capsee
CENTER FOR ANALYSIS OF POSTSECONDARY EDUCATION AND EMPLOYMENT

Nonpecuniary Returns to Postsecondary Education: Examining Early Non-Wage Labor Market Outcomes Among College-Goers in the United States

A CAPSEE Working Paper

Lauren Schudde
The University of Texas at Austin

January 2017

The author's email address is schudde@austin.utexas.edu. This research was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305C110011 to Teachers College, Columbia University. The opinions expressed are those of the author and do not represent views of the Institute or the U.S. Department of Education. The research was conducted with restricted access to Bureau of Labor Statistics (BLS) data. The views expressed here do not necessarily reflect the views of the BLS. Any errors are those of the author.

For information about CAPSEE, visit capseecenter.org

Abstract

While research consistently finds positive earnings returns to educational attainment, there is little evidence on postsecondary education's impact on other employment-related outcomes. Yet nonpecuniary returns to schooling are particularly important in the United States, where fringe benefits are typically tied to employment and there is a great degree of variation in job quality. Using longitudinal data following a nationally representative sample of young persons who enrolled in at least some college education, this paper examines nonpecuniary labor market outcomes associated with different levels of postsecondary educational attainment. Overall, the results indicate that increasing levels of postsecondary educational attainment positively predict a number of beneficial employment outcomes. This is particularly the case for fringe benefits. After controlling for participants' backgrounds and educational experiences, attainment positively predicts access to employer-provided health and dental insurance, retirement, and paid leave. Results concerning job satisfaction and flexibility are weaker and more complex.

Table of Contents

1. Introduction and Background

Educational attainment is an important determinant of economic and social success. In the era of "College for All," an increasing segment of the population is earning at least some college credit. Despite a robust literature examining the impact of schooling on earnings, it is unclear how educational attainment affects other important employment-related outcomes. Furthermore, research on returns to educational attainment primarily focuses on years of schooling, making it more difficult to parse out variation in returns across different forms of postsecondary attainment, including credentials that are not easily quantified in terms of years of schooling (e.g., an associate degree does not often translate to two years of schooling), and variation among students who fail to earn a degree.

This paper uses data from the National Longitudinal Survey of Youth 1997, which follows a nationally representative sample of youth throughout their early career trajectories, to examine the role that postsecondary educational attainment plays in predicting a variety of non-earnings employment outcomes. Overall, my analysis indicates that—even after controlling for a variety of background measures at the individual and institutional level—higher postsecondary attainment is generally linked to better employment-related outcomes.

Employment Outcomes Beyond Earnings

Hundreds of papers have been published estimating the return to educational investment, most of which examine the private returns to schooling in the form of earnings (several reviews cover the extensive literature—e.g., Ashenfelter, Harmon, & Oosterbeek, 1999; Card, 1999; Dickson & Harmon, 2011). Despite the fervent energy spent studying the private financial returns to education, important nonpecuniary outcomes that may create private returns through externalities, including occupational status, health, and happiness, have received substantially less attention (Hout, 2012; Oreopoulos & Salvanes, 2011). Other employment-related outcomes—including various dimensions of job quality, stability of employment, and ability to find work—have gone largely ignored.

Extant research tends to equate job quality with earnings, which frames "good jobs" as those that offer high wages and "bad jobs" as those that offer low wages (Acemoglu, 2001). While wages are one indicator of job rewards, workers are also compensated through other means. Due to the employer-centered model of fringe benefits in the U.S., benefits also reward employees through the distribution of health insurance and retirement pensions. Job quality is multifaceted, involving dimensions beyond compensation (Findlay, Kalleberg, & Warhurst, 2013). Additional measures of job quality include autonomy—the degree to which workers' control what they do and how they do it, including the flexibility to perform work tasks at their own pace and schedule—and employee satisfaction (Kalleberg, 2012).

Nonpecuniary dimensions of job quality provide insight into the day-to-day quality of work life. Recent employment history, including job mobility and hours spent working for pay,

also has important implications for an individual's quality of life. For decades, employers have responded to market pressures by increasingly outsourcing jobs, relying on temporary workers, and dismantling ladders to career advancement (Kalleberg, 2012; Kalleberg & Marsden, 2013). Limited advancement opportunities and increasing job insecurity increase job mobility, with workers switching employers and even sectors in pursuit of new jobs (Lam, Ng, & Feldman, 2012). At the same time, an increasing proportion of Americans are working long hours. Between the early 1980s and 2000's, the percentage of Americans working more than 50 hours per week, a phenomenon some scholars label "overwork," increased from less than 9 percent to over 14 percent (Cha & Weeden, 2014; Jacobs & Gerson, 2004). The role that education plays in job mobility and hours working for pay remains unclear.

Research suggests, at least descriptively, that educational attainment serves to protect workers from unemployment and to improve their ability to recover from unemployment spells (Gangl, 2006; Hout, 2012). Hout maps the negative relationship between educational attainment and unemployment. He illustrates that, during the 2008 recession, workers with "some college" (those who attended without earning a degree) were twice as likely to be unemployed as workers with a bachelor's degree (Hout, 2012, Figure 1). He does not examine whether these patterns hold up after controlling for background characteristics. Given the long-term effects of unemployment on subsequent employment and life outcomes (Gangl, 2006; Mortimer, Kim, Staff, & Vuolo, 2016; Young, 2016), we need a clearer understanding of the impact of postsecondary pathways on unemployment. While research has explored the link between years of schooling and unemployment, there is a dearth of research examining the role played by different forms of postsecondary attainment. For example, Oreopoulos (2007) considers the impact of high school dropout decisions on eventually facing unemployment, but does not evaluate the impact of college-level attainment despite the fact that an increasing percentage of the population now graduates from high school and attends college.

The Role of Educational Attainment

Despite an abundance of literature demonstrating the link between education and earnings, few studies have examined how education influences other employment outcomes. Isolating the effects of educational attainment on any outcome is made more difficult by the fact that people with the highest levels of attainment tend to differ systematically from people with less education. Those who accrue more education often benefit from the cultural, social, and economic assets of their parents, score better on early cognitive tests, and enter school with the habits and implicit knowledge necessary to succeed (Hout, 2012). Studies that tout the benefits of educational attainment, but refer to the raw means across educational levels without accounting for individuals' backgrounds and prior experiences, may be overstating the role of education.

Despite the difficulty in isolating the effect of educational attainment, understanding its role has never been more important. The correlation between education and economic outcomes

is higher than ever before in the United States (Goldin & Katz, 2009). Research suggests that workers with low-skills—those with less education—are more vulnerable to unemployment or employment in jobs with bad qualities (Hout, 2012; Kalleberg, 2012).

Much of the literature operationalizes educational attainment as "years of schooling," which assumes that the effects of education are linear across all years of education and, in some instances, that attending community college is equivalent to two additional years of education beyond high school (limitations in measuring returns to schooling through the years of schooling operationalization are outlined by Belfield & Bailey, 2011, and Goldberg & Smith, 2008, among others). Some studies report earnings gains by education level, rather than using the years of schooling approach, but this often haphazardly lumps together different postsecondary categories. For instance, "postsecondary education" might be classified as *any* type of college degree (including, e.g., both an associate degree and a bachelor's degree), and "some college" may include both non-completers and students who earn credentials other than a baccalaureate (Belfield & Bailey, 2011). This crude classification makes it difficult to know the returns across varying levels of postsecondary educational attainment. As more people in the nation enroll in college, yet do not go on to earn a bachelor's degree, there is a growing need to understand the impact of various forms of postsecondary attainment.

Research Questions

This study contributes to the literature by leveraging longitudinal, nationally representative data to explore the relationship between postsecondary educational attainment and a range of nonpecuniary employment outcomes among persons in the United States who attended college by age 30. To examine variation in employment returns across different forms of postsecondary education, I compare non-completers (those with "some college") from a two-year-or-less college with non-completers from four-year institutions, certificate-earners, and those who hold an associate, bachelor's, master's, or more advanced degree.

To understand the impact of postsecondary educational attainment on employment-related outcomes among persons early in their careers, I examine the following research questions:

1. How does educational attainment affect the quality of one's current job?
2. Does increased attainment improve the probability of having a job with high "quality of work life" (i.e., job satisfaction and a flexible work schedule)?
3. Does increased attainment improve the probability of access to desirable fringe benefits?
4. How does educational attainment influence job mobility and work intensity?
5. How does educational attainment influence unemployment patterns throughout the early career?

The paper is organized as follows: Section 2 describes the data and methodological approach. Section 3 describes the analysis and findings. Section 4 discusses the findings and concludes with implications for future research.

2. Empirical Approach

Data

This study uses the National Longitudinal Survey of Youth 1997 (NLSY97), a data set that captures the transition from school to work for a nationally representative sample of youth who were born between 1980 and 1984. In 1997, 8,984 eligible youths (those between ages 12 to 16 years of age) and their parents were initially surveyed in 1997 regarding a range of topics, including work experience, education, work-related attitudes, and other labor force and human capital issues. In addition to the cross-sectional sample, an oversample was drawn of Black and Hispanic youths. After the baseline interview, the study conducted annual follow-up interviews and collected high school and postsecondary transcript data.

This study uses data from the first 15 waves of the survey, collected between 1997 and 2011 (when the youngest respondents in the sample were then 27 and the oldest were 31), as well as from an assessment of cognitive activity (the Armed Services Vocational Aptitude Battery [ASVAB]), postsecondary transcripts, and geocode data featuring identification numbers for the colleges attended. The college identifiers were linked to institutional-level information from the Integrated Postsecondary Education Data System (IPEDS) (e.g., the number of students and faculty to calculate faculty/student ratio, and the level and control of each institution) and the Delta Cost Project (e.g., average net student tuition). With the exception of the geocode data file, all other files are publically available from the Bureau of Labor Statistics (BLS) (to obtain access to the geocode file, researchers must apply for access through the BLS).

