



# No college, no problem?

For many employers and candidates, skills matter more than degrees

No college, no problem?

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# Introduction

In the United States, a bachelor's degree is widely viewed as a prerequisite for professional success. Individuals frequently pursue college degrees in the belief that possessing a degree will help them land a "good" job and enhance their earning power. For their part, many employers prefer to hire people with at least a bachelor's degree, believing that college graduates are more likely to work out well as employees.

**B**UT how accurate are both of these beliefs? A look at the data suggests that the relationship between a college degree and professional success may be less straightforward than it may seem. That's good news for employers in many

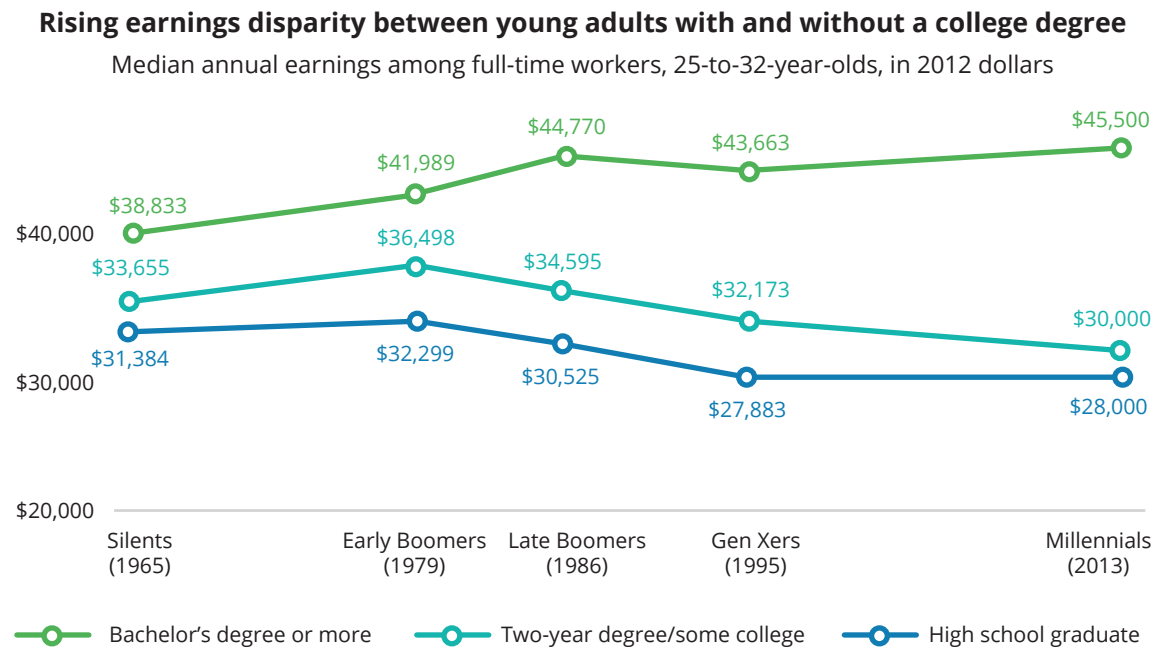
areas of today's challenging labor market, where job candidates with college degrees are becoming more and more difficult to find—and in which employers may therefore need to rely on other signals to assess a candidate's potential.

# The college premium: Not just an urban legend

**F**OR US college graduates, the financial return on investment in higher education is well documented. The idea that bachelor’s degree-holders earn more than those with only high school diplomas is borne out by a wealth of data—even when the high cost of college is taken into account. For example, a recent study conducted by researchers at the Federal Reserve Bank of San Francisco

found that, on average, a college graduate is expected to recoup the cost of four years’ worth of tuition (at \$20,000 per year) by age 40, and then go on to earn over \$800,000 more than a high school graduate during her working lifetime.<sup>1</sup> And many other studies document that the college premium applies not only to graduates of four-year programs but to those who obtain two-year degrees—and

**Figure 1. Millennials enjoy the biggest college premium today**



Note: Median annual earnings are based on earnings and work status during the calendar year prior to interview and limited to 25-to-32-year-olds who worked full time during the previous calendar year and reported positive earnings. “Full time” refers to those who usually worked at least 35 hours a week last year.

Source: Pew Research Center tabulations of the 2013, 1995, 1986, 1979, and 1965 March Current Population Survey (CPS) Integrated Public Use Micro Samples.

even to those who attend college for some time without graduating.

