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What's a Dropout to Do?
Coping with the Deterioration of the Low-Skilled Labor Market[1]

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Abstract

We use data from the National Longitudinal Survey of Young Men (NLS-YM) and the National Longitudinal Survey of Youth (NLSY-79) to examine the labor market and post-dropout educational attainment of high school dropouts between the late 1960s and the early 1990s. The evidence is clear that high school dropouts in the 1980s and 1990s fared far worse in the labor market than did dropouts in the 1960s and 1970s. Perhaps as a consequence, dropouts in the later cohort returned to school at a higher rate than did dropouts in the earlier cohort. In fact, these patterns are interrelated. We find that the likelihood that an individual dropout returns to school is related to his recent labor market experience. Dropouts with stable employment histories are less likely to return to school than those who experience unemployment.

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1 Introduction

In the immediate post-War era, it was possible for young men without a high school diploma to pursue stable careers with reasonable earnings potential, perhaps in blue-collar unionized jobs. Changes in the US labor market over the past twenty-five years have made steady employment in "good" jobs more difficult for high school dropouts.[1] Nonetheless, it remains the case that substantial numbers of young Americans leave school before completing their secondary education.[2]

In this study, we document the deterioration in labor market outcomes for high school dropouts between the late 1960s and the early 1990s, and we explore the labor market strategies used by dropouts over this period. In particular, we measure the extent to which more recent cohorts of dropouts responded to worsening employment opportunities by investing in more education.

Our analysis relies on data from two longitudinal surveys, the National Longitudinal Survey of Young Men (NLS-YM) and the National Longitudinal Survey of Youth (NLSY-79). The NLS-YM contains data on young men, ages 14 to 24 in 1966, covering the years between 1966 and 1981. The NLSY-79 follows young men, ages 14 to 21 in 1979, for sixteen years, starting in 1979. These two cohorts are well timed to capture the effects of the changing labor market for less-skilled workers on the employment and schooling decisions of dropouts.

We find that dropouts in the later cohort, not surprisingly, work less and are unemployed more than dropouts in the earlier group. In response, it appears that dropouts in the 1980s

[1] The well-known widening of the earnings distribution between the late 1970s and early 1990s largely reflects a dramatic deterioration in earnings and employment opportunities for the least skilled. Hardest hit were workers who had not completed high school. Workers with less than 12 years of education earned about 26 percent less in real terms in 1996 than similarly educated workers earned in 1976. In contrast, the real earnings of workers with at least four years of college fell by only about 4 percent over the same period. These figures are based on our tabulations of the May 1976 CPS and the Merged Outgoing Rotation Group CPS for 1996. Earnings are deflated by the CPI. For detailed evidence of the widening wage gap by skill level see also Levy and Murnane (1992) and Brauer and Hickok (1995).

[2] Data from October 2000 show that 10.9 percent of the 34.6 million Americans between the ages of 16 and 24 had not completed a high school degree. Over the past thirty years, the dropout rate has slowly declined from roughly 15 percent to the current 10.9 percent. See the National Center for Education Statistics web page at *http://nces.ed.gov/ssbr/pages/dropout.asp.*

and 1990s also return to school at higher rates than do dropouts in the 1960s and 1970s. We then examine the relationship between individual workers' decisions to return to school and their recent experience in the labor market. We find clear evidence that there is a direct link between recent employment experience and the decision to return to school, which is consistent with a standard human capital investment model.

In the next section, we describe the two surveys and present our definition of high school dropouts. In section 3 we compare dropouts' work histories in the two time periods. In section 4, we develop a duration model of the dropout's decision to return to school, and we use this model to examine the relationship between a dropout's own experience in the labor market and his likelihood of reenrolling in school. We conclude in Section 5.

2 Data and Definitions

A standard static definition of a high school dropout is someone who left school in a given time period without completing the program.[3] This measures the flow of individuals out of school prior to completion, but it provides no information on subsequent reentry. Dropouts often return to school. Using data from the NLSY-79, Chuang (1997) found that 45 percent of young people who left high school before completing the 12th grade returned to school in the next seven years. This implies that a more dynamic measure of dropout status is necessary.

We consider two definitions of high school dropouts: the first includes all individuals who left school at age 16 or later without completing their high school degree and the second, a subset of the first, includes only those who have not completed high school by the age of 20. For ease of discussion, we call the first category initial dropouts and the second long-term dropouts. All long-term dropouts are also initial dropouts. Those initial dropouts who return to school and complete their degree by the age of 20 are not long-term dropouts.

[3] The National Center for Education Statistics defines dropouts between any pair of adjacent years as "15- through 24-year olds who were enrolled in high school [in a given year], but had not completed high school and were not enrolled in grades 10-12 a year later." (Kaufman, Alt, and Chapman; 2000). In his survey of the different extant measures of high school dropout status, Kominski (1990) advocates using a dynamic dropout rate based on reported annual enrollment rather than a more static measure of the "dropout pool."

Long-term dropouts may have returned to school, but they cannot have completed their degree before they reach age 20.

As initial dropouts mature, some will return to school relatively quickly and not "qualify" for long-term dropout status. How those who become long-term dropouts fare in the labor market and their ultimate schooling decisions are the central focus of our analysis. The emphasis on long-term dropouts is twofold. First, we are concerned with those dropouts who make their transition to financial independence and adulthood as high school dropouts. Given that some initial dropouts return to school within a few months or years, and thus make this transition as high school graduates, we will focus primarily on the category of long-term dropouts. Second, data limitations make it impossible to study a large number of initial dropouts. This is because initial dropouts must be observed from age 16 onward, yet the majority of individuals in both the NLS-YM and the NLSY-79 are older than 16 when first observed. Long-term dropouts, on the other hand, must be observed from age 20 onward, and the majority of individuals in both the NLS-YM and the NLSY-79 *are* observed before they reach this age. Thus, our sample of long-term dropouts is considerably larger than our sample of initial dropouts.

In both groups, we look only at men, because young women leave and return to school for very different reasons, often relating to pregnancy and family obligations.[4] In constructing our samples of initial dropouts, we dropped all respondents who entered the survey after the age of 16 (17-24 in the NLS-YM and 17-21 in the NLSY-79). The remaining samples of men who entered the relevant survey by age 16 include 1,904 men (414 initial dropouts) in the NLS-YM and 2,092 men (531 initial dropouts) in the NLSY-79. In constructing our samples of long-term dropouts, we dropped all respondents who entered the survey after the age of 20 (21-24 in the NLS-YM and 21 in the NLSY-79). Our samples of men who entered the relevant survey by age 20 includes 3,788 men (471 long-term dropouts) in the

[4] Evidence from the NLSY and from the High School and Beyond survey suggest that women are more likely to drop out of high school because of pregnancy or marriage, whereas men are more likely to leave to join the labor force. See Ekstrom, et al (1986) and Rumberger (1983). While, as Pirog and Magee (1997) point out, teenage parenthood affects the high school completion rates of both young fathers and young mothers, this in no way diminishes the fact that the primary reasons for leaving school differs substantially between the genders.

NLS-YM and 4,979 men (1002 long-term dropouts) in the NLSY-79.[5] Both surveys include an over-sample of ethnic and racial minorities, and our analyses are weighted to account for differential sampling probabilities.[6]

Ideally, we would observe continuous work and schooling histories for all individuals in the sample. However, histories for some respondents are incomplete. The reasons for this include death, institutionalization, refusal to answer the survey, and moving so as to be untraceable (in the NLS-YM respondents are also treated as missing during times of military service, which we handle separately). We include observations on individuals up to the first point of interruption. For example, if a young man refuses to participate in the survey in 1971 after five years of participation, we use his information up to the year before he first leaves the survey. Though it encompasses a number of distinct activities, we treat this pattern as a whole as attrition from the survey (even though some of the respondents later rejoin the pool).

