# Educational Attainment and Nonwage Labor Market Returns in the United States

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## Abstract

Although decades of research highlight the impact of schooling on earnings, less evidence exists regarding other employment outcomes. Nonwage labor market returns to education are important in the United States, where health insurance and retirement income are typically tied to employment. Using longitudinal, nationally representative data, we examine the role of educational attainment in predicting nonwage employment outcomes and control for a host of individual and institutional measures. Even after controlling for individual and institutional characteristics, results indicate that educational attainment predicts employment and markers of "good" jobs, like access to employer-provided health and dental insurances, retirement plans, and paid leave. Furthermore, by delineating between various subbaccalaureate levels of college attainment, our results illustrate the complex variation in returns to college for those who did not complete a 4-year degree.

## Keywords

Educational attainment is an important determinant of economic and social successes. Despite a robust literature examining the impact of schooling on earnings, substantially less evidence exists regarding the link between educational attainment and other employment-related outcomes, including benefits such as paid vacation, sick days, insurances, and retirement plans. Along with factors like job security, flexibility, and safety, which are difficult to quantify, benefits influence individuals' employment decisions (Duncan, 1977; Oreopoulos & Salvanes, 2011). Given the substantial costs of higher education, prospective students need information regarding the likely outcomes of educational attainment, including nonpecuniary benefits.

This study contributes to the literature by examining employment outcomes aside from earnings in relation to various levels of educational attainment. We use data from the

National Longitudinal Survey of Youth 1997 (NLSY97) to follow a nationally representative sample of 12- to 16-year-olds through secondary and postsecondary education and into their early careers. We find that, even after controlling for a variety of individual and institutional characteristics, more education is generally linked to better employment-related outcomes. In the face of debates over contingent labor, health care reform, social security, the value of higher education, and the social safety net, the primary mode of access to health insurance and retirement benefits in the United States is still through employment. Our study illustrates that, controlling for a host of background factors, educational attainment predicts access to these crucial benefits. The results also illustrate differences in nonwage returns across levels of educational attainment, including noncompletion at 2-year and 4-year colleges.

## Previous Literature

### Employment Returns Beyond Earnings: Why Do Nonearning Outcomes Matter?

The literature on nonearning employment-related outcomes, including dimensions of job quality, stability of employment, and ability to find work, is substantially smaller than the literature on earnings. Extant research tends to equate job quality with earnings, but that formula frames "good jobs" simply as those met with high wages and "bad jobs" as those with low wage returns (Acemoglu, 2001). Such a narrow framing "neglects a host of other employment features" (Liu, Thomas, & Zhang, 2010, p. 184). Job quality is a multifaceted social, personal, and economic construction; determinations of job quality concern dimensions beyond earnings (Findlay, Kalleberg, & Warhurst, 2013). Nonpecuniary dimensions provide insight into the day-to-day quality of work life. For instance, autonomy (the degree to which workers' control what they do and how they do it) and flexibility to perform tasks at one's own pace significantly determine employees' experience with work–life balance and therefore overall employee satisfaction (Kalleberg, 2012; Valcour, 2007). Additionally, satisfied workers are more resilient against psychological and physical illness and experience greater subjective well-being (Bowling, Eschleman, & Wang, 2010; Faragher, Cass, & Cooper, 2005). Although there is individual variation in workers' sense of job quality, research suggests that individuals define a good job in terms of job security, how well the job fits with their interests, and compensation, which may include both wages and fringe benefits like medical insurance and a pension (Clark, 2015; Jones, Haslam, & Haslam, 2017).[1]

Due to the employer-centered model of benefits in the United States, employment gives many individuals access to health insurance, dental insurance, and retirement pensions. Since employment-sponsored health care makes primary care, specialized care, and preventative services more affordable, jobs with health benefits improve the overall health of employees (Sommers, Gawande, & Baicker, 2017). In regard to financial well-being,

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[1] Individuals must also balance intrinsic rewards—rewards associated with the job that are less tangible, like a feeling of accomplishment or developing new skills—and extrinsic rewards provided for performing the job, like pay, fringe benefits, or a promotion. There is a related literature on how workers prioritize intrinsic compared with extrinsic job rewards (see Herzberg, Mausner, & Snyderman, 1959; Kalleberg, 1977; Morgan, Dill, & Kalleberg, 2013; Mottaz, 1985) and monetary versus nonmonetary rewards (Linz & Semykina, 2012; McGraw, Sharif, & Todorov, 2010). We primarily focused on extrinsic rewards in this article with the exception of job satisfaction, which some researchers argue stems from a combination of intrinsic and extrinsic factors (e.g., Freeman & Rogers, 2006; Linz & Semykina, 2012; Morgan et al., 2013).

access to health and dental insurance reduces the risk of out-of-pocket expenses and thereby decreases medical debt, while retirement plans provide for future financial stability (Baicker et al., 2013; Doty, Collins, Rustgi, & Kriss, 2008; Mazumder & Miller, 2016; Poterba, Venti, & Wise, 1996). Given the national health care debate and potential repeal or modification of the Affordable Care Act (ACA), employer-sponsored health care remains a significant consideration for millions of citizens, despite some evidence that employer contributions decreased in recent years (Claxton et al., 2017).

Like employees' access to fringe benefits, unemployment—where an individual seeking work is unable to find it—has lasting financial consequences. Earnings loss from unemployment can set individuals on a path of debt accrual that is difficult to overcome once (Gangl, 2006). Beyond financial implications, unemployment or the threat of unemployment —where a worker anticipates employment uncertainty—negatively affects a worker's sense of efficacy and psychological well-being (Glavin, 2013; Young, 2012). This threat is particularly salient for young adults, since employment instability features prominently in early careers (Mortimer, Kim, Staff, & Vuolo, 2016).

Negative recent employment history, indicated by increased job mobility and hours spent overworking, also degrades an individual's quality of life. For decades, employers have responded to market pressures by increasingly outsourcing jobs, relying on temporary workers, and dismantling career-advancement ladders (Kalleberg, 2012). Job insecurity and limited advancement opportunities increase job mobility because workers switch employers while seeking new jobs (Lam, Ng, & Feldman, 2012). At the same time, an increasing proportion of Americans work long hours. Between the early 1980s and 2000s, the percentage of Americans who worked more than 50 hours per week—a phenomenon some scholars label "overwork"—increased from less than 9% to over 14% (Cha & Weeden, 2014).

## The Impact of Educational Attainment on Nonpecuniary Returns

Research has linked educational attainment to a variety of positive outcomes, though the preponderance of evidence in the literature estimates the impact on earned income. There are several reasons to expect a relationship between educational attainment and nonpecuniary labor market returns. College graduates, particularly those from prestigious colleges, often have stronger networks, which helps them identify employment opportunities (Granovetter, 1995; Greenberg & Fernandez, 2016). Furthermore, through education, they gain skills and signals that make them more appealing to employers, increasing their likelihood of employment and obtaining a high-quality job (Becker, 1975; Di Stasio & van de Werfhorst, 2016; Weiss, 1995). Education informs individuals' self-concept and attitudes toward occupational choices, including the areas of interest they pursue and the qualities they seek in a career (Humlum, Kleinjans, & Nielsen, 2012; Zhan, 2015). In the face of a shrinking social safety net and increased variety of fringe benefits (including medical, dental, retirement, and stock options), workers increasingly view benefits as compensation that can improve their quality of life (Bloom & Trahan, 2016; Freeman & Rogers, 2006). Individuals demand benefits from employers through their decisions about which jobs to take (Blank, 1985; Lehrer & Pereira, 2007; Monheit & Vistnes, 1999) and participation

in unions, which has been increasing among white-collar workers (Dew, 2018; U.S. Department of Labor, Bureau of Labor Statistics, 2018, 2019). Here, we review the extant literature on the influence of educational attainment on nonwage employment outcomes. We find the need for additional research leveraging recent data that include a comprehensive set of background measures and employment outcomes.