Moreover, the size of the college premium has grown over time. For example, one researcher at the Federal Reserve Bank of Cleveland estimates that, in 2011, college graduates earned 84 percent more than high school graduates, up from 40 percent in the 1980s.<sup>2</sup> And while some studies using more recent data note that the rate at which the college premium has been increasing has slowed somewhat since 2000, it still continues to rise.<sup>3</sup>

A recent Pew Research Center study sheds more light on the college premium from a generational perspective. The study was limited to 25-to-32-year-olds with full-time jobs—relatively recent entrants to the job market who are likely to have finished their formal education. In contrast to studies

that look at the entire labor force's average wage experience by educational attainment over time, the Pew Center's approach removes the effects of the changing proportion of college graduates in the labor force and changes in the college premium's size. The Pew results show that the largest and most striking disparity between college graduates and those with less education surfaces in the Millennial generation (see figure 1). As the researchers report, "In 1979, when the first wave of Baby Boomers were the same age that Millennials are today, the typical high school graduate earned about three-quarters (77 percent) of what a college graduate made. Today, Millennials with only a high school diploma earn 62 percent of what the typical college graduate earns."<sup>4</sup>

# College graduates are becoming harder to find

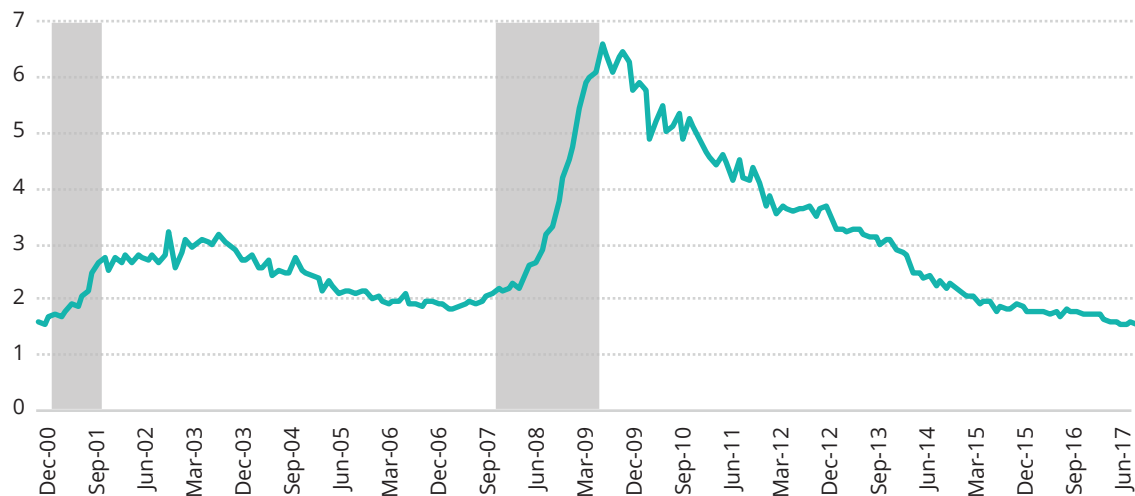
**W**HEN jobs are scarce and the labor market is awash with college graduates looking for work, employers can afford to treat a bachelor’s degree as table stakes for employment. Unfortunately for hiring managers, the American job market is tightening to an extent that many employers may no longer have that luxury: There may soon be too few college graduates to go around.

Although the labor force participation rate remains substantially below its pre-recession rate and real earnings have been slow to rise, most other measures of the US labor force indicate that workers are enjoying what is very much a seller’s market for talent. The overall headline unemployment rate (which includes only individuals who have looked for a job in the past four weeks) stands at just 4.2

percent, a level not experienced since 2001. The more expansive unemployment rate—which includes part-time workers who would prefer a full-time job, as well as people not currently seeking work but who have looked in the past 12 months—is 8.3 percent, consistent with pre-recession levels. The number of long-term unemployed (those out of work for 27 weeks or more) and the median number of weeks unemployed among those out of work are both down significantly from their recession high points. And although below the pre-recession level, the labor participation rate among people 25 to 54 years old is rising.<sup>5</sup>

To highlight the current tightness of the labor market, one can look at the relationship between job openings and the number of unemployed—one

**Figure 2. Number of unemployed persons per job opening, seasonally adjusted**



Note: Shaded area represents recession as determined by the National Bureau of Economic Research (NBER).

Source: Bureau of Labor Statistics.