I restrict the sample to focus on only participants who attended college by the 2011 wave of the survey (n = 4,942). While much of the literature uses high school graduates as the comparison group for educational attainment, focusing on the college-going population allows me to better compare the effects of varying levels of college educational attainment. It also allows me to control for the impact of college experiences (including type of college attended and selected major) on returns to schooling. To leverage the college characteristics, I also restrict the sample to students with a college identifier, resulting in a final analytic sample of 4,803 persons who enrolled in a college at some point by the time they turned approximately thirty. At the latest follow-up, 767 participants are still enrolled in some form of postsecondary education; I control for years since last enrollment in the analyses.

As with many longitudinal surveys, the NLSY97 suffers from some missing data. Using multiple imputation (MI), I am able to retain cases missing only some information and preserve a

viable sample size. MI relies on the assumption that non-response probabilities are not dependent on unobserved information. It creates several complete copies of the data set, replacing missing observations with plausible values instead of assuming one "true" response model (Royston, 2005). This process adds variability to the analytic model, guarding against artificially precise standard errors. I present the resulting set of average estimates for each analysis, which combine estimates across 10 imputed datasets using Rubin's rules (Rubin, 1987).

Measures

The NLSY97 includes rich data on student background, education, and labor market outcomes. To control for students' background, I include measures of gender, race/ethnicity, family structure, and family socioeconomic status (including items obtained from parent surveys in the base-year, such as household net worth, household income, and parents' highest degree earned). I also capture educational background, including whether students attended a public high school, and a measure of cognitive ability (the combined score on the ASVAB), and educational experiences in college, including last known major and cumulative college GPA. Information on major was drawn from postsecondary transcripts at the most recent college. Using major codes (college course map numbers), I develop broad major fields following examples from prior literature (e.g., Leppel, Williams, & Waldauer, 2001; Zafar, 2013). I also include postsecondary characteristics for students' most recent institution, including measures of institutional sector and proxies for institutional quality, such as ratio of faculty to students and faculty salary.

The independent variable of interest is educational attainment. I use postsecondary transcripts and self-reports to determine the highest level of postsecondary education attained by the latest wave. Whenever possible, I rely on postsecondary transcripts, which may be more reliable (Adelman, 1999). I use self-reports to obtain enrollment and degree information for those missing transcripts and in cases where surveys indicate additional education in waves collected after transcripts (e.g., earning a graduate degree in the latest wave that is not reflected in the transcript). To adequately capture variation in effects among types of non-completion, I divide college-goers who did not earn a credential into two subgroups: non-completers whose latest institution awards associate degrees (or below) and non-completers whose latest institution awards at least a baccalaureate. I refer to these as "some college (two-year)" and "some college (four-year)." The final educational attainment categories are: some college (two-year), some college (four-year), certificate, associate degree, bachelor's degree, master's degree, and doctoral or professional degree (e.g., Ph.D., M.D., J.D.).

The NLSY97 is ideal for examining employment due to its breadth in employment-related survey items. As state administrative data becomes more accessible, the quality of our knowledge about the impact of educational attainment on earnings is improving (e.g., Backes, Holzer, & Velez, 2015; Bahr et al., 2015; Belfield, 2013, 2015b; Belfield, Liu, & Trimble, 2014). State administrative data offers insights into earnings for entire cohorts of college enrollees, but

is unable to follow students across state lines (Scott-Clayton & Wen, 2016) or offer insight into most nonpecuniary labor market outcomes. The NLSY97 is able to follow students despite their residential mobility and includes employment-related measures such as fringe benefits and self-rated job satisfaction for every employer in each survey round. It also captures periods of unemployment and number of jobs held and hours worked each year. This detailed information about employment and jobs held over time makes the NLSY97 stand out among other nationally representative samples of youth, such as the Education Longitudinal Study or Beginning Postsecondary Students Longitudinal Study, which contain limited employment information in the final survey wave. Given the lack of evidence on how various levels of educational attainment influence nonpecuniary employment outcomes, I focus on three types of outcomes, outlined in the research questions above: (1) quality of current or most recent job, including "quality of work life" measures, such as satisfaction and having a flexible schedule, and availability of fringe benefits; (2) employment history in the past year, including number of jobs and hours worked per week; and (3) unemployment history, including the unemployment spells and months receiving unemployment benefits over the course of the participant's work history since the age of 18. Table 1 describes all variables, including outcomes, and presents sample statistics.

Analytic Strategy

I use multivariate regression analysis to examine how outcomes vary across levels of educational attainment while controlling for students' background, educational experiences, and institutional characteristics. The resulting regression coefficients provide a summary of the apparent influence of educational attainment on each employment outcome after parsing out the influence of background characteristics and other observable variables.

Ideally, I would utilize quasi-experimental methods to deal with the selection issue. However, the nature of educational attainment (which is correlated with many other variables) and variety of employment outcomes make it difficult to identify a clear covariate available in the NLSY97 that aligns with the assumptions necessary to use an instrumental variable approach. Instead, I deal with selection bias by controlling for measures of student background and experiences in the final models. Recent evidence suggests that covariate adjustment can be as effective as quasi-experimental methods in minimizing selection bias (Pohl, Steiner, Eisermann, Soellner, & Cook, 2009). Prior research suggests that controlling for observable characteristics substantially reduces the estimated effects of educational attainment on earnings (Card, 1999, Table 5). While this approach does not yield causal effects of educational attainment on employment outcomes, it offers a more trustworthy estimate of the effects than raw differences.

Table 1: Sample Statistics for National Longitudinal Survey of Youth 1997 College-Goers

Variable	Description	Mean	SD
Demographic background:			
Female		0.547	(0.498)
Race/ethnicity			
White (reference)	Identified as White, non-Hispanic	0.546	(0.498)
Black	Identified as Black, non-Hispanic	0.230	(0.421)
Other race	Identified as another race, non-Hispanic	0.046	(0.209)
Hispanic	Identified as Hispanic	0.179	(0.383)
Immigrant	Was not born in the United States	0.061	(0.240)
Age	Age on December 31, 2011, calculated using birthdate	29.469	(1.485)
Lived with both parents 1997	Lived with both parents in high school	0.573	(0.495)
Parents owned home 1997	Parent owned home in high school	0.705	(0.456)
Household net worth 1997	Household net worth in high school, per baseline parent survey	128,000	(161,000)
Household income 1996	Household income in high school, per baseline parent survey	56,700	(46,800)
Square root household income 1996		219.412	(92.332)
Parents' highest degree:	Highest degree earned by parent with highest attainment		
None (reference)		0.068	(0.252)
High school diploma or equivalent		0.411	(0.492)
Associate degree		0.134	(0.341)
Bachelor's degree		0.224	(0.417)
Master's degree		0.116	(0.320)
Doctoral or professional degree		0.046	(0.209)
Educational background and experiences:			
Public high school	Student attended a public high school	0.888	(0.315)
ASVAB combined score 1999	Combined score on the Armed Services Vocational Aptitude Battery	56300	(26900)
Highest educational attainment by 2011	Highest educational attainment by 2011, as indicated by transcripts; when missing transcripts, this information was drawn from self-reports on the 2011 survey		
Some college (AA-granting or less) (reference)		0.154	(0.361)
Some college (Baccalaureate-granting)		0.164	(0.370)
Certificate		0.129	(0.335)

Associate degree		0.122	(0.327)
Bachelor's degree		0.341	(0.474)
Master's degree		0.071	(0.257)
Doctoral or professional degree		0.019	(0.137)
Years since last enrolled	Years since last enrolled in a postsecondary institution in 2011	6.462	(3.845)
Major	Major at last known postsecondary institution; major fields grouped together, similar major codes drawn from postsecondary transcripts		
Humanities and liberal arts (reference)		0.258	(0.438)
Health		0.027	(0.162)
Industrial, manufacturing, construction		0.005	(0.069)
Natural science		0.006	(0.076)
Business		0.043	(0.203)
Social and behavioral sciences		0.016	(0.126)
Communication studies		0.006	(0.076)
Literature, linguistics, and fine arts		0.014	(0.116)
Math and computer science		0.012	(0.108)
Education and social services/policy		0.030	(0.172)
Engineering and related fields		0.017	(0.131)
Service career oriented		0.006	(0.076)
Continuing education		0.006	(0.076)
College GPA	Cumulative GPA, obtained from postsecondary transcripts	2.577	(0.951)
College GPA, squared		7.543	(4.210)
Characteristics of latest postsecondary institution:	Institutional measures were obtained from IPEDS and Delta Cost Project data using IPEDS identification number from geocode data		
Level	Highest type of degree offered		
Baccalaureate or higher (reference)		0.630	(0.483)
Below the baccalaureate		0.362	(0.481)
Below associate degree		0.009	(0.092)
Control	Institutional control		
Public (reference)		0.717	(0.450)
Private not-for-profit		0.168	(0.374)
Private for-profit		0.115	(0.319)

Flagship status	Institution holds flagship status	0.068	(0.251)
Average faculty salary	Average salary of instructional staff	67,000	(18,000)
Average net student tuition, $2011	Average net tuition of students	6068	(7470)
Faculty–student ratio	Average number of faculty per student	0.030	(0.021)
Employment outcomes:			
Satisfied at current job	Indicates that the interviewee reported that they were satisfied with their current or more recent job; drawn from a Likert scale item where 5 = "dislike it very much," 4 = dislike it somewhat," 3 = "think it is OK," 2 = "like it very well," 1 = "like it very much"—those reporting a value of 1 or 2 were coded as "satisfied"	0.692	(0.462)
Flexible work schedule	A flexible work schedule was available at most recent or current job	0.410	(0.492)
Health insurance	Health insurance was offered by most recent or current employer	0.725	(0.447)
Dental insurance	Dental insurance was offered by most recent or current employer	0.658	(0.475)
Retirement plan	A retirement plan was offered by most recent or current employer	0.571	(0.495)
Days paid leave per year	Number of paid leave days per year offered by most recent or current employer; combined vacation and sick leave for respondents who reported them separately	10.037	(10.444)
Number of jobs 2011	Number of jobs the respondent worked in the last year (2011)	1.186	(0.753)
Average hours worked per week 2011	Average number of hours worked per week in the last year (2011), derived from self-report of total hours worked in last year	40.526	(14.091)
Total months received unemployment	Total cumulative months received unemployment since turning 18	1.310	(3.808)
Total unemployment spells	Total unemployment spells while not enrolled in schooling since turning 18	0.284	(0.755)

Note. N = 4,803. Values represent unadjusted sample means and standard deviations (no weights applied).