For the earlier survey, which corresponded with the years of the Vietnam war, military service is a large reason for missing information. For fear of losing the histories of a whole class of enlisted dropouts, we decide to consider attrition due to military service in two ways. First, we create a sample in which military service is treated like all other attrition, such that observations are dropped from the point a dropout enters the military. We also design a second sample which retains respondents even after they join the service and tracks the years of entrance and exit. In this way, we can preserve the work history both before and after the time in the military. We assume that civilian work experience is zero in years spent in the service. Time spent in the military does not disrupt labor market histories in the NLSY-79; men are surveyed even while in active duty. For the sake of comparison, we treat

[5] We did not use data from the military subsample in the NLSY-79, and there was no such sample in the NLS-YM. At times, military service has been an avenue of advancement open to high school dropouts. However, in 1982, the Armed Forces changed its policy toward admitting high school dropouts, first preventing any dropouts from enlisting and then allowing only those dropouts with high Armed Forces Qualifying Test (AFQT) scores to join. See Cameron and Heckman (1993) for more details on the army's changing standards.

[6] In the NLS-YM, the sampling ratio is three times higher for blacks than for whites. The NLSY-79 includes a supplemental sample of blacks, Hispanics and economically disadvantaged whites (5295 respondents of the total 12686).

Table 1. Summary Statistics: Initial and Long-Term Dropouts, by Survey
At First Dropout Observation
Means and Standard Deviations

Variable	Initial NLS-YM	Initial NLSY-79	Long-Term NLS-YM	Long-Term NLSY-79
Age	17.365	18.202	21.066	21.048
	(1.545)	(1.265)	(0.402)	(0.388)
Black	0.264	0.180	0.245	0.193
	(0.441)	(0.384)	(0.430)	(0.395)
Married	0.089	0.077	0.511	0.266
	(0.285)	(0.268)	(0.500)	(0.442)
Mother's Ed	8.854	10.115	8.597	9.846
	(2.926)	(2.894)	(3.155)	(2.803)
Father's Ed	8.036	9.850	7.602	9.398
	(3.640)	(3.256)	(3.227)	(3.370)
AFQT	—	17.879	—	20.571
		(17.036)		(19.876)
KWW	26.155	—	28.685	—
	(7.547)		(8.172)	
Library Card in	0.494	0.622	0.453	0.573
Home, Age 14	(0.501)	(0.485)	(0.498)	(0.495)
Ever Return	0.219	0.241	0.122	0.230
to School	(0.414)	(0.428)	(0.328)	(0.421)
Ever Serve	0.279	0.053	0.082	0.047
in Military	(0.449)	(0.225)	(0.274)	(0.211)
Number of Dropouts	414	531	471	1002

Note: See text for definitions of initial and long-term dropouts. The sample sizes for the family background variables is smaller than that listed due to missing data. The statistics are weighted using the sample weights provided in the survey.

both surveys in a similar fashion, creating two parallel samples.

Here we should note another complication with the earlier survey (NLS-YM). Of the sixteen year span of the study (1966-1981), the survey is not administered in four years: 1972, 1974, 1977 and 1979. We created observations for these years based on a series of retroactive questions asked in the interview directly following the skipped years. For instance, while the respondent was usually asked about his work experience during the previous calendar year, in the interviews following a skipped year, he was asked about his work experience since the last interview. We also used information about the month and year of last enrollment to construct complete enrollment histories.

Our sample of initial dropouts consists of 414 men from the NLS-YM and 531 men from the NLSY-79. Our sample of long-term dropouts consists of 471 men from the NLS-YM and 1002 men from the NLSY-79. Table 1 contains weighted summary statistics describing these individuals, including some family background measures. Consistent with our definitions, the initial dropouts are younger than the long-term dropouts. The samples of dropouts are disproportionately black relative to the population as a whole. The family background measures are included as they will be used in the model of the return-to-school decision. The AFQT measures the score on the Armed Forces Qualifying Test, available only in the NLSY-79. The KWW measures the score on the Knowledge of the World of Work test, available only in the NLS-YM. Initial dropouts in the NLS-YM were much more likely to have served in the military than were initial dropouts in the NLSY-79, probably reflecting the Vietnam-era draft and the higher educational standards for military service in place subsequently. The difference is less dramatic among long-term dropouts.

The term "dropout," as defined by either of our definitions, does not reflect final educational position. Among initial dropouts in either sample, 20 to 25 percent returned to school at some point. Among long-term dropouts, there is a substantial difference across the surveys, with long-term dropouts in the NLSY-79 nearly twice as likely to return to school at some point than long-term dropouts in the NLS-YM (23 percent vs. 12.2 percent, p-value of difference < 0.0005).[7] This difference among long-term dropouts will be the focus of our analysis of the decision to return to school.

Table 2 presents tabulations of eventual educational attainment of the dropouts in the NLS-YM and NLSY-79 samples. In the NLS-YM, 29 percent of initial dropouts and 21 percent of long-term dropouts eventually graduate from high school, earning either a diploma or a General Equivalency Degree (GED). In the later survey, 30 percent of initial dropouts and 28 percent of long-term dropouts eventually earn either a diploma or a General Equivalency Degree (GED).

Table 2 also includes the eventual school attainment of high school graduates in this time period. While it may seem surprising that educational attainment, as measured by average

[7] These differences are weighted to account for the poverty over-samples in both surveys and do not reflect the raw return rates in the data.

Table 2. Distribution of Eventual Schooling Attainment for Dropouts
NLS-YM and NLSY-79

	Eventual Status				
Initial Status	Dropout	Grad HS or GED	Some College	Graduate College	Average Grade
Initial Dropouts					
NLS-YM	0.712	0.244	0.040	0.005	9.65
NLSY-79	0.695	0.274	0.031	0.000	10.41
Difference:	-0.016	0.045*	0.001	0.005*	0.12*
Long-Term dropouts					
NLS-YM	0.794	0.175	0.030	0.0	9.71
NLSY-79	0.724	0.240	0.036	0.0	10.33
Difference:	-0.070*	0.064*	0.005	0.0	0.63*
High School Grads					
NLS-YM	0.0	0.297	0.298	0.405	14.18
NLSY-79	0.0	0.474	0.248	0.278	13.81
Difference:	0.0	0.177*	-0.050*	-0.127*	-0.56*

Note: Differences between the two surveys that are significant at the 5% level are marked with an asterisk. See text for definitions of initial and long-term dropouts.

grade completed, is higher in the earlier survey than in the later, these results are consistent with Census data. Although the attainment of college degrees for the male population as a whole has been monotonically increasing through the 1970s and 80s, for men ages 25 through 29 the percentage of the population holding college degrees peaked in 1975.[8] Given that educational attainment for the graduate category is lower in the NLSY-79 than in the NLS-YM, it is even more striking that the reverse is true for the dropouts. This disparity suggests that the higher level of educational achievement shown by the dropouts in the NLSY-79 cannot be attributed to a general increase in educational attainment.

The GED has become more prevalent in recent years. Cameron and Heckman (1993) measure GED attainment rates among all individuals with high school level credentials. They report that in 1966, the first survey year of the NLS-YM, only two percent of persons with only high school credentials had a GED, while, by 1979, the first year of the NLSY-

[8] See Blackburn, Bloom and Freeman (1990).For complete data, see the census Web site: http://www.census.gov/population/socdemo/education/tablea- 02.txt.