From our review of the literature, two studies stood out among the rest for their inclusion of a variety of employment-related outcomes. Oreopoulos and Salvanes (2011) used U.S. General Social Surveys from 1972 to 2000 to illustrate the influence of education on nonearnings outcomes. They found that while individuals with more schooling experience enhanced job satisfaction, autonomy, occupational prestige, and feelings of self-accomplishment, they also experienced lower rates of unemployment. The study used regression analyses to control for background factors like age, gender, parents' education, family income, and educational attainment, the latter of which they operationalized categorically by comparing those with less than a high school degree, a high school degree, some college but no bachelor's degree, and at least a bachelor's degree. To date, that study offers the most comprehensive set of nonpecuniary outcomes and covariate adjustments in the literature. However, the data ends in 2000, well before the 2008 recession. More recently, Trostel (2015) leveraged the 2012 American Community Survey to examine the relationship between educational attainment and a host of outcomes, including fringe benefits, unemployment, and health. While the study presented descriptive patterns across a variety of outcomes, it did not control for individual background characteristics or differences in institutional characteristics among college goers.

More recent research investigates a smaller set of employment-related outcomes and their implications for young Americans during the 2008 recession. Vuolo, Mortimer, and Staff (2016) examined the impact of educational attainment on five occupational outcomes—individuals' current employment status, job security status, career investment status, hours worked, and weekly earnings. Using longitudinal, national data from the Youth Development Study (2005–2011), they found that, despite the challenging labor market, people who earned a bachelor's or associate degree demonstrated higher levels of employment than their peers without a degree. Additionally, after controlling for background, researchers found that individuals with higher educational attainment were more likely to view their work as a career than those with lower levels of education. This study supports the value of a college degree even during a national financial crisis and highlights the disadvantages of beginning but not completing college programs. However, because researchers operationalized educational attainment by grouping into one category all students who attended college but did not earn a degree, the study does not capture variation among college goers who fail to earn at least an associate degree.

Other studies examine the relationship between education and specific employment outcomes. J. Ma, Pender, and Welch (2016) presented the descriptive relationship between education attainment and access to health insurance, finding that individuals with less education are less likely to have access. Currently, over one third of Americans are covered by ACA public health care plans, but threats to the ACA may require individuals to find alternative coverage and employers will likely continue to be primary providers of health

insurance in the United States (J. Ma et al., 2016). Educational attainment is also associated with financial security later in the life course. In a longitudinal study of men, Crystal, Shea, and Krishnaswami (1992) found that private pensions and other retirement income sources were positively linked to educational attainment. They argue that stratification in educational attainment in early life produces stratification in later life economic outcomes. However, it is unclear if the relationships between educational attainment and health and retirement benefits hold after controlling for individual background characteristics.

Research suggests that educational attainment protects workers from unemployment and improves their ability to recover from unemployment spells (Gangl, 2006; Hout, 2012). Hout (2012) mapped the negative correlation between educational attainment and unemployment. He illustrated that, during the 2008 recession, workers who attended college without earning a degree were twice as likely to be unemployed as workers with a bachelor's degree. He did not examine the robustness of that pattern to the inclusion of statistical controls. Oreopoulos (2007) estimated the impact of high school dropout on future unemployment —in addition to earnings and other nonemployment-related outcomes—and found that increased schooling decreases the odds of unemployment. While he controlled for a host of background characteristics, he restricted his study's focus to high school attainment. Given the long-term effects of unemployment on employment and life outcomes (Gangl, 2006; Mortimer et al., 2016; Vuolo et al., 2016; Young, 2012), researchers, advocates, and lawmakers need a clearer understanding of the relationship between postsecondary pathways and unemployment.

## Research Questions

To examine nonpecuniary employment returns across educational attainment and assess how robust the returns to education are after controlling for individual and institutional characteristics, this study leverages longitudinal, nationally representative data that capture a range of nonpecuniary employment outcomes among young adults in their early career trajectory. We examine the following research questions:

### Research Question 1:

How do early career nonpecuniary employment outcomes, including job satisfaction, employment-sponsored benefits, and unemployment, vary across levels of educational attainment?

### Research Question 2:

How is educational attainment related to early career nonpecuniary employment outcomes, controlling for individual and institutional characteristics?

We use national data, paired with descriptive statistics and regression analyses, to address these questions.

## Conceptual Framework

The literature on educational attainment and employment informed our statistical models, which we describe in greater detail in the subsequent section. In addition to educational attainment, we conceive of four conceptual contributors to employment outcomes: demographic background, current contexts, educational background, and, for individuals who attended college, institutional characteristics. After describing the literature that supports these four constructs as predictors of employment outcomes, we discuss various ways that prior researchers operationalized educational attainment, our independent variable of interest.

### Demographic Background

Demographic background predicts both educational attainment and employment outcomes. Most of the literature on college persistence and degree attainment explores the contribution of preentry characteristic such as gender, race, and socioeconomic status, along with educational background measures (e.g., Adelman, 1999; St. John, Paulsen, & Starkey, 1996; Tinto, 1993). Recent studies also link difficult-to-measure background characteristics like wealth to educational attainment, illustrating the persistent positive relationship between family wealth and educational attainment (Hällsten & Pfeffer, 2017; Pfeffer, 2018). Characteristics like race, gender, and socioeconomic status, along with educational attainment, have been linked to a variety of labor market outcomes, including employment, earnings, job characteristics, and job turnover (e.g., Altonji & Blank, 1999; Bertrand & Mullainathan, 2004).

### Current Contexts

Labor market outcomes are also influenced by individuals' current contexts, including time-varying demographic measures (like marital status and children) and local labor markets. Marital status and having children predict not only whether individuals are hired but also the type of job individuals hold, including job characteristics and earnings (Goldin, Kerr, Olivetti, & Barth, 2017; England, Bearak, Budig, & Hodges, 2016; Juhn & McCue, 2017). Research suggests that family formation, particularly the arrival of children, contributes to discrimination in hiring decisions and inequities in compensation (England et al., 2016; Juhn & McCue, 2017).

Individuals' labor market outcomes, including employment opportunities, earnings, and unemployment spells, are also informed by local labor markets they enter (Holzer, 1991; Manning & Petrongolo, 2017). Shifts in the supply and demand within local labor markets have implications for individuals entering them, as changes in the number of available positions and unemployment rate ultimately affect any given individual's probability of employment (Barnichon & Figura, 2015; Belasen & Polachek, 2008; d'Aspremont, Dos Santos Ferreira, & Gerard-Varet, 1990). Living in areas with few employers or with high unemployment may negatively affect the number of employment opportunities and the quality of the jobs available (Benmelech, Bergman, & Kim, 2018; Fields, 1975; Thiede, Lichter, & Slack, 2018).

### Educational Background

Experiences and skills acquired during secondary schooling can inform labor market outcomes, as well as college attendance and performance (Crisp, Nora, & Taggart, 2009; Y. Kim, 2011; Sewell, Haller, & Ohlendorf, 1970). Most notably, precollege cognitive ability, as measured through standardized testing, has been linked to a variety of outcomes, including educational attainment and labor market outcomes; but it is difficult to disentangle the role of schooling and ability (Hartog, Van Praag, & Van Der Sluis, 2010; Heckman, Stixrud, & Urzua, 2006; Heckman & Vytlacil, 2001). Although test scores are imperfect measures of skills and ability, they are commonly included in statistical models predicting both educational and occupational attainment dating back to human capital theory and status attainment theory (e.g., Becker, 1975; Sewell et al., 1970).

Educational attainment is one of the most consequential measures of educational background for predicting labor market outcomes, as described in the literature review above. Among individuals who select into college, there is variation in college pathways that may influence labor market returns. Major choice has important implications for college student outcomes, given the wide variation in returns to college across program, which has been observed across noncompleters, subbaccalaureate degree earners, and baccalaureate degree earners (Bahr et al., 2015; Y. Ma & Savas, 2014; Xu & Trimble, 2016; Wiswall & Zafar, 2017; Zeidenberg, Scott, & Belfield, 2015). Performance during college, primarily captured through student GPA, is commonly used by researchers to predict persistence during college and future returns in the labor market (Backes, Holzer, & Velez, 2015; Cabrera, Stampen, & Hansen, 1990; Rumberger & Thomas, 1993; St. John et al., 1996).