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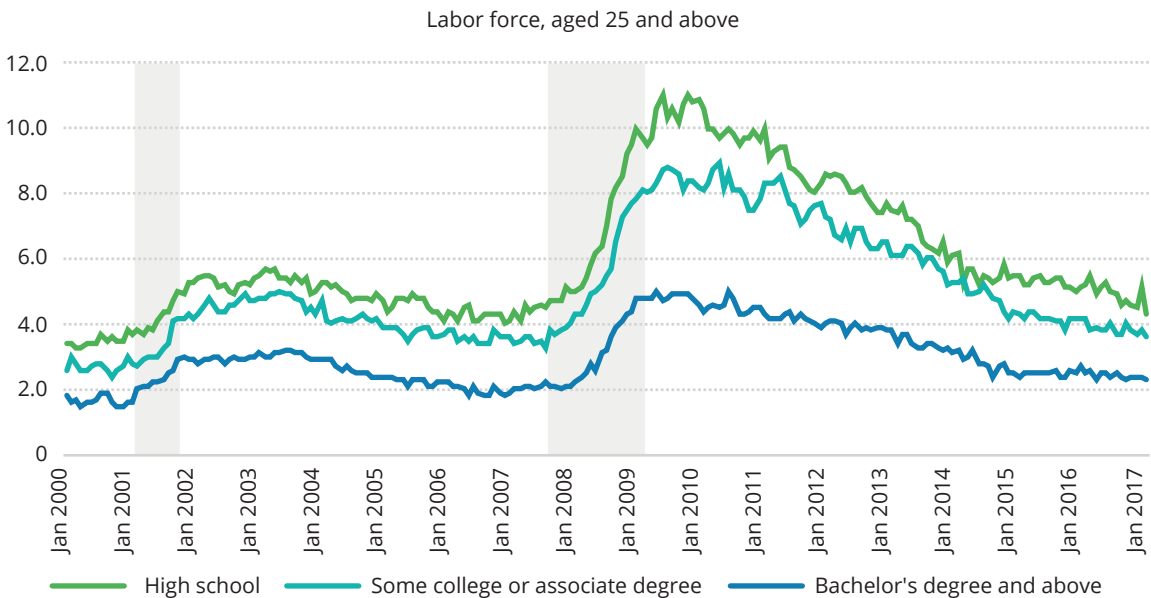
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of the clearest indicators of the ease or difficulty of finding and hiring a qualified candidate. As figure 2 shows, the number of unemployed persons per job opening has fallen to 1.2, the lowest rate recorded since the Bureau of Labor Statistics started recording this data in 2000.<sup>6</sup>

The drop in the overall unemployment rate is mirrored in the data that considers unemployment by educational attainment. During the most recent recession, the rise in unemployment among those with only a high school diploma was shockingly

rapid, rising from 4.7 percent in December 2007 to 11.0 percent in the last quarter of 2009 (see figure 3). The unemployment rate of those with some college or an associate's degree also rose substantially, and the rate among those with at least a bachelor's degree more than doubled, although from a much lower base. However, these three series are approaching their pre-recession levels, making it likely that employers will continue to have trouble filling job openings.<sup>7</sup>

**Figure 3. Unemployment rates by educational attainment**



Source: Bureau of Labor Statistics.

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# There's nothing magic about a bachelor's degree

**T**HAT a “college premium” exists is hard to deny. However, considerable debate exists as to *why* this should be so—a debate that becomes more urgent for employers as it becomes more difficult to find job candidates with bachelor’s degrees. Do graduates earn a premium because they are able to apply the additional knowledge and skills they gained as a result of going to college? Or do they earn more because they possess abilities that position them for success regardless of whether or not they went to college? Ultimately, is it the actual college education that influences an individual’s earning potential? Or is it merely that people smart and capable enough to graduate from college would be smart and capable enough to do well for themselves no matter their level of educational attainment?

For employers, this is no idle question. College degrees are associated with a variety of other labor market characteristics, many of which are harder to measure—but some of which may be useful signals for employers looking for ways to identify promising job candidates among those *without* a college degree. So we dug deeper to answer the question: Is a college degree really what drives higher earnings?

To explore this, we turned to the Bureau of Labor Statistics’ National Longitudinal Surveys of Youth, which document details in the lives of a sample of American youth born between 1980 and 1984 over time (see sidebar, “Study methodology”). This data offers a rich set of possible explanations for differences in wage growth over time, helping to clarify why some people earn more than others—and exactly what going to college has to do with that.

