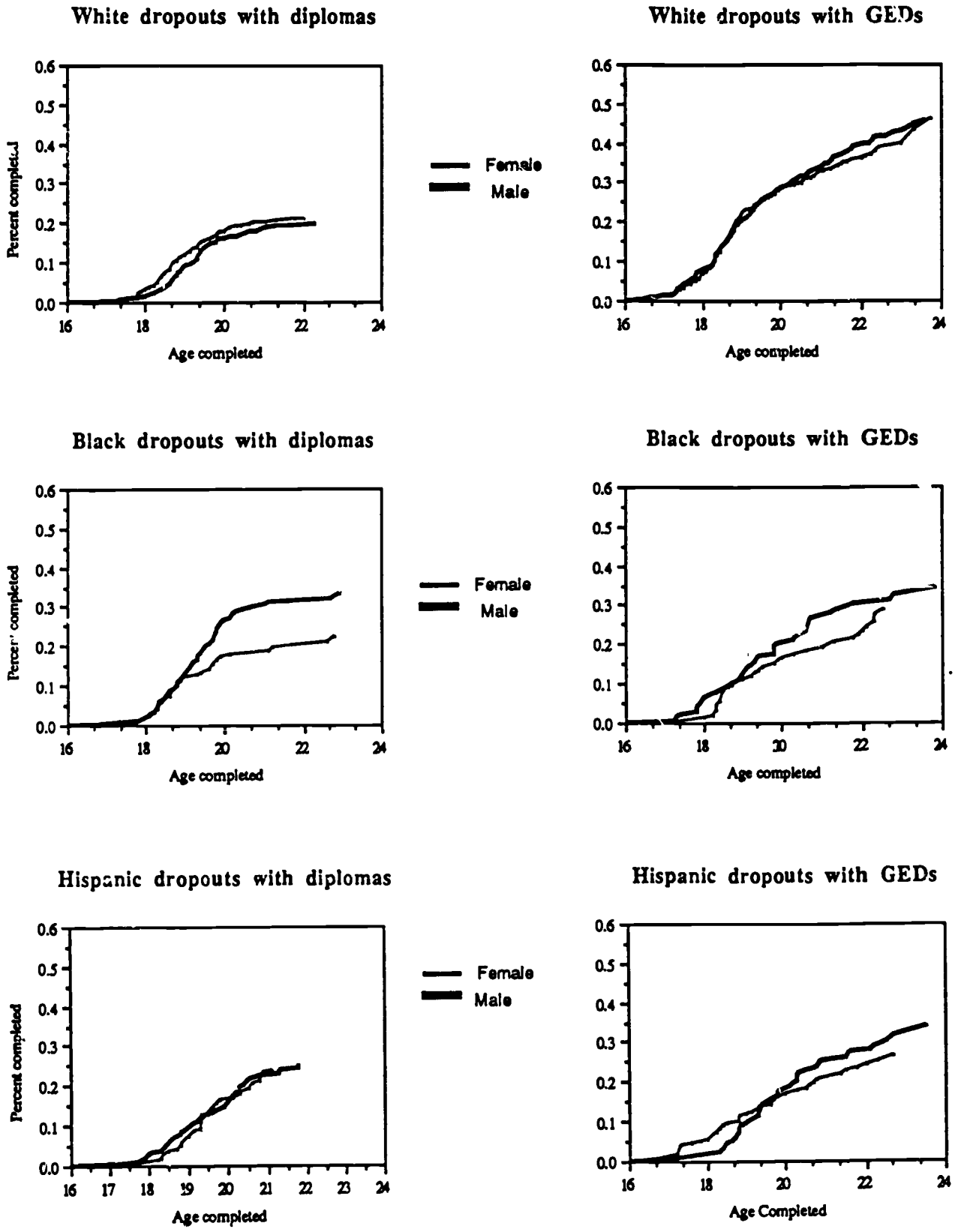
Among all three racial/ethnic groups, sex differences were small. Young men and young women followed very similar paths in earning a diploma or passing the GED test.

Among white dropouts, the difference between the two completion modes is quite striking. Up until age 20, attending high school or completing the GED are about equally prevalent. However, after age 20, earning a diploma slows down considerably, and those who complete high school tend to do so by passing the GED test, rather than by earning a diploma.

Among blacks, dropouts were more likely to earn high school diplomas than among whites and Hispanics. Black dropouts were less likely than white and Hispanic dropouts to pass the GED test. Like white dropouts, the population of black dropouts slows its rate of earning a high school diploma after age 20.