### College Characteristics

The most substantial literature on the role of postsecondary education on employment outcomes like earnings and employability focuses on institutional selectivity, illustrating the advantage of attending selective colleges (Dale & Krueger, 2014; Gaddis, 2014; J. Kim, Kim, Jaquette, & Bastedo, 2014). Additional research suggests a positive relationship between other college characteristics, like sector, costs, and reputation, and outcomes like completion, occupational status, and earnings (Brewer, Eide, & Ehrenberg, 1999; Hoekstra, 2009; MacLeod, Riehl, Saavedra, & Urquiola, 2017; Pascarella, Smart, & Smylie, 1992; Schudde & Goldrick-Rab, 2016). Institutional factors like cost (average net student tuition) and proxies for institutional resources (e.g., faculty–student ratio) also appear to influence college outcomes and are often included in models that predict college outcomes and beyond (e.g., Bound, Lovenheim, & Turner, 2010; Chen, 2011; St. John et al., 1996). Though there has been some research linking institution type, including sector and selectivity, to employment outcomes like job satisfaction, the evidence is mixed. Some research indicates that the relationship between college selectivity and job satisfaction has diminished over time and is now negligible (J. Kim et al., 2014), while other results illustrate a small negative correlation between college quality (captured through college selectivity and institutional control) and job satisfaction (Liu et al., 2010).

### Educational Attainment

Despite decades of research linking education and labor market outcomes, there is no consensus on the best way to measure individuals' highest educational attainment. We examined the extant literature to consider the best approach for capturing educational attainment in our study. The "years of schooling" approach assumes that the effects of education are linear across all years and, in some instances, that attending community college is equivalent to two additional years of education beyond high school at a 4-year college (Belfield & Bailey, 2011; Goldberg & Smith, 2008). Alternative approaches sometimes rely on categorical measures that fail to capture differences among college noncompleters and, in doing so, often employ the ambiguous "some college" category (Belfield & Bailey, 2011). For instance, "some college" may include both noncompleters and students who earn credentials other than a baccalaureate (Belfield & Bailey, 2011). This overly broad classification system hampers researchers' understandings of the returns on education across varying levels of postsecondary educational attainment, particularly as researchers find wide variation in returns across different levels of subbaccalaureate education (Xu & Trimble, 2016; Zeidenberg et al., 2015). Given the challenges associated with the years of schooling approach to capturing educational attainment and the alternative approach that lumps all noncompleters into a vague "some college" category, we sought to construct an educational attainment measure that would allow us to distinguish across nondegree-earning college goers. We elaborate on how we operationalize educational attainment in the next section.

Overall, our conceptual framework presumes that the combination of highest educational attainment, demographic background, current contexts, educational background, and college characteristics (for college goers) predict individuals' employment outcomes. Because we can only capture college-level measures for college attendees (i.e., only students who earned at least some college credit have a college major or GPA), we must restrict analyses that include those measures to only individuals who attended college, as we explain further below.

## Method

### Data

This study used the NLSY97, a data set that captures the transition from school to work for a nationally representative sample of youth, born 1980–1984. We used longitudinal data gathered from 17 waves of interviews, collected from 1997 to 2015, along with postsecondary transcript data collected in 2012. In 1997, eligible youth between ages 12 to 16 years and their parents were surveyed about a range of labor force and human capital issues, including work experience, education, and work-related attitudes. The total sample ($n$ = 8,894) includes a cross-sectional sample and an oversample of Black and Hispanic youths. At the 2015 wave, the respondents were 31 to 35 years old and survey items included detailed questions regarding employment experience, with distinct data collected for each employer.

The NLSY97 includes surveys from respondents and their parents, a cognitive assessment (the Armed Services Vocational Aptitude Battery [ASVAB]—obtained in first wave), postsecondary transcripts, and geocode data featuring identification numbers for colleges attended. We linked the college identifiers to institutional-level information from the Integrated Postsecondary Education Data System (e.g., faculty/student ratio, net tuition, the level and control) and National Center for Education Statistics (NCES)–Barron's Academic Competitiveness Index for institutional selectivity. With the exception of the geocode data file and Barron's Index, all other files are publicly available. To obtain access to the NLSY97 geocode data and NCES–Barron's Index, researchers must apply for access through the Bureau of Labor Statistics and NCES, respectively.

As with many longitudinal surveys, the NLSY97 suffers from missing data and sample attrition. Sample attrition is an anticipated part of longitudinal research (Twisk & de Vente, 2002). The response rate in 2015, the latest available wave of the NLSY97, was approximately 80% among the original sample. We restricted our analytic sample to only respondents in the latest wave ($n = 7,103$) because nonparticipation is unlikely to be random; imputation of missing data requires the assumption that it is missing at random (Royston, 2005; Rubin, 1987). Based on descriptive statistics, it appears that nonresponse was higher among White participants and somewhat higher for men than women (for more information on the retention rates and reasons for non-interview in the NLSY97, see National Longitudinal Survey of Youth, 2019). To preserve sample size and retain cases missing only some information, we used multiple imputation on the remaining observations. Multiple imputation creates several complete copies of the data, replacing missing observations with plausible values rather than assuming one "true" response model (Royston, 2005). The process adds variability to the analytic model, guarding against artificially precise standard errors. Following Royston's (2005) recommendation, we dropped observations missing more than 50% of variables, eliminating 128 cases from the full sample (final $n = 6,975$). We present the resulting set of average estimates from across 10 imputed data sets for each analysis, which we obtained using Rubin's rules (Rubin, 1987). We ran sensitivity analyses on nonimputed data; the results are not sensitive to imputation.

We examined the role of educational attainment on labor market outcomes using two separate analytic samples. First, we used the full sample ($n = 6,975$) to analyze patterns for the broad population. Then, to control for the role of college experiences and institutional characteristics, we restricted the sample to only those who attended college and had a college identifier. The resulting analytic sample included 3,488 individuals who attended college at some point by the time they turned at least 31 years (youngest age at latest data collection). At the latest follow-up, 310 participants were still enrolled in some form of postsecondary education; thus, we control for years since last enrollment in the analyses.

## Measures

The NLSY97 includes rich data on student background, education, and labor market outcomes. To control for students' demographic background, we included measures of gender, race/ethnicity, family structure, socioeconomic status (e.g., household income, parents' highest degree earned), and wealth (including proxies like household net worth

and whether they owned a home). We captured individuals' current context for entering the labor market in the latest wave by including marital status, number of children, and several proxies for their local labor market, such as the region of the country, whether they reside in a rural area, and the unemployment rate in their area. For the full sample, we included educational background measures such as whether students attended a public high school and a proxy for cognitive ability (the combined score on the ASVAB). For college goers, our educational background block of variables also includes measures from college, including last known major and cumulative college GPA. We captured college major from postsecondary transcripts at the respondent's most recent college or, for those who attended college after transcripts were collected in 2012, from subsequent survey responses. Using major codes (college course map numbers), we developed broad major fields following examples from prior literature (e.g., Leppel, Williams, & Waldauer, 2001; Zafar, 2013). We also included postsecondary characteristics for students' most recent institutions, obtained from the Integrated Postsecondary Education Data System, including average net tuition, flags for level and sector, and proxies for institutional quality, such as ratio of faculty to students and faculty salary and institutional selectivity obtained from Barron's. Online Appendix Table A1 describes all variables, including outcomes, and presents sample statistics.

**Operationalizing Educational Attainment.—**We developed a categorical measure of educational attainment that captures various levels of postsecondary attainment. For noncollege goers, we distinguished between those who did not earn a degree and those who earned a high school diploma or equivalent (e.g., a GED). We then used postsecondary transcripts and self-reports to determine the highest level of postsecondary education attained by those who attended college by the time of the latest wave of data collection. We prioritized data from postsecondary transcripts but relied on self-reports to obtain enrollment and degree information for respondents who (1) did not enroll in college; (2) were missing college transcripts; and (3) completed additional education, according to survey data, after the transcript cutoff date. To capture variation across types of noncompletion, we divided college goers who did not earn a credential into two subgroups: Noncompleters whose latest institution awards associate degrees (or below) and noncompleters whose latest institution awards at least a baccalaureate. We refer to these as "some college (2-year)" and "some college (4-year)." The final educational attainment categories are no degree, high school diploma, some college (2-year), some college (4-year), certificate, associate degree, bachelor's degree, and graduate degree (which includes master's, doctoral, or professional degrees). Due to low cell size, we did not distinguish between various graduate degrees.