For the regression analyses, I estimate ordinary least squares (OLS) regressions for continuous outcomes (e.g., number of jobs, hours worked per week, number of paid leave days) and logistic regressions for dichotomous outcomes (e.g., employer offers health insurance, retirement plan, flexible work schedule). The OLS models take the following basic form:

$$Y_{ij} = \beta_0 + \beta_1(Attainment_{ij}) + \beta_n(X_{ij}) + \epsilon_{ij} \quad (1)$$

where Y_{ij} represents the continuous measure of employment for student *i* attending college *j* (the most recent college attended), $Attainment_{ij}$ represents the individual's highest educational attainment by 2011, and X_{ij} is a vector of individual background characteristics and institutional characteristics of the latest postsecondary institution attended by the individual.

The logistic regression model predicts the probability of the occurrence of binary employment outcome:

$$log\left(\frac{p_{Y_{ij}}}{(p_{y_{ij}}-1)}\right) = \beta_0 + \beta_1(Attainment_{ij}) + \beta_n(X_{ij}) \quad (2)$$

where $p_{Y_{ij}}$ represents probability that Y_{ij}, the employment outcome for individual *i* in college *j*, occurs; and where the remaining terms are the same as noted above. In all regression analyses, I weight the models to account for the sampling structure and response rates across the cross-sectional longitudinal sample using NLSY97's 2011 cumulative cases sampling weight.

3. Results

I first examine descriptive differences across students attaining various levels of education. Table 2 presents weighted means, adjusted to represent the population, for each of the attainment subgroups. The final column includes weighted means for the full sample. There are several notable patterns in demographic characteristics across education levels, supporting the need to control for background when modeling the relationship between educational attainment and employment outcomes. Racial/ethnic representation varies across attainment, with higher representation of Black and Hispanic persons in the lower levels of educational attainment and higher representation of White persons at the upper end of the spectrum. Similarly, family net worth and family income also vary positively with educational attainment—those who eventually earn a bachelor's or advanced degree appear more likely to come from an affluent family background. Parental education and cognitive ability also are positively associated with educational attainment. College-goers who earn a bachelor's degree or higher are more likely to have parents with higher levels of education and to demonstrate higher cognitive ability on the ASVAB test than those who do not earn a credential and those who hold a certificate or associate degree.

Table 2: Descriptive Statistics by Level of Highest Educational Attainment: Weighted Means

Variable	Some (Two-Year)	Some (Four-Year)	Certificate	Associate Degree	Bachelor's Degree	Master's Degree	Doctoral or Professional	All Students
Female	0.501	0.431	0.512	0.540	0.554	0.619	0.562	0.530
Race/ethnicity:								
White	0.607	0.677	0.577	0.687	0.768	0.798	0.749	0.705
Black	0.190	0.175	0.179	0.133	0.087	0.079	0.090	0.128
Other race	0.049	0.034	0.063	0.055	0.073	0.053	0.111	0.061
Hispanic	0.154	0.114	0.180	0.125	0.072	0.069	0.049	0.107
Immigrant	0.057	0.029	0.040	0.035	0.046	0.043	0.040	0.042
Age	29.327	29.352	29.692	29.433	29.463	29.672	29.813	29.482
Lived with both parents 1997	0.459	0.531	0.454	0.544	0.725	0.732	0.809	0.613
Parents owned home 1997	0.602	0.675	0.629	0.722	0.849	0.855	0.857	0.753
Household net worth 1997	78,790	11,7994	84,250	10,9624	195,234	195,514	235,795	147,278
Household income 1996	45,024	57,147	45,027	51,496	73,134	72,284	91,730	61,761
Parents' highest degree:								
None	0.084	0.047	0.095	0.042	0.023	0.012	0.003	0.043
High school diploma	0.528	0.442	0.527	0.496	0.270	0.256	0.145	0.380
Associate degree	0.139	0.122	0.142	0.149	0.136	0.114	0.067	0.133
Bachelor's degree	0.170	0.229	0.184	0.208	0.303	0.278	0.309	0.248
Master's degree	0.071	0.116	0.045	0.074	0.201	0.227	0.143	0.140
Doctoral or professional	0.009	0.044	0.008	0.031	0.068	0.114	0.333	0.056
Educational experiences:								
Public high school	0.915	0.914	0.949	0.912	0.860	0.846	0.807	0.889
ASVAB combined score 1999	46,447	58,478	46,166	54,045	69,305	74,536	85,420	61,148
Years since last enrolled	6.309	5.893	6.301	6.221	6.782	5.211	6.649	6.335
Major:								
Humanities and liberal arts	0.116	0.144	0.087	0.351	0.453	0.461	0.574	0.316
Health	0.040	0.020	0.039	0.065	0.021	0.010	0.004	0.029
Industrial, manufacturing, construction	0.006	0.000	0.009	0.021	0.004	0.000	0.000	0.006

Natural science	0.002	0.004	0.003	0.004	0.007	0.014	0.051	0.007
Business	0.022	0.036	0.042	0.050	0.075	0.048	0.003	0.052
Social and behavioral sciences	0.011	0.022	0.005	0.009	0.023	0.026	0.041	0.018
Communication studies	0.001	0.012	0.005	0.001	0.010	0.006	0.000	0.007
Literature, linguistics, and fine arts	0.007	0.026	0.005	0.016	0.021	0.023	0.013	0.017
Math and computer science	0.019	0.008	0.020	0.013	0.014	0.021	0.000	0.015
Education and social services/policy	0.020	0.034	0.033	0.025	0.038	0.055	0.013	0.034
Engineering and related fields	0.019	0.022	0.023	0.032	0.018	0.030	0.029	0.022
Service career oriented	0.005	0.010	0.008	0.010	0.005	0.007	0.000	0.006
Continuing education	0.006	0.008	0.010	0.010	0.005	0.004	0.013	0.007
College GPA	2.043	2.175	2.212	2.717	3.048	3.274	3.485	2.694
College GPA, squared	5.331	5.736	5.947	7.981	9.639	10.953	12.302	8.105
Institutional level:								
Baccalaureate or higher	0.000	1.000	0.092	0.349	0.932	0.979	0.982	0.656
Below the baccalaureate	0.984	0.000	0.878	0.643	0.067	0.021	0.018	0.337
Below associate degree	0.016	0.000	0.030	0.007	0.001	0.000	0.000	0.007
Institutional control:								
Public	0.914	0.623	0.861	0.696	0.711	0.571	0.509	0.724
Private not for-profit	0.005	0.176	0.019	0.087	0.245	0.364	0.475	0.175
Private for-profit	0.080	0.201	0.119	0.217	0.044	0.066	0.016	0.101
Flagship status	0.000	0.087	0.000	0.014	0.116	0.129	0.274	0.076
Average faculty salary	60,858	65,282	59,847	58,500	72,808	77,782	89,059	67,784
Average net student tuition, $2011	1,950	6,439	2,523	5,831	7,885	9,591	15,102	6,368
Faculty–student ratio	0.020	0.030	0.021	0.025	0.037	0.037	0.057	0.031
Proportion of all students	0.154	0.164	0.129	0.122	0.341	0.071	0.019	1.000
Count of students	738	786	620	586	1,639	342	92	4,803

Note. Values represented means adjusted using the NLSY97's 2011 cumulative cases sampling weight.

Using regression models, I control for the background factors highlighted in Table 2. Tables 3 and 4 presents the coefficients and standard errors for the final analytic models, which includes all controls. Table 3 presents results from the logistic regressions performed on dichotomous employment outcomes, while Table 4 presents results from OLS regression performed on continuous outcomes. For ease of interpretation, I also present the results in terms of predicted probabilities, which is particularly useful for understanding the results of the logistic regressions. Figures 1–10 present both the unadjusted marginal effect (the raw means) and the covariate-adjusted marginal effect (obtained from running the full regression model) for each employment outcome obtained. Including both the unadjusted and adjusted marginal effects in each figure allows us to examine whether descriptive patterns hold up after controlling for a host of background measures that are likely endogenous to educational attainment.

First we examine the relationship between educational attainment and quality of work life measures. When studying the raw differences across educational attainment, satisfaction at the current job increases steadily across educational attainment (see Figure 1). Sixty percent of those who attained some college at a two-year or less institution reported being satisfied with their current job, compared to 74 percent of bachelor's degree recipients and 83 percent of doctoral/professional degree recipients. Including controls in the regressions does little to alter the relationship between attainment and job satisfaction, although the full model results in larger standard errors. A Wald test suggests that the overall relationship between educational attainment and job satisfaction is marginally statistically significant in the final model ($p = .064$), though the coefficients from each subsequent higher educational attainment level are significantly different from that of attaining some college at a two-year college, the reference category (see Table 3).

Figure 2 shows that controlling for student background also does little to alter the overall relationship between attainment and access to a flexible work schedule. However, the final model substantially alters the predicted probability that students earning a certificate will hold a job with a flexible work schedule, increasing the estimate from 35 percentage points (Pr[flexible schedule] = 0.354, SE = 0.022) in the empty model to 44 percentage points in the full model (Pr[flexible schedule] = 0.440, SE = 0.058). Despite a small positive association between educational attainment and employment with a flexible work schedule, the relationship is no longer statistically significant after controlling for background.