[14]The numbers plotted in the tables are preliminary results based on a SAS procedure that does not have an option for weighting survey data. We hope to recalculate these these results with appropriate weights at a later time. Further, the plotted quantities are a series of percentages based on smaller and smaller sample sizes, not the overall sample. For these reasons, we do not expect the results in the plots to correspond exactly with the percentages shown in Table 1.

Figure 1. -- Percentage of dropouts completing high school by earning a high school diploma or passing the GED, by sex



Among Hispanic dropouts, unlike the situation among blacks and whites, the pattern of a slowdown in earning a diploma after age 20 does not occur; the rate appears more constant.

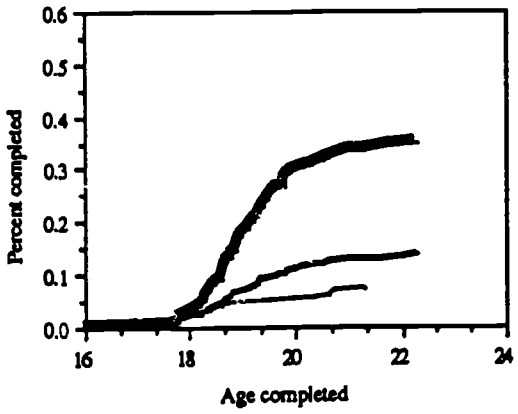
Figure 2 follows the same general plotting arrangement as Figure 1, in that the two columns of plots compare completion via diploma with completion via the GED test, while the three rows compare white, black, and Hispanic dropouts. The difference is that within each plot, the three groups shown are defined by the grade the dropouts left high school (only tenth, eleventh, and twelfth grades, because ninth grade dropouts would have been excluded from the HS&B sample).

Among all three racial/ethnic groups, the influence of when the dropouts left school remained persistent and substantial. Those who left high school in twelfth grade were much more likely than the others to earn a diploma. Those who left in twelfth grade were also more likely to complete high school by passing the GED test than the others, and those who left in eleventh grade were also more likely to to pass the GED test than those who left in tenth grade. The exceptions to this pattern (Blacks and Hispanics who earned diplomas) occurred where the sample size got small.

As in Table 1, white dropouts are much more likely than blacks or Hispanics to pass the GED exam. Looking closely at the white students who passed the GED, a very interesting pattern occurs on the left side of the plot. This is the only group in which any significant number of dropouts completed high school prior to age 18. Some white tenth graders passed the examination at age 16, and a fairly large group of white eleventh graders passed the examination at age 17. If we were to examine the subsequent educational paths of these two groups, we might find that calling them dropouts is a mistake. These may be students who bypass high school and pass the GED in order to enter college early.

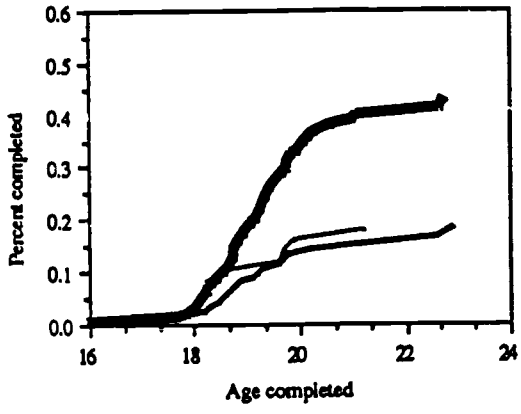
Figure 2. -- Percentage of dropouts completing high school by earning a high school diploma or passing the GED, by grade dropping out