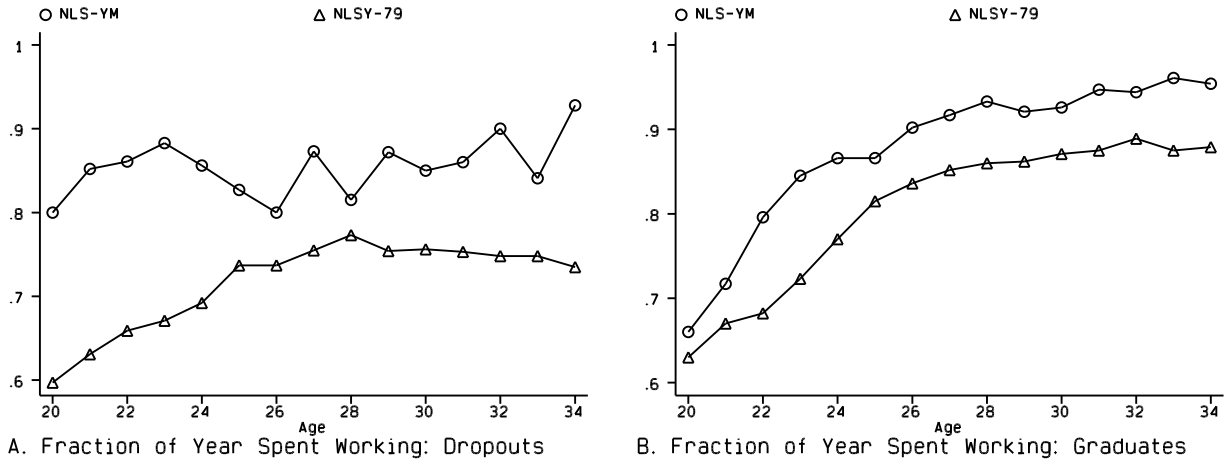

Figure 1: Fraction of Year Working, by Survey and Age

79, that number had increased to six percent.[9] While it would be interesting to measure GED receipt among dropouts in both surveys, the NLS-YM does not contain information that allows us to differentiate between a regular diploma and a GED. However, data from the NLSY-79 suggest that very few of the dropouts who are reported as having received a high school level education received an actual high school degree. Only 20 percent of those dropouts who eventually receive high school credentials in the NLSY-79 do so through traditional means; the remaining 80 percent receive a GED. It may be that the higher level of permanent educational attainment among dropouts in the NLSY-79 is that GEDs became more easily available. We consider GED attainment as an alternative to returning to school in our analysis of the NLSY-79 in section 4.3.

3 Labor Market Outcomes for Dropouts

In this section we present data on the employment and unemployment experience of long-term dropouts ("dropouts") and individuals with at least a high school education ("graduates") in the NLS-YM and the NLSY-79.[10] Figure 1 contains plots by age of the fraction of

[9] To the extent that shifts in overall GED attainment are driven by changes among younger workers, the difference between the NLS-YM and the NLSY-79 is larger than in the population as a whole.

[10] Statistics on the employment and unemployment experience of initial dropouts are contained in Appendix Tables 1 and 2.

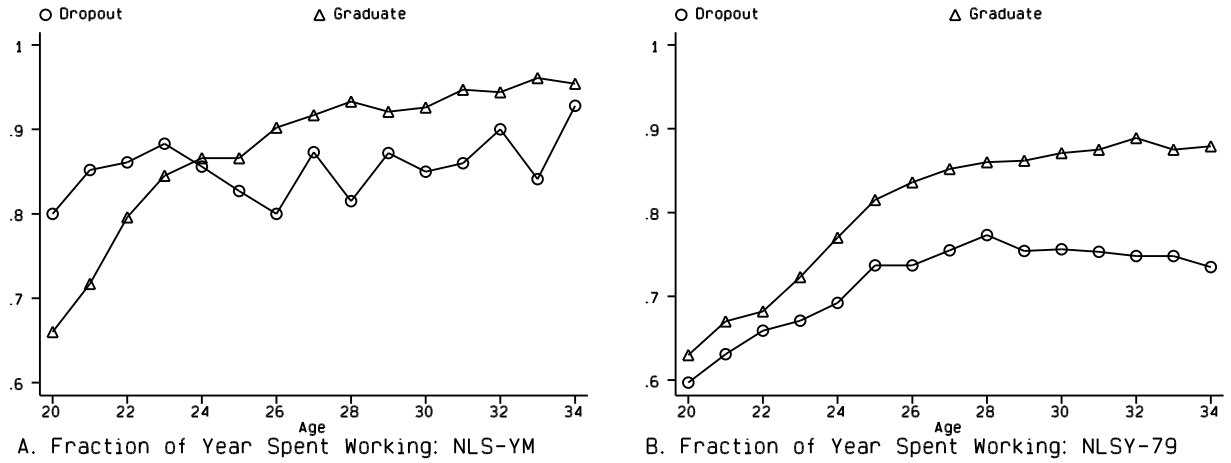

Figure 2: Fraction of Year Working, by Dropout Status and Age

the year spent working (the "working rate") by dropouts and high school graduates in each cohort.[11] Panel A contains plots of the working rate for dropouts in each survey. There was a substantial shift in labor market attachment between the earlier cohort (late 1960s and 1970s) and the later cohort (1980s and 1990s). Dropouts in the earlier period had average working rates of 80 percent or greater at every age between 20 and 34, while dropouts in the later period had lower average working rates at every age. The decline in age-specific working rates was particularly large at younger ages. The decline was over 20 percentage points for ages 20-23 and fell to about 10 percentage points for older workers.

Panel B contains analogous plots of the working rate for high school graduates in each cohort. Like the plots for dropouts, the working rate is lower for the later cohort. However, the decline for graduates is substantially smaller (generally between 5 and 10 percentage points) than that for dropouts and shows no particular pattern by age.

Figure 2 present the same information organized differently. Panel A contains the working rate for dropouts and graduates in the NLS and panel B contains the same plots for the two groups in the NLSY. If we think of the difference in working rates between graduates and dropouts as representing part of the value of additional education, it is clear that the value has increased. In the NLS, dropouts actually had *higher* working rates than graduates before age 24, and the advantage of being a graduate was relatively small into the worker's late

[11] The data underlying figures 1 and 2 are contained in Appendix Table 1.