Table 3: Regression Results for Dichotomous Employment Outcomes

	Satisfied at Current Job	Flexible Work Schedule	Health Insurance	Dental Insurance	Retirement Plan
Educational attainment:					
Some college (bachelor's-granting)	0.767*	-0.127	0.329	0.918**	0.893**
	(0.330)	(0.310)	(0.339)	(0.328)	(0.313)
Certificate	0.652*	0.242	-0.159	0.020	0.120
	(0.271)	(0.266)	(0.275)	(0.264)	(0.259)
Associate degree	0.599*	0.154	0.604*	0.687**	0.500*
	(0.270)	(0.246)	(0.269)	(0.253)	(0.249)
Bachelor's degree	0.834**	0.247	0.847**	1.211***	1.213***
	(0.298)	(0.274)	(0.305)	(0.296)	(0.280)
Master's degree	1.042**	0.437	1.517***	1.673***	1.892***
	(0.352)	(0.313)	(0.374)	(0.344)	(0.330)
Ph.D. or professional degree	1.279**	-0.065	1.012*	1.355**	1.657***
	(0.476)	(0.404)	(0.485)	(0.447)	(0.438)
Female	-0.121	0.016	0.050	0.136	-0.023
	(0.116)	(0.104)	(0.124)	(0.114)	(0.110)
Black	-0.389*	0.148	0.247	0.364*	0.092
	(0.156)	(0.145)	(0.171)	(0.164)	(0.153)
Other race	-0.247	0.090	0.336	-0.113	0.002
	(0.252)	(0.224)	(0.302)	(0.255)	(0.249)
Hispanic	0.006	0.405**	0.018	-0.039	0.098
	(0.181)	(0.157)	(0.200)	(0.179)	(0.173)
Immigrant	-0.080	-0.316	-0.290	-0.149	-0.140
	(0.277)	(0.260)	(0.316)	(0.288)	(0.268)
Age	0.036	0.014	0.022	-0.006	0.015
	(0.041)	(0.035)	(0.042)	(0.039)	(0.038)
Lived with both parents 1997	-0.104	0.095	0.169	0.187	0.086
	(0.127)	(0.116)	(0.138)	(0.128)	(0.123)
Parents owned home 1997	0.017	-0.197	-0.124	-0.150	0.335*
	(0.162)	(0.145)	(0.165)	(0.158)	(0.153)
Household net worth 1997	0.000*	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Household income 1996	-0.000	0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Square root household income 1996	-0.000	-0.002	0.005	0.004	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Parents' highest degree: High school	0.114	0.241	0.552	0.551*	0.567*
	(0.259)	(0.266)	(0.306)	(0.280)	(0.268)
Associate degree	0.028	0.343	0.372	0.509	0.438
	(0.287)	(0.290)	(0.335)	(0.307)	(0.293)
Bachelor's degree	-0.192	0.524	0.422	0.385	0.297
	(0.273)	(0.280)	(0.327)	(0.297)	(0.281)
Master's degree	-0.304	0.575	0.251	0.157	0.174
	(0.293)	(0.297)	(0.346)	(0.316)	(0.299)
Doctoral or professional degree	0.208	0.560	0.282	0.050	-0.006
	(0.358)	(0.340)	(0.391)	(0.356)	(0.344)
Public high school	-0.021	-0.036	-0.113	-0.142	0.126
	(0.164)	(0.151)	(0.180)	(0.171)	(0.157)
ASVAB combined score 1999	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Years since last enrolled	-0.003	0.015	0.059***	0.045**	0.053***
	(0.016)	(0.015)	(0.017)	(0.016)	(0.015)
Health	0.415	0.363	0.044	0.263	-0.075
	(0.245)	(0.218)	(0.255)	(0.250)	(0.230)
Industrial, manufacturing, construction	0.292	-0.351	1.083	0.564	0.029
	(0.507)	(0.531)	(0.688)	(0.505)	(0.456)
Natural science	0.127	0.573	0.338	0.427	0.608
	(0.474)	(0.426)	(0.560)	(0.528)	(0.521)
Business	0.178	0.296	0.396	0.466*	0.372*
	(0.200)	(0.172)	(0.211)	(0.200)	(0.187)
Social and behavioral sciences	-0.110	0.109	-0.323	-0.302	-0.255
	(0.281)	(0.264)	(0.293)	(0.269)	(0.267)
Communication studies	0.123	0.255	1.012	1.129	0.423
	(0.501)	(0.445)	(0.660)	(0.593)	(0.440)
Literature, linguistics, and fine arts	-0.332	0.353	-0.851**	-0.660*	-0.631*
	(0.304)	(0.280)	(0.301)	(0.294)	(0.289)
Math and computer science	-0.198	0.786**	0.750	0.644	0.674
	(0.349)	(0.303)	(0.391)	(0.345)	(0.357)
Education and social services/policy	-0.182	-0.090	-0.267	-0.174	-0.055
	(0.215)	(0.209)	(0.227)	(0.215)	(0.205)

Engineering and related fields	-0.424	0.414	0.370	0.106	-0.134
	(0.268)	(0.252)	(0.290)	(0.260)	(0.249)
Service career oriented	-0.026	-0.047	-1.009*	-1.582***	-0.821
	(0.468)	(0.425)	(0.441)	(0.416)	(0.432)
Continuing education	-0.226	1.004*	0.369	0.464	0.329
	(0.472)	(0.492)	(0.499)	(0.476)	(0.472)
Cumulative college GPA	-0.340	0.474	0.225	0.164	0.267
	(0.282)	(0.264)	(0.267)	(0.261)	(0.258)
Cumulative college GPA, squared	0.062	-0.089	-0.059	-0.030	-0.057
	(0.058)	(0.054)	(0.057)	(0.055)	(0.054)
Below the baccalaureate	0.016	0.026	0.076	0.552*	0.187
	(0.210)	(0.189)	(0.220)	(0.219)	(0.197)
Below associate degree	-0.481	-1.337	-1.636	-1.086	-2.459*
	(0.717)	(1.029)	(0.872)	(0.869)	(1.093)
Private nonprofit	0.056	-0.055	-0.064	-0.099	-0.073
	(0.194)	(0.177)	(0.199)	(0.187)	(0.185)
Private for-profit	-0.006	-0.070	0.010	-0.247	-0.182
	(0.279)	(0.261)	(0.270)	(0.264)	(0.257)
Flagship status	0.223	0.024	0.192	0.273	-0.001
	(0.217)	(0.194)	(0.250)	(0.227)	(0.206)
Average faculty salary	-0.000	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Average net student tuition, $2011	-0.000	0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Faculty–student ratio	0.441	-4.925	2.517	3.379	-0.022
	(1.682)	(3.530)	(3.374)	(3.764)	(1.706)
Constant	-0.292	-1.924	-2.094	-1.618	-2.311
	(1.328)	(1.170)	(1.388)	(1.294)	(1.254)

Note. N = 4,803. Table presents regression coefficients with standard errors in parentheses. All regression analyses used the NLSY97's 2011 cumulative cases sampling weight

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4: Regression Results for Continuous Employment Outcomes

	Days Paid Leave per Year	Number of Jobs, 2011	Average Hours Worked per Week, 2011	Total Months Unemployment	Total Unemployment Spells
Educational attainment:					
Some college (bachelor's-granting)	1.993	-0.053	3.596	0.706	0.037
	(1.412)	(0.109)	(1.973)	(0.570)	(0.129)
Certificate	-1.530	-0.099	-0.952	0.477	0.140
	(1.236)	(0.099)	(1.530)	(0.485)	(0.119)
Associate degree	0.942	0.004	2.377	0.396	0.025
	(1.202)	(0.095)	(1.551)	(0.393)	(0.095)
Bachelor's degree	5.031***	0.112	7.050***	0.216	-0.034
	(1.282)	(0.101)	(1.687)	(0.468)	(0.105)
Master's degree	7.343***	0.209	8.593***	-0.036	-0.102
	(1.488)	(0.115)	(1.931)	(0.514)	(0.109)
Ph.D. or professional degree	7.924***	0.078	17.509***	0.098	-0.129
	(2.140)	(0.148)	(2.905)	(0.707)	(0.123)
Female	-0.572	0.021	-4.526***	0.171	0.025
	(0.515)	(0.039)	(0.667)	(0.143)	(0.035)
Black	1.251	-0.065	-0.324	0.502	0.055
	(0.729)	(0.055)	(0.887)	(0.265)	(0.054)
Other race	0.661	0.013	-3.241*	0.479	0.173
	(1.206)	(0.080)	(1.506)	(0.340)	(0.112)
Hispanic	0.622	0.026	-0.678	0.052	-0.051
	(0.791)	(0.060)	(0.978)	(0.249)	(0.050)
Immigrant	-0.534	-0.061	1.121	-0.452	-0.113
	(1.440)	(0.092)	(1.707)	(0.284)	(0.076)
Age	0.261	0.021	-0.009	0.116*	0.030*
	(0.176)	(0.013)	(0.233)	(0.052)	(0.013)
Lived with both parents 1997	0.783	-0.009	0.603	-0.133	-0.028
	(0.576)	(0.044)	(0.744)	(0.183)	(0.040)
Parents owned home 1997	0.501	0.099	-0.867	0.047	0.057
	(0.714)	(0.052)	(0.889)	(0.269)	(0.055)
Household net worth 1997	0.000	-0.000	0.000	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