**Employment Outcomes.—**The NLSY97 is ideal for examining employment due to its breadth in employment-related survey items. We focused on three types of outcomes: (1) quality of most recent job, including job satisfaction and availability of benefits (we include all individuals in the analysis, using the most recent employer for those who are currently unemployed); (2) employment history in the past year, including whether they were employed, number of jobs, and average hours worked per week; and (3) unemployment history, including the number of unemployment spells over the course of work history and, for those who have experienced unemployment, total months receiving unemployment

benefits. When estimating employment benefits, number of jobs held, and average hours worked per week in the past year, we restricted the sample to those who were employed in 2015, as only those with employment in the past year answered relevant survey items ($n = 5,632$). For total months of unemployment received, we restricted the observations to individuals eligible for nonzero values (those who had at least one unemployment spell) to prevent the skewing of the results toward zero ($n = 2,082$). See online Appendix Table A1 for more detail about the employment outcomes.

### Analytic Strategy

Using multivariate regression analysis, we examined how outcomes vary across levels of educational attainment while controlling for students' backgrounds, current contexts, and educational experiences. For the college-going sample, we captured additional college experience measures, including GPA and major, and characteristics for the latest postsecondary institution attended. The resulting coefficients provide a summary of the relationship between educational attainment and each employment outcome after parsing out the influence of observable covariates. We estimated logistic regressions for dichotomous outcomes and ordinary least squares regressions for continuous outcomes.

Because educational attainment is a categorical outcome, each educational category is compared with the excluded category ("no degree" for full sample, "some college (2-year)" for college-going sample). We performed postestimation Wald tests to determine whether the overall influence of educational attainment was statistically different than zero, using the lowest education category as the reference (the results from the full regression analysis, where each educational category is compared with the reference, are available on request). We also relied on Wald tests to compare the effect across categories other than the reference (e.g., Is there a significant difference between the estimate for "some college [4-year]" and "certificate?"). We discuss interesting patterns in the results section.

### Limitations

Because we rely on regression, the results do not represent causal relationships. While recent research that uses earnings as an outcome among community college entrants is able to leverage an individual fixed effects approach to estimate shifts in quarterly earnings before, during, and after students enroll in and exit college (e.g., Bahr et al., 2015; Belfield, 2015; Xu & Trimble, 2016), a similar identification strategy is not feasible for examining nonearnings labor market outcomes among the full population. To use individual fixed effects, the individuals in the data must have several observations of the outcome prior to their educational experience in order to compare how that outcome changes after exposure to additional educational attainment. This is possible in a community college setting because many students enter community college with prior work experience. In a sample like ours, where many individuals only completed high school and many of those who entered college did so directly from high school with no consistent work experience, individual fixed effects is not appropriate. For that reason, a regression with rich covariates is the strongest identification strategy available to examine varied returns to education across different levels of attainment and an improvement to the extant literature on nonpecuniary outcomes. We include a variety of control variables but acknowledge that the estimated

influence of educational attainment could still partially be explained by unobserved factors. To minimize bias, we included controls for cognitive ability, socioeconomic status and wealth, and educational background, but it is feasible that omitted variables may explain at least some of the observed patterns of effects.

The study results are generalizable to a population of young adults who were likely to graduate from high school between 2001 and 2005 (if they graduated "on time") and continued responding to the interview in 2015. The postsecondary transcripts allowed us to capture detailed postsecondary information for students who transitioned to college within the first 10 to 14 years of completing high school. Although the most recent survey waves allow us to capture 4 more years of educational attainment, the results still cannot capture the effect of educational attainment for individuals who return to schooling later in life. Compared with other studies that survey individuals throughout the life course, for now, the results from the NLSY97 are only generalizable to early career outcomes through young adulthood. Still, an advantage is that, unlike national studies with a broader sample of the population, like the Current Population Study, we were able to include control measures to test whether results were robust to individual and institutional measures.

State administrative data have become a viable option for examining the relationship between educational attainment and labor market outcomes, though it is more useful for examining the influence on earnings than nonpecuniary outcomes (Backes et al., 2015; Bahr et al., 2015; Belfield, 2015; Belfield, Liu, & Trimble, 2014). While administrative data offer insights into earnings for entire cohorts of college enrollees, they are unable to follow students across state lines (Scott-Clayton & Wen, 2016). The NLSY97 tracks 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. The survey also captures quantity and length of unemployment periods. This detailed set of nonpecuniary employment outcomes 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. Despite the limitations in generalizability, we feel that the depth of information provided about individuals and their colleges offsets the limitations.

Finally, our approach estimates the relationships between educational attainment and several employment outcomes separately, with each employment measure serving as an outcome in a separate regression. It is likely that various job characteristics, particularly the availability of certain fringe benefits like access to paid leave or health insurance, are correlated. Likewise, we expect that nonearning employment outcomes may be correlated with earnings.[2] We recognize that measures associated with individuals' most recent jobs, like satisfaction and fringe benefits (5 of our 10 outcomes), are likely part of a broader construct of job quality. Capturing the influence of educational attainment on a latent construct like job quality would require an alternative approach, like factor analysis. Given

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[2]·Indeed, the measures that capture job characteristics appear to have a small positive correlation with the annual income earned from that job. The correlations between job earnings and each of our job-related outcomes are job satisfaction: 0.099, health insurance: 0.245, dental insurance: 0.246, retirement plan: 0.282, days paid leave: 0.245.

our focus on a host of different employment outcomes, including those not related to one specific job, we chose to focus on breadth and keep the 10 distinct outcomes.

## Results

We first present descriptive differences across students attaining various levels of education. Table 1 provides weighted means for each subgroup. The final two columns present weighted means for each analytic sample: college goers and the full sample. Eighty-two percent of the full sample was employed for pay during 2015. Among those employed in the past year, approximately two thirds of individuals in the full sample report satisfaction with their most recent job. Just over two thirds have employer-sponsored health insurance (70%), 63% have dental insurance, and 58% have access to a retirement plan. The average employee earned just over 10 days per year of paid leave annually and worked an average of 42.4 hours per week. Those employed in the past year maintained an average of 1.3 jobs. Since turning 18, the average respondent experienced 0.6 unemployment spells. Among those who were unemployed, the average total number of months they received unemployment benefits was 9.4 months. When we restrict the sample to college goers, positive employment outcomes, like job satisfaction and access to fringe benefits, are more prevalent and we observe fewer bouts of unemployment.

These results suggest several notable patterns in demographic characteristics across education levels, and they support the need to control for background when modeling the relationship between educational attainment and employment outcomes. Racial/ethnic representation varies across attainment: While Black and Hispanic populations have higher representation among lower levels of education, there is higher representation among Whites in the higher attainment categories. Among the students in our sample who earned a bachelor's degree, 77% identify as White, 9% as Black, 7% as Hispanic, and 7% as another race. Family net worth and family income vary positively with educational attainment, as does parental education and cognitive ability (measured by ASVAB score).

Similar to prior research, our descriptive results show correlation between educational attainment and nonearning employment outcomes. Increased education appears positively associated with employment, job satisfaction, and access to employer-based health and dental insurances, retirement plans, and paid leave. Sixty-five percent of individuals with no high school degree held employment in 2015, compared with 77% of high school graduates, 81% of 2-year college noncompleters, and 84% of 4-year college noncompleters. Among college graduates, 87% associate degree holders were employed, as were 92% of bachelor's degree recipients and 94% of graduate degree earners. Noncompleters at 2- and 4-year colleges are 5 to 6 percentage points more likely to report access to employer-sponsored health insurance than those who hold a high school degree but never enrolled in college (and 25 to 26 percentage points more likely than those without a high school degree). The descriptive results suggest "some" college may offer nonpecuniary value in the labor market.