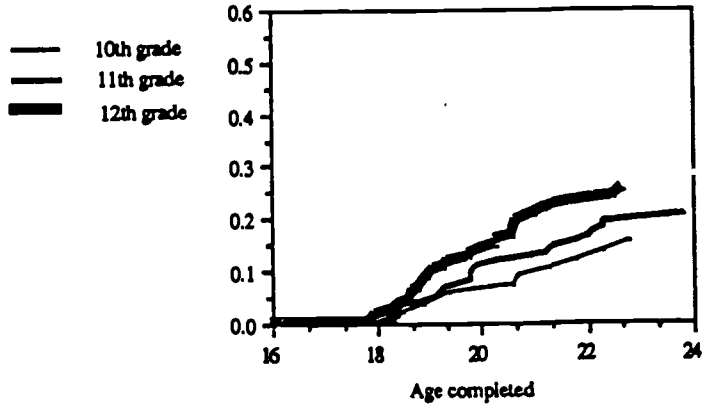
White dropouts with diplomas



White dropouts with GEDs

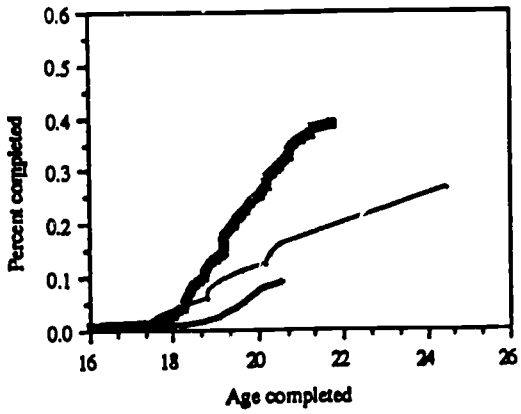
Black dropouts with diplomas

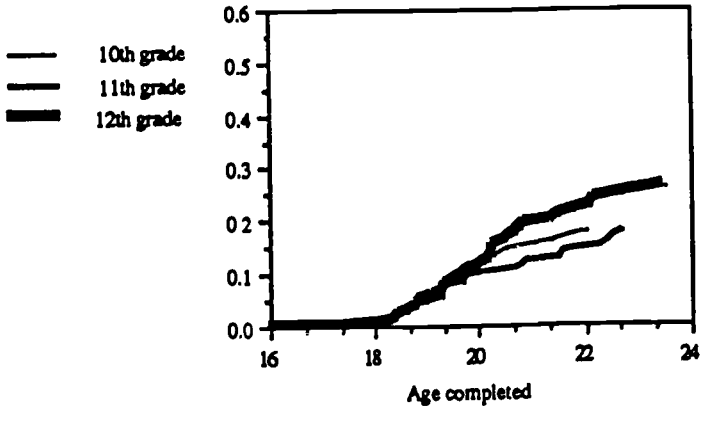




Black dropouts with GEDs

Hispanic dropouts with diplomas





Hispanic dropouts with GEDs

Multivariate Method. The survival curves in Figures 1 and 2 are very similar to cross-classifications, in that few factors can be held constant without running out of cases to analyze. Just as multiple regression methods can be used to hold constant the influences of other variables when analyzing a continuous variable, multivariate event-history methods can be used to hold constant the influences of other variables on survival curves. The goal of this approach is to estimate a multiple-regression equation in which the dependent variable is not the status of having completed high school at a particular point in time, but the rate of completing high school at any point in time. The advantage of this methodology is that completion status can then be projected for whatever arbitrary points in time are desired.[15]

To address the problem of net, or incremental, influences on completing high school, we have conducted a multivariate analysis, using the event-history methodology. The purpose of the multivariate analysis is to provide the means of controlling for other factors (and interactions among factors) while analyzing the marginal influence of each individual variable on returning and completing. The event-history method is presented in full detail in Tuma and Hannan,[16] and a less technical introduction is provided in Kolstad.[17] The event-history equations representing the effects of multiple factors on the rate of dropping out take the form:

$$r = e\,(a_1x_1 + a_2x_2 + \ldots a_nx_n),$$

where r is the time rate of completion (whether by getting a GED or a regular diploma), the x's are influences on completion, and the a's are the parameter values to be estimated. The

---

15

[16]Tuma, N. and Hanna, M. (1984). *Social Dynamics: Models and Methods*. San Francisco: Academic Press.

[17]Kolstad, A. (1982). *An Introduction to Event History Analysis*, Paper presented at the annual meeting of the American Research Association, New York City. Kolstad, A. (1986) "The educational enrollments of military veterans: evidence from a longitudinal study" unpublished paper, National Center for Education Statistics.

equations expressing the relationship between completing school and the background variables are usually estimated using maximum-likelihood procedures. In order to constrain the predicted function to be positive, as the model requires, a log-linear equation is estimated, but this functional form is not essential. We carried out our event-history estimations using the RATE computer program developed by Nancy Tuma and her associates at Stanford University, using the simplest form of the event-history model, in which the rate of completing high school is assumed to be time-invariant.

A function of the instantaneous rate of dropping out can generate a model of the cumulative probability curve like the ones shown in Figures 1 and 2. The estimated effects of the different factors on the instantaneous rate of completing school can then be transformed into estimates of effects on the probabilities of completing school. In this model, the cumulative probability, P, of completion as of time t is given by:

$$P = 1 - e^{-rt} = 1 - e^{-e(a_1x_1 + a_2x_2 + \ldots + a_nx_n)t}$$

It follows that the effect of a unit change in a particular independent variable, other things being equal, is to multiply the cumulative probability of completion by the factor e^a, or antilog(a), where a is the parameter value associated with the variable in question. The antilogs of a_1, a_2 are the relative, or proportionate, changes in probabilities of completion associated with unit changes in the corresponding explanatory variables. For example, if the parameter estimate associated with planning to go to college were .0957 the antilog of that estimate would be 2.474 ($e^{.0957} = 2.474$), which would signify that planning to go to college increases the probability of completion by a multiplicative factor of 2.474 or 174 percent. The corresponding test of statistical significance of a factor's influence on the probability of dropping out is whether the antilog of the parameter estimate is significantly different from a multiplier of unity. This is not equivalent to the usual test of whether the parameter estimate itself is significantly different from zero.