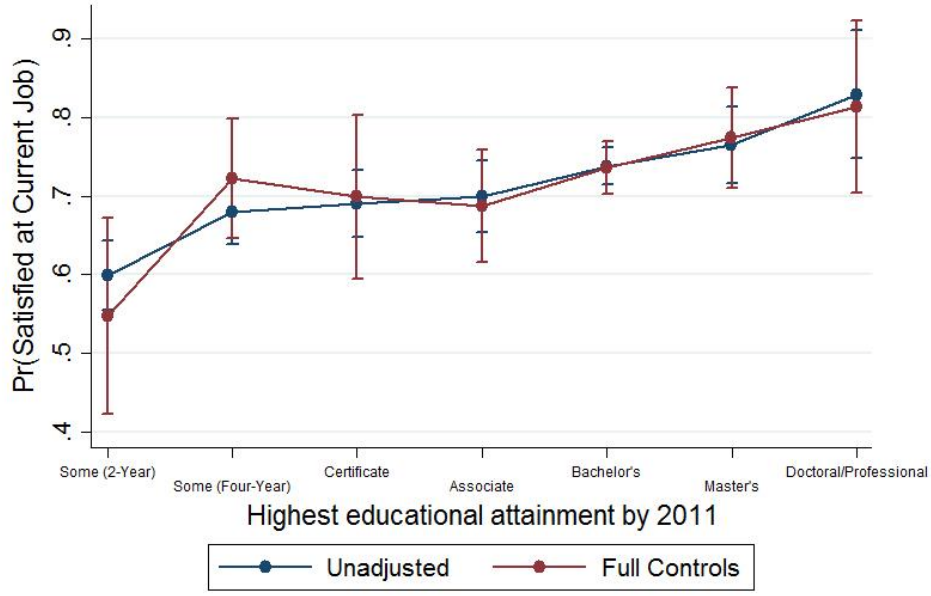
Household income 1996	-0.000	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Square root household income 1996	0.001	0.000	0.002	0.000	-0.000
	(0.010)	(0.001)	(0.014)	(0.003)	(0.001)
Parents' highest degree: High school	1.937	0.163*	3.795*	0.364	0.035
	(1.235)	(0.071)	(1.809)	(0.329)	(0.098)
Associate degree	1.494	0.271**	3.096	0.135	-0.060
	(1.346)	(0.083)	(1.965)	(0.357)	(0.098)
Bachelor's degree	1.708	0.235**	2.655	0.287	-0.009
	(1.302)	(0.080)	(1.922)	(0.358)	(0.101)
Master's degree	0.581	0.306***	2.928	0.429	-0.005
	(1.387)	(0.089)	(2.051)	(0.399)	(0.108)
Doctoral or professional degree	-1.529	0.195	-0.599	0.119	-0.064
	(1.622)	(0.111)	(2.318)	(0.384)	(0.106)
Public high school	-0.169	-0.064	0.187	0.316*	0.058
	(0.769)	(0.056)	(0.920)	(0.144)	(0.034)
ASVAB combined score 1999	0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Years since last enrolled	0.313***	-0.006	0.290**	0.005	0.006
	(0.071)	(0.006)	(0.093)	(0.025)	(0.006)
Health	0.012	-0.040	-2.815*	-0.384	-0.146**
	(1.151)	(0.078)	(1.415)	(0.285)	(0.051)
Industrial, manufacturing, construction	0.645	0.144	8.954	-0.046	0.097
	(2.181)	(0.221)	(5.106)	(0.431)	(0.116)
Natural science	1.606	0.019	-0.931	0.510	0.072
	(2.207)	(0.140)	(2.886)	(0.707)	(0.119)
Business	2.121*	-0.030	1.502	0.289	0.047
	(0.860)	(0.058)	(0.938)	(0.238)	(0.053)
Social and behavioral sciences	0.999	0.011	-1.474	0.628	0.163
	(1.422)	(0.098)	(1.380)	(0.450)	(0.102)
Communication studies	-0.015	-0.016	2.593	-0.852***	-0.190**
	(2.141)	(0.126)	(2.251)	(0.212)	(0.066)
Literature, linguistics, and fine arts	-0.782	0.252*	1.114	1.730*	0.365
	(1.476)	(0.122)	(2.290)	(0.870)	(0.193)
Math and computer science	4.727**	-0.104	-0.838	0.614	0.221
	(1.637)	(0.097)	(1.496)	(0.504)	(0.174)

Education and social services/policy	-0.597	-0.038	-1.147	0.360	0.144
	(0.989)	(0.076)	(1.404)	(0.288)	(0.080)
Engineering and related fields	1.265	-0.250***	0.404	1.160	0.127
	(1.142)	(0.061)	(1.511)	(0.662)	(0.115)
Service career oriented	-4.081*	0.130	-3.615	0.995	0.120
	(1.630)	(0.212)	(2.546)	(0.731)	(0.133)
Continuing education	1.903	0.078	2.781	-0.413	-0.111
	(2.145)	(0.188)	(4.454)	(0.415)	(0.087)
Cumulative college GPA	-0.231	-0.012	0.711	-0.115	-0.072
	(1.199)	(0.085)	(1.646)	(0.386)	(0.083)
Cumulative college GPA, squared	-0.018	-0.004	-0.424	-0.024	0.003
	(0.253)	(0.018)	(0.346)	(0.081)	(0.018)
Below the baccalaureate	1.826*	0.049	3.732**	0.533	0.072
	(0.847)	(0.072)	(1.191)	(0.339)	(0.064)
Below associate degree	-3.329	0.578	2.700	-0.363	-0.128
	(1.720)	(0.299)	(3.379)	(1.098)	(0.219)
Private nonprofit	-0.225	-0.018	-1.326	0.064	-0.032
	(0.851)	(0.070)	(1.107)	(0.266)	(0.054)
Private for-profit	-1.190	-0.060	-0.137	0.192	0.021
	(1.228)	(0.099)	(1.642)	(0.504)	(0.108)
Flagship status	-0.125	0.156*	-0.814	0.009	0.010
	(1.000)	(0.072)	(1.197)	(0.267)	(0.059)
Average faculty salary	-0.000	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Average net student tuition, $2011	0.000	0.000	0.000	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Faculty–student ratio	2.157	0.877	3.682	-2.099	-0.536
	(9.402)	(0.898)	(9.096)	(1.943)	(0.455)
Constant	-4.325	0.574	33.444***	-2.734	-0.520
	(5.718)	(0.410)	(7.541)	(1.668)	(0.410)
R-squared	0.082	0.041	0.103	0.068	0.072

Note. N = 4,803. Table presents regression coefficients with standard errors in parentheses. All regression analyses used the NLSY97's 2011 cumulative cases sampling weight

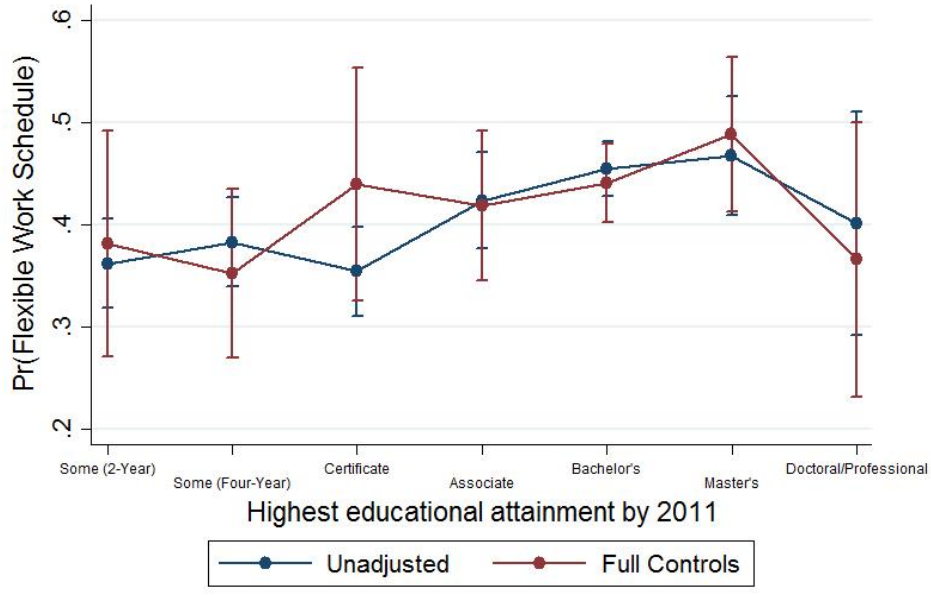
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 1: Marginal Effects of Educational Attainment on Job Satisfaction



Note. N = 4,803. The figure presents the average predicted change in the probability of reporting job satisfaction for the most recent employer across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 3.

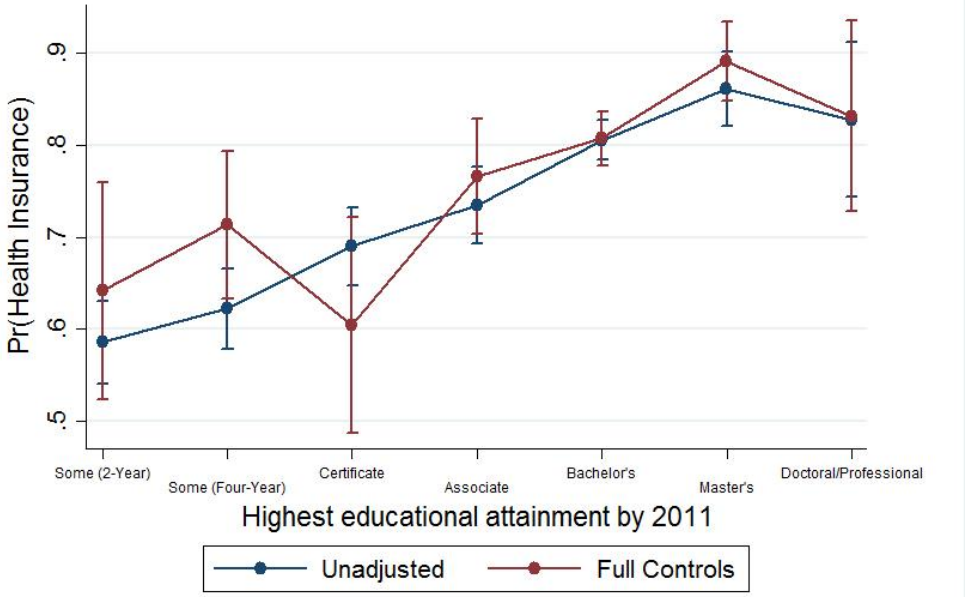
Figure 2: Marginal Effects of Educational Attainment on Flexible Work Schedule



Note. N = 4,803. The figure presents the average predicted change in the probability of having a flexible work schedule for the most recent employer across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 3.

Next I consider how educational attainment predicts access to fringe benefits. Figure 3 illustrates the relationship between attainment and availability of employer-sponsored health insurance. The blue line (unadjusted marginal effect) presents the raw mean of holding a job with health insurance—the relationship steadily climbs from the some college attainment levels up to master's degree attainment, with a slight fall for college-goers who earned a doctoral or professional degree (this may be due to the small cell size among this category). Four-fifths of individuals who held at least a bachelor's degree received this benefit, while closer to three-fifths of non-completers had access to employer-provided health care. Including full controls seems to have the biggest impact on the point estimates for those with lower levels of educational attainment (some college and certificate-earners), though the positive relationship between educational attainment and employer-sponsored health insurance persists. In fact, Wald test results indicate that the positive apparent influence of educational attainment on all of the fringe benefit outcomes—health insurance, dental insurance, retirement plan, and days paid leave—are still significant in the fully adjusted model (a test of the significance of all educational attainment categories yields a $p < .001$).

