The Adult Transition of At-Risk Youth:

Mode of Exit from High School

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Abstract

This paper takes a life course perspective on differences in high school exit mode and its consequences for students not going to four-year colleges. Using detailed life history data from the Baltimore Beginning School Study archive, we show that the employment rate for dropouts who later get diplomas is higher than the rate for dropouts who later get GEDs, other things equal. Put another way, after taking into account personal and social assets, including non-cognitive skills, years of pre- and postsecondary education, and jail history, a dropout who gets a diploma does better in the labor market at age 22 than does a dropout who gets a GED. The discussion emphasizes timing of exit mode in the life cycle, opportunity costs, and changes in high school policies designed to encourage youth to seek diplomas rather than GEDs.

Keywords: Adult transition, At-risk youth, Exit mode, Dropout, Life course

1. Introduction

At the beginning of the 21st century, youth entering the labor force with less than a college education face a different labor market from that faced by their parents. In 1980, men ages 25-34 with only a high school education earned 19% less than men with college degrees, but by 2002 they earned 65% less (Wirt, Choy, Rooney, Provasnik, Sen and Tobin 2004, Table 14-2), and the relative wages of dropouts declined even more (Barton 2005). In addition, family income is now more unstable (Hacker 2004), with fewer steady jobs (Katz and Autor 1999) as skill requirements in frontline service or support jobs increase. Transformations in the U.S. economy and the restructuring of work have thus caused school-to-work pathways to become more socially segmented and more complex (see Heinz 1999), and in a large sense, the cost of restructuring the U.S. economy is being disproportionately borne by young unskilled workers (Zemsky, Shapiro, Iannozzi, Capelli and Bailey 1998). Beyond that, the situation of African Americans is especially precarious, with one in five young black high school graduates unemployed in 2005 (U.S. Census Bureau 2008, Table 267).

Youth today also enter the workforce with human capital different from that of their parents. The expansion of higher education during the last 30 years has led to a drop in the market value of a high school diploma. In 1971 only one-third (34%) of 25-34-year-olds had any postsecondary education and only 17% had earned a bachelor's degree. In 2003, more than half (57%) of young adults have some college and 28% have a bachelor's degree (Wirt et al. 2004, Indicator 23). Moreover, while the proportion of 25-29-year-olds with high school certification has leveled off over the last 20 years at around 86-87%, the nature of that certification has changed (Chaplin 2002). Now one in seven complete high school by way of the GED (*New York Times* 2004), double the number reported earlier (Kaufman, Kwon, and Klein 2001; Smith 2003), and the proportion of GEDs awarded compared to high school degrees continues to increase (19% in 2001). Despite the prevalence, the equivalence of a GED to a high school diploma is a matter of some debate. The GED can be a stepping stone to postsecondary education, but the wages of GED holders lag those of high school graduates (see e.g. Smith 2003).

Prior research involving GED holders as compared to permanent dropouts is rather extensive. GED holders are "temporary dropouts" and differ from permanent dropouts in that they finish more years of school before they drop out (Cameron and Heckman 1993; Cao, Stromsdorfer, and Weeks 1996; Maloney 1992; Murnane, Willett, and Boudett 1995, 1997). They also have higher cognitive scores (Hotz et al. 1999; Murnane, Willett, and Boudett 1995), and come from higher SES backgrounds (Cameron and Heckman 1993; Hotz et al. 1999; Kolstad and Kaufman 1989; Murnane, Willett, and Boudett 1995, 1997).

Little is known about differences between "temporary dropouts" who later get GEDs and the temporary dropouts who go back for high school diplomas, however. Hotz et al. (1999) mention "motivation" or "innate talents" as likely differences pre-dropout between GEDs and those who later get diplomas, and teachers report more class participation among those who later obtain high school degrees compared to those who do not (see Finn and Rock 1997). A key difference is that dropouts who return for diplomas do much better in the labor market

than those with GEDs. In NELS88, for example, over 70% of dropouts who later got diplomas were working in 1995 compared to 60% of GED holders (Berktold, Geis and Kaufman 1998). Still, research involving dropouts who return for a high school diploma is thin.

More generally, many details of the work transition of at-risk youth have yet to be traced out, especially with respect to how that transition is shaped by mode of exit from high school. One question is whether the personal assets, e.g., non-cognitive skills, of dropouts who return for diplomas differ from those who get GEDs. Students who drop out and later get GEDs may *already* differ from those who drop out and later get diplomas, so these differences, rather than their mode of exit, could account for the greater success of diploma holders. Another question is whether differences in years of completed education explain the difference in labor market success, because those who get diplomas typically leave school later than those who get GEDs. However a remaining advantage of diploma holders over GED holders, taking into account differences in years of completed education and other pre-dropout characteristics, could signal a sheepskin effect. That is, one kind of certificate (a diploma) may be worth more in the labor market than another type (GED) when all else is equivalent. To our knowledge, this question has not been directly examined, although it has substantial policy implications, especially in large urban school systems with high dropout rates.

A key circumstance generally overlooked in prior research on exit mode is *timing* – where students are in the life course. The kind of certification job applicants hold may matter most *soon* after they leave school, before they have much job experience. In fact, as non-college-bound youth *enter* the labor market, exit mode may be the main item on their résumés. Later on, when employers have information about prior job experience, that information could supplement or even replace the information conveyed by exit mode. Typically, however, researchers have compared the earnings of GED holders to those who exit by other modes toward the end of their 20's, a decade or more after the time they first enter the labor market (Cameron and Heckman 1993; Tyler, Murnane and Willett 2000).

With such timing issues in mind, in this paper we investigate how mode of exit from high school fits into the *early* transition to work soon after students leave high school (at age 22). We compare the labor market reception of dropouts who get GEDs both with those who stay dropped out and with dropouts who get diplomas. Using data from a randomly selected panel of Baltimore students followed from age 6 into adulthood, we compare the early labor market outcomes (age 22) of 1) permanent dropouts, 2) dropouts who get GEDs, 3) dropouts who return for diplomas, and 4) diploma recipients who never drop out, taking into account pre-existing differences across the four groups. We are interested in how non-BA-bound youth negotiate their transition into the workforce, so we exclude those who have matriculated at a 4-year college. The next section reviews background information and prior research related to exit mode issues.

2. Background

The annual dropout rate in the U.S. is low – (status dropout rate of 10.5% in 2002, U.S. Department of Education 2005), but the dropout rate for students in poverty stricken cities is

much higher—recent data show that only about one-half of all students in the school systems of the 50 largest cities graduate from high school with a diploma (Swanson 2008). Premature departure from school comes about for many reasons. Early discipline problems in school and brushes with the law are high on the list, but a substantial number of high school students drop out for reasons unrelated to school (see Pallas 1986; Alexander, Entwisle, and Kabbani 2001). "Recovery" from dropout, either through alternative high school certification (GED) or by returning to high school, is more likely than commonly supposed.   In the U.S., more than half of those who drop out later get high school certification (Boesel, Alsalam, and Smith 1998), most by earning GEDs, but some by earning diplomas. In contrast to middle class youth, at-risk youth enter the labor market as primary workers (i.e., not students working part-time) when they are younger and often need to be immediately self-supporting. They get little or no help from schools in finding work (Bishop 1989; Rosenbaum 2001). Before leaving high school, many contribute money for household support (Entwisle, Alexander, and Olson 2000), and for them the GED is an attractive option because it offers high school certification but can accommodate to their full-time work.