Multivariate Results. Tables 2, 3, and 4 present estimates of the simultaneous net influences of various factors on completing high school through 1) earning a diploma, 2) passing the GED examination, or 3) completing high school via either mode. The various factors we examined in each regression consisted of gender, race/ethnicity, educational plans, timing of dropping out, the presence of children, test scores, and socioeconomic status. The time variable in this equation is not age at graduation, but the length of time from dropping out of school until completing high school.

Table 2. -- Hazard-rate regression models for high school graduation

VARIABLE NAME	ANTILOG OF THE PARAMETER	ANTILOG STANDARD ERROR	ANTILOG F RATIO
Constant	0.00180		
Female	0.92480	0.1412	0.283
Black	1.04100	0.2580	0.025
Hispanic	0.67770	0.2193	2.161
Race Other	0.67760 *	0.2022	2.542
Female Black	1.45300	0.4562	0.984
Female Hispanic	0.97420	0.4987	0.003
Plan to go to college	1.72100 **	0.2964	5.912
Plan to go to voc/tech	2.22400 **	0.3292	13.820
Left in 10th grade	0.11250 **	0.0312	806.498
Left in 11th grade	0.30010 **	0.0441	251.914
Children	4.32800 **	0.7593	19.212
Test score (1st FU)	1.02400 **	0.0103	5.410
Test missing	1.10900	0.1947	0.316
SES	1.11000	0.1227	0.807
SES missing	0.88580	0.1529	0.558

Note: Number of cases= 1842, number of events = 215, R^2 for model = 0.0899
Note: ** = p < .01, * = p < .05

Table 3. -- Hazard-rate regression models for GED completion

VARIABLE NAME	ANTILOG OF THE PARAMETER	ANTILOG STANDARD ERROR	ANTILOG F RATIO
Constant	0.0006		
Female	1.2060 *	0.119300	2.979
Black	1.0600	0.175300	0.119
Hispanic	1.3320	0.236000	1.977
Race Other	0.6974 **	0.155400	3.790
Female Black	0.5453 **	0.133500	11.594
Female Hispanic	0.4779 **	0.138200	14.274
Plans to go to college	2.8000 **	0.275300	42.753
Plans to go to voc/tech	1.3470 **	0.153700	5.087
Left in 10th grade	0.6119 **	0.073540	27.849
Left in 11th grade	0.8333 **	0.076690	4.448
Children	5.7250 **	0.631900	55.894
Test score (1st FU)	1.0530 **	0.006402	68.580
Test missing	0.6656 **	0.088350	14.323
SES	1.2240 **	0.091770	5.938
SES missing	1.1470	0.115500	1.626

Note: Number of cases= 1842, number of events = 679, R^2 for model = 0.0779
Note: ** = p < .01, * = p < .05

Table 4. -- Hazard-rate regression models for high school graduation or GED completion

VARIABLE NAME	ANTILOG OF THE PARAMETER	ANTILOG STANDARD ERROR	ANTILOG F RATIO
Constant	0.00149		
Female	1.12000	0.09240	1.683
Black	1.08800	0.14880	0.349
Hispanic	1.11100	0.17170	0.417
Race Other	0.68370 **	0.12180	6.749
Female Black	0.78500	0.14670	2.147
Female Hispanic	0.57430 **	0.14430	8.707
Plans to go to college	2.47400 **	0.21010	49.208
Plans to go to voc/tech	1.64500 **	0.14660	19.363
Left in 10th grade	0.39660 **	0.04208	205.646
Left in 11th grade	0.60730 **	0.04586	73.340
Children	5.32600 **	0.49510	76.333
Test score (1st FU)	1.04600 **	0.00541	71.717
Test missing	0.78660 **	0.08252	6.687
SES	1.17000 **	0.07208	5.552
SES missing	1.06500	0.09199	0.499

Note: Number of cases= 1842, number of events = 894, R^2 for model = 0.0763
Note: ** = p < .01, * = p < .05

Since those who drop out early have a lot of work to catch up, they are likely to need more time to finish school. For earning a high school diploma, the parameter estimate shows that those who left in tenth grade graduate at a rate 60 percent slower, and those who left in eleventh grade 39 percent slower than the rate of those who left in twelfth grade. For those passing the GED test, the handicap is less severe. Those who left in tenth grade passed the GED test at a rate 39 percent slower, and those who left in eleventh grade 16 percent slower than the rate of those who left in twelfth grade.