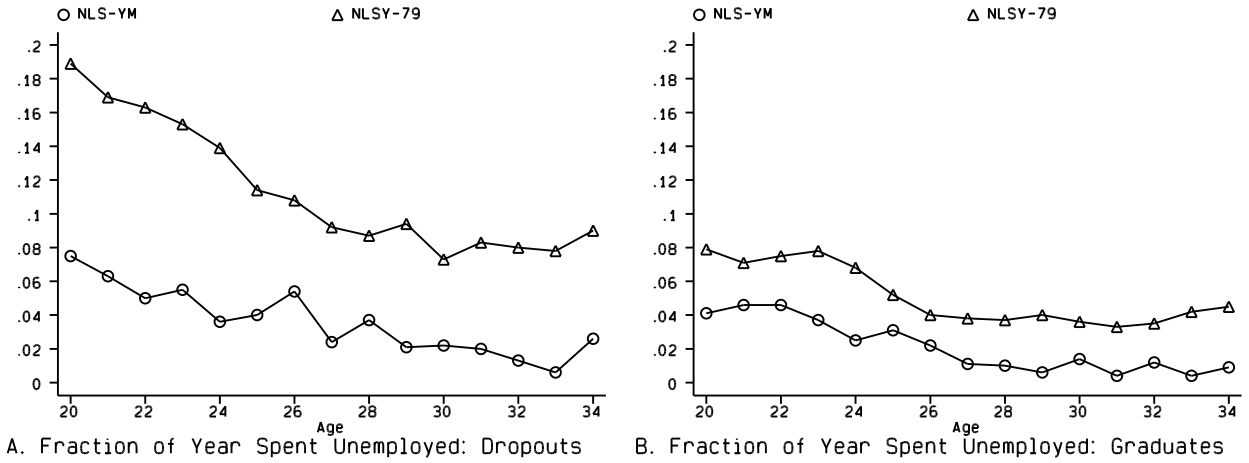

Figure 3: Fraction of Year Unemployed, by Survey and Age

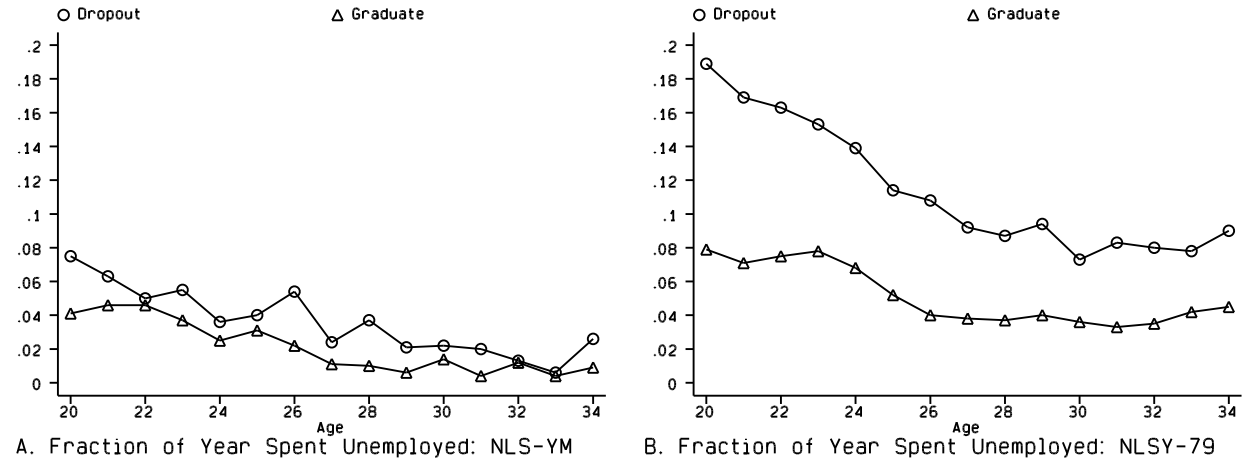

Figure 4: Fraction of Year Unemployed, by Dropout Status, and Age

20s and early 30s (generally less than 10 percentage points). The NLSY shows a different pattern, with the gap in the working rate between graduates and dropouts increasing with age from about 3 percentage points at age 20 to about 14 percentage points at age 34.

Figure 3 contains corresponding plots for the fraction of each year spent unemployed.[12] We call this fraction the "unemployment rate," although this is certainly not the common definition of this term. As before, Panels A and B compare dropouts and graduates respectively in each cohort. In both cases, men in the later period experienced higher unemployment rates at every age. However, the gap in unemployment rates between the two time periods

[12] The data underlying figures 3 and 4 are contained in Appendix Table 2.

was much wider among dropouts, especially at early ages. For dropouts, there is a gap of nearly 10 percentage points by cohort until the age of 26, whereas graduates have a much smaller gap of 3 to 4 percent.

Figure 4 contains the the same information as figure 3 organized within surveys (as in figure 2). It is clear that there were minimal differences in unemployment rates between dropouts and graduates in the earlier cohort at all ages. In contrast, large disparities in unemployment rates existed in the later cohort, with a gap of 10 percentage points in the early twenties, which halves, but never closes, by the late twenties and early thirties.

Together, figures 1–4 provide a basic understanding of the labor market experience of high school dropouts over the past thirty years. In the 1960s and 1970s, dropouts had a steady working rate (between 80 and 85 percent of the year), accompanied by relatively low unemployment. By the 1980s and 1990s, the pattern was very different. Dropouts begin their twenties working only 60 percent of the year and, over the next ten years, are never employed more than 75 percent of the year. Additionally, they suffer substantial unemployment throughout.

4 Returning to School

As we noted in our discussion of table 1, dropouts from the NLSY-79 return to school at more than twice the rate as those in the NLS-YM. Among long-term dropouts in our samples, the return rates were 12 percent in the NLS-YM and 23 percent in the NLSY-79.[13]

One way to model a dropout's decision to return to school is to compare the costs and benefits of acquiring further education. The costs consist largely of foregone earnings during the period of schooling, and the benefits are largely in the form of higher wages and enhanced employment prospects. This model suggests a ready explanation for the increased return-to-school rate between the 1960s and 1980s. It is well known that the return to education increased substantially during the 1980s (e.g., Katz and Murphy, 1992). This increase reflected a substantial decline in the real earnings of the least educated while the

[13] In contrast to the statistics reported in table 1, in this section we use unweighted return rates.

real earnings of workers with more education remained roughly constant. It is also the case that the employment rate of the least educated declined over this period. Whatever the cause of these shifts in the earnings and employment structures, it seems clear that the benefit to dropouts of returning to school increased. Additionally, since an important component of the cost of returning to school is foregone earnings, the costs to dropouts of returning declined with the employment rate. Put simply, it might be that a better strategy for many dropouts in the 1960s was to find stable employment and a career. The structural changes in the 1980s might have made it more difficult to find stable employment so that returning to school became the optimal strategy for more workers.

The previous literature on dropouts' decisions to return to school is very slim. In one of the few studies of this topic, Chuang (1997) examined the effect of family background, local labor market conditions, and activities during the dropout period on the decision to return to school. His hypothesis was that the same factors that cause a student to drop out would also have an (inverse) relationship on a dropout's decision to return to school. However, he did not find a strong connection between reenrolling in school and a dropout's family background or the activities in which dropouts engage during their out-of-school period – including childbirth, marriage, and employment. Characteristics that did play an important explanatory role were race, with blacks more likely to return to school than non-blacks, and AFQT score.

Although Chuang used data from the NLSY-79, he did not fully exploit its longitudinal nature. To determine the effect of poor labor market conditions on the decision to return to school, he used the local unemployment rate of the region in which the dropout lived. Our approach is to use the the dropout's own recent employment history. The weaker a dropout's attachment to the labor market, the less costly is returning to school in terms of foregone wages. Thus, it is precisely those dropouts who are not doing well in the labor market who will have the lowest costs associated with reenrollment and who will be more likely to reenroll.

To the extent that workers with poor employment histories are inherently less able or motivated, we face a potential omitted variable problem. Ordinarily, we expect that less able individuals invest less in schooling. In this case, our estimates of the effect of recent

labor force experience on the probability of returning to school will be biased upward; i.e., more able individuals with steadier employment will also be more likely to return to school. Note that this bias will work against our hypothesis that dropouts with spotty employment histories are more likely to return to school because of the lower cost of education in terms of foregone earnings.

4.1 Statistical Model and Data

We model the reenrollment decision using a simple duration model.[14] The hazard of reenrolling is specified to be a function of demographic and family background variables as well as measures of recent experience in the labor market. The latter is meant to capture the opportunity cost of returning to school, so that workers with favorable recent experience are expected to be less likely to return to school. We use two variables to capture recent experience: 1) the fraction of the prior year employed and 2) the fraction of the prior year unemployed.

We define a duration of time spent out of school for each dropout. For an initial dropout, this duration begins in the year that he drops out of high school. From that time onward, he is 'at risk' of returning to school. For long-term dropouts, the duration begins in the year that the dropout turns 20. Note that a great deal of selection has already taken place by this point. Chuang reports that a large percentage of high school dropouts reenroll one or two years after leaving school; these temporary dropouts are not included in the sample of long-term dropouts.

For both types of dropout, the duration of non-enrollment ends in the year that the respondent reported enrollment of any kind. While the NLSY-79 includes month-by-month reports of enrollment, the NLS-YM only record schooling activity on an annual basis. In order to compare the re-enrollment rates across the two surveys, we use a common annual

[14] We measure reenrollment using responses to questions about current enrollment patterns and to a retrospective question that asks when respondents were 'last enrolled in school.' Because information on reenrollment is self-reported, it is possible that some respondents who received a GED recorded a year of enrollment in that year. We therefore cross-checked the years of reported reenrollment against the years of GED attainment in the NLSY-79, counting only enrollment not associated with attaining a GED as 'returning to school.' There is no information on GED attainment in the NLS-YM, but the incidence of GED attainment was much lower in the 1970s than it was in the 1980s (Cameron and Heckman, 1993).

time scale.[15] We do not constrain the model to include only reenrollment that results in an advance of grade (or a graduation from high school) but instead treat any return to school comparably.