The costs of obtaining a GED appear to be far less than the opportunity costs of re-enrolling in high school. The GED tests can be taken in a single day and most (over 75%) of those who take the test spend less than 100 hours in preparation (Smith 2003). Getting a GED need not conflict with full-time work. However, as this paper will seek to find out, this seeming economy might prove very costly in the long run if the kind of high school certification dropouts get – GED or diploma – plays a key role in how successful they are upon entering the labor market because first jobs go far in setting parameters for later jobs.

2.1 Prior Research

The economics literature provides estimates of "signaling effects" for many kinds of certificates: high school graduates versus non-graduates (Stern et al. 1989), college degree holders versus college dropouts (see e.g., Jaeger and Page 1996; Ferrer and Riddell 2001), and postsecondary occupational programs versus other postsecondary programs (Bailey, Kienzl, and Marcotte 2004), as well as for GED holders compared to dropouts or high school graduates (Cameron and Heckman 1993). With other characteristics controlled, low scoring GED holders tend to earn more than dropouts (Tyler et al. 2000), but otherwise comparisons involving labor market performance of GED holders and permanent dropouts are well accounted for by background characteristics and years of completed schooling. For example, Boesel et al. (1998), using NELS88 data, conclude that among males of similar race, ethnicity and maternal education, differences in hourly earnings across dropouts, GEDs, and high school diploma holders are explained by differences in the number of school years the three groups complete. These authors say about males (p. 54), "Neither the high school diploma nor the GED has a 'sheepskin' effect", and about females (p. 50): "In general, while GED attainment has little effect on labor-force participation or unemployment, it seems to increase full-time employment somewhat."

Comparing GED holders to *all* diploma holders, however, overlooks possible effects of the dropout experience itself. All GED holders have been dropouts while most diploma holders

have not. The more appropriate comparison to investigate the labor market reception for GED holders compared to diploma holders would be to contrast dropouts who later earn GEDs with dropouts who later earn diplomas. This approach also makes sense in light of nationally representative data cited earlier showing a strong advantage in employment rates around age 20 for dropouts who later earn diplomas compared to those who earn GEDs: 71% versus 60% (see Table 9a, Berktold et al. 1998). These employment data point to possible effects in students' *early* years in the labor market. In fact, as noted, if effects of exit mode do exist, they should be most visible near the start of students' work careers when high school credentials are most salient in hiring decisions rather than for workers in their late 20's when most of this research had been carved out.

In addition to examining employment data earlier in the life cycle when effects of exit mode should be more visible (age 22), we also propose to use employment rates rather than earnings as the outcome criterion for labor market success. At age 22, wage rates for non-B.A. workers do not vary much. Table 1, reporting data for the current analysis sample, shows that wage rates at age 22 do not differ across exit mode except for dropouts. These wage indicators are only part of the story for workers at the low end of the wage scale, however, because they neglect wages lost through unemployment. If we assume that students are in the market for about five years after leaving school (up to age 22) and that a full-time job takes 2,000 hours per year, then using retrospective calendar data from Table 1 we see permanent dropouts (who are unemployed 56% of the time after leaving school) lose $40,264 (5,600 hours x $7.19), and GED holders (who are unemployed 46% of the time) lose $40,526 (4,600 x $8.81). Even diploma/dropouts, who have the highest rate of employment at age 22, are unemployed more than other diploma holders (32% versus 21%), with the consequence that their lost wages are nearly fifty percent more than those of the diploma holders who never dropped out ($26,336 vs. $17,913). Thus early in their careers whether youth *have* a job is much more critical for their total earnings than the hourly wage. Those without jobs have *no* wages, so not getting a job right after high school for even short periods of time has a strong negative impact on yearly earnings. We therefore use employment rates as a better indicator of labor market success than wage rates for workers in this panel.

3. Conceptualization

In this section we develop a set of models to evaluate sheepskin effects, specifically whether former dropouts entering the labor market with a high school diploma have a greater likelihood of employment than do former dropouts with a GED.

In designing models involving exit mode and employment at age 22, we take into account the demographics customarily controlled in prior sheepskin analyses (race and sex). In addition, we control for family SES and neighborhood poverty early in life, variables important for explaining employment in urban areas (Wilson 1987). Since we know the roots of dropout extend back to children's school experiences in first grade (Alexander et al. 2001; Ensminger and Slusarcick 1992), and that years of schooling can be predicted from age 6 data (see Caspi et al. 1998; Entwisle, Alexander, and Olson 2005), we also control for the other social and personal assets children possess at age 6. These variables include parent psychological

support, children's temperament/disposition, standardized test scores in reading and math, plus marks in reading and math. Children's temperament/disposition is a measure of non-cognitive skills thought to be important for explaining sheepskin effects (see Hotz et al. 1999). It consists of the mean of five variables including enthusiasm, cheerfulness, creativity, social involvement, and "openness" to new things and new experiences.

We will propose two models: first, a model designed to predict exit mode; second, a model designed to compare the odds of employment at age 22 for students who take various exit modes. These models are estimated for a panel of students *who do not matriculate at four-year colleges*.

3.1 Exit Mode Model

We begin by asking whether the personal and social assets students possess when they start first grade predict mode of exit from high school (Exit Mode Model), using as predictors the variables just mentioned. Two sets of results are reported. The first compares GEDs, diploma dropouts, or non-dropouts with permanent dropouts as baseline. The second excludes permanent dropouts and compares GED holders or non-dropouts, with diploma dropouts as baseline.

3.2 Employment Model (Figure 1)

The second set of analyses (Employment Model) addresses whether, *other things equal*, mode of exit from high school predicts the odds of employment at age 22. More specifically, do dropouts who later get diplomas have a higher employment rate than dropouts who later get GEDs? Here "other things equal" signifies controlling on the 8 variables listed above that predict exit mode, plus the control variables listed below (see Figure 1), which address alternative hypotheses to explain exit mode effects on earnings.

3.2.1 Incarceration.

By age 22 in urban areas with high poverty rates, many youth have experienced incarceration.