Furthermore, those with more education—particularly those who attain a bachelor's degree or higher—experience fewer unemployment spells over the course of young adulthood (half or fewer spells compared with the other groups). Among those who were unemployed, the

length of drawing unemployment benefits is lowest among those with the most education, hovering around 8 months among those with a bachelor's degree or higher. Our results reevaluate the literature by showing some unexpected variation across populations who attended college without earning a degree. Noncompleters who last attended a 4-year institution experienced more fewer unemployment spells on average than noncompleters who last attended a 2-year college and those who earned a certificate.

Next, we present covariate-adjusted estimates, testing whether the descriptive patterns are robust to the inclusion of additional controls. For each outcome across each educational level, Table 2 provides the average marginal effect—defined as the predicted probability of the outcome for an individual in that educational category holding all other covariates at their mean. Columns 1 and 2 show the results for the full and college-going sample, respectively. The reference category for educational attainment is the lowest level of educational attainment (no degree in the full sample, some college [2-year] in the college-going sample). The final row of each set of results presents $p$ values obtained from postestimation Wald tests assessing the overall relationship between educational attainment and each employment outcome.

Including controls in the regression models does not substantially alter the pattern of results. Results from the full sample, in column 1, illustrate the value of a college education. The relationship with job satisfaction is statistically significant, but modest. More notable are the vast differences in access to important benefits in relation to attainment level. Individuals with each additional level of educational attainment are significantly more likely to have access to employer-sponsored health care, dental insurance, and a retirement plan than high school noncompleters. For example, compared with the reference category, earning some college credit from a 2-year college correlates with a 27-percentage-point increase in the probability of access to employer-sponsored health insurance, 26-percentage-point increase in the probability of access to both dental insurance and retirement plan. Those with more education also earn considerably more paid leave: Whereas the predicted length of paid leave per year for high school–educated respondents was 8 days or fewer, baccalaureate-holders average almost 2 weeks. Educational attainment positively predicts number of hours worked. Those in the highest attainment category (holding a graduate degree) average over 46 hours per week.

When restricting the sample to college goers—which enabled us to include an array of additional control measures—the observed relationships between educational attainment and employment outcomes largely hold. In some cases, controlling for college experiences and institutional characteristics diminishes the estimated relationship between educational attainment and employment outcome. It appears that the relationship between educational attainment and job satisfaction observed in the full sample is partially driven by lower job satisfaction among individuals without a high school degree. When we focus on college goers, using the "some college (2-year)" subgroup as the reference category and including college-level controls, we no longer observe significant variation across levels of educational attainment. In other analyses using the college-going sample, the point estimates differ somewhat from those using the full sample, but the relationships between educational attainment and the employment outcomes are largely robust to the inclusion

of additional measures. Educational attainment positively predicts employment, access to employer-sponsored health insurance, dental insurance, retirement plans, days paid leave, and hours worked per week.

The results demonstrate the variation in returns to postsecondary educational attainment for college goers. Associate degree recipients are 4.6 percentage points more likely to be employed than noncompleters at 2-year colleges ($p = .045$), as are baccalaureate and graduate degree recipients, by 7.4 and 9.8 percentage points, respectively ($p = .002$, $p < .001$). Results from postestimation Wald tests across additional categories suggest that some significant differences across subbaccalaureate groups. For instance, associate degree recipients are 6.1 percentage points more likely to have access to employer-sponsored health insurance than noncompleters at 4-year colleges ($p = .028$). The differences in paid leave and access to dental insurance between certificate and associate degree recipients are marginally significant ($p = .075$ and $p = .077$, respectively), suggesting that associate degrees may offer access to jobs with better benefits. Additionally, compared with noncompletion at a 4-year institution, earning a bachelor's degree appears to offer a significant boost in employment ($p < .001$), access to health insurance ($p < .001$), dental insurance ($p < .001$), and retirement plans ($p = .034$), and paid leave ($p = .012$).

Last, our results reveal that educational attainment generally diminishes the number of unemployment spells but does not appear correlated with the total number of months receiving unemployment benefits among those who were unemployed. In the analysis on the full sample, high school graduates and college goers who earn certificates experience significantly more unemployment spells than the reference category of high school noncompleters, while individuals who earn at least a bachelor's degree experience significantly fewer unemployment spells. When we restrict the sample to college goers and control for additional college experiences and institutional characteristics, the point estimates among subbaccalaureate students are more conservative (ranging from 0.615 for some college at a 2-year institution up to 0.719 for certificate holders). Postestimation Wald tests reveal that the total spells of unemployment for baccalaureate recipients are significantly different from the estimate for individuals who earned some college at a 4-year institution ($p < .001$).

## Discussion

This article leverages national data to examine the role that educational attainment plays in predicting a variety of nonpecuniary employment outcomes. While much research examines the value of postsecondary education, the majority estimates the impact on wages alone. Studies using recent data to illustrate the relationship between educational attainment and a host of employment outcomes do not examine whether the results are robust to the inclusion of controls (e.g., Hout, 2012; Trostel, 2015). 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 job satisfaction and fringe benefits; recent employment history; and unemployment spells and length of unemployment benefits. To understand the relationship between educational and early career employment outcomes, we first presented weighted means for two analytic

samples (the full sample and those who went to college). We then examined whether those patterns hold after controlling for individual and institutional measures.

The results bolster support for the relationship between increased education and positive employment outcomes, particularly regarding being employed in the past year and access to employer benefits. In addition to access to employer-provided health and dental insurance, educational attainment also predicts increased likelihood of a planned retirement and paid leave. The results are most noteworthy regarding average days of paid leave, where those with a bachelor's degree or more earn about three times as much paid leave as those without a high school diploma and almost twice as much as those with a high school diploma. Even among college goers, those with higher attainment earn strikingly more paid leave per year than their peers: bachelor's degree recipients received approximately three more paid days off compared with noncompleters at 2-year colleges and those who earned a certificate. Respondents with baccalaureate degrees and above in both the full and college-going samples also tend to work more hours per week than their peers with less education. Finally, educational attainment appears negatively correlated with unemployment spells.

Focusing on college goers enables us to include information on college experiences and institutional characteristics in the models. For the most part, the results from the full sample hold after we include additional college controls, with one notable exception. Although we observed a positive correlation between educational attainment and job satisfaction in the full sample, the relationship is no longer significant in the analysis on college goers. Given the evidence regarding college quality and job satisfaction (J. Kim et al., 2014; Liu et al., 2010), it was not entirely surprising to find that the differences in self-reported job satisfaction among college attendees were largely explained away by covariates.

Some of the most interesting patterns of our results emerge among college goers who earn less than a bachelor's degree. Earning an associate degree positively predicts several employment outcomes compared with several subassociate postsecondary attainment levels, including boosted employment compared with noncompleters at 2-year colleges, improved access to employer-sponsored health insurance compared with noncompleters at 4-year colleges, and increased paid leave and access to dental insurance compared with certificate recipients. While the bulk of the prior literature either uses a "years of schooling" approach to capturing educational attainment or dichotomizes between bachelor's degree recipients and nonrecipients (grouping all subbaccalaureate students into a "some college" category), our results suggest that there is some variation in employment outcomes across subbaccalaureate attainment levels. Analysis on our college-going sample—where we were able to control for college experiences and characteristics—illustrates why the "years of schooling" approach to capturing educational attainment is insufficient.

Importantly, because the majority of college attendees fail to earn a bachelor's degree (Bailey & Dynarski, 2011), patterns of variation in returns to postsecondary education among those below baccalaureate level are valuable for understanding the returns to college education. By including more detailed postsecondary attainment categories than prior research, we are able to build a clearer picture of the complicated returns to postsecondary

education for those without a college degree (either an associate or bachelor's). Previous research shows a great degree of variation in the impacts of certificates on earnings by field of study, where, in some fields, a certificate offers a substantial boost in earnings, while in others it does not (Belfield, 2015; Xu & Trimble, 2016). That heterogeneity is likely also present in predicting the relationship between specific college education levels and a variety of employment outcomes. It is also feasible that earning a certificate may boost earnings in some fields, but that those higher paying jobs are less inclined to offer benefits like paid leave.