As one would expect, the impact of test scores (taken while still in high school) and socioeconomic background (of their parents) are both large and significant. Those with higher scores and more resources are much more likely to complete high school. The importance of including these variables in the multivariate model is to ensure that the other variables to be examined have an independent influence, rather than reflecting the indirect impact of academic achievement or socioeconomic background.

As the educational attainment literature would lead us to expect, the impact of educational plans (assessed while still in high school) is also significant in each equation. Those who plan to attend college have more than double the rate of completing high school, and nearly triple the rate of passing the GED than those who plan no further education. Those who expect to get trained in a vocation or a technical career also have a higher rate of high school completion, though the difference is not as large.

The net impact of becoming a parent is surprising. Table 1 above showed an overall pattern of parenting holding dropouts back from completing school. Tables 2, 3, and 4 show the net impact of parenting, holding constant such factors as test scores, race/ethnicity, gender, and socioeconomic background. The net effect is quite large and significant in the other direction: those who are parents have about five times the rate of completing high school as non-parents.

The net impact of racial/ethnic background is assessed in Table 2 using a set of dummy variables in which the comparison group left out is white males. The net effect of being black and Hispanic, after controlling for the impact of differences in resources and ability, is negligible. The net effect of gender is small, but significant for passing the GED test, but not for high school graduation. Young female dropouts have a rate of passing the test that is about 20 percent higher than that of young men. Females who are also black have a rate of passing the GED test that is 45 percent lower than white men and 35 percent lower than white women (one minus 1.2 times .55). Females who are also Hispanic have a similar rate of passing the GED test that is 52 percent lower than white men and 42 percent lower than white women (one minus 1.2 times .48).

Discussion. While much research has studied high school dropouts, considerably less has been conducted about dropouts who return to school. The results presented here show that a majority of dropouts who eventually complete high school do so by taking an equivalency exam such as the GED. We have shown that those who receive GED certificates are different from dropouts who receive regular diplomas, for example, dropouts who left school late in their high school careers and who planned to go on to college much more likely to complete than were other dropouts.

The results presented here indicate that when dropouts don't fit the mold of being teenaged youth, either through spending too much time out of school, either working or unemployed, or through having children of their own, they tend not to return to the youth-oriented environment of high school. In this sense a high school diploma represents a students successful passage through an institution as well as an educational attainment. Those students who have made transitions into adult work or family roles are less likely to succeed in the in the school environment. The GED testing program recognizes adult learning modes and may well be more flexible and appropriate for those who have already taken on the adult roles of breadwinner and parent or who are less able to deal with the

institutional aspects of high school. The GED gives these students an alternative, non-school route to demonstrate their attainment of the educational goals of high school. Indeed, a major component of most dropout recovery programs is preparation for taking the GED test.[18]

This study also points out the great diversity of the population of students labeled dropouts. The experience of dropping out is different for different groups of students. In fact, some of these students who completed high school through passing the GED may not have been dropouts at all but could be called "early outs" - taking the GED as a way to legitimately leaving school.

The value of a GED certificate has lately been questioned. Many states are now considering requiring a minimum number of high school credits in addition to passage of the GED before they issue students an equivalency certificate. Several studies have shown that GED recipients do not perform as well as in the job market or postsecondary educational institutions as do holders of regular high school diplomas.[19] However, these studies have generally not compared GED recipients with holders of high school diplomas of like ability, racial/ethnic background, or socio-economic status. Much more research needs to be done before any valid conclusions can be draw about the relative worth of a GED over a regular high school diploma for specific student subpopulations. Given the number and proportion of students taking and passing the GED each year, these studies are overdue.[20]

---

[18]U.S. General Accounting Office, (1987). School Dropouts: Survey of Local Programs, GAO/HRD-87-108. Washington DC.

[19]Passmore, D.L. (1987). Employment of young GED recipients (research Brief No. 14) Washington D.C. GED Testing Service of the American council on Education; Tugend, A.(1986, May 7) College study: GED students failing. Education Week, pp.1,10.; Quin, L. and Haberman, M. (1987) Are GED certificate holders ready for postsecondary education?. Metropolitan Education. 73-81.

[20]Work is now under way within the U.S. Department of Education's Office of Research with the HS&B dataset looking at the economic consequences of receiving a GED.