3.2.2 Highest Grade Completed

Employment rates in early adulthood vary by highest grade completed (Berktold et al. 1998).
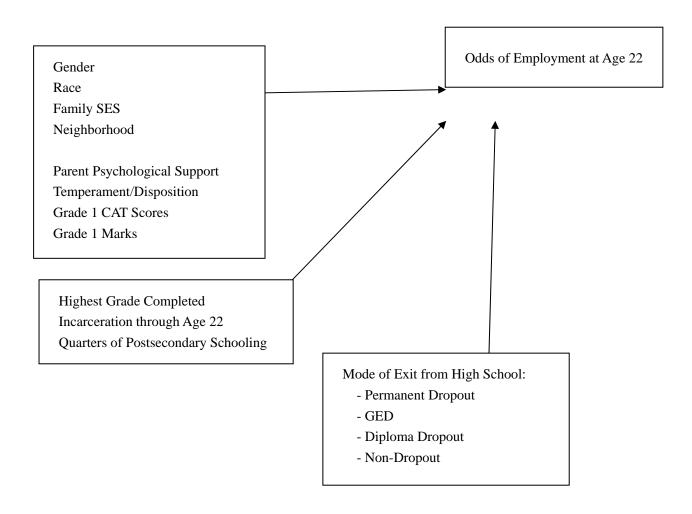
3.2.3 Postsecondary Training

Many youth get some kind of (non-collegiate) postsecondary training that could affect the likelihood of employment (Berktold et al. 1998).

3.2.4 Exit Mode

Exit mode is the "test variable." It has 4 categories: permanent dropout, dropout with GED, dropout with diploma, and non-dropout. When exit mode is added to the set of control variables listed above, does its inclusion explain significant variance in employment rates at age 22? Do the odds of employment for dropouts with diplomas exceed the odds of employment for dropouts with GEDs?

Figure 1. Conceptual Model for Predicting Employment at Age 22 (Employment Model)

3.3 Further Rationale

The employment model includes jail experience plus two other variables that have been used as controls in prior research. Controlling on "highest grade completed" effectively offers this variable as an alternative explanation for the importance of exit mode (see Boesel et al. 1998). Similarly, controlling on postsecondary education tests a second alternative hypothesis, namely that postsecondary education can differ by exit mode, and this additional training can improve employment odds.

The critical test for GED versus diploma effects comes from inserting exit mode (dropout, GED, diploma dropout, non-dropout) in the set of predictors listed above, with diploma dropout as baseline. This full model asks whether, with social and personal resources, jail experience, highest grade completed and postsecondary education taken into account, mode of exit predicts level of employment at age 22. Taking dropouts who earn diplomas as the comparison group makes the critical comparison: Do dropouts who get diplomas fare better in the labor market in terms of employment than dropouts who get GEDs, other things equal?

Before proceeding, a few words are needed about how the model differs from other models which assess the effect of exit mode. First is the interval over which predictions are being made and the life stage being pinpointed. Many employment studies use measures *obtained in adolescence* to predict employment in adulthood (see e.g., Haveman and Wolfe 1994). Here, however, variables measured at age six have a major advantage in terms of power because their effects later on include indirect as well as direct effects over a long period. For example, SES shapes many intermediate outcomes of schooling between age 6 and age 22 that carry indirect effects of SES to the outcome (employment).

The non-cognitive skill measure (temperament/disposition) is included because non-cognitive skills are thought to be important in the low wage labor market (Moss and Tilly 2001), and because labor economists use them to predict earnings (Bowles, Gintis and Osborne 2001; Duncan and Dunifon 1998). Also, non-cognitive skills have been repeatedly suggested as explanations for exit mode differences in later outcomes (see e.g., Cameron and Heckman 1993).

4. Data and Setting

A panel of randomly selected students in Baltimore followed from age 6 to age 22 furnishes the data needed to estimate the model. The Beginning School Study (BSS) randomly sampled 790 public school children in Baltimore in 1982 when they were starting first grade and followed them into adulthood (age 22). The project is rich in information for children during the early elementary years, and so offers a strategic opportunity to investigate later educational attainments and employment in early adulthood in relation to their "baseline" social and personal resources at the time they started school. During early adulthood, the BSS panel was interviewed at age 22, four years after on-time students graduated from high school.

BSS sampling and research design have some major strengths. The timing of measurements mitigates many issues of endogeneity. Parents' initial expectations for the child's school success, for example, are ascertained before the first report card was issued in first grade. Another advantage is that the measures of non-cognitive and cognitive skills are psychometrically sturdy. The temperament/disposition measure has an alpha reliability of 0.82, for example. Also, parents, teachers, and students were questioned directly – no proxy measures.

Sample attrition is reasonably low. At age 22, 80% of the original sample provided data on educational and employment histories. However, the sample is representative only of the Baltimore City public school population in 1982.

4.1 Sample

Assembling the BSS panel proceeded in two stages. First, in 1982 a random sample of 20 Baltimore City public elementary schools, stratified by racial mix (6 predominantly African-American, 6 predominantly white, 8 integrated) and by socioeconomic status (14 inner-city or working class and 6 middle class), was selected. Second, within each school, about a dozen students were randomly sampled from each first-grade classroom (at least 2,

usually 3 classrooms per school) using kindergarten lists from the previous spring supplemented by class rosters after school began in fall, 1982. Ninety-seven percent of the parents of the randomly chosen children consented to participate in the project.

The final panel consisted of 790 students beginning first grade (non-repeaters) in the fall of 1982. This panel was 55% African American. Parents' educational levels ranged from less than eighth grade to graduate and professional school degrees, averaging just under 12 years (11.9), with a standard deviation of 2.59. The African American parents had a slightly higher mean level of education than the whites (12.1 versus 11.7 years), and 67% of Beginning School Study children qualified for free or reduced price meals at school, 77% of African Americans and 53% of whites. Overall, 70% of white and 44% of African American students resided in two-parent households.

4.2 Procedures

When children started first grade their race, gender and eligibility for subsidized meal status (indicative of low family income) were determined from school records. Parents' education, occupations, and expectations for their children's marks in reading and math as well as their expectations for how far children would go in school were ascertained in face-to-face interviews (see Entwisle, Alexander and Olson 1997). California Achievement Tests were given in October and in May of first grade. In May, teachers rated children's temperament/disposition on a 5-item scale (a subset of the complete 14-item Zill scale; see Appendix), and assigned marks in reading and mathematics quarterly throughout the school year.

Data on educational attainment, employment at age 22, and incarceration come from a Young Adult Survey in 1998-99, sixteen years after the students had entered first grade and 4-5 years after on-time students had graduated from high school. The survey at age 22 was conducted by telephone when possible, otherwise by face-to-face interviews.

Respondents completed several calendars showing since leaving high school: (1) the number of quarters in which they worked at full- or part-time jobs, (2) the number of quarters of postsecondary school attendance, (3) the number of quarters in which they were unemployed and not in school. The education calendar was used to determine the total number of quarters of postsecondary enrollment. Those with any postsecondary schooling listed the schools attended, type of schools, type of license, certification or degree program, and whether they had completed the program. Data on incarceration status at age 22 come from panel member's response to the question, "Have you ever been incarcerated?"

Table A2 lists variable definitions, coding conventions, plus means and standard deviations of variables. Appendix A provides detailed descriptions of composite variables.