Given the possibility that employers and workers consider a trade-off between different job characteristics, including benefits, pay, and perhaps even features of the work (like worker autonomy), future research should explore how workers prioritize and delineate between different job characteristics, including how they value benefits versus earnings. Understanding the process through which individuals choose and prioritize different job characteristics may offer additional insights into how educational attainment informs employment outcomes. Some of this research might examine worker preferences, while other lines of research might explore the latent construct of job quality, including how to develop an index using various survey items and performing factor analysis to capture job quality, including earnings, fringe benefits, and other characteristics like satisfaction (i.e., we expect that latent constructs of job quality should likely include both pecuniary and nonpecuniary job characteristics).

## Conclusion and Implications

Our findings provide new insight on the varying relationships between educational attainment and nonearning employment outcomes. We contribute to a more comprehensive and nuanced narrative about the role that educational attainment plays in access to good jobs in the United States. Our development of detailed postsecondary educational attainment categories illustrates a complex relationship between college attainment and employment outcomes. While the higher education literature acknowledges diversity in college student pathways, the field would benefit from more insight into variation in the effects across postsecondary education experiences, sectors, and levels. This study highlights variation in the correlation between educational attainment and less thoroughly explored employment outcomes—those that capture a variety of nonearning measures likely to influence quality of life and well-being.

Improving our knowledge of the role educational attainment plays in a variety of employment outcomes requires more specific data. Increased access to administrative data linking college enrollees to their earnings data have improved our ability to understand the role of a variety of postsecondary pathways in predicting earnings. As of yet, administrative data leave researchers unable to examine the impact of educational attainment on nonpecuniary outcomes. Some recent efforts show institutional response to this need; for example, the Ohio Education Research Center includes data on K–12 students, postsecondary students, wages, and individuals' use of public services. The findings reported here suggest that educational attainment strongly predicts young workers' access to quality jobs, but the data are limited to individuals early in their career trajectories.

Understanding the role that postsecondary education plays in a variety of employment outcomes requires capturing a broader population, particularly nontraditional students like those who return to school later in life. As researchers continue to build data sources to trace the impact of educational pathways on a variety of outcomes, we will be able to better inform policies and programs for effective educational opportunities and improved quality of life for working people.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

## Acknowledgments

## Biographies

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**TABLE 1**

Weighted Means by Level of Highest Educational Attainment

| Variable | No Degree | High School Degree | Some College (2-Year) | Some College (4-Year) | Certificate | Associate Degree | Bachelor's Degree | Graduate Degree | All College Goers | Full Sample |
|---|---|---|---|---|---|---|---|---|---|---|
| *Demographic background* | | | | | | | | | | |
| Female | 0.452 | 0.436 | 0.506 | 0.463 | 0.516 | 0.556 | 0.551 | 0.599 | 0.538 | 0.493 |
| *Race/ethnicity* | | | | | | | | | | |
| White | 0.550 | 0.633 | 0.592 | 0.665 | 0.602 | 0.704 | 0.767 | 0.782 | 0.715 | 0.669 |
| Black | 0.218 | 0.187 | 0.187 | 0.180 | 0.164 | 0.132 | 0.087 | 0.082 | 0.122 | 0.155 |
| Other race | 0.028 | 0.031 | 0.044 | 0.043 | 0.063 | 0.051 | 0.074 | 0.068 | 0.062 | 0.048 |
| Hispanic | 0.203 | 0.149 | 0.177 | 0.112 | 0.171 | 0.112 | 0.072 | 0.067 | 0.101 | 0.128 |
| Immigrant | 0.053 | 0.041 | 0.056 | 0.042 | 0.047 | 0.032 | 0.047 | 0.035 | 0.044 | 0.045 |
| Age | 33.438 | 33.534 | 33.245 | 33.336 | 33.692 | 33.422 | 33.485 | 33.688 | 33.476 | 33.493 |
| Lived with both parents 1997 | 0.302 | 0.416 | 0.472 | 0.538 | 0.495 | 0.570 | 0.725 | 0.761 | 0.639 | 0.524 |
| Parents owned home 1997 | 0.408 | 0.571 | 0.637 | 0.714 | 0.669 | 0.732 | 0.845 | 0.849 | 0.777 | 0.666 |
| Household net worth 1997 | 38,213 | 68,032 | 90,479 | 122,710 | 82,802 | 118,344 | 194,530 | 204,943 | 156,041 | 112,394 |
| Household income 1996 | 28,185 | 38,534 | 47,076 | 57,774 | 43,775 | 53,089 | 72,788 | 77,074 | 63,610 | 51,062 |
| *Parents' highest degree* | | | | | | | | | | |
| None (reference) | 0.313 | 0.120 | 0.090 | 0.037 | 0.082 | 0.042 | 0.021 | 0.011 | 0.037 | 0.093 |
| High school diploma or equivalent | 0.521 | 0.577 | 0.531 | 0.417 | 0.522 | 0.492 | 0.271 | 0.226 | 0.362 | 0.456 |
| Associate degree | 0.086 | 0.148 | 0.127 | 0.135 | 0.167 | 0.156 | 0.138 | 0.106 | 0.137 | 0.137 |
| Bachelor's degree | 0.066 | 0.115 | 0.179 | 0.208 | 0.188 | 0.208 | 0.303 | 0.280 | 0.253 | 0.185 |
| Master's degree | 0.011 | 0.036 | 0.064 | 0.143 | 0.026 | 0.075 | 0.199 | 0.220 | 0.149 | 0.094 |
| Doctoral or professional degree | 0.003 | 0.005 | 0.010 | 0.059 | 0.015 | 0.025 | 0.068 | 0.157 | 0.062 | 0.035 |
| *Current contexts* | | | | | | | | | | |
| Married | 0.400 | 0.445 | 0.403 | 0.419 | 0.483 | 0.542 | 0.477 | 0.546 | 0.479 | 0.458 |
| Number of children | 1.610 | 1.312 | 1.225 | 0.975 | 1.276 | 1.202 | 0.970 | 1.009 | 1.058 | 1.204 |
| *Region* | | | | | | | | | | |
| South | 0.132 | 0.158 | 0.145 | 0.150 | 0.131 | 0.146 | 0.184 | 0.233 | 0.172 | 0.163 |
| Northeast | 0.222 | 0.245 | 0.203 | 0.256 | 0.254 | 0.239 | 0.239 | 0.244 | 0.239 | 0.240 |
| North central | 0.200 | 0.193 | 0.258 | 0.218 | 0.225 | 0.262 | 0.252 | 0.225 | 0.244 | 0.221 |