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## STUDY METHODOLOGY

Beginning in 1997, the National Longitudinal Surveys of Youth (NLSY) conducted interviews with young people living in the United States and born between 1980 and 1984. The study gathered data through 16 subsequent rounds of interviews with these individuals (although currently data is available for only 15 of those rounds). In this report, we focus on the observations between 2003 and 2013, starting when the youths were aged 19 to 23. Over this observation period, the basic demographics of sex and race/ethnicity held steady, even with some of the participants dropping out.<sup>8</sup> Other controls such as highest degree earned, marital status, and children randomly changed throughout the study. We used a regression model to consider other possible factors that might influence an individual’s income.

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**Table 1: College premium among National Longitudinal Surveys of Youth subjects**

Model	College premium in dollars (annual earnings)	
	STEM degree	Non-STEM degree
<b>Baseline</b>	\$13,910	\$4,947
<b>Correcting for occupations</b>	7,695	3,958
<b>Correcting for industry</b>	12,358	4,849

Note: Deloitte estimates based on analysis of NLSY data. Bold text indicates the estimate is statistically significant from zero at the 95 percent level.

Source: Deloitte analysis.

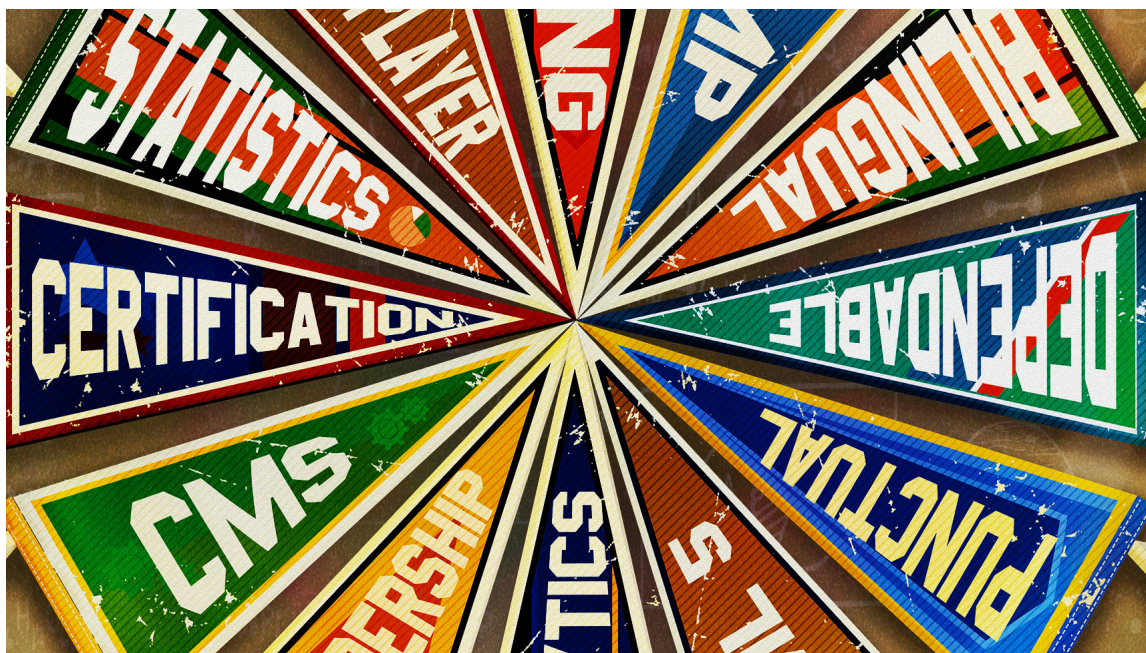
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Table 1 shows the estimate, based on the National Longitudinal Surveys of Youth data, of the college premium among individuals in our sample. The baseline model explains earnings differences with several key variables, including race/ethnicity, marriage status, parents’ educational status, health, and age. The baseline model estimates the premiums for holding either a STEM-related bachelor’s degree or a non-STEM-related degree.<sup>9</sup> Perhaps unsurprisingly, STEM degree-holders enjoyed a bigger premium than non-STEM degree-holders<sup>10</sup>—but what is surprising is the size of the disparity. The

premium for STEM degrees is almost three times the premium for non-STEM degrees.

To put the premium in context, average earnings over the period of estimation were just over \$24,000. The premium for college graduates with STEM degrees is thus over half of average earnings—a very impressive amount.