The target sample is restricted to panel members who are not on a baccalaureate career path, that is, those who have not enrolled in a four-year college up through age 22. However, after high school about one-third (35%) of this non-college sample enrolled in sub-baccalaureate programs at trade schools or two-year colleges. By age 22, at least four years has passed since on-time panel members would have graduated from high school. Those who have not

enrolled in a baccalaureate program by age 22 are unlikely to do so later on.

4.3 Attrition

In 1998-99 Young Adult Surveys (YAS) were completed by 631 (80%) of the 790 members of the Beginning School Study (BSS) panel. Means and standard deviations of most variables in the 1998-99 sample are close to those in the 1982 sample (see Appendix A, Table A1), but those lost through attrition are, by small margins, disproportionately white, male, and of lower SES. To adjust for attrition, all model estimates are weighted to reflect the likelihood of missing cases in terms of race, gender, SES, family composition, cognitive status, and school attended in first grade. This weighting is designed to produce unbiased estimators and appropriately adjusted standard errors.

5. Implementation

The employment model, estimated by logistic regression, consists of two equations. The first estimates the odds of employment at age 22 on the basis of the age 6 predictors plus three variables that represent 3 later events or circumstances that affect the likelihood of employment. These include incarceration, highest grade completed (Note 1) and postsecondary schooling. The second equation adds "exit mode," i.e. dummy variables for dropout, GED and non-dropout, referenced to diploma dropout. Thus the likelihood of employment is expressed as a function of the age 6 variables, the 3 later intervening events and exit mode.

The final data set (N = 486) used to estimate the models is produced by multiple imputation. We impute missing values from the available data by regressing each variable with missing data on all observed variables, with random error added to every value to maintain natural variability (e.g., see Allison 2002). The final imputed data consist of five sets of data generated by the *ice* multiple imputation procedure within STATA. The final estimates and their accompanying standard errors are produced using the *micombine* procedure in STATA which averages results over the five data sets.

6. Descriptive Analysis

The BSS is a panel of randomly selected urban youth, most from low income families, who found themselves in 1998-99 navigating a path into adulthood under conditions of hardship. In such circumstances, the risk of high school dropout is high and the "college for all" success ethos (e.g., Rosenbaum 2001) for many is not realistic.

Within the analysis sample (N = 486), almost half (49%) are non-dropouts. The remainder are dropouts, of whom 17% have earned the GED, 5% returned to school and completed a diploma, and 29% are permanent dropouts who failed to obtain high school certification through age 22 (see Table 1). Among the non-dropouts, over half (53%) go on to proprietary schools *or* 2-year colleges to enroll in programs leading to a license, certificate, or A.A. degree. The rates of postsecondary schooling are low for all three dropout groups – 8% for permanent dropouts, 34% for GEDs, and 26% for diploma/dropouts. At age 22, panel members overall average a little more than a high school education (12.7 years): 9.7 years for

permanent dropouts, 12.4 years for GEDs, 12.3 years for diploma/dropouts, and 12.9 years for non-dropouts.

Data on social and personal assets at age 6 as well as incarceration history, postsecondary schooling and employment status at age 22 for students in each of the four exit modes are presented in Table 1. Overall aside from gender, race, and incarceration, permanent dropouts are significantly different from those with some form of high school credential. Asterisks in Table 1 indicate significant differences on t-tests for adjacent groups. The mean values for the background variables at age 6 show trends in expected directions. The future exit groups do not differ significantly in gender or race composition. For those with no credential, family SES level is significantly lower than for those who have a high school credential, as are level of parental support, the test score composite, and temperament/disposition. The mark composite does not differ between permanent dropouts and GEDs, but both of these groups have lower age 6 marks than do non-dropouts. The likelihood of living in a poor neighborhood is less for future GEDs and diploma dropouts than for permanent dropouts and (marginally) higher for diploma dropouts and GEDs than for non-dropout diploma holders.

Table 1. Means of Variables for Models Predicting Outcomes at Age 22[1]

	Mode of Exit from High School						
	No High School Credential[2] (29.0%)		GED (17.1%)		Dropout with Diploma (4.7%)		Diploma, No Dropout (49.2%)
Age 6 Background Measures							
Race	.59		.61		.61		.58
Sex	.48		.40		.52		.56
Family SES Composite	-.57	*	-.25		-.19		-.08
Ghetto Neighborhood	.85	*	.71		.78	+	.61
Parent Psychological Support	-.37	*	-.08		-.15		-.00
CAT Reading & Math Scores, Age 6	-.44	*	-.12		-.22		-.08
Reading & Math Marks, Age 6	1.72		1.82		2.00		2.02
Temperament/Disposition, Age 6	18.92	*	20.88		21.14		21.97
Age 22 Measures							
Highest Grade of School Completed	9.82		9.83	*	12.00		12.00
Ever in Jail through age 22	.31		.34		.26	*	.07
Quarters of Postsecondary Schooling, Age 22	.36	*	1.52		1.17	*	3.64
Employed at Age 22	.44	+	.57	*	.87		.77
Percent Enrolled in Trade School/2-Year College	7.8	*	33.7		26.1	*	53.1
Years of Education Completed to Age 22	9.65	*	12.38		12.29	*	12.91
Wages, Most Recent Full-Time Job ($/Hr)	$7.19	*	$8.81		$8.23		$8.53
Incarcerated at Age 22	.09		.13		.04		.02
Working or in School at Age 22	.45	+	.58	*	.87		.81
Percent Quarters Employed since High School	43.7	*	54.3	+	68.2	+	79.2
(N)	(141)		(83)		(23)		(239)

[1]Cases with any 4-year college attendance have been screened out.

[2]All t-tests for comparisons between permanent dropouts and the three other groups (not shown) are significant except for gender, race, and incarceration at age 22.

Note: Significance tests are 2-sided t-tests between adjacent columns.

*$p \leq .05$ + $p \leq .10$

About 7% of diploma holders who never dropped out have jail experience, with rates for the other three groups much higher: 31% of permanent dropouts, 34% of GEDs, and 26% of the diploma dropouts. Highest school grade completed varies little for those without diplomas (mean grade, 9.8 for both groups, with about 58% completing at least grade 10). By age 22, on average, permanent dropouts have completed about one month of postsecondary schooling, significantly less than all other groups. GEDs and diploma dropouts both complete more than three months of postsecondary training, and the non-dropouts complete almost a full year of extra schooling.

Given the sparse number of differences in means of predictor variables across the three credentialed groups, the significant differences in their likelihoods of employment at age 22 are noteworthy. Less than half (44%) of those without a credential are employed, compared to more than half (57%) of the GED holders. The dropouts who went back for diplomas, however, are employed at the highest rate (87%) of any group, higher even than the rate for diploma holders with no dropout history (77%). An additional 4% of non-dropouts are not working but enrolled in school. There is little variation in average wages across the three credentialed groups, but the permanent dropouts earn more than a dollar per hour less.