Applying these rules identifies 414 spells of non-enrollment (durations) in the NLS-YM and 531 in the NLSY-79 for the initial dropouts, and 471 and 1002 respectively for the long-term dropouts. A spell of non-enrollment can either be successfully completed or it can be censored. A duration is completed if it ends with an observed return to school. If the dropout does not return to school while he is in the survey, the duration is censored at the date of last observation. The existence of this right censoring is handled directly in the econometric specification.

The duration of time spent out of school cannot be easily placed in continuous time. A dropout is not presented with the opportunity to return to school every day. Academic and vocational high schools usually begin in September. Even if a dropout were to return mid-year, his potential starting points are limited to a few particular days (beginnings of academic quarters). Thus, it makes more sense to model the duration of time spent out of school as a discrete process with annual observations on the hazard. In addition, the nature of the data on enrollment patterns in the NLS-YM and NLSY-79 conforms to such an annual approach.

We use a standard discrete choice framework to estimate the hazard model with annual data indicating whether or not the spell of non-enrollment ended. Each year of non-enrollment for an individual generates an observation. The outcome is either zero (if the individual does not re-enroll in that year) or one (if the individual does re-enroll that year). A reduced form specification for the net benefit of returning to school for individual i in year t is

$$Y_{it} = X_{it}\beta + \epsilon_{it}, \tag{4.1}$$

where Y_{it} measures the net benefit of re-enrollment, X_{it} is a vector of variables that are

[15] The rate of reenrollment we find in our analysis of the NLSY-79 is lower than the rate found in Chuang (1997). Chuang uses monthly enrollment data available in the NLSY-79, whereas we use annual data in order to compare the NLSY-79 to the NLS-YM. Light (1995) reports that over 55 percent of reenrollments are less than six months in duration, which may explain the difference in the two figures.

related to the costs and benefits of re-enrollment in period t, β is a vector of parameters, and ϵ_{it} is a random component with a standard normal distribution. If $Y_{it} > 0$ then individual i returns to school in period t, and if $Y_{it} < 0$ then individual i does not return to school in period t.

This specification implies a standard probit model which can be estimated by maximum likelihood. It is likely that the error terms within individuals are correlated over time. When computing standard errors this potential correlation will be accounted for.

In order to estimate this model, we organized the data into a set of observations on each dropout that begin in the year in which he leaves school (for initial dropouts) or turns 20 years old (for long-term dropouts), and ends either when he either (1) returns to school, (2) permanently leaves the sample or (3) the survey draws to a close. A dummy variable indexes whether or not the spell ends in each period. There are k observations on a spell for individual i; they are either marked with all zeroes (non-returners) or with a string of zeroes that ends in a one (returners). The contribution to the log likelihood function of an individual who returns to school in period k is

$$ln(L_i) = \sum_{t=1}^{k-1} ln(1 - \Phi(X_{it}\beta)) + ln(\Phi(X_{ik}\beta)), \tag{4.2}$$

where $\Phi(\cdot)$ is the standard normal cumulative distribution function. Similarly, the contribution to the log likelihood function of an individual who does not return to school and is censored after k periods is

$$ln(L_i) = \sum_{t=1}^{k} ln(1 - \Phi(X_{it}\beta)). \tag{4.3}$$

There are a few advantages to using discrete choice models for duration analysis. First, it is easy to incorporate time-varying covariates into the model, such as the dropout's current work status, whereas it is more difficult to do so in a Weibull model, an oft-used model for continuous hazard functions. Second, it is straightforward to allow for arbitrary duration dependence in the hazard in the discrete choice framework by including a set of period-specific variables in the X vector. Third, the right censoring of spells of non-enrollment is handled in a natural way.

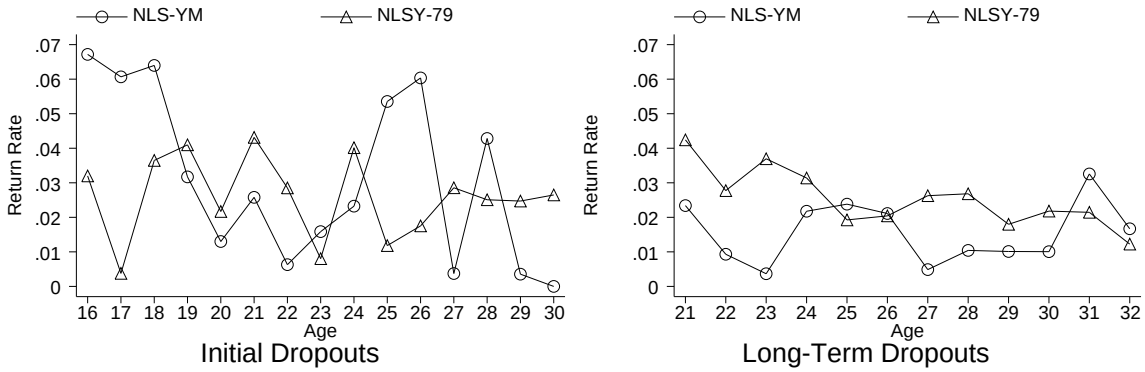

Figure 5: Probability of Returning to School, by Age

4.2 Results of Estimation

Before presenting the probit estimates, it is useful to examine the empirical hazard functions. The left panel of figure 5 contains plots of the hazard of returning to school by age for intial dropouts in each of the surveys. The hazard for the NLS-YM declines from age 16 through age 22 and then increases through age 26 before declining. The sample of at-risk individuals becomes rather small subsequent to this, and the estimate of the hazard is imprecise. The hazard for the NLSY-79 shows no obvious trend by age. The right panel of figure 5 contains plots of the the hazards for long-term dropouts. Here the patterns are different. The hazard for the NLSY-79 is higher at almost every age than for the NLS-YM. This is consistent with the summary statistics in table 1, which show that the probability of ever returning to school among long-term dropouts is substantially higher in the NLSY-79 than in the NLS-YM.[16]

We estimate the discrete-choice hazard model of the decision to return to school in order to investigate how the likelihood of returning to school *in a given year* is related to recent labor force experience as well as to worker characteristics and background. We begin with the probit estimates in table 3, which include as an explanatory variable only employment experience (measured as the fraction of the previous year spend working) for initial and long-term dropouts in each of the two samples.[17] The first specification for each dropout

[16] Appendix table 3 contains the statistics underlying figure 5 with standard errors of the difference across surveys at each age.

[17] We also estimated models including a measure of the fraction of the prior year spent unemployed, and this variable was not significantly related to the hazard of return to school.

Table 3. Normalized Probit Estimates of the Effect of Employment and Unemployment Experience on Dropouts' Decisions to Return to School

	Initial Dropouts				Long-Term Dropouts			
Variable	Pooled (1)	NLS-YM (2)	NLSY-79 (3)	Pooled (4)	Pooled (5)	NLS-YM (6)	NLSY-79 (7)	Pooled (8)
Constant	-0.124	-0.102	-0.098	-0.097	-0.112	-0.066	-0.093	-0.088
	(0.006)	(0.010)	(0.007)	(0.007)	(0.005)	(0.009)	(0.006)	(0.005)
Frac Last	—	-0.030	-0.031	-0.030	—	-0.016	-0.025	-0.022
Yr Work		(0.008)	(0.006)	(0.005)		(0.006)	(0.004)	(0.003)
NLSY-79	-0.002	—	—	-0.004	0.011	—	—	0.006
	(0.004)			(0.004)	(0.003)			(0.003)
Log L	-888.1	-331.2	-537.9	-869.1	-1186.2	-267.0	-899.2	-1166.2
N	6796	2517	4279	6796	11298	3474	7824	11298

Note: The dependent variable is a discrete variable that equals one if a dropout returns in that year and zero if he does not. The numbers in parentheses are robust standard errors clustered for multiple observations within a single individual. All coefficients are normalized to represent marginal effect of X on the probability of returning to school, $\hat{\beta}\phi(\bar{X}\hat{\beta})$ where $\phi(\cdot)$ is the standard normal probability density function.

definition pools the data from the two surveys and includes only a constant and a dummy variables indicating the NLSY-79. These estimates (columns 1 and 5) show no difference across surveys in the hazard of returning to school for initial dropouts and a significant positive 1.1 percentage point differential in the hazard for long-term dropouts in the NLSY-79 relative to those in the NLS-YM. This is consistent with the empirical hazard functions plotted in figure 5.