But a closer look at table 1 shows that the college premium for both STEM and non-STEM degree-holders becomes substantially smaller when the model controls for occupations. This suggests that the college education itself is only part of the story.



What matters more to an individual’s earnings: the occupations that a college degree opens up.

A look at the way that earnings relate to both occupations and college degree status confirms this

suspicion. Table 2 shows the *occupational* premium for a range of job—the premium that an individual in each occupation earns, on average, over the low-est-paid occupational group. That is to say: The oc-

**Table 2. Occupational premiums**

<b>Occupation</b>	<b>Estimated premium</b>
<b>Engineers, architects, surveyors, and related occupations</b>	\$18,759
<b>Computer and mathematical occupations</b>	18,101
<b>Military-specific occupations</b>	16,894
<b>Legal occupations</b>	16,783
<b>Executive, administrative, management, and related occupations</b>	16,330
<b>Installation, maintenance, and repair occupations</b>	12,517
<b>Protective service occupations</b>	11,988
<b>Health care practitioners and health care support occupations</b>	11,100
<b>Construction and extraction occupations</b>	10,574
<b>Production, operating, and food preparation occupations</b>	8,447
<b>Life, physical, and social science occupations</b>	7,837
<b>Arts, design, entertainment, sports, and media occupations</b>	7,461
<b>Sales and related occupations</b>	6,986
<b>Office and administrative support occupations</b>	6,973
<b>Transportation and material-moving occupations</b>	6,772
<b>Education, training, and library occupations</b>	5,214
<b>Community and social occupations</b>	4,491
<b>Food preparation and serving occupations</b>	2,660
<b>Personal care and service occupations</b>	261
<b>Building and grounds cleaning and maintenance occupations</b>	-

Note: Deloitte estimates based on analysis of NLSY data. Bold text indicates the estimate is statistically significant from zero at the 95 percent level.

Source: Deloitte analysis.

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occupational premiums listed in table 2 represent how much more an average worker in each occupation earns than an average worker in the lowest-earning reference occupation (building and grounds cleaning and maintenance services), *whether or not either worker has a college degree*.

Note, for example, that the premium for working in an engineering occupation is substantially above the pure premium for having a STEM degree in the baseline estimate.

What matters most to earnings potential, then, is not only the bare fact of having a college degree. Having a college degree appears to make it more likely that one will be hired into a higher-paying occupation. This finding has implications for policymakers, young people, and employers.

For policymakers looking for ways to improve people's employment prospects, the lesson may be not to focus aid efforts solely on helping people enroll in and graduate from college. Rather, the focus should be on preparing people for high-paying (and low-unemployment) occupations, which may or

may not entail the need for a college education. If a bachelor's degree helps someone acquire the skills necessary for one or more of those occupations, that's great. But there's nothing magic about an undergraduate degree. It appears to be no "better" or "worse," in terms of future earnings potential, than other ways of acquiring those same skills.

Young people, in turn, should also understand that a bachelor's degree does not automatically confer higher earnings potential. Those who want more stable and/or better-paying employment should pursue education and training in the skills relevant to the occupation for which they are aiming rather than simply going to college and hoping.

Finally, employers should clearly understand that it is skills, not credentials, that make someone a more or less desirable employee. In a tightening labor market, smart employers should carefully catalog the skills required for the occupations they hire and screen for those skills rather than accepting a bachelor's degree as a proxy for them.

# Industry matters less

**A**CCOUNTING for industry, rather than occupation, doesn't appear to affect the bachelor's premium nearly as much. But the existence of large industry premiums shows that the bachelor's is by no means the only—or even the most important—determinant of earnings.

Table 3 shows the industry premium earned by workers within broad industry categories, again controlling for the presence or absence of a bachelor's degree. This industry premium represents how much more an average worker in each industry

earns than the lowest-earning industry (arts, entertainment, accommodations, and food services)—again, whether or not either worker has a college degree.

Some industry premiums are quite large. The highest industry premium goes to active-duty military—perhaps unsurprising, given this occupation's nature and risk.