7. Multivariate Analysis

The sample used to estimate the age 22 employment model is comprised of all members of the BSS panel who have data on employment at age 22 and who have *not* matriculated at a 4-year college by age 22 (N = 486).

The model is estimated by logistic regression in two stages (Table 2). In the first equation, being male increases the likelihood of employment, but other age 6 variables are not predictive. Incarceration, a later variable, as we would expect, is a strong handicap – those without a jail history are about three times more likely to be employed than those with a jail history.

Table 2. Multinomial Logistic Model Predicting Mode of Exit from High School (Coefficients are Odds Ratios)[1]

	Baseline: Permanent Dropout[2]					Baseline: Diploma Dropout[3]		
	GED		Diploma Dropout		Non-Dropout		GED	Non-Dropout
Gender	.78		1.49		1.53	+	.54	1.05
Race	.87		1.21		.93		.77	.80
Family SES	2.16	*	2.76	*	2.90	*	.78	1.06
Poor/Non-Poor Neighborhood	.61		1.27		.49	*	.49	.39 *
Parent Psychological Support Index	1.31		.95		1.19		1.38	1.24
Temperament/Disposition	1.49	*	1.53		1.79		.95	1.16
Composite CAT Score, Age 6	1.42	*	.98		1.11		1.41	1.13
Composite Marks, Age 6	.55	+	1.36		.84		.45	.64
Pseudo R[2]			.26					.09
(N)			(486)					(345)

[1]Cases with 4-year college attendance have been screened out. Models estimated by multiple imputation using STATA. Estimates are weighted to account for attrition in the sample between grade 1 and age 22 (sample attrition is 20%).

[2]Baseline category is *Permanent Dropout*. The coefficients represent the effect of a unit change in the independent variable on the odds of being a *GED*, *Diploma Dropout*, or *Non-Dropout* compared with being a *Permanent Dropout*. Odds ratios for the Family SES Index, Parent Psychological Support, Temperament/Disposition, and composite CAT Score represent the change in relative odds brought about by a one standard deviation increase in the independent variables measured from their means.

[3]Excludes permanent dropouts. Odds ratios in this column represent multinomial contrast between *Diploma Dropout* and either a *GED* or a *Non-Dropout.*

*+ p ≤ .10   *   p ≤ .05*

The highest grade completed is one critical piece of evidence for judging effects of exit mode. Its inclusion represents an alternative hypothesis, namely that the odds of employment can be explained by highest grade completed, irrespective of credential type (grade 12 is maximum). The odds coefficient (1.31) implies that each additional grade completed through 12th grade improves the odds of employment by 31%. Postsecondary education, another potential explanation for the employment rate, increases the odds of employment by 10% for each

additional quarter of postsecondary enrollment, and explains significantly more variance in employment.

The critical step to test exit mode effects is found in the second equation which compares the odds of employment for the other three exit-mode groups relative to diploma dropouts. Does a dropout who gets a diploma have a better chance of being employed than a GED holder? Table 2 shows this comparison between GED holders and diploma dropouts is significant and positive (.19), i.e. the employment odds favor diploma dropouts over GED holders by about 5:1. We have controlled the age 6 background variables, highest grade completed, postsecondary training and incarcerations status, strengthening the conclusion that it is the *type of certificate (diploma over GED)*, as contrasted to other variables that predicts employment prospects in early adulthood.

The pattern of employment histories in Table 2 mirrors employment differences seen in national data (Berktold et al. 1998, Table 9b) two years after expected graduation for non-college goers. Among NELS88 students, 75% of diploma dropouts are employed compared to 64% of GED holders or 60% of permanent dropouts. Berktold et al. (1998) screen out students who matriculate at two- or four-year colleges, and also focus on employment in early adulthood.

In sum, for members of the BSS panel, exit mode significantly discriminates among employment odds at age 22, taking into account years of pre- and postsecondary education and jail experience, plus a broad set of background variables including non-cognitive skills. In the BSS panel, as well as nationally (e.g., Berktold et al. 1998), a diploma holder who is a former dropout does at least as well in the labor market at age 22 as does a diploma holder who never dropped out, *and* does better than a GED holder with similar background characteristics. More specifically, a former dropout with a diploma rather than a GED is significantly more likely to be employed – evidence of a "sheepskin effect." A few further comments are in order.

7.1 Non-Cognitive Skills

Measures of non-cognitive skills are less well standardized than are measures of cognitive skills. Little prior research addresses which non-cognitive skills would be useful in the low wage labor market (see Moss and Tilly 2001), although those skills are often mentioned as an explanation for differences between GED and diploma holders (see e.g., Cameron and Heckman 1993). To check further as to whether other non-cognitive skills could favor dropouts who get diplomas over dropouts who get GEDs, we compare means for the two groups on a number of *other* non-cognitive characteristics available from the life history data (work habits, absences, attention span/restlessness, cooperation/compliance, educational expectations and several others). Table 3 shows that none of these 20 other non-cognitive variables differ on t-tests between the GED and diploma/dropout groups. The two groups are thus statistically indistinguishable on these other non-cognitive characteristics.

Table 3. Logistic Models Predicting Employment at Age 22
(Coefficients are Odds Ratios)[1,2]

	Employment at Age 22			
Gender	.49	*	.47	*
Race (African American, White)	.70		.73	
Family SES Index	1.16		1.11	
Poor/Non-Poor Neighborhood	.68		.66	
Parent Psychological Support Index	.75	+	.77	+
Temperament/Disposition	1.17		1.14	
Composite CAT Score, Age 6	1.12		1.10	
Composite Marks, Age 6	1.15		1.18	
Ever Incarcerated through Age 22	.32	*	.30	*
Highest Grade of School Completed	1.31	*	1.07	
Quarters of Postsecondary Education	1.10	*	1.09	*
Mode of Exit from High School[3]				
Permanent Dropout			.14	*
GED			.19	*
Non-Dropout			.29	+
Pseudo R^2	*.22*		*.24*	
(N)		(486)		

[1]Cases with 4-year college attendance have been screened out. Models estimated by multiple imputation using STATA. Estimates are weighted to account for attrition in the sample between grade 1 and age 22 (sample attrition is 20%).

[2]The coefficients represent the effect of a unit change in the independent variable on the odds of being employed at age 22. Odds ratios for the Family SES Index, Parent Psychological Support, Temperament/Disposition, and composite CAT Score, represent the change in relative odds brought about by a one standard deviation increase in the independent variables measured from their means. Estimates are weighted to account for attrition in the sample between grade 1 and age 22 (sample attrition is 20%).

[3]Baseline category is *Diploma Dropout*.