Figure 3: Marginal Effects of Educational Attainment on Employer-Provided Health Insurance



Note. N = 4,803. The figure presents the average predicted change in the probability of access to an employer-provided health insurance for the most recent employer across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 3.

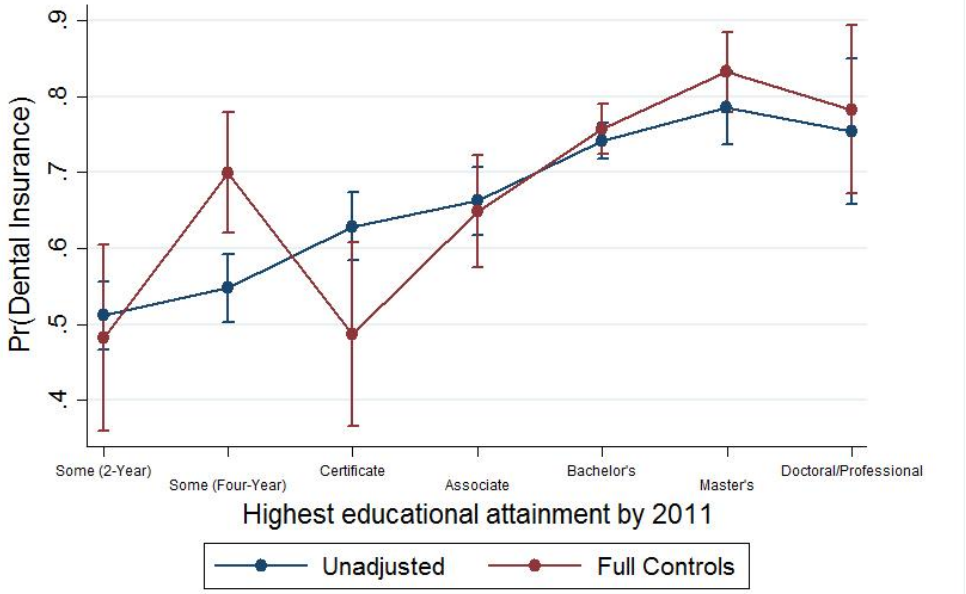
Results for employer-sponsored dental insurance and retirement benefits show similar patterns to health insurance, despite slightly lower access to these benefits overall—67 percent of all college-goers had access to employer-sponsored dental insurance and 59 percent had access to a retirement plan at their most recent job, while 74 percent had access to employer-sponsored health insurance. As illustrated in Figures 4 and 5, covariate adjustment dampens the advantage of earning a certificate on both outcomes while increasing the advantage of attending a four-year institution compared to a two-year institution. Attaining some college at a baccalaureate-granting institution increases the probability of having employer-provided dental insurance compared to attaining some college at a two-year institution and earning a certificate by approximately 21 percentage points (Some[two-year]: Pr[Dental] = 0.482, SE = 0.063; Some[four-year]: Pr[Dental] = 0.699, SE = 0.041; Certificate: Pr[Dental] = 0.487, SE = .062).[1] We see a similar shift in the point estimates for those earning some college at a four-year institution in access to employer-sponsored retirement plans.

The average days of paid leave per year increases across each subsequent step in educational attainment, with a college-goer with some college at an associate-granting or less institution earning, on average, 7.1 paid days off a year compared to a college-goer who earned a bachelor's degree earning 12.3 days off at their most recent job. After adjusting for students' backgrounds and experiences, the estimated days paid leave for certificate-earners drops from 8.0 to 6.2, while the estimated days leave for non-completers who attended a four-year institution increases from 7.4 to 9.7, but the overall apparent influence of educational attainment remains positive and significant ($p < .001$).

Those with higher educational attainment were more likely to holds jobs with fringe benefits, and they also had higher job mobility, even after adjusting for controls. Figure 7 maps the positive relationship between education and number of jobs held in the last year. Educational attainment also predicts time spent working, as shown in Figure 8. Individuals who held a doctoral or professional degree worked an average of 53 hours per week (adjusted mean), compared to 42–43 hours among those who held a master's or bachelor's degree and 35 hours per week among those with some college at a two-year college and certificate-earners. It is important to note that the estimate for those with a doctoral or professional degree is less precise due to small cell size (and, subsequently, large standard errors).

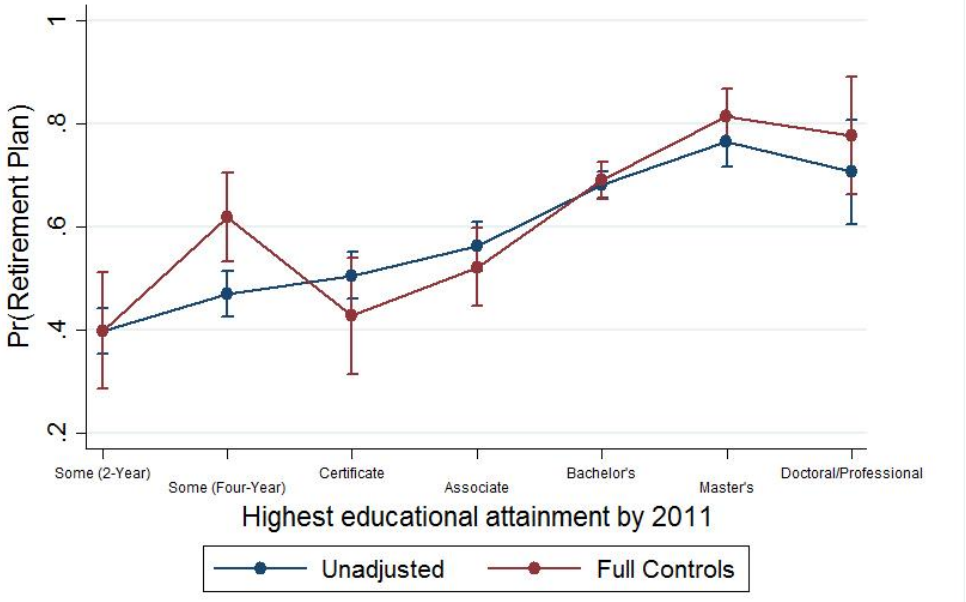
[1] As presented in Table 3, the difference between some college at a four-year institution and the reference category, some college at a two-year institution, is statistically significant ($p < .01$). Wald tests confirm that the difference between the estimates for some college at a four-year institution and earning a certificate is also statistically significant ($p < .01$).

Figure 4: Marginal Effects of Educational Attainment on Employer-Provided Dental Insurance



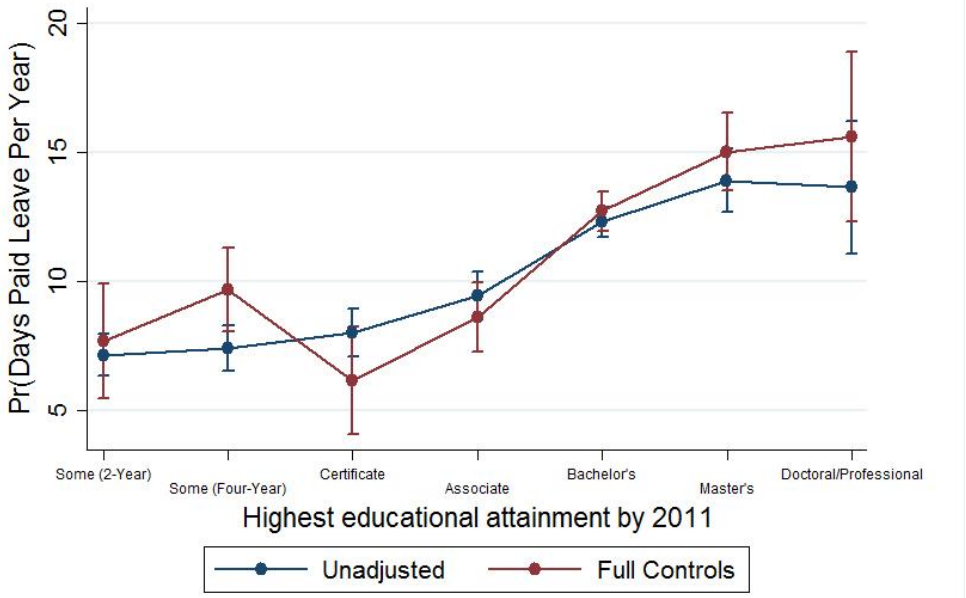
Note. N = 4,803. The figure presents the average predicted change in the probability of access to an employer-provided dental insurance for the most recent employer across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 3.

Figure 5: Marginal Effects of Educational Attainment on Employer-Provided Retirement Plan



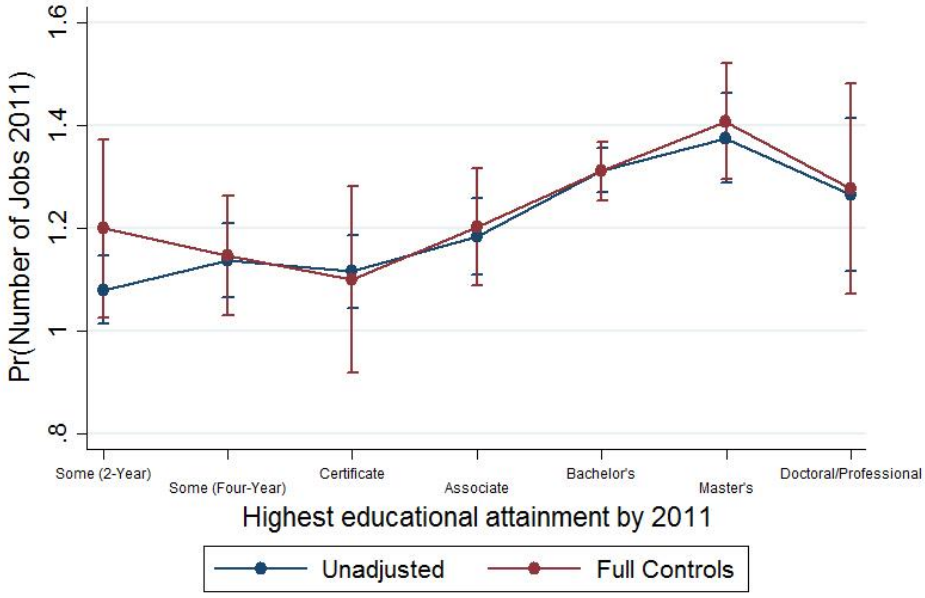
Note. N = 4,803. The figure presents the average predicted change in the probability of access to an employer-provided retirement plan for the most recent employer across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 3.