The large premium for the “agriculture, forestry, fishing and hunting, and mining” industry likely results from a combination of the high pay typically

**Table 3. Industry premiums**

Industry	Premium
<b>Active-duty military</b>	\$14,002
<b>Agriculture, forestry, fishing and hunting, and mining</b>	12,298
<b>Finance, insurance, and real estate</b>	11,345
<b>Public administration</b>	11,036
<b>Information and communication</b>	9,691
<b>Transportation, warehousing, and utilities</b>	9,284
<b>Construction and manufacturing</b>	9,214
<b>Professional and related services</b>	7,207
<b>Wholesale and retail trade</b>	3,426
<b>Educational, health, and social services</b>	3,190
<b>Other services</b>	1,279
<b>Arts, entertainment, accommodations, and food services</b>	0

Note: Deloitte estimates based on analysis of NLSY data. Bold text indicates the estimate is statistically significant from zero at the 95 percent level.

Source: Deloitte analysis.

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awarded to high-risk miners and the overstatement of pay for farm owners (whose earnings reflect both high capital investments and the rent for land, as well as labor income).

The relatively large premiums for industries such as finance, and information and communications—even when correcting for college degrees—indicate the importance of factors other than the bachelor's

degree. While including industries does not reduce the premium for the bachelor's degree, premiums for working in these industries are almost as large as the STEM degree premium. Employers in these industries may be looking for—and finding—qualifications that are not necessarily general characteristics of bachelor's degree, even a STEM degree.

# Lessons for employers— and aspiring workers

**T**ODAY'S tight labor market may well make the bachelor's degree—which many have criticized as an ambiguous and overly generalized credential to begin with—less important than it has been in the past. That's because smart (and perhaps desperate) employers will likely need to begin looking past the credential to screen for skills that matter for specific occupations. Employers that learn this lesson quickly will probably have an advantage in a growing competition for talent.

And aspiring workers should realize that a bachelor's degree is not all that matters to their future. In itself, a bachelor's degree is just a piece of paper. It's the skills—and the occupation—that matter more. When it comes to employment, that's the real goal of education.

As a result, there are implications of this research at the public policy, organizational, and individual levels. We believe aligning these three agendas will help all individuals—regardless of degree—thrive in the new realities of work.

**Policymakers:** Expand the workforce readiness scope and focus on preparing the workforce for high-paying (and low-unemployment) jobs. This

may or may not include traditional education pathways. Some government agencies are already using innovative workforce preparation methods outside the classroom, such as apprenticeships, on-the-job rotations, and trade skill training to better prepare the workforce for the future.

**Organizational leaders:** Place a premium on skills during the talent acquisition process. Organizations are learning from their data that a bachelor's degree may not be the best indicator for future performance at the organization. For example, Google, a company that used to rely not only on degrees but degrees from specific institutions, now recognizes that skills, leadership potential, and intellectual humility are much better indicators of employee success.<sup>11</sup>

**Individuals:** While obtaining a bachelor's degree is a good first step toward finding employment, it is not the final destination nor guarantee of good employment. Rather, individuals should practice continuous learning and skill development to remain competitive in today's markets. In addition, individuals should choose their occupations wisely—it matters to their bottom line.

## ENDNOTES

1. Mary C. Daly and Leila Bengali, "Is it still worth going to college?", FRBSF Economic Letter, May 2014.
2. Jonathan James, "The college wage premium," Federal Reserve Bank of Cleveland, August 8, 2012.
3. For example, see Robert G. Valletta, "Recent flattening in the higher education wage premium: Polarization, skill downgrading, or both?", Federal Reserve Bank of San Francisco, August 2016.
4. Pew Research Center, "The rising cost of not going to college," February 11, 2014.
5. Figures from the Bureau of Labor Statistics.
6. Bureau of Labor Statistics, "Job openings and labor turnover survey highlights, August 2017," October 11, 2017.
7. Figures from the Bureau of Labor Statistics.
8. The number of valid observations used in 2003 was 7,250. Although there was attrition (5,758 in 2013), the proportions of controlled subgroups that remained the same were sex (51% male, 49% female), race (60% white, 25% black, 2% Asian/Pacific Islander, 1% American Indian, and 12% other), and ethnicity (22% Hispanic, 78% non-Hispanic).
9. The definition of STEM majors comes from the Department of Homeland Securities Optional Practical Training Extension Program. See "How does DHS determine which degrees qualify for the STEAM OPT Extension," May 12, 2016.
10. For example, David Langdon et al., "STEM: Good jobs now and for the future," US Department of Commerce, Economics and Statistics Administration Issue Brief #03-11, July 2011, finds a 26 percent premium for all STEM workers.
11. Laszlo Bock, *Work Rules!: Insights from Inside Google That Will Transform How You Live and Lead* (N.Y.: Twelve, 2015).



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