*+ p ≤ .10   *   p≤ .05*

7.2 Age and the GED

Another potential threat to the validity of the GED versus diploma/dropout comparison could be a difference in the age at which the two groups earned their high school credentials. Age and lapse of time since leaving school are things employers take into account in making hiring decisions. For this reason we re-estimated the model, using as the GED comparison group *only* GED holders who receive the GED prior to age 20 and whose average age at certification is 18.5, close to that of the diploma/dropout group (19.1). By age 22, these two groups have had their credentials for similar periods of time (3 to 3.5 years) and the half year age difference favors the GED group. Of this "young" GED group, 62% are employed at age 22 compared to 87% of the diploma/dropout group. Re-estimating the model with the young GED group substituted for the entire GED group, the odds ratio for the GED/diploma dropout contrast is .21, only slightly different from the ratio reported in Table 3. This comparison suggests that differences in the age when GED holders and diploma dropouts received their high school credentials are *not* an issue here.

8. Commentary

Taking a life course perspective on mode of exit from high school draws attention to several key features of the work transition for youth not bound for college. First, students who acquire high school certification, either a diploma or a GED, outrank *permanent* dropouts on almost every measure of their personal and social resources when they begin first grade. Second, the two groups who drop out but then later get certification, whether by earning a diploma or a GED, look much the same in terms of human capital when they start school, but significantly more of the dropouts who later earn diplomas than the GED holders are employed at age 22.

What explains the advantage of the diploma dropouts? Not schooling because school histories of GED holders and diploma dropouts are much the same. For example, 69% of GEDs and 65% of the diploma dropouts are retained by age 14 compared to 45% of non-dropouts. Even more to the point are their *equivalent* jail histories because the odds of employment are more responsive to jail history than to any other predictor. Non-cognitive skills, often suspected as the reason for the diploma dropout group to do better than GED holders (see Elvery 2005), are ruled out using a large number of test variables (Table 3).

BSS evidence involving dropouts with GEDs who *claim* to possess diplomas is suggestive, however when interviewed at age 22, ten panel members claimed to possess a high school diploma but in earlier interviews had reported a GED. When this small group, who claim diplomas but who appear to be GED holders instead, are compared with other GED holders and with diploma/dropouts, their labor market experience resembles that of the "certified" diploma/dropouts rather than that of other GEDs. Almost all of them (90%) are employed at age 22 compared with an employment rate of 53% for other GEDs, a pattern that comports with what we see for the diploma dropouts.

The multivariate analysis demonstrates in another way that exit mode information is key for employers because exit mode can effectively replace highest grade completed as a predictor

in the full model.   (With predictors in Table 2 entered in succession, this coefficient drops from 1.31 to 1.07 when exit mode is added.) Inserting exit mode in the model does not nullify the positive role of postsecondary training, however. Although an employer who is aware of postsecondary schooling might pay less attention to exit mode, that does not seem to be true. When entered sequentially, the postsecondary schooling coefficient changes only from 1.10 to 1.09, perhaps because both GEDs *and* diploma holders are eligible for postsecondary schooling.

8.1 Policy Implications

The large majority of students in this panel come from backgrounds of significant disadvantage. This social background shapes their opportunities, but even so, their life histories demonstrate the power of human agency to affect life outcomes differentially among children who start life very poor. Some panel members achieve considerable labor market success and so reinforce Mortimer et al.'s (2003) observation that some youth, here the diploma dropouts, can adapt to their background deficits in resourceful ways. Choices in life can mitigate or transform effects of early origins because two groups of students who are very much alike in other ways (the GED holders and diploma/dropouts) but who choose to get different high school credentials have different experiences in the job market.

For policy, an initial step has to be to make re-enrolling in high school more routine, especially to make sure that students who drop out know how to re-enroll. Some school systems, including Baltimore, have instituted "resource fairs" for recent dropouts. Community leaders assist school personnel in knocking on doors, rounding up dropouts to attend the fairs. These fairs can arrange alternative means for students to earn one or two credits, which is all that is needed to graduate in some cases. Also, counselors call and pay home visits to students who are supposed to transfer schools but who do not show up in school when expected. Parents too are reassured their children will be "taken back" (Neufeld 2008).

Boesel (1998) describes other programs. One is for adults in experimental programs to sign contracts to complete requirements for high school diplomas. Such programs, as in Rhode Island, Tennessee, and California, have not been formally evaluated but do meet high school curriculum requirements. They are based on self-paced learning, with most of the studying taking place in centers where curricular materials and tutoring by experienced teachers are available. These programs are reputed to cost much less than adult high schools.

Our overview of the school and work experience of at-risk students in Baltimore suggests that these kind of programs, with suitable modifications, might persuade dropouts to choose to get diplomas instead of GEDs, especially if they were counseled about relative opportunity costs and long run benefits.

8.2 Opportunity Costs

Teenagers' decisions about dropout are at least partially driven by perceived opportunity costs, so it is key that students be made aware of the actual nature of those costs. Many see the GED as a quicker route to high school certification and believe they can work in the meantime.   It

is important for them to know that there is a better choice, and that obtaining work may be very difficult.

When they leave high school, over half (53%) the dropouts in this panel say they already have plans to get the GED, but only a minority of them act on their intentions during the first year after leaving. Only about one third (35%) of students with plans to obtain the GED actually got the GED in the first year, and 32% of them waited 4 or more years after leaving high school to complete the GED. *The delay in completion of certification is not because they get jobs when they drop out.* In fact, 74% of those who take 3 or more years to complete the GED do not work at all during their first year after leaving high school, compared with an unemployment rate of 33% for those who receive the GED within 2 years of leaving high school.

Evidence summarized below and in Table 4 shows that the opportunity costs are almost the same for the getting a diploma as getting a GED.

1) At the time they drop out, the GEDs are on average 16.9 years of age and the diploma dropouts are 17.2 years of age.

2) After the GED holders drop out, they are employed 14.5 months before certification at age 19.7.

3) After the diploma dropouts drop out, they are employed for 6.9 months until they get the diploma at age 19.1, but when the diploma dropouts get diplomas (at 19.1 years of age) they are 8 months younger than are the GEDs at the time of *their* certification, and on average work 5.5 months until they reach 19.7 (the average age of GED certification).

Thus by the time both groups attain age 19.7, the GEDs have worked 14.5 months and the diploma dropouts have worked almost as much—12.4 months (6.9 + 5.5). From that age forward the employment advantage of a diploma is clear. The small additional opportunity cost for a diploma dropout is strongly offset by the long-term labor market advantage of possessing a diploma.

The picture for disadvantaged high school students in a high poverty city like Baltimore, where poverty rates of children approached 37% in 2002 is far from unique. It well may be typical of as many as two-million adolescents who come from families on the edge of poverty in the thirty U.S. cities with poverty rates at or above 25% (in the year 2000).

It is time to move beyond simply demonstrating the human capital deficits of GED recipients. We need policies that build *more flexibility* in secondary school programs. Students must be able to combine work and school easily. Moreover, youth at risk for dropout need to be told in advance of the long-term benefits of having a diploma rather than a GED and be given specific second chance opportunities when they do stop out for a time. At the same time they must understand that if it is not possible to return for a diploma, they should make every effort to get a GED, the sooner the better. GED holders still do better in the labor market than dropouts.