Columns 2 and 3 of table 3 contain separate estimates of the probit model for the two samples of initial dropouts, which include a measure of the fraction of weeks worked in the previous year. There is a significant negative relationship between weeks worked and the probability of return. The coefficients on the employment variable are virtually identical in the two surveys at -0.03. This implies that an additional quarter of work is associated with a 0.75 percentage point decrease in the probability of returning to school in that year. Column 4 of the table contains estimates of the probit model pooled across the surveys that constrains the coefficient on employment experience to be equal across the surveys. Given the virtual equality of the marginal effects in columns 2 and 3, it is not surprising that we cannot reject this constraint.

Columns 6-8 of table 3 repeat this analysis for long-term dropouts. The estimates in columns 6 and 7 show, once again, that the probability of returning to school is inversely

related to employment experience in the previous year, with the effect being somewhat larger in the NLSY-79 than in the NLS-YM. A likelihood-ratio test based on the pooled estimates in column 8, imply that there is not a significant difference in the marginal effect of employment experience on the return rate between the samples. The pooled estimate of the marginal effect is -0.022, implying that an additional quarter of work in the previous year is associated with a 0.55 percentage point increase in the probability of return to school in that year.

The raw difference between the NLSY-79 and the NLS-YM in the annual return rate for long-term dropouts estimated using the pooled sample in column 5 of table 3 is 1.1 percentage points. Controlling for labor market experience in the pooled model in column 8 reduces the difference between surveys to 0.6 percentage points. This implies that about 36 percent of the increase in the school return rate for long-term dropouts between the NLS-YM and the NLSY-79 can be accounted for by a decline in labor market experience for dropouts.

Table 4 presents estimates of the hazard model that include additional controls for demographic characteristics, family background, and ability. We include variables measuring a dropout's age, race, marital status, the number of siblings he had when the survey began, and whether he had access to a library card when he was 14 years of age.[18] We also include an ability measure based on an aptitude test. Unfortunately, the two surveys did not administer the same test to their participants. In the NLS-YM we use scores from the Knowledge of the World of Work (KWW) test and in the NLSY-79 we use scores from the Armed Forces Qualifying Test (AFQT). Both test scores are presented as standardized deviations from their respective mean. We include the fraction of the last year worked to measure recent labor market experience. Since data were missing on some variables, the samples underlying table 4 are somewhat smaller than than those used in table 3. The analysis in table 4 includes 380 initial dropouts in the NLS-YM, 500 initial dropouts in the NLSY-79, 447 long-term dropouts in the NLS-YM and 940 long-term dropouts in the NLSY-79. Table 4 is organized in the same way as table 3.

Based on the probit estimates in the first column of table 4, there is no significant

[18] We also experimented with controls for parental education level, but these variables were missing for a substantial number of individuals. The analyses we did including these variables yielded results very similar to those presented in table 4.

Table 4. Normalized Probit Estimates of Dropouts' Decisions to Return to School

	Initial Dropouts				Long-Term Dropouts			
Variable	Pooled (1)	NLS-YM (2)	NLSY-79 (3)	Pooled (4)	Pooled (5)	NLS-YM (6)	NLSY-79 (7)	Pooled (8)
Constant	-0.090	-0.075	-0.097	-0.086	-0.079	-0.065	-0.065	-0.066
	(0.014)	(0.024)	(0.017)	(0.013)	(0.012)	(0.017)	(0.014)	(0.011)
Age	-0.001	-0.002	-0.000	-0.001	-0.001	-0.000	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)
Black	0.009	0.005	0.011	0.008	0.006	0.009	0.002	0.005
	(0.004)	(0.007)	(0.005)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)
Married	-0.015	-0.013	-0.007	-0.010	-0.010	-0.002	-0.009	-0.006
	(0.005)	(0.007)	(0.006)	(0.005)	(0.003)	(0.004)	(0.004)	(0.003)
Num Sibs	0.001	0.001	0.001	0.001	0.000	0.001	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)
Lib Card	0.012	0.013	0.010	0.011	0.004	0.006	0.002	0.003
	(0.004)	(0.007)	(0.005)	(0.004)	(0.003)	(0.004)	(0.003)	(0.003)
Test Score	0.007	0.009	0.007	0.008	0.009	0.007	0.010	0.009
	(0.002)	(0.003)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
Frac Work	—	-0.012	-0.029	-0.024	—	-0.016	-0.023	-0.020
Last Yr		(0.009)	(0.006)	(0.005)		(0.006)	(0.004)	(0.003)
NLSY-79	-0.002	—	—	-0.005	0.006	—	—	0.003
	(0.004)			(0.004)	(0.003)			(0.003)
Log L	-819.4	-303.8	-501.8	-808.0	-1084.8	-249.8	-815.4	-1067.7
N	6542	2376	4166	6542	10721	3311	7410	10721

Note: The dependent variable is a discrete variable that equals one if a dropout returns in that year and zero if he does not. The numbers in parentheses are robust standard errors clustered for multiple observations within a single individual. All coefficients are normalized to represent marginal effect of X on the probability of returning to school, $\hat{\beta}\phi(\bar{X}\hat{\beta})$ where $\phi(\cdot)$ is the standard normal probability density function. The standardized test score (mean zero, variance 1) is the Knowledge of the World of Work test (KWW) for the NLS-YM and the Armed Forces Qualifying Test (AFQT) for the NLSY-79. The variable 'Lib Card' is a dummy variable that equals one if the respondent had access to a library card at the age of 14.

difference in the return rate for initial dropouts between the NLS-YM and the NLSY-79. Blacks are more likely to return to school than non-blacks, and married men are less likely to return to school than single men. Ability and background matter in the expected way. Those dropouts with a library card in their household at age 14 are 1.2 percentage points more likely to return to school in a given year, and each standard deviation increase in the test score is associated with a 0.7 percentage point increase in the annual probability of return. There is no relationship of the return rate with the number of siblings.

The second and third columns of table 4 contain separate estimates for the NLS-YM and the NLSY-79 for the initial dropouts, and there are some differences in the relationships across the two surveys. In the earlier survey, older and married dropouts were less likely to return to school in a given year. This is not the case in the later survey. Blacks were more

likely to return to school in the later survey but not in the earlier survey. Dropouts in both samples with higher test scores or with a library card in the home were more likely to return to school. Interestingly, the fraction of weeks worked in the last year has significant negative relationship with the probability of return to school only in the NLSY-79.

The fourth column of table 4 contains pooled estimates that include the labor market experience variable. This shows a strong negative relationship between work experience last year and the annual probability of returning to school. The point estimate implies that an additional quarter of work in the last year reduces the annual probability of returning to school of an initial dropout by 0.6 percentage points. Given that the average probability of an initial dropout returning to school in a given year is 2.9 percent, this implies that an additional quarter of work reduces the probability of return to school in a year by about 20 percent. A likelihood-ratio test of the constrained estimates in column 4 against the unconstrained estimates in columns 2 and 3, fails to reject the constraint that the structures are the same across the two surveys (p-value = 0.68).

The results of the same analysis for the long-term dropouts is contained in columns 5-8 of table 4. In column 5 we find a statistically significant (p-value = 0.052) 0.6 percentage point higher return probability in the NLSY-79 relative to the NLS-YM. With regard to the worker characteristics, we find that older dropouts, black dropouts, married dropouts, and dropouts with higher test scores are more likely to return to school. When the analysis is done separately for each sample (columns 6 and 7), the results are slightly different with no significant relationship with age in either cohort, blacks in NLS-YM more likely to return, and married workers in the NLSY-79 less likely to return. Dropouts with higher test scores in both cohorts are more likely to return to school. The fraction of weeks worked in the last year has significant negative relationship with the probability of return to school by long-term dropouts in both samples.