Figure 6: Marginal Effects of Educational Attainment on Days of Paid Leave Per Year



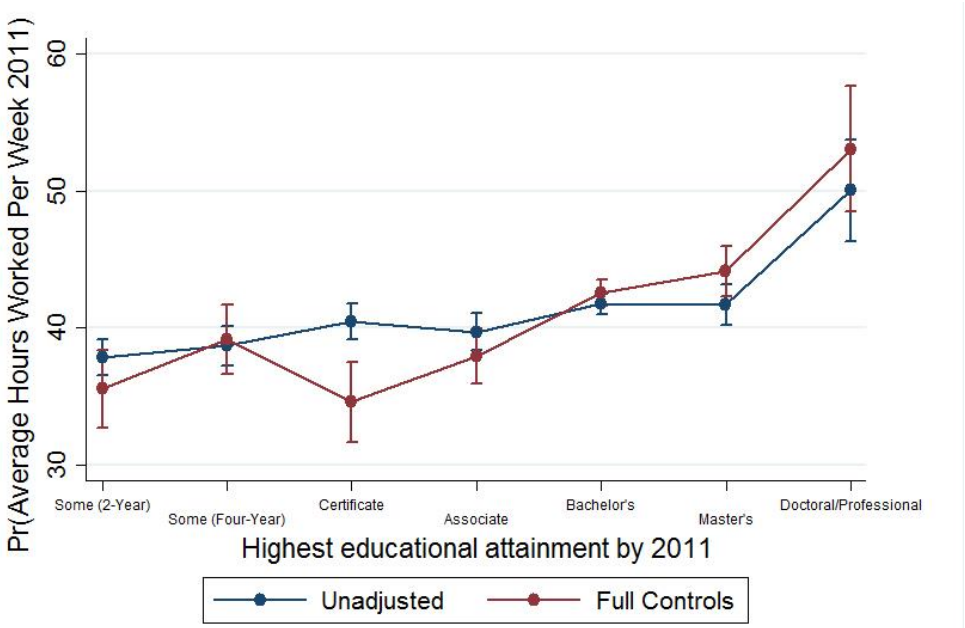
Note. *N* = 4,803. The figure presents the average predicted change in number of paid days off (sick, vacation, personal leave) across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 4.

Figure 7. Marginal Effects of Educational Attainment on Number of Jobs Held in 2011



Note. *N* = 4,803. The figure presents the average predicted change in average number of jobs held in the last year across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 4.

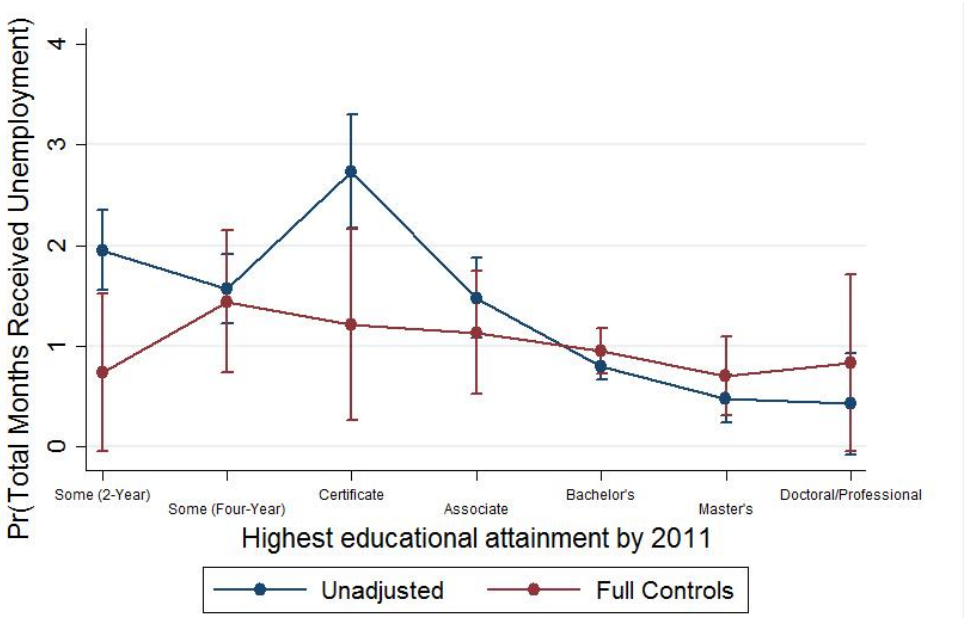
Figure 8. Marginal Effects of Educational Attainment on Average Hours Worked Per Week in 2011



Note. N = 4,803. The figure presents the average predicted change in average hours worked per week in the last year across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 4.

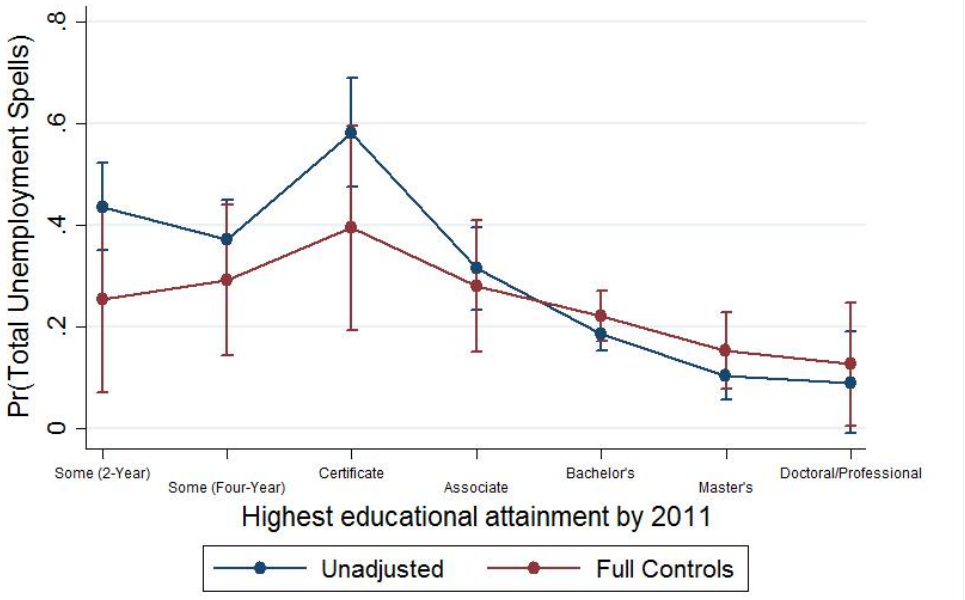
Educational attainment is also correlated with fewer unemployment spells and, subsequently fewer months of receiving unemployment benefits. Figure 9 and 10 demonstrate that much of the relationship between attainment and unemployment outcomes is explained by covariates. The unadjusted means suggest a strong relationship between the two variables. The predicted mean of months receiving unemployment benefits is substantially higher for certificate-earners (2.7 months over the course of the early career, unadjusted) than for other educational attainment categories, but is dampened by accounting for background characteristics. The adjusted marginal effects for total number of unemployment spells are similarly dampened, though those earning a certificate still faced a higher—though not statistically significant—probability of accruing more unemployment spells throughout their early career experience. After controlling for background variables, the relationships between attainment and both unemployment outcomes are no longer statistically significant.

Figure 9. Marginal Effects of Educational Attainment on Total Months Received Unemployment Benefits



Note. *N* = 4,803. The figure presents the average predicted change in cumulative months of receiving unemployment benefits across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 4.

Figure 10. Marginal Effects of Educational Attainment on Total Number of Unemployment Spells



Notes: N=4803. The figure presents the average predicted change in cumulative spells of unemployment across educational attainment for two different regression models—an empty model that includes only educational attainment and a full model that includes all control variables. Regression results from the full models are presented in Table 4.

4. Discussion and Conclusion

This paper leverages nationally representative data to examine the role that educational attainment plays in predicting a variety of nonpecuniary employment outcomes. While much of the research on the value of postsecondary education focuses on its role in improving labor market outcomes, the majority of those efforts focus exclusively on wages. This study contributes to the literature by examining the apparent influence of educational attainment on three types of nonpecuniary employment outcomes: qualities of young workers' most recent job (including "quality of work life" measures and fringe benefits), recent employment history, and history of unemployment. Overall, the results indicate that increasing levels of postsecondary educational attainment positively predict a number of positive employment outcomes.

The results bolster support for the relationship between educational attainment and positive employment outcomes, particularly for fringe benefits. After controlling for participants' backgrounds and educational experiences, attainment positively predicts access to employer-provided health and dental insurance, retirement, and paid leave. Fringe benefits are an important component of a "good job" (Kalleberg, 2012). However, satisfaction and flexibility are also measures of job quality, which may be more indicative of the quality of an employee's day-to-day work life. While educational attainment positively predicts job satisfaction and the ability to work on a flexible schedule, the relationships are sensitive to the inclusion of controls. Including a full set of controls diminishes the overall apparent effect of educational attainment on having a flexible schedule and reduces attainment's relationship with job satisfaction to be only marginally significant.