Table 4. Months of Employment between First Dropout and High School Certification for GED Holders and Diploma Dropouts[1]

	Age at First Dropout	Age at GED or Diploma	Period between First Dropout and GED or Diploma			Period between Diploma Dropout Certification and GED Certification			Total Months Employed to Age 19.7 (Age of GED Certification)
			Number of Months	Proportion Months Employed	Number Months Employed	Number of Months	Proportion Months Employed	Number Months Employed	
GED Holders (N=83)	16.9	19.7	36.4	.40	14.5				14.5
Diploma/ Dropouts (N=23)	17.2	19.1	25.7	.27	6.9	8.0	.69	5.5	12.4

[1]The sample excludes members of the panel with any attendance at a 4-year college through age 22.

9. Appendix

9.1 Attrition

The attrition analysis is presented in Table A1.

9.2 Definition of Variables

Definitions of all variables are presented in Table A2. Composite variables are further described below.

9.2.1 Family SES

Family SES is a composite based on the average of five indicators in standard form: both parents' education levels and their occupational levels, obtained from parent questionnaires; whether the student qualified for federal meal subsidy in 1982, indicative of low income, obtained from school records. On average, mother's education (95% of students) is 11.7 years; father's education (67% of students) is 12.2 years. Mother's occupation (77% of students) and father's occupation (66% of students) are coded in the TSEI2 metric (Featherman and Stevens 1982). For missing data, the mean of the available variables was used. All but 0.5% of students had data for at least one of the five indicators. Alpha reliability based on five items is .86 (N=386); for three items (over 95% of the sample) .74.

9.2.2 Neighborhood

Neighborhood designation (poor, non-poor) for each of the 20 schools sampled in year 1 was

derived from information on 26 Regional Planning Council Districts (Regional Planning Council 1983) in Baltimore. "Poor" neighborhoods had a mean household income of $11,467 (coded 1); "non-poor" had an average income of $17,738 (coded 0). In poor neighborhoods, 22% of families were below the poverty line, compared with only 6% of families in the non-poor neighborhoods. Qualitative judgments about social climate, neighborhood resources, and isolation of the neighborhood were also taken into account in assigning neighborhood categories as "poor" or "non-poor." For schools in "poor" neighborhoods the average meal subsidy rate was 85%, in "non-poor" neighborhoods, 35%.

9.2.3 Temperament/disposition

Temperament/disposition of students was assessed by 5 items adapted from Zill (National Survey of Children 1976). Teachers scored each item using 6 categories ranging from "exactly like" to "not at all like." Factor analyses of the original 14 items identified a sub-scale (see Table A2 for exact wording of items), which consists of teachers' assessments of students' enthusiasm, cheerfulness, creativity, social involvement, and openness to "new things and new situations and experiences" (see Alexander, Entwisle, and Dauber 1993, for more information). Assessments by grade 1 teachers are available for 85% (N = 538) of the panel. Year 2 assessments were used to backfill missing data (N = 58), boosting coverage to 94%. The alpha reliability is .82.

9.2.4 Parent Psychological Support

Before the first report card was issued in grade one, parents guessed their child's marks in reading and math and predicted how far he/she would go in school. The Parent Psychological Support index is the mean of z-scores for the three items. Reliability of .90 was assumed, based on estimates from previous BSS studies (see Entwisle, Alexander, Pallas and Cadigan 1988).

9.2.5 CAT Reading and Math Scores

School records furnished scale scores on the California Achievement Test (CAT) Reading Comprehension and Math Concepts and Applications subtests, administered in early fall and again in May of first grade. The Kuder-Richardson 20 (homogeneity) reliabilities for the standardization sample are .69 and .83, respectively for reading and math in the fall of grade 1, and .84 and .87 in the spring of grade one (California Achievement Test 1979). The test composite is the mean of the normalized CAT scores for reading and math in fall of grade one.

9.2.6 The Mark Composite

The mark composite, also derived from school records, is the average of the first quarter marks in reading and math (coded from "1" low to "4" high).

Acknowledgement

Table A1. Attrition Analysis: Characteristics of Original BSS Sample (Age 6), Young Adult Survey (YAS) Sample (Age 22), and Students Who Were Not in YAS Sample[1]

	Original Sample (N = 790)		YAS Sample (N = 631)		t-test	Not in YAS Sample (N = 159)	
	Mean	*S.D.*	*Mean*	*S.D.*		*Mean*	*S.D.*
Proportion Female	.51	.50	.53	.50	*	.42	.50
Proportion African American	.55	.50	.57	.50	*	.43	.50
Family SES Index	-.04	.80	-.01	.82	*	-.18	.69
Proportion Two-Parent Family	.56	.50	.57	.50		.53	.50
Reading CAT, Age 6	281	40.8	282	42.2		277	33.8
Math CAT, Age 6	292	31.9	294	32.8	*	287	27.2
Reading Mark, Age 6	1.88	.71	1.90	.72		1.80	.64
Math Mark, Age 6	2.23	.84	2.24	.85		2.23	.79
Retention in Grade 1	.17	.38	.16	.37		.19	.40

[1]YAS Sample contains 631 cases, 80% of Original Sample, and MAS sample contains 628 cases, 79% of Original Sample. T-tests compare YAS and MAS samples with those who were not in the each sample.
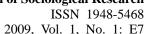
*$p \leq .05$ +$p \leq .10$

Table A2. Variable Definitions, Means, and Standard Deviations of Measures

for Regression Sample (N = 486[1])

Variable	Mean (S.D.)	N	Description
Dependent Variables			
Exit Mode from High School	%		High School Status at Age 22: High school credential earned and dropout
Dropout	29.0	141	status (ever dropped out of school)
GED	17.1	83	
Diploma Dropout	4.7	23	
Non-Dropout	49.2	239	
Proportion Employed at Age 22	.65 (.48)	486	Proportion of panel members employed at time of age 22 interview (YAS)
Background Characteristics			
Student Gender	.51 (.50)	486	1 = Female 0 = Male
Student Race	.59 (.49)	486	1 = African American 0 = White
Family Socioeconomic Status	-.25 (.61)	485	Average of both parents' education and occupational status and participation in Federal meal subsidy program (all measures are Z scores)
Poor Neighborhood	.70 (.46)	486	Location of school attended in Grade 1: 0 = Non-poor neighborhood (mean income $17,738; 6% families in poverty) 1 = Poor neighborhood (mean income $11,467; 22% families in poverty)
Parental Support			
Parental Support Index	-.13 (.70)	464	Composite is mean of z-scores for parent's expectations for student's reading and math marks and educational attainment
Reading Mark Expectations	2.47 (.87)	480	Parent's expectations for student's reading and math marks, beginning of grade 1:
Math Mark Expectations	2.52 (.85)	480	1 = unsatisfactory; 2 = satisfactory; 3 = good; 4 = excellent
Educational Expectations	2.90 (1.1)	467	Parent's expectations for students educational attainment: 1 = not finish high school; 2 = finish high school; 3 = 1-2 yrs college; 4 = 4 yrs college; 5 = > 4 yrs college