| Variable | No Degree | High School Degree | Some College (2-Year) | Some College (4-Year) | Certificate | Associate Degree | Bachelor's Degree | Graduate Degree | All College Goers | Full Sample |
|---|---|---|---|---|---|---|---|---|---|---|
| Rural | 0.193 | 0.233 | 0.148 | 0.132 | 0.196 | 0.251 | 0.138 | 0.110 | 0.154 | 0.187 |
| % Unemployed | 5.174 | 5.186 | 5.131 | 4.977 | 5.255 | 5.125 | 4.832 | 4.845 | 4.958 | 5.065 |
| *Educational background* | | | | | | | | | | |
| Public high school | 0.949 | 0.930 | 0.923 | 0.901 | 0.933 | 0.910 | 0.860 | 0.830 | 0.881 | 0.906 |
| ASVAB combined score 1999 | 20,104 | 35,160 | 46,532 | 60,537 | 46,932 | 54,459 | 69,554 | 77,379 | 63,021 | 48,671 |
| Years since last enrolled | | | 8.862 | 8.198 | 9.189 | 9.274 | 9.937 | 8.639 | 9.289 | |
| Major | | | | | | | | | | |
| None (reference) | | | 0.711 | 0.614 | 0.689 | 0.381 | 0.239 | 0.241 | 0.395 | |
| Humanities and liberal arts | | | 0.124 | 0.178 | 0.089 | 0.335 | 0.367 | 0.412 | 0.294 | |
| Health | | | 0.027 | 0.016 | 0.042 | 0.088 | 0.041 | 0.025 | 0.040 | |
| Industrial, manufacturing, construction | | | 0.001 | 0.000 | 0.011 | 0.022 | 0.004 | 0.000 | 0.006 | |
| Natural science | | | 0.003 | 0.006 | 0.005 | 0.003 | 0.016 | 0.024 | 0.011 | |
| Business | | | 0.028 | 0.050 | 0.041 | 0.046 | 0.111 | 0.055 | 0.073 | |
| Social and behavioral sciences | | | 0.018 | 0.021 | 0.003 | 0.010 | 0.049 | 0.062 | 0.035 | |
| Communication studies | | | 0.001 | 0.007 | 0.008 | 0.001 | 0.011 | 0.006 | 0.007 | |
| Literature, linguistics, and fine arts | | | 0.007 | 0.028 | 0.004 | 0.016 | 0.025 | 0.021 | 0.020 | |
| Math and computer science | | | 0.016 | 0.008 | 0.028 | 0.013 | 0.019 | 0.025 | 0.018 | |
| Education and social services/policy | | | 0.025 | 0.038 | 0.039 | 0.025 | 0.069 | 0.086 | 0.054 | |
| Engineering and related fields | | | 0.023 | 0.020 | 0.025 | 0.033 | 0.020 | 0.030 | 0.024 | |
| Service career oriented | | | 0.006 | 0.009 | 0.004 | 0.016 | 0.024 | 0.007 | 0.015 | |
| Continuing education | | | 0.010 | 0.007 | 0.013 | 0.011 | 0.005 | 0.007 | 0.007 | |
| College GPA | | | 2.113 | 2.300 | 2.317 | 2.687 | 3.038 | 3.309 | 2.770 | |
| *Characteristics last postsecondary institution* | | | | | | | | | | |
| Level | | | | | | | | | | |
| Baccalaureate or higher (reference) | | | 0.000 | 0.917 | 0.086 | 0.361 | 0.931 | 0.977 | 0.693 | |
| Below the baccalaureate | | | 0.973 | 0.082 | 0.887 | 0.631 | 0.067 | 0.023 | 0.302 | |
| Below associate degree | | | 0.027 | 0.001 | 0.027 | 0.007 | 0.001 | 0.000 | 0.006 | |
| Control | | | | | | | | | | |
| Public (reference) | | | 0.912 | 0.681 | 0.873 | 0.702 | 0.705 | 0.554 | 0.720 | |
| Private not-for-profit | | | 0.005 | 0.173 | 0.019 | 0.096 | 0.248 | 0.397 | 0.192 | |

| Variable | No Degree | High School Degree | Some College (2-Year) | Some College (4-Year) | Certificate | Associate Degree | Bachelor's Degree | Graduate Degree | All College Goers | Full Sample |
|---|---|---|---|---|---|---|---|---|---|---|
| Private for-profit | | | 0.083 | 0.145 | 0.107 | 0.202 | 0.047 | 0.049 | 0.089 | |
| Flagship status | | | 0.000 | 0.084 | 0.000 | 0.015 | 0.118 | 0.160 | 0.083 | |
| Selectivity | | | | | | | | | | |
| Open admissions (reference) | | | 1.000 | 0.320 | 0.980 | 0.811 | 0.217 | 0.270 | 0.460 | |
| Noncompetitive | | | 0.000 | 0.034 | 0.003 | 0.021 | 0.028 | 0.027 | 0.023 | |
| Less competitive | | | 0.000 | 0.092 | 0.011 | 0.015 | 0.085 | 0.051 | 0.058 | |
| Competitive | | | 0.000 | 0.348 | 0.007 | 0.113 | 0.362 | 0.319 | 0.254 | |
| Very competitive | | | 0.000 | 0.170 | 0.000 | 0.029 | 0.244 | 0.219 | 0.158 | |
| Highly competitive | | | 0.000 | 0.036 | 0.000 | 0.011 | 0.065 | 0.114 | 0.048 | |
| Average faculty salary ($2011) | | | 60,681 | 66,687 | 60,094 | 58,889 | 73,034 | 80,398 | 68,885 | |
| Average net student tuition ($2011) | | | 1,774 | 6,284 | 2,526 | 5,835 | 8,009 | 10,815 | 6,715 | |
| Faculty-student ratio | | | 0.020 | 0.031 | 0.021 | 0.026 | 0.037 | 0.041 | 0.032 | |
| *Employment outcomes* | | | | | | | | | | |
| Currently employed | 0.653 | 0.772 | 0.813 | 0.835 | 0.830 | 0.872 | 0.921 | 0.944 | 0.887 | 0.823 |
| Satisfied at current job | 0.566 | 0.622 | 0.636 | 0.683 | 0.668 | 0.699 | 0.703 | 0.734 | 0.694 | 0.659 |
| Health insurance | 0.433 | 0.628 | 0.676 | 0.687 | 0.674 | 0.725 | 0.808 | 0.844 | 0.764 | 0.696 |
| Dental insurance | 0.365 | 0.551 | 0.634 | 0.628 | 0.631 | 0.648 | 0.746 | 0.783 | 0.704 | 0.630 |
| Retirement plan | 0.295 | 0.473 | 0.552 | 0.598 | 0.574 | 0.616 | 0.720 | 0.778 | 0.672 | 0.580 |
| Days paid leave per year | 4.226 | 8.057 | 9.261 | 11.153 | 9.500 | 11.522 | 13.917 | 16.059 | 12.732 | 10.541 |
| Number of jobs, past year | 1.299 | 1.339 | 1.321 | 1.355 | 1.332 | 1.402 | 1.359 | 1.376 | 1.360 | 1.349 |
| Average hours worked per week, past year | 41.559 | 42.608 | 40.957 | 42.474 | 41.323 | 41.364 | 42.479 | 45.131 | 42.445 | 42.439 |
| Total unemployment spells | 0.618 | 0.773 | 0.719 | 0.654 | 0.836 | 0.672 | 0.323 | 0.223 | 0.486 | 0.605 |
| Total months received unemployment | 10.675 | 9.732 | 9.954 | 9.398 | 8.873 | 10.021 | 8.004 | 7.894 | 8.857 | 9.398 |
| Proportion of all students | 0.106 | 0.394 | 0.062 | 0.073 | 0.049 | 0.064 | 0.196 | 0.055 | 0.544 | 1 |
| Count of students | 737 | 2,750 | 431 | 511 | 342 | 499 | 1,370 | 385 | 3,488 | 6,975 |

*Note.* ASVAB = Armed Services Vocational Aptitude Battery. The table presents weighted means for different levels of educational attainment and for the full and college-going samples. All means were obtained using NLSY97's 2015 cumulative cases sampling weight. Variables that are related to college are only available for individuals who attended college. For employment benefits, number of jobs held, and average hours worked per week in the past year, we restricted the sample to those who were employed in 2015 ($n = 5,632$). For total months of unemployment received, we restricted the observations to individuals eligible for nonzero values (those who had at least one unemployment spell) to prevent the skewing of the results toward zero ($n = 2,082$).