The eighth column of table 4 contains pooled estimates that include the labor market experience variable. This shows a strong negative relationship between work experience last year and the probability of returning to school for long-term dropouts. The point estimate implies that an additional quarter of work in the last year reduces the annual probability of returning to school by 0.5 percentage points. Given that the average probability of a

long-term dropout returning to school in a given year is 2.2 percent, this implies that an additional quarter of work reduces the probability of return to school in a year by almost 25 percent. A likelihood-ratio test of the constrained estimates in column 8 against the unconstrained estimates in columns 6 and 7, fails to reject the constraint that the structures are the same across the two surveys (p-value = 0.66).

4.3 The GED as a Competing Risk

An alternative for dropouts to returning to school is to study for a GED. We use a competing risk framework to study these alternatives so that a dropout is classified as returning to school if he returned to school before receipt of a GED, regardless of whether or not a GED was received eventually. Similarly, a dropout is classified as receiving a GED if he received a GED before returning to school, regardless of whether or not he returned to school eventually. Based on these rules, among the 515 initial dropouts in the NLSY-79, 97 returned to school and 64 received a GED. Among the 927 long-term dropouts in the NLSY-79, 130 returned to school and 95 received a GED. As noted above, we cannot study GED receipt in the NLS-YM.

An interesting question is whether GED receipt follows the same pattern as return to school. It may be that GED receipt is less sensitive to labor market experience because one is less likely to need to reduce labor supply to work toward a GED. On the other hand, workers with a poor labor market experience may perceive more benefit from both returning to school and from receiving a GED. In order to investigate this further, we estimate an independent competing risk model of the probability of leaving dropout status by returning to school or receipt of a GED. This is a straightforward extension of the discrete choice hazard framework we use for the hazard of returning to school alone. In the competing risk framework, the sample has two outcome variables for each person-year, a return-to-school indicator and a GED-receipt indicator. All years for an individual are included until *one* of these indicators equals one. Later years are not included.

Table 5 contains normalized probit estimates of the competing risk model with the same set of explanatory variables that we used in the simple hazard model in table 4. The estimates of the hazard of returning to school for both the initial and long-term dropouts are very close

Table 5. Normalized Probit Estimates of Competing Risk Model
NLSY-79 Dropouts' Decisions to Return to School and Receive GED

	Initial Dropouts		Long-Term Dropouts	
Variable	School	GED	School	GED
	(1)	(2)	(3)	(4)
Constant	-0.1069	-0.0393	-0.0871	-0.0019
	(0.0216)	(0.0127)	(0.0173)	(0.0095)
Age	0.0007	-0.0013	0.0003	-0.0023
	(0.0008)	(0.0005)	(0.0006)	(0.0004)
Black	0.0089	0.0058	-0.0034	0.0044
	(0.0056)	(0.0040)	(0.0043)	(0.0027)
Married	-0.0105	0.0004	-0.0098	0.0009
	(0.0074)	(0.0051)	(0.0049)	(0.0029)
Num Sibs	0.0009	0.0002	0.0003	-0.0003
	(0.0010)	(0.0007)	(0.0007)	(0.0005)
Lib Card	0.0074	0.0034	0.0020	0.0056
	(0.0058)	(0.0039)	(0.0042)	(0.0026)
AFQT	0.0003	0.0004	0.0002	0.0004
	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Frac Worked	-0.0234	-0.0049	-0.0163	-0.0040
Last Year	(0.0068)	(0.0042)	(0.0052)	(0.0034)
Log L	-647.8		-1090.0	
N	3754		6753	

Note: The dependent variable is a discrete variable that equals one if the event in the column heading happens in that year and zero if it does not. The numbers in parentheses are robust standard errors clustered for multiple observations within a single individual. All coefficients are normalized to represent marginal effect of X on the probability of returning to school, $\hat{\beta}\phi(\bar{X}\hat{\beta})$ where $\phi(\cdot)$ is the standard normal probability density function. The variable 'Lib Card' is a dummy variable that equals one if the respondent had access to a library card at the age of 14.

to those in table 4. Among initial dropouts, the probability of a dropout spell ending with receipt of a GED in a given year declines with age and increases with the AFQT score. The probability of a long-term dropout spell ending with receipt of a GED in a given year declines with age, is higher for blacks and is higher for those who had a library card and high AFQT scores. This pattern is very similar to that for the probability of returning to school. The labor market experience variable is not significantly related to the probability of either an initial or a long-term dropout spell ending in receipt of a GED in a given year. The lack of relationship between labor market experience and GED receipt is consistent with the generally lower foregone earnings cost of the GED.

5 Conclusions

The deterioration in the labor market for low-skilled workers in the 1980s had its largest impact on high school dropouts. Data on dropouts from the NLS-YM, prior to the 1980s, shows a much higher average employment rate (fraction of year employed) than does data from the NLSY-79, during the 1980s and later (figures 1 and 2). The data also suggest that the probability of return to school for long-term dropouts is significantly higher in the NLSY-79 than in the NLS-YM (23.0 percent vs. 12.2 percent). Our estimates of a hazard model of the likelihood of returning to school provide clear evidence that workers in both samples with poor recent labor market experience are more likely to return to school. The deterioration of labor market conditions can account for almost half of the increase in the reenrollment rate for dropouts between the 1960-1970s and the 1980-1990s. This is consistent with the standard human capital investment model, where an increase in the return to education (largely "caused" by the deterioration in earnings and employment for the less educated) motivates dropouts to return to school.

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Appendix Table 1. Mean Fraction of the Year Working
High School Dropouts and Graduates in the NLS-YM and NLSY-79
Backup for figures 1 and 2

	Initial Dropout			Long-Term Dropout			HS Graduate		
Age	YM	Y79	Diff.	YM	Y79	Diff.	YM	Y79	Diff.
20	0.749	0.569	-0.180	0.800	0.597	-0.202	0.660	0.630	-0.029
	(0.022)	(0.016)	(0.028)	(0.013)	(0.011)	(0.017)	(0.008)	(0.006)	(0.010)
21	0.752	0.613	-0.140	0.852	0.631	-0.222	0.717	0.670	-0.049
	(0.024)	(0.017)	(0.030)	(0.013)	(0.011)	(0.019)	(0.010)	(0.006)	(0.012)
22	0.799	0.658	-0.140	0.861	0.659	-0.202	0.796	0.682	-0.114
	(0.030)	(0.017)	(0.036)	(0.014)	(0.011)	(0.019)	(0.009)	(0.006)	(0.011)
23	0.790	0.714	-0.076	0.883	0.671	-0.211	0.845	0.723	-0.122
	(0.022)	(0.017)	(0.028)	(0.013)	(0.011)	(0.020)	(0.009)	(0.006)	(0.012)
24	0.742	0.698	-0.044	0.856	0.692	-0.164	0.866	0.770	-0.095
	(0.028)	(0.017)	(0.031)	(0.016)	(0.011)	(0.020)	(0.009)	(0.006)	(0.011)
25	0.777	0.722	-0.055	0.827	0.737	-0.090	0.866	0.815	-0.051
	(0.023)	(0.016)	(0.027)	(0.018)	(0.011)	(0.021)	(0.008)	(0.006)	(0.011)
26	0.824	0.738	-0.086	0.800	0.737	-0.061	0.902	0.836	-0.066
	(0.024)	(0.015)	(0.028)	(0.022)	(0.011)	(0.024)	(0.008)	(0.006)	(0.011)
27	0.880	0.738	-0.141	0.873	0.755	-0.115	0.917	0.852	-0.065
	(0.029)	(0.016)	(0.036)	(0.017)	(0.011)	(0.022)	(0.008)	(0.005)	(0.010)
28	0.828	0.743	-0.085	0.815	0.773	-0.037	0.933	0.860	-0.072
	(0.022)	(0.016)	(0.029)	(0.022)	(0.011)	(0.023)	(0.007)	(0.005)	(0.010)
29	0.867	0.712	-0.155	0.872	0.754	-0.117	0.921	0.862	-0.060
	(0.023)	(0.019)	(0.034)	(0.017)	(0.011)	(0.021)	(0.007)	(0.005)	(0.010)
30	0.803	0.692	-0.111	0.850	0.756	-0.094	0.926	0.871	-0.055
	(0.026)	(0.020)	(0.034)	(0.020)	(0.012)	(0.023)	(0.007)	(0.005)	(0.009)
31	0.869	0.686	-0.183	0.860	0.753	-0.104	0.947	0.875	-0.072
	(0.032)	(0.025)	(0.046)	(0.024)	(0.013)	(0.027)	(0.006)	(0.006)	(0.009)
32	0.865	0.670	-0.196	0.900	0.748	-0.147	0.944	0.889	-0.054
	(0.144)	(0.056)	(0.413)	(0.021)	(0.015)	(0.028)	(0.007)	(0.006)	(0.010)
33	—	—	-0.135	0.841	0.748	-0.093	0.961	0.875	-0.086
			(0.022)	(0.034)	(0.018)	(0.037)	(0.007)	(0.008)	(0.013)
34	—	—	-0.122	0.928	0.735	-0.193	0.954	0.879	-0.074
			(0.025)	(0.023)	(0.022)	(0.034)	(0.008)	(0.009)	(0.014)