Variable	Mean (S.D.)	N	Description
Cognitive Skill			
Composite CAT Score	-.20 (.78)	450	Composite of Fall 1982 Reading and Math CAT scores: Reading and Math CAT scores converted to z-scores, then the mean of the z-scores is calculated
CAT Reading Score	274.4 (38.5)	433	California Achievement Test, Form C, Fall 1982 (beginning of grade 1), scale scores: Reading Comprehension
CAT Math Score	285.4 (28.7)	442	Math Concepts and Applications
Composite Grade 1 Mark	1.91 (.65)	436	Composite mark is the mean of the Reading and Math marks, fall 1982
Reading Mark, Quarter 1	1.74 (.66)	437	Reading and Math marks of students in grade 1, quarter 1 (fall 1982):
Math Mark, Quarter 1	2.07 (.81)	435	1 = unsatisfactory 3 = good 2 = satisfactory 4 = excellent
Non-Cognitive Skill			
Temperament/Disposition	20.87 (5.35)	456	Grade 1 teachers rated students on 5 items, from 1 to 6 with high scores reflecting positive assessments: very enthusiastic, interested in a lot of different things, likes to express ideas; usually in a happy mood, very cheerful; is creative or imaginative; keeps to himself or herself; spends a lot of time alone; very timid, afraid of new things or new situations. The scale score is the sum of ratings on the 5 items.
Criminal Activity			
Incarceration Rate, Age 22	.19 (.40)	486	Cumulative measure of incarceration status, through age 22: "Have you ever been incarcerated?" (YAS) 0 = no; 1 = yes
Educational Attainment			
Highest Grade of School	11.02 (1.33)	475	Grade level completed (for dropouts and GED), coded '12" for those with diplomas.
Postsecondary Schooling, Age 22	%		Highest level of postsecondary school attended whether
No Postsecondary	64.6	314	or not completed the program. Those who attended 4-year
Certificate/License	15.0	73	colleges (23%) have been screened from the analysis sample.
Associate Degree	20.4	99	
Quarters of Postsecondary, Age 22	2.21 (3.82)	486	Total Quarters attended postsecondary school through age 22 (YAS) (those with no postsecondary schooling coded '0')

Employment at Age 22

Wage Rate of Most Recent Full-Time Job, Age 22 ($/Hour)	$8.20 (3.57)	426	Wage rate for most recent full-time job, age 22 (YAS). Only for those with at least one full-time job since leaving high school (88% of analysis sample).
Proportion of Quarters Employed since High School	.64 (.34)	486	Proportion of quarters since high school with either full-time or part-time employment

Supplementary Non-Cognitive Measures

Elementary School Measures

Days Absent, Age 6	13.50 (11.86)	435	Mean days absent from school during first grade
Work Habits Composite, Age 6	1.67 (.33)	468	Work habits ratings (conduct, effort, attention, class participation, completes assignments, works independently)
Work Habits Composite, Age 7	1.69 (.31)	407	from report cards, each category coded: 1 = unsatisfactory 2 = needs improvement
Work Habits Composite, Age 9	1.65 (.31)	392	Work habit composite rating created by taking the mean of the 6 possible ratings (conduct, effort, etc.) recorded quarterly in years 1, 2, and 4.
Attention/ Restlessness, Age 6	20.25 (4.16)	459	Grade 1 teachers rated students on 4 items, from 1 to 6 with high scores reflecting positive assessments: concentration; high strung, tense or nervous; acts too young for age, tantrums; restless, fidgets, can't sit still. The scale score is the sum of ratings on the 4 items.
Cooperation/Compliance, Age 6	20.25 (4.29)	455	Grade 1 teachers rated students on 4 items, from 1 to 6 with high scores reflecting positive assessments: fights too much, teases, picks on or bullies other children; tells lies or fibs; has a very strong temper, loses it easily; is polite, helpful, considerate of others. The scale score is the sum of ratings on the 4 items.
Retention in Grade 1, Age 6	.21 (.41)	484	Rate of retention in grade 1, age 6: 0 = not retained 1 = retained
Retention in Grade, through Age 10	.46 (.50)	484	Cumulative rate of retention in grade by end of Grade 5 (Age 10): 0 = never retained 1 = retained at least once

Age 14 Measures

Days Absent, Age 14	35.01 (33.79)	258	Mean days absent from school during school year, age 14
Temperament/Disposition, Age 14	18.26 (4.69)	331	See definition for age 6 measure.
Attention/ Restlessness, Age 14	19.55 (4.17)	333	See definition for age 6 measure.
Cooperation/Compliance, Age 14	19.42 (3.98)	316	See definition for age 6 measure.
Retention in Grade, through Age 14	.62 (.48)	485	Cumulative rate of retention in grade by end of Grade 9 (Age 14): 0 = never retained 1 = retained at least once
Educational Expectations, Age 14	3.92 (1.38)	426	How far do you expect to go in school, coded: 1 = less than high school; 2 = high school (or GED); 3 = trade school ; 4 = some college; 5 = college grad graduate; 6 = more than BA
School Engagement Behaviors, Age 14	-.12 (.67)	427	A composite combining indicators of student behavior at age 14, including teachers' ratings of externalizing behaviors, adaptability and conduct; data on time spent on homework, problems at school, cutting school and classes. Coding is in a positive direction with all indictors standardized. The final measure is a mean of the z-scores of all available indicators.
School Engagement Attitudes, Age 14	-.05 (.51)	413	A composite combining age 14 indicators of student attitudes toward school and teacher and parent assessments of students' attitudes toward school. Coding is in a positive direction with all indictors standardized. The final measure is a mean of the z-scores of all available indicators.
Academic Self-Esteem Scale, Age 14	3.85 (.55)	426	Mean of 5 items from the Dickstein (1972) self-esteem scale. "How good are you at …": math, reading, being a good student, learning new things quickly, writing. Responses range from 5 (very good) to 1 (very bad).
Social Responsibility Scale, Age 14	4.30 (.49)	426	Mean of 3 items from the Dickstein (1972) self-esteem scale. "How good are you at …": being helpful, being able to look after others, being able to take care of yourself. Responses range from 5 (very good) to 1 (very bad).
Character Scale, Age 14	4.08 (.56)	426	Mean of 5 items from the Dickstein (1972) self-esteem scale. "How good are you at …": being polite, obeying rules, being kind, being honest, being cooperative. Responses range from 5 (very good) to 1 (very bad).

[1]The sample has been screened for any attendance at a 4-year college. When estimating regression models, cases missing from the 486 sample were imputed using multiple imputation techniques in STATA.

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Note

Note 1. The variable "high school grade level completed" controls for amount of time enrolled in high school. It provides a measure of how close the panel member came to completing high school.