**TABLE 2**

Marginal Effects of Educational Attainment on Nonpecuniary Employment Outcomes

| | Full Sample | | College Goers | |
|---|---|---|---|---|
| | Marginal Effect | (SE) | Marginal Effect | (SE) |
| *Outcome: Currently employed* | | | | |
| No degree | 0.705 | (0.019) | | |
| High school diploma or equivalent | 0.793*** | (0.009) | | |
| Some college (2-year) | 0.828*** | (0.018) | 0.862 | (0.024) |
| Some college (4-year) | 0.864*** | (0.016) | 0.898 | (0.015) |
| Certificate | 0.859*** | (0.019) | 0.891 | (0.021) |
| Associate degree | 0.890*** | (0.015) | 0.908* | (0.015) |
| Bachelor's degree | 0.922*** | (0.008) | 0.936*** | (0.008) |
| Graduate degree | 0.945*** | (0.013) | 0.960*** | (0.011) |
| *N* | 6,975 | | 3,488 | |
| Wald test (educational attainment)[a] | p = .000 | | p = .004 | |
| *Satisfied at current job* | | | | |
| No degree | 0.564 | (0.025) | | |
| High school diploma or equivalent | 0.623* | (0.011) | | |
| Some college (2-year) | 0.632 | (0.026) | 0.670 | (0.034) |
| Some college (4-year) | 0.663** | (0.023) | 0.664 | (0.025) |
| Certificate | 0.638* | (0.028) | 0.672 | (0.034) |
| Associate degree | 0.674** | (0.024) | 0.700 | (0.026) |
| Bachelor's degree | 0.676*** | (0.015) | 0.679 | (0.016) |
| Graduate degree | 0.708*** | (0.026) | 0.709 | (0.028) |
| *N* | 5,632 | | 3,102 | |
| Wald test (educational attainment) | p = .008 | | p = .804 | |
| *Health insurance* | | | | |
| No degree | 0.431 | (0.028) | | |
| High school diploma or equivalent | 0.632*** | (0.013) | | |

| | Full Sample | | College Goers | |
|---|---|---|---|---|
| | **Marginal Effect** | **(SE)** | **Marginal Effect** | **(SE)** |
| Some college (2-year) | 0.698*** | (0.025) | 0.679 | (0.037) |
| Some college (4-year) | 0.695*** | (0.024) | 0.684 | (0.027) |
| Certificate | 0.677*** | (0.028) | 0.658 | (0.038) |
| Associate degree | 0.732*** | (0.023) | 0.745 | (0.026) |
| Bachelor's degree | 0.808*** | (0.013) | 0.825*** | (0.013) |
| Graduate degree | 0.826*** | (0.022) | 0.857*** | (0.021) |
| N | 5,632 | | 3,102 | |
| Wald test (educational attainment) | p = .000 | | p = .000 | |
| *Dental insurance* | | | | |
| No degree | 0.389 | (0.027) | | |
| High school diploma or equivalent | 0.556*** | (0.013) | | |
| Some college (2-year) | 0.648*** | (0.027) | 0.613 | (0.039) |
| Some college (4-year) | 0.629*** | (0.025) | 0.622 | (0.028) |
| Certificate | 0.619*** | (0.029) | 0.592 | (0.039) |
| Associate degree | 0.656*** | (0.025) | 0.667 | (0.028) |
| Bachelor's degree | 0.756*** | (0.014) | 0.778*** | (0.015) |
| Graduate degree | 0.773*** | (0.024) | 0.808*** | (0.024) |
| N | 5,632 | | 3,102 | |
| Wald test (educational attainment) | p = .000 | | p = .000 | |
| *Retirement plan* | | | | |
| No degree | 0.320 | (0.026) | | |
| High school diploma or equivalent | 0.476*** | (0.013) | | |
| Some college (2-year) | 0.584*** | (0.027) | 0.578 | (0.039) |
| Some college (4-year) | 0.582*** | (0.026) | 0.591 | (0.028) |
| Certificate | 0.561*** | (0.030) | 0.557 | (0.039) |
| Associate degree | 0.589*** | (0.026) | 0.610 | (0.029) |
| Bachelor's degree | 0.7?i*** | (0.015) | 0.730*** | (0.016) |
| Graduate degree | 0.750*** | (0.026) | 0.790*** | (0.025) |

| | Full Sample | | College Goers | |
|---|---|---|---|---|
| | **Marginal Effect** | **(SE)** | **Marginal Effect** | **(SE)** |
| N | 5,632 | | 3,102 | |
| Wald test (educational attainment) | p = .000 | | p = .000 | |
| *Days paid leave per year* | | | | |
| No degree | 4.789 | (0.614) | | |
| High school diploma or equivalent | 8.229 *** | (0.287) | | |
| Some college (2-year) | 10.052 *** | (0.637) | 10.014 | (0.928) |
| Some college (4-year) | 10.990 *** | (0.577) | 11.166 | (0.674) |
| Certificate | 9.980 *** | (0.700) | 10.127 | (0.922) |
| Associate degree | 11.511 *** | (0.600) | 11.988 | (0.711) |
| Bachelor's degree | 13.557 *** | (0.377) | 13.769 ** | (0.437) |
| Graduate degree | 14.786 *** | (0.676) | 15.787 *** | (0.777) |
| N | 5,632 | | 3,102 | |
| Wald test (educational attainment) | p = .000 | | p = .000 | |
| *Number of jobs, past year* | | | | |
| No degree | 1.318 | (0.032) | | |
| High school diploma or equivalent | 1.343 | (0.015) | | |
| Some college (2-year) | 1.308 | (0.034) | 1.293 | (0.048) |
| Some college (4-year) | 1.342 | (0.031) | 1.371 | (0.035) |
| Certificate | 1.348 | (0.037) | 1.334 | (0.048) |
| Associate degree | 1.390 | (0.032) | 1.387 | (0.037) |
| Bachelor's degree | 1.326 | (0.020) | 1.370 | (0.023) |
| Graduate degree | 1.341 | (0.036) | 1.381 | (0.040) |
| N | 5,632 | | 3,102 | |
| Wald test (educational attainment) | p = .712 | | p = .673 | |
| *Hours worked per week, past year* | | | | |
| No degree | 40.116 | (0.780) | | |
| High school diploma or equivalent | 41.665 | (0.370) | | |
| Some college (2-year) | 41.128 | (0.823) | 40.169 | (1.058) |
| Some college (4-year) | 43.563 ** | (0.756) | 42.682 | (0.779) |
| Certificate | 41.138 | (0.905) | 40.395 | (1.054) |

|  | Full Sample | | College Goers | |
|---|---|---|---|---|
|  | Marginal Effect | (SE) | Marginal Effect | (SE) |
| Associate degree | 42.506 * | (0.779) | 41.945 | (0.814) |
| Bachelor's degree | 43.376 *** | (0.491) | 43.129 * | (0.502) |
| Graduate degree | 46.115 *** | (0.876) | 45.674 *** | (0.884) |
| N | 5,632 | | 3,102 | |
| Wald test (educational attainment) | p = .000 | | p = .011 | |
| *Total unemployment spells* | | | | |
| No degree | 0.608 | (0.049) | | |
| High school diploma or equivalent | 0.763 ** | (0.025) | | |
| Some college (2-year) | 0.708 | (0.059) | 0.615 | (0.074) |
| Some college (4-year) | 0.685 | (0.056) | 0.661 | (0.056) |
| Certificate | 0.794 * | (0.066) | 0.719 | (0.074) |
| Associate degree | 0.705 | (0.058) | 0.660 | (0.058) |
| Bachelor's degree | 0.366 *** | (0.038) | 0.424 * | (0.037) |
| Graduate degree | 0.267 *** | (0.067) | 0.336 * | (0.066) |
| N | 6,975 | | 3,488 | |
| Wald test (educational attainment) | p = .000 | | p = .000 | |
| *Total months received unemployment* | | | | |
| No degree | 10.263 | (0.651) | | |
| High school diploma or equivalent | 10.064 | (0.289) | | |
| Some college (2-year) | 10.193 | (0.673) | 8.813 | (0.847) |
| Some college (4-year) | 9.107 | (0.658) | 9.682 | (0.694) |
| Certificate | 9.171 | (0.708) | 8.176 | (0.827) |
| Associate degree | 9.670 | (0.713) | 8.940 | (0.698) |
| Bachelor's degree | 8.400 * | (0.543) | 9.248 | (0.600) |
| Graduate degree | 8.590 | (1.176) | 10.179 | (1.206) |
| N | 2,082 | | 964 | |
| Wald test (educational attainment) | p = .267 | | p = .819 | |

*Note.* Each set of marginal effects corresponds to a different regression model (including all covariates from Table 1—see online Appendix B for full regression results) and represents the predicted probability of the outcome for the given educational level, holding all other variables at their means. In each model, the lowest level of educational attainment served as the reference category—in the full sample, each category is compared with "no degree" and in the college-going sample, each category is compared with "some college (2-year)."

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[a]We performed postestimation Wald tests (using Stata's test command) to determine whether the influence of the educational attainment measure, overall, was statistically different than zero.

*
p < .05.

**
p < .01.

***
p < .001.