The marginal effects on flexible work schedule for those in the highest attainment category—doctoral or professional degrees—are somewhat surprising in that this subgroup's mean falls below the average for all attainment categories. However, results for the subgroup rely on fewer observations than other levels of attainment (fewer members of the sample attained an advanced degree). Given the small sample size (only 92 students in the sample reached that level of educational attainment), the coefficients for the subgroup are less precise. However, it is also important to consider that the issue of "a flexible work schedule" may be subject to more interpretation on the part of survey respondents compared to relatively straightforward questions about fringe benefits. For example, employees who work on shifts may consider their schedules to be flexible if they submit hours of availability, but their shifts might still be determined by an external source. On the other hand, a lawyer may technically have control over when she works, but long hours combined with court dates may lead her to answer that her schedule is not flexible, even if she technically can control when she performs most work tasks. More information would help us further explore this topic, but that is beyond the reach of the available data.

Hours worked is the only indicator of a "good job" in which those with a bachelor's degree or higher "fall behind" their counterparts, if we assume that a good job requires fewer hours (or at least adheres to 40 hours a week). Given the imprecise coefficients for the highest

attainment level, it is possible that the estimate for those with a doctoral or professional degree is somewhat inflated. However, there are several plausible scenarios in which an early career professional might put in more hours than the standard 40 hours per week—a recent physician in a residency program working long hours as part of training, a new professor logging in more time on research while on the tenure track, a young lawyer putting in extra time at the firm in hopes of moving up the ladder. Indeed, careers pathways for those who pursue advanced degrees seem particularly susceptible to "overwork" (Cha & Weeden, 2014). The variation in hours worked across educational attainment for the remaining categories is less noteworthy, but the relationship is still positive. Those with bachelor's and master's degrees were working more hours than those with less education. The average hovers slightly above 40 hours per week, while the averages for those with some college hover below 40 hours a week. It is possible that those who did not earn a degree might have experienced underemployment (i.e., working fewer hours than they would like to) at higher rates, bringing down the average in those categories. It is difficult to test that assumption, given the limitations of the data (which offers total number of hours worked in a year, but does not report hours worked in small time intervals or by employer). I ran a sensitivity analysis to drop those who reported unemployment in the same year, but it did not notably alter the patterns.

Overall, even after controlling for a variety of background measures at the individual and institutional level, higher postsecondary attainment is generally linked to better employment-related outcomes. The narrative is somewhat more complicated when we focus in on the educational attainment categories below an associate degree, particularly for predicting job quality. While raw differences suggest that certificate-earners benefit more than those with some college but no credential (i.e., they are more likely to hold a job with fringe benefits), the regression results suggest that certificate earners often do not fair as well as those who accrue some college education at a four-year institution. Furthermore, the gains for certificate-earners over non-completers at two-year colleges are modest at best and appear sensitive to the inclusion of control variables, results that align with previous research on earnings (Belfield, 2015a). Previous research also indicates that there is a great degree of variation in the impacts of certificates on earnings by field of study, and this heterogeneity is likely present in predicting other employment outcomes as well.

This study focuses on individuals who attained at least some college. Focusing on college-goers enables me to include information on college experiences and institutional characteristics in the models. Future research may want to consider the impact of a broader set of educational attainment categories, including those with a high school diploma, on nonpecuniary employment outcomes, though there will be a tradeoff in terms of ability to control for educational experiences of those who went to college. It is likely that keeping individuals who did not attend college would strengthen many of the relationships between attainment and employment outcomes. Given that unemployment rates are substantially higher among those who never attend college (Hout, 2012), it is possible that educational attainment would still be predictive of unemployment spells if considering a broader population.

The NLSY97 offers the benefit of capturing the experiences of persons throughout the nation at various stages in their educational trajectories. While the availability of postsecondary transcripts allows us to capture detailed postsecondary information for students who transitioned to college within the first 10 to 14 years of completing high school, we are unable to capture the educational experiences of individuals who return to schooling later in life. This has implications for the ability to capture the returns to earning a certificate, for instance, if the majority of certificate-earners are older adults, rather than young adults.

Improving our knowledge of the role educational attainment plays in a variety of employment outcomes requires better data. Increased access to administrative data linking college enrollees to earnings data has improved our ability to understand the role of a variety of postsecondary pathways in predicting earnings. As of yet, there is little linked administrative data available to examine the impact of educational attainment on nonpecuniary outcomes, though some recent efforts are moving in that direction (for example, the Ohio Education Research Center includes data on K-12, postsecondary, wages, and use of public services). The findings reported here suggest that educational attainment strongly predicts young workers' access to quality jobs, but the data is limited in its scope—it is only able to capture those who are early in their career trajectories. Understanding the role that postsecondary education plays in a variety of employment outcomes requires capturing a broader swath of the national population, particularly those who return to schooling later in life. Continuing to build data sources to trace the impact of postsecondary pathways on a variety of outcomes is necessary to inform policies and programs for effective educational opportunities.

References

Acemoglu, D. (2001). Good jobs versus bad jobs. *Journal of Labor Economics, 19*(1), 1–21.

Adelman, C. (1999). *Answers in the tool box: Academic intensity, attendance patterns, and bachelor's degree attainment*. Washington, DC: U. S. Department of Education, Office of Educational Research and Improvement.

Ashenfelter, O., Harmon, C., & Oosterbeek, H. (1999). A review of estimates of the schooling/earnings relationship, with tests for publication bias. *Labour Economics, 6*(3), 453–470.

Backes, B., Holzer, H. J., & Velez, E. D. (2015). Is it worth it? Postsecondary education and labor market outcomes for the disadvantaged. *IZA Journal of Labor Policy, 4*(1), 1–30.

Bahr, P. R., Dynarski, S., Jacob, B., Kreisman, D., Sosa, A., & Wiederspan, M. (2015). *Labor market returns to community college awards: Evidence from Michigan* (A CAPSEE Working Paper). New York, NY: Center for Analysis of Postsecondary Education and Employment.

Belfield, C. (2013). *The economic benefits of attaining an associate degree before transfer: Evidence from North Carolina* (CCRC Working Paper No. 62). New York, NY: Columbia University, Teachers College, Community College Research Center.

Belfield, C. (2015a). *Returns to community college: Where do we go from here?* Paper presented at the CAPSEE Annual Meeting, Washington, DC.

Belfield, C. (2015b). *Weathering the great recession with human capital? Evidence on labor market returns to education from Arkansas* (CAPSEE Working Paper). New York, NY: Center for Analysis of Postsecondary Education and Employment.

Belfield, C., Liu, Y. T., & Trimble, M. J. (2014). *The medium-term labor market returns to community college awards: Evidence from North Carolina* (CAPSEE Working Paper). New York, NY: Center for Analysis of Postsecondary Education and Employment.

Belfield, C. R., & Bailey, T. R. (2011). The benefits of attending community college: A review of the evidence. *Community College Review, 39*(1), 46–68.

Card, D. (1999). The causal effect of education on earnings. *Handbook of Labor Economics, 3*, 1801–1863.

Cha, Y., & Weeden, K. A. (2014). Overwork and the slow convergence in the gender gap in wages. *American Sociological Review, 79*(3), 457–484.

Dickson, M., & Harmon, C. (2011). Economic returns to education: What we know, what we don't know, and where we are going—some brief pointers. *Economics of Education Review, 30*(6), 1118–1122.

Findlay, P., Kalleberg, A. L., & Warhurst, C. (2013). The challenge of job quality. *Human Relations, 66*(4), 441–451.

Gangl, M. (2006). Scar effects of unemployment: An assessment of institutional complementarities. *American Sociological Review, 71*(6), 986–1013.

Goldberg, J., & Smith, J. (2008). The effects of education on labor market outcomes. In H. F. Ladd & E. B. Fiske (Eds.), *Handbook of research in education finance and policy* (pp. 688–708). New York, NY: Routledge.

Goldin, C. D., & Katz, L. F. (2009). *The race between education and technology*. Cambridge, MA: Harvard University Press.

Hout, M. (2012). Social and economic returns to college education in the United States. *Annual Review of Sociology, 38*, 379–400.

Jacobs, J. A., & Gerson, K. (2004). *The time divide: Work, family, and gender inequality*. Cambridge, MA: Harvard University Press.

Kalleberg, A. L. (2012). *Good jobs, bad jobs: The rise of polarized and precarious employment systems in the United States, 1970s to 2000s*. New York, NY: Russell Sage Foundation.

Kalleberg, A. L., & Marsden, P. V. (2013). Changing work values in the United States, 1973–2006. *Social Science Research, 42*(2), 255–270.

Lam, S. S. K., Ng, T. W. H., & Feldman, D. C. (2012). The relationship between external job moblity and salary attainment across career stages. *Journal of Vocational Behavior, 80*(1), 129–136.

Leppel, K., Williams, M. L., & Waldauer, C. (2001). The impact of parental occupation and socioeconomic status on choice of college major. *Journal of Family and Economic Issues, 22*(3), 373–394.

Mortimer, J. T., Kim, M., Staff, J., & Vuolo, M. (2016). Unemployment, parental help, and self-efficacy during the transition to adulthood. *Work and Occupations, 43*(4), 434–465. doi: 10.1177/0730888416656904

Oreopoulos, P. (2007). Do dropouts drop out too soon? Wealth, health and happiness from compulsory schooling. *Journal of Public Economics, 91*(11), 2213–2229.

Oreopoulos, P., & Salvanes, K. G. (2011). Priceless: The nonpecuniary benefits of schooling. *The Journal of Economic Perspectives, 25*(1), 159–184.

Pohl, S., Steiner, P. M., Eisermann, J., Soellner, R., & Cook, T. D. (2009). Unbiased causal inference from an observational study: Results of a within-study comparison. *Educational Evaluation and Policy Analysis, 31*(4), 463–479.

Royston, P. (2005). Multiple imputation of missing values: update. *Stata Journal, 5*(2), 188–201.

Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys*. New York, NY: John Wiley and Sons.

Scott-Clayton, J., & Wen, Q. (2016). *Estimating returns to college attainment: Comparing survey and state administrative data based estimates* (CAPSEE Working Paper). New York, NY: Center for Analysis of Postsecondary Education and Employment.

Young, C. (2016). Losing a job: The nonpecuniary cost of unemployment in the United States. *Social Forces, 91*(2), 609–634.

Zafar, B. (2013). College major choice and the gender gap. *The Journal of Human Resources, 48*(3), 545–595.