THE ECONOMIC VALUE OF A LAW DEGREE

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Legal academics and journalists have marshaled statistics purporting to show that enrolling in law school is irrational. We investigate the economic value of a law degree and find the opposite: given current tuition levels, the median and even 25th percentile annual earnings premiums justify enrollment. For most law school graduates, the net present value of a law degree typically exceeds its cost by hundreds of thousands of dollars.

We improve upon previous studies by tracking lifetime earnings of a large sample of law degree holders. Previous studies focused on starting salaries, generic professional degree holders, or the subset of law degree holders who practice law. We also include unemployment and disability risk rather than assume continuous full time employment.

After controlling for observable ability sorting, we find that a law degree is associated with a 60 percent median increase in monthly earnings and 50 percent increase in median hourly wages. The mean annual earnings premium of a law degree is approximately $53,300 in 2012 dollars. The law degree earnings premium is cyclical and recent years are within historic norms.

We estimate the mean pre-tax lifetime value of a law degree as approximately $1,000,000.

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INTRODUCTION

Conventional wisdom suggests that advanced degrees are a good financial investment. Decades of economic research have established that workers with higher levels of education earn more[1] and are more likely to be employed,[2] likely because they become more productive—or develop "human capital"—through education, and perhaps also because education signals productivity to employers.[3] The most rigorous empirical studies

[1] *See* Orley Ashenfelter & Alan Krueger, *Estimates of the Economic Return to Schooling from a New Sample of Twins*, 84 AM. ECON. REV. 1157, 1157 (1994) (estimating from a sample of identical twins that an additional year of schooling increases wages by 12 to 16 percent); Thomas Lemieux, *Postsecondary Education And Increasing Wage Inequality*, 96 AM. ECON. REVIEW 195, 199 (2006) ("[P]ost secondary education plays a crucial role in explaining [increasing wage inequality]. By contrast, labor market experience, primary and secondary education, and the position of workers without postsecondary education in the wage distribution play a small role in explaining changes in the wage structure over the last 35 years."); Gary S. Becker, *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education* 246 (1994) ("The rate of return to an average college entrant is considerable, of the order of 10 or 12 per cent per annum"); *id.* at 247 ("[A]bility explains only a relatively small part of the [earning] differentials [between high school and college educated workers] and college education explains the larger part.").

[2] OECD, EDUCATION AT A GLANCE (2011) at 116-17, Chart A7.1 ("Higher education improves job prospects, in general, and the likelihood of remaining employed in times of economic hardship.").

[3] *See* Ashenfelter, *supra* note 1; cf. Joseph Stiglitz, *The Theory of "Screening*,"

suggest that higher education not only correlates with better labor market outcomes—it *causes* them.[4]

The purpose of this article is to estimate, as closely as data permits, the causal effect on earnings of a particular type of education, the law degree. Rather than viewing law degree holders in isolation, we can get better estimates of the causal effect of education by comparing the earnings of individuals with law degrees to the earnings of similar individuals with bachelor's degrees while being mindful of the statistical effects of selection into law school.

We ask: does a law degree typically increase the earnings of law graduates compared to what such individuals would likely have earned with only a bachelor's degree? How does the law school earnings premium vary by gender and at different points in the distribution of outcomes? How much of the increase in earnings is higher hourly wages, and how much is longer work hours?

Have declines in recent law graduate earnings eroded the law degree earnings premium? Or have parallel declines in earnings for similar bachelors left the relative advantage of a law degree intact?

Is the increase in lifetime earnings enough to justify the cost of attending law school for most law students?

Part I of this article provides background and explains how the approach in this article improves on previous studies. Part II presents annual earnings premium and hourly wage premium estimates for law degrees, taking into account ability sorting and selection. Part III presents estimates of increased labor force participation and work hours. Part IV presents trends in the law degree earnings premium over time and considers whether structural changes have eroded the relative advantages conferred by a law degree. Part V presents estimates of the lifetime value of the law degree, including differences by gender and across points in the distribution. Part V also considers the rate of return on an investment in legal education and public benefits of legal education in the form of higher tax revenue. Part VI presents data showing that student loan default rates for law school graduates are relatively low. Part VII concludes.