Note: Means are calculated from self-reported 'weeks worked per calendar year.' In 1973, 1975, 1976 and 1978 in the NLS-YM, information is not available for individual calendar years. In these years, a measure of 'weeks worked between interview dates' is converted to a comparable 52-week scale. Information is not available for initial dropouts at the ages of 33 and 34. The numbers in parentheses are standard errors.

Appendix Table 2. Mean Fraction of the Year Unemployed
High School Dropouts and Graduates in the NLS-YM and NLSY-79
Backup for figures 3 and 4

	Initial Dropout			Long-Term Dropout			HS Graduate		
Age	YM	Y79	Diff.	YM	Y79	Diff.	YM	Y79	Diff.
20	0.011	0.192	0.080	0.075	0.189	0.114	0.041	0.079	0.038
	(0.013)	(0.011)	(0.019)	(0.007)	(0.008)	(0.011)	(0.003)	(0.003)	(0.004)
21	0.094	0.174	0.079	0.063	0.169	0.106	0.046	0.071	0.026
	(0.014)	(0.012)	(0.020)	(0.008)	(0.008)	(0.013)	(0.004)	(0.003)	(0.005)
22	0.080	0.140	0.060	0.050	0.163	0.113	0.046	0.075	0.030
	(0.017)	(0.011)	(0.022)	(0.008)	(0.008)	(0.012)	(0.004)	(0.003)	(0.005)
23	0.048	0.110	0.062	0.055	0.153	0.097	0.037	0.078	0.041
	(0.010)	(0.010)	(0.016)	(0.008)	(0.008)	(0.013)	(0.004)	(0.003)	(0.006)
24	0.047	0.112	0.065	0.036	0.139	0.103	0.025	0.068	0.042
	(0.013)	(0.011)	(0.018)	(0.007)	(0.008)	(0.013)	(0.003)	(0.003)	(0.005)
25	0.057	0.102	0.044	0.040	0.114	0.076	0.031	0.052	0.020
	(0.012)	(0.009)	(0.015)	(0.007)	(0.007)	(0.013)	(0.004)	(0.003)	(0.005)
26	0.071	0.097	0.026	0.054	0.108	0.054	0.022	0.040	0.017
	(0.015)	(0.009)	(0.017)	(0.012)	(0.007)	(0.015)	(0.004)	(0.002)	(0.004)
27	—	0.083	—	0.024	0.092	0.067	0.011	0.038	0.026
		(0.008)		(0.007)	(0.006)	(0.012)	(0.002)	(0.002)	(0.004)
28	—	0.086	—	0.037	0.087	0.050	0.010	0.037	0.027
		(0.008)		(0.011)	(0.006)	(0.013)	(0.003)	(0.002)	(0.004)
29	0.021	0.099	0.078	0.021	0.094	0.073	0.006	0.040	0.034
	(0.010)	(0.010)	(0.018)	(0.007)	(0.007)	(0.013)	(0.002)	(0.002)	(0.004)
30	0.017	0.084	0.067	0.022	0.073	0.050	0.014	0.036	0.022
	(0.007)	(0.010)	(0.015)	(0.007)	(0.006)	(0.013)	(0.003)	(0.002)	(0.004)
31	0.052	0.091	0.039	0.020	0.083	0.062	0.004	0.033	0.028
	(0.020)	(0.012)	(0.023)	(0.009)	(0.007)	(0.014)	(0.001)	(0.002)	(0.004)
32	—	0.071	—	0.013	0.080	0.067	0.012	0.035	0.023
		(0.021)		(0.006)	(0.008)	(0.014)	(0.004)	(0.003)	(0.005)
33	—	—	—	0.006	0.078	0.071	0.004	0.042	0.038
				(0.003)	(0.009)	(0.018)	(0.002)	(0.004)	(0.007)
34	—	—	—	0.026	0.090	0.064	0.009	0.045	0.036
				(0.014)	(0.011)	(0.019)	(0.003)	(0.005)	(0.007)

Note: See Note to Appendix Table 1. Data on unemployment is not available for certain ages in the NLS-YM because of the small sample sizes.

Appendix Table 3. Probability of First Return to School by Age
Initial and Long-Term Dropouts
Backup for figure 5

	Initial Dropout			Long-Term Dropout		
Age	NLS-YM	NLSY-79	Diff.	NLS-YM	NLSY-79	Diff.
16	0.067	0.032	-0.035	—	—	—
	(0.015)	(0.030)	(0.034)			
17	0.061	0.004	-0.057	—	—	—
	(0.013)	(0.013)	(0.018)			
18	0.064	0.036	-0.028	—	—	—
	(0.012)	(0.009)	(0.015)			
19	0.032	0.041	0.009	—	—	—
	(0.012)	(0.008)	(0.014)			
20	0.013	0.022	0.009	—	—	—
	(0.013)	(0.008)	(0.014)			
21	0.026	0.043	0.017	0.023	0.042	0.019
	(0.012)	(0.008)	(0.014)	(0.006)	(0.005)	(0.009)
22	0.006	0.029	0.022	0.009	0.028	0.018
	(0.012)	(0.008)	(0.014)	(0.007)	(0.006)	(0.009)
23	0.016	0.008	-0.008	0.004	0.037	0.033
	(0.012)	(0.009)	(0.014)	(0.007)	(0.006)	(0.009)
24	0.023	0.040	0.017	0.022	0.031	0.010
	(0.013)	(0.009)	(0.015)	(0.007)	(0.006)	(0.009)
25	0.054	0.012	-0.042	0.024	0.019	-0.005
	(0.013)	(0.009)	(0.015)	(0.007)	(0.006)	(0.009)
26	0.060	0.018	-0.043	0.021	0.020	-0.001
	(0.013)	(0.009)	(0.015)	(0.007)	(0.006)	(0.010)
27	0.004	0.029	0.025	0.005	0.026	0.021
	(0.014)	(0.009)	(0.016)	(0.007)	(0.006)	(0.010)
28	0.043	0.025	-0.018	0.010	0.027	0.016
	(0.014)	(0.009)	(0.016)	(0.007)	(0.006)	(0.010)
29	0.004	0.025	0.021	0.010	0.018	0.008
	(0.015)	(0.010)	(0.017)	(0.007)	(0.007)	(0.010)
30	0.000	0.026	0.026	0.010	0.022	0.012
	(0.017)	(0.011)	(0.020)	(0.007)	(0.007)	(0.010)
31	—	—	—	0.033	0.021	-0.011
				(0.008)	(0.008)	(0.012)
32	—	—	—	0.017	0.012	-0.004
				(0.009)	(0.009)	(0.014)

Note: The numbers in parentheses are standard errors. All rates are weighted by survey sampling weights.