Education, and the Distribution of Income, 65 AM. ECON. REV. 283, 298 (1975) (arguing that education indicates to employers the innate abilities and characteristics of prospective employees and that education may not in and of itself improve labor productivity).

[4] *See* Ashenfelter, *supra* note 1; David Card, *The Causal Effect of Education on Earnings*, *in* HANDBOOK OF LABOR ECONOMICS, (Orley C. Ashenfelter & David Card eds., 3d ed. 1999) (reviewing the empirical literature).

I. BACKGROUND

A. Lawyers earnings are high, but many law school graduates do not work as lawyers

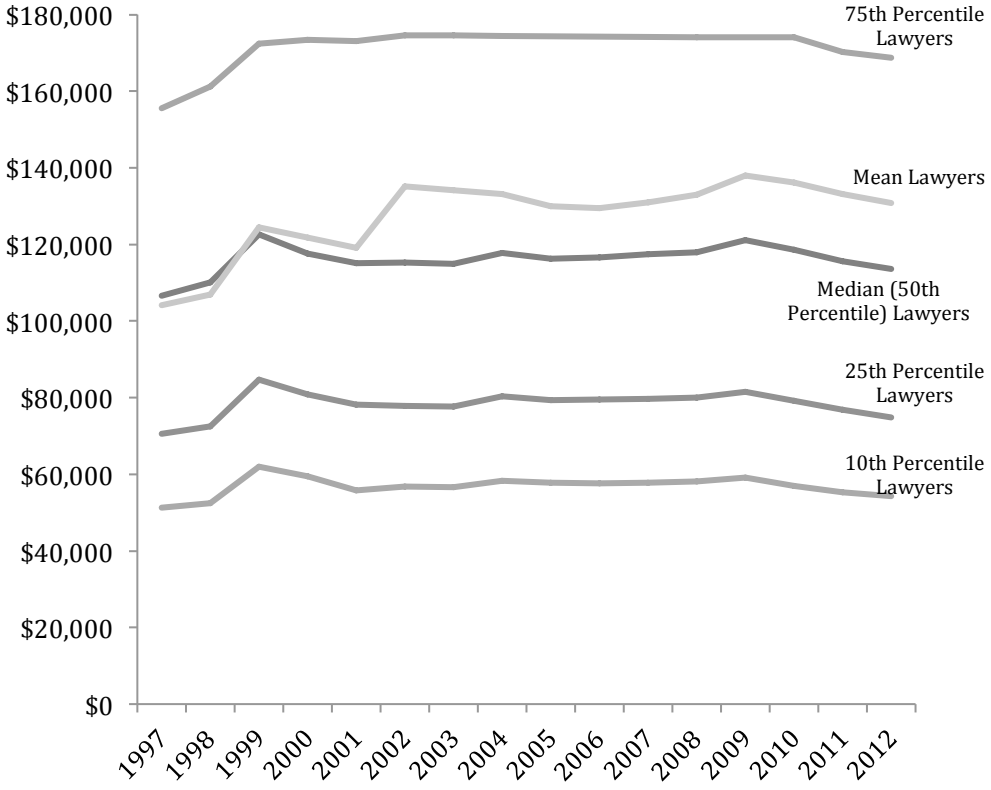
Judging from the earnings of lawyers, law degrees seem to be lucrative investments. Lawyers have long been among the highest paid of all U.S. workers.[5] Of the roughly 800 occupations tracked by the by the U.S. Department of Labor, Bureau of Labor Statistics (BLS), Occupational Employment Statistics Survey, only doctors, dentists, podiatrists, and chief executives routinely have higher average (mean) earnings than lawyers.

Figure 1 below shows the historic distribution of lawyers' earnings.

[5] *See* U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS (BLS), OCCUPATIONAL EMPLOYMENT STATISTICS (OES), *available at* http://www.bls.gov/oes/ and Figure 1 below.

Figure 1: Lawyers' earnings are high, even at the low end of the distribution

Real annual wage earnings, 1997-2012
Real 2012 USD



Source: Bureau of Labor Statistics, Occupational Employment Statistics

However, BLS data for "lawyers" must be interpreted with caution when measuring the value of a law degree,[6] because the data do not reflect the experiences of many law school graduates. Roughly one-third to one-half of U.S. residents with law degrees do not work as lawyers.[7] Some law

[6] *See also* note 46 *infra*.

[7] According to estimates by the U.S. Census Bureau, based on the Survey of Income and Program Participation (SIPP), there were approximately 1.5 million U.S. residents with law degrees as of 2009. Stephanie Ewert, *What It's Worth: Field of Training and Economic Status in 2009*, U.S. CENSUS BUREAU, 2, Table 2 (Feb. 2012). Our analysis of SIPP data suggests that about three out of five law graduates work as lawyers. 58% of all law degree holders report lawyer as their occupation, 63% when restricted to those

graduates are retired or are caring for dependents. Some law graduates choose employment opportunities in business or government rather than legal practice.[8] According to a June 2012 survey of pre-law students, "23% said they wanted to use their JD to go into politics at some point; another 23% said they wanted to use their degree for business purposes."[9] Other law graduates settle for non-legal or part time work because they are unable to find work as lawyers.[10] In other words, for purposes of determining the law degree earnings premium, data on lawyer earnings is under-inclusive.

BLS data also does not readily facilitate causal inference, because it does not include controls for ability sorting, or even basic demographic information.

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working.

[8] The disproportionate representation of law graduates at the top of business and government is indicative of decisions by many law graduates to pursue careers in these fields. Approximately 10 percent of CEOs of large companies and 50 percent of Senators have law degrees, whereas only around 1 percent of the workforce has a law degree. *See, e.g.*, Spencer Stuart, *Leading CEOs: A Statistical Snapshot of S&P 500 Leaders* (Feb. 2006); s*ee also S*cott Smallwood & Alex Richards, *How Educated Are State Legislators?*, CHRON. OF HIGHER EDUC. (June 12, 2011); How Educated are State Legislators?, CHRON. OF HIGHER EDUC. June 12, 2011.

[9] Kaplan found similar results in an October 2010 survey. Russell Schaffer & Carina Wong, *Kaplan Test Prep Survey: Despite an Uncertain Employment Landscape, Law School Applicants Still Consider School Rankings Far More Important than Job Placement Rates When Deciding Where to Apply*, Jun. 19, 2012, *available at* http://press.kaptest.com/press-releases/kaplan-test-prep-survey-despite-an-uncertain-employment-landscape-law-school-applicants-still-consider-school-rankings-far-more-important-than-job-placement-rates-when-deciding-where-to-apply.

[10] *See, e.g*, BUREAU OF LABOR STATISTICS, U.S. DEPARTMENT OF LABOR, OCCUPATIONAL OUTLOOK HANDBOOK, 2012-13 EDITION, *Lawyers*, *Job Outlook, available at* http://www.bls.gov/ooh/legal/lawyers.htm (visited Oct. 09, 2012) ("Competition should continue to be strong because more students are graduating from law school each year than there are [lawyer] jobs available."). Competition for lawyer jobs has been strong for decades. *See, e.g.,* BUREAU OF LABOR STATISTICS, U.S. DEPARTMENT OF LABOR, OCCUPATIONAL OUTLOOK HANDBOOK, 1976-77 EDITION, *Lawyers*, *Employment Outlook,* 140.

BLS and other labor economists have cautioned against using occupational employment projections to guide educational investment. *See* Michael W. Horrigan, BUREAU OF LABOR STATISTICS, U.S. DEPARTMENT OF LABOR, *Employment projections to 2012- concepts and context*, MONTHLY LAB. REV. 15-16 (Feb. 2004)("The general problem with [projections for] specific occupations over the next 10 years is the difficulty of projecting . . . dynamic labor market responses"); David Neumark, Hans Johnson, & Marisol Cuellar Mejia, *Future Skill Shortages in the U.S. Economy?* 32 ECON. EDUC. REV. 151, 162 (2013)("If the BLS numbers are correct, we might expect to see higher unemployment and greater underemployment of more highly-educated workers in the United States. . . . We do not find evidence of this."). Exploratory results suggest that even law degree holders who work in non-lawyer occupations do substantially better than bachelor degree holders.

The economic value of a law degree turns not on whether law graduates practice law,[11] but rather on how much more readily they find work with the law degree than they would have without, and how much more they earn with the law degree than they would have without.[12]

B. Professional degree holders earnings are high, but many professional degrees are not law degrees

Recent empirical studies based on long-term outcome data suggest that the lifetime value of a professional degree is probably greater than $1 million.[13] These studies seem to suggest that a law degree probably pays for itself several times over during the course of a law graduate's career.

However, such estimates must again be interpreted with caution.[14] Workers with "professional degrees" include not only law graduates, but also medical and dental degree holders who likely earn more than law degree holders, as well as teachers, accountants, auditors, managers, nurses and clergy who likely earn less.[15] In other words, for purposes of estimating the law degree earnings premium, data on professional degree holders is over-inclusive. In addition, differences in earnings and employment between professional degree holders and bachelors degree holders may be influenced by selection and ability sorting.

C. Starting salaries of recent law graduates have declined, but so have earnings of young bachelor degree holders

Real full time starting salaries of recent law school graduates declined by 20 percent between 2009 and 2012. The percent of graduates employed

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[11] This analysis excludes the consumption value that workers may derive from doing work that they enjoy or that confers prestige.

[12] *See* Joshua D. Angrist & Jörn-Steffen Pischke, MOSTLY HARMLESS ECONOMETRICS 64-68 (2009) (cautioning against controlling for occupation when estimating education earnings premiums); Carnevale et al., *infra* note 13 at 7, 9 & Figure 4 (finding that even after controlling for occupation, professional degree holders earn more than bachelor's degree holders with the same occupation); Neumark et al., *supra* note 10 at 156 (2013)("For nearly every occupational grouping, wage returns are higher for more highly-educated workers even if the BLS says such high levels of education are not necessary.").

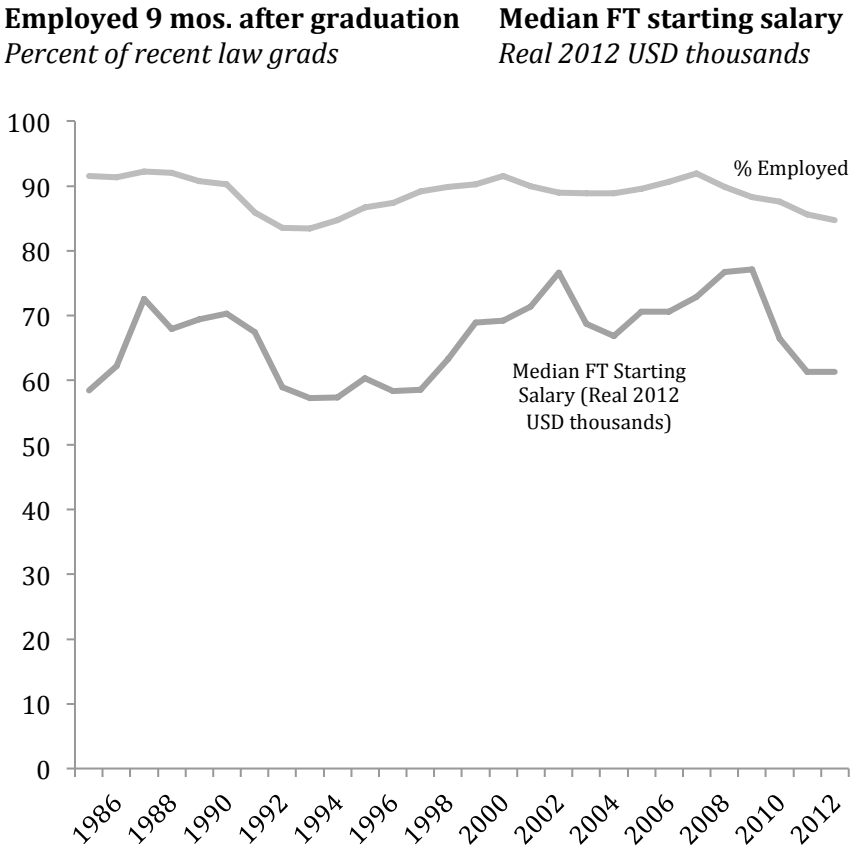
[13] *See, e.g.,* Anthony P. Carnevale, Stephen J. Rose, & Ban Cheah, *The College Payoff: Education, Occupations, Lifetime Earnings* 4 (Washington, DC: Georgetown University, Center on Education and the Workforce, 2010); *id.* at 4 (finding that the median professional degree holder earns $1.4 million more in 2009 dollars than the median bachelor's degree holder); Paul Taylor et al., IS COLLEGE WORTH IT?, PEW RESEARCH CENTER, 103-109 (May 16, 2011).

[14] *See* Carnevale et al., *supra* note 13 at 21-22.

[15] Carnevale et al., *supra* note 13 at 19, Table 9.

9 months after graduation has also declined 4 percent. Figure 2 below shows the decline from data collected by the National Association for Law Placement (NALP).

Figure 2: Starting salaries and employment for recent law graduates have declined



Source: National Association for Law Placement (NALP)

Deteriorating employment outcomes for recent law school graduates have led some to question the value of a law degree.[16]

However, declines in initial employment outcomes must be interpreted within the context of the overall labor market. The relevant measure for our

[16] See Part I.D.

purposes is earnings of law degree holders *relative* to earnings of similar bachelor degree holders at the same time, under the same set of macroeconomic conditions. NALP data is of limited use, because it only provides data on law graduates, not on comparable bachelor degree holders.

As discussed in greater detail below in Part IV, earnings of young bachelor degree holders also declined in recent years. The data does not suggest that the value of a law degree, as measured by earnings premiums, has decreased; to the contrary, point estimates suggest that it may have increased as law graduates weathered the recession better than most.

Another limitation of NALP data and of studies that focus on starting salaries is that earnings of professional degree holders, including law degree holders, typically grow rapidly and peak in middle age. First year earnings represent a small fraction of the present value of lifetime earnings—roughly 2 to 3 percent for law degree holders—and are imperfect predictors of subsequent earnings.

D. Recent media coverage and widely publicized legal academic studies have questioned the value of a law degree

The mainstream view of a law degree as a sound investment has recently been challenged by "scam blogs",[17] widely-read stories in the popular press,[18] class action law suits against more than a dozen law schools,[19] and articles and books by law professors such as Herwig Schlunk, Jim Chen, and Brian Tamanaha.[20] These critics claim that a law degree is a

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[17] *See, e.g.,* Brian Leiter, *Update on ScamProf,* Brian Leiter's Law School Reports, Aug. 19, 2011, *available at* http://leiterlawschool.typepad.com/leiter/2011/08/update-on-scamprof.html; Deborah Jones Merritt, *Greed,* INSIDE THE LAW SCHOOL SCAM BLOG*,* Aug. 10, 2012.

[18] *See e.g.,* David Segal, *Law School Economics: Ka-Ching!* N.Y. TIMES, July 17, 2011; David Segal, *What They Don't Teach Law Students: Lawyering*, N.Y. TIMES, NOV. 20, 2011 at A1.

[19] Complaints have been filed against at least 15 law schools, including five law schools in California, four in New York, three in Illinois, and one each in Michigan, Delaware and Florida. A list of most of the defendants is available on the website of one of the plaintiffs' attorneys, David Anziska. Several complaints in New York, Illinois, and Michigan were dismissed. Plaintiffs have survived motions to dismiss in California and New Jersey.

[20] *See* Herwig J. Schlunk, *Mamas Don't Let Your Babies Grow Up to Be . . . Lawyers*, Vanderbilt Law and Economics Working Paper No. 09-29, Oct. 30, 2009, *available at* http://ssrn .com/abstract=1497044 [hereinafter Schlunk I];. Herwig J. Schlunk, *Mamas 2011: Is a Law Degree a Good Investment Today?* Vanderbilt Law and Economics Research Paper No. 11-42, Dec. 16, 2011, *available at* http://ssrn.com/abstract=1957139, *published as* Herwig J. Schlunk, *Mamas 2011: Is a Law Degree a Good Investment Today?* 36 J. LEGAL PROF. 301 (2012) [hereinafter Schlunk II]; Jim Chen, *A Degree of Practical Wisdom: The Ratio of Educational Debt to Income as a Basic Measurement of Law School*

risky investment, and that many—and perhaps even most—law graduates would have been better off terminating their education with a four-year bachelor's degree.

According to these critics, rapidly rising tuition costs and diminished employment prospects for recent graduates following the 2008 financial crisis have so eroded the value of a law degree that it no longer makes financial sense for many to attend law school. The critics question whether recent graduates who do not work as lawyers at big firms will recoup their investment.

Academic critics' views have been widely disseminated and highly influential. Their conclusions have been reported in the *New York Times*,[21] the *Wall Street Journal*,[22] and the *National Law Journal*.[23] An article warning prospective students not to attend law school, *Mamas Don't Let Your Babies Grow Up to Be . . . Lawyers,* and a related follow-up have been downloaded from the Social Science Research Network more than 10,000 times.[24] One prominent law school critic published a book with the University of Chicago Press,[25] and was invited to speak at a special Presidential Panel at the American Association of Law Schools Conference.[26]

These distinctions and widespread publicity may enable critics to influence college graduates' career plans, the judiciary, and perhaps the future of legal education. They may have already contributed to a steep three-year decline in law school applications and enrollments.[27]

Graduates' Economic Viability, 38 WM. MITCHELL L. REV. 1185 (2012); Brian Tamanaha, FAILING LAW SCHOOLS (2012); William D. Henderson & Rachel M. Zahorsky, *Law School Bubble: How Long Will it Last if Grads Can't Pay Bills?* ABA JOURNAL, Jan. 1, 2012.

[21] *See, e.g.,* Catherine Rampell, *Law School as an Investment*, N.Y. TIMES ECONOMIX BLOG, Nov. 12, 2009 (citing Schlunk I); David Segal, *Law School Economics: Ka-Ching!* N.Y. TIMES, July 17, 2011 (quoting Brian Tamanaha).

[22] Ashby Jones, *Mamas Don't Let Your Babies Grow Up to Be Lawyers*, WALL ST. J. LAW BLOG, Nov. 13, 2009 (citing Schlunk I).

[23] Karen Sloan, *Law School Still a Dodgy Investment, Analysis Suggests*, NAT'L L.J. Aug. 2, 2012 (citing Schlunk II).

[24] *See supra* note 20, Schlunk I and Schlunk II.

[25] *See supra* note 20, Tamanaha, FAILING LAW SCHOOLS.

[26] AALS News, 2012-2, 8 (Aug 2012) (announcing a "Presidential Program," "Law Schools and Their Critics," featuring Brian Z. Tamanaha, William D. Henderson, Gene R. Nichols, Deborah L. Rhode, and Lauren K. Robel).

[27] *See* Steven M. Davidoff, *The Economics of Law School,* N.Y. TIMES DEALBOOK, Sept. 24, 2012; Catherine Ho, *Law School Applications Continue to Slide,* WASH. POST, June 2, 2013.

E. We improve upon previous research by estimating the value of a law degree based on long-term data and established methods in labor economics

This article improves upon existing research by analyzing long-term outcome data from the United States Census Bureau's Survey of Income and Program Participation (SIPP) and the National Education Longitudinal Study (NELS) using appropriate statistical controls. SIPP reports which individuals have law degrees, whereas most Census surveys only report generic professional degrees or occupational status as a lawyer.

Our data sources enable us to estimate earnings premiums and increased labor force participation attributable to a law degree, not only for the under-inclusive category of lawyers or the over-inclusive category of professional degree holders, but for the appropriate group, *law degree holders*. Approximately two fifths of the law degree holders in our sample are not employed as lawyers.[28]

We improve upon previous research by considering lifetime earnings rather than starting salaries. We incorporate broad distributional data. Rather than estimate earnings premiums exclusively at the mean or median, we also consider outcomes at the 25th and 75th percentile, toward the bottom and top of the distribution.

We incorporate differences in unemployment, disability, and labor force participation rather than assume that all degree holders work full time.

This article also summarizes and critiques recent research on the economic value of a law degree, highlighting crucial assumptions, testing these assumptions against actual data, and contrasting critics' methodologies with established practice within the labor economics and finance literature. The results suggest that—absent catastrophic and unprecedented changes exceeding changes already seen from 2008 to 2011[29] and uniquely affecting law graduates rather than the broader labor market—many college graduates who follow the critics' advice and skip law school will forego a lucrative career and face higher long-term risks of financial hardship.

Finally, this article considers the impact of federal government funding of student loans to law schools on taxpayers, and finds that at current net tuition prices, interest rates, and tax rates, legal education likely provides substantial net-benefits to the federal fiscal budget.

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[28] *See supra* note 7.

[29] We consider the "structural shift" hypothesis in Part IV *infra*, and find it to be unsupported by the data.

II. LAW DEGREE HOLDERS EARN SIGNIFICANTLY MORE THAN SIMILAR WORKERS WHOSE HIGHEST DEGREE IS A BACHELOR'S

A. We control for factors other than a law degree that contribute to earnings differences between law degree holders and others

The economic literature on estimation of the value of academic degrees calls for several steps. First, the differences in earnings and wages between those with the degree and similar individuals without the degree—the earnings or wage premium—must be estimated.[30]

We estimate the earnings premium associated with a law degree by using earnings, education, and demographic data from four panels (1996 to 2008) of SIPP. Each panel covers several years, and our latest data therefore comes from 2011.[31] We include in our regressions available controls, such as number of years of math, science, English, and foreign language completed in high school, as well as demographic data, college major, and proxies for parental involvement and socio-economic status.

Although SIPP provides an excellent source covering the range of ages and a number of years, it is somewhat limited in measurements of ability. We also investigate the direction of ability sorting using supplemental data from NELS. This supplemental analysis is presented in section II.I, below.

B. Monthly earnings premiums average 80 percent

The earnings and wage premiums must be estimated not only based on starting salaries of recent graduates, but also based on salaries of experienced workers. Wages and earnings tend to increase over the course of a lifetime as workers become more experienced and more productive.[32] Earnings generally peak in middle age and decline as workers approach retirement. Following Cheeseman Day & Newburger and Carnevale et al., we focus on the population age 25 to 65 with at least a four-year bachelor's degree.

We start by comparing law degree holders to the population of people whose highest degree is a bachelor's degree. Thus our comparison is the

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[30] Dan A. Black et al., *The Economic Reward for Studying Economics*, 41 ECON. INQUIRY 364 (2003); Peter Arcidiacono, *Ability Sorting and the Returns to College Major*, 121 J. ECONOMETRICS 344 (2004).

[31] A small amount of data from the end of 1995, comprising around 1.5 percent of the sample, is also included. Because educational attainment is measured at the start of each panel, the most recent law degree holders in sample will have graduated in 2008.

[32] Cheeseman Day & Newburger, *supra* note 13 at 4-5, Figure 4, 10-13, Tables 1-4; Carnevale et al., *supra* note 13 at 4 ("[Compared to age 25 to 29], earnings at ages 40-44 are considerably higher for all workers, independent of educational attainment.").

difference between a law degree and a bachelor's degree only. Future research could consider the differences in earnings associated with law degrees compared to alternate graduate degrees.[33]

Our outcome measure is log monthly earnings, averaged over a year. All estimates are weighted with SIPP sample weights. Table 1 reports on several standard regression outcomes for our sample. In column 1, we report on the unadjusted log gap between bachelor's degree holders and law recipients. 0.59 in logs translates into an average earnings gap of 80 percent. Thus there is an 80 percent earnings premium for a law degree when we average over log earnings.

One explanation for this enormous disparity may be that law degree holders are more likely to succeed compared to the general population of bachelor's degree holders. Column 2 investigates this by controlling for a large array of predictors of earnings. These include gender, race and ethnicity, marital status,[34] age, college major, and indicators for completing two or more years of advanced high school math, science, foreign languages, or English, college major, public or private high school, college prep high school and dummy variables for each year of the sample, though we only report a subset of these variables in the table.

With controls, the law degree premium drops only slightly, to 0.53. Consistent with our expectations, earnings are higher for those with additional years of advanced high school math, English, and foreign language. Earnings are also higher for business and science and engineering majors than for social science, humanities, or education majors. Earnings increase over time, and appear to peak around the age of 50 to 55. We find that racial minorities tend to earn somewhat less than whites, and that there is a very large earnings gap between men and women (0.39). All of these are in line with expectations.

Because of the large difference between men and women's earning profiles, we have included alternate regression in columns (3) and (4) that

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[33] Raw differences in earnings by type of graduate degree—without controls for demographics, selection, or ability sorting—are available in tabulations prepared by the U.S. Census Bureau. On the crude measure of median raw earnings of those with earnings, law performs better than most graduate degree fields. In 2009, only a handful of technical fields such as medicine, dentistry, and engineering performed better. Law outperformed business by around $10,000 per year. Law outperformed liberal arts and social science graduate degrees by around $35,000 to $40,000 per year. On mean earnings, law performed second only to medicine and dentistry. *See* Michael Simkovic, *Risk Based Student Loans,* 70 WASH. & LEE L. REV. 527, 641 Fig. 8.3 (2013); U.S. CENSUS BUREAU, SURVEY OF INCOME AND PROGRAM PARTICIPATION, 2008 Panel, Tables 4H, 4D.

[34] Marital status could be affected by educational attainment. In results available from the authors, we found that excluding marital status as a control did not alter the estimates.

estimate the earnings premium separately for men and women. We find that the male premium is somewhat lower than the female premium (0.49 vs. 0.59). One explanation for this may be that women with law degrees work more hours than their bachelor degree counterparts. We investigate this possibility more closely in Table 2.

In column (5) we restrict our sample to full time workers (those working at least 35 hours per week) and find that our overall results are similar to those in column (1), with the earnings premium of a law degree falling slightly from 0.53 to 0.49. Thus the premium does not seem to be strongly related to whether one is participating full time in the labor market.

C. Hourly wage premiums are approximately 60 percent

The results of Table 1 are unambiguous—a law degree is associated with dramatically higher monthly earnings. Questions remain, however, about the extent to which a law degree increases earnings per hour, and the extent to which it increases work hours. Increased work hours may be a positive, because increased hours may reflect reduced unemployment or underemployment, or increased hours may be a negative if, among those who are employed full time, law degree holders are routinely working much longer hours per day than they would prefer.

We more closely investigate the impact of work hours in Table 2, in which the dependent variable is log hourly wages instead of log monthly earnings. We compute the hourly wage as total monthly earnings divided by total hours worked during the month and then use the log of this as our dependent variable. Column 1 reports a raw gap of 0.50, somewhat smaller than the original gap, because law degree holders work more hours than those whose highest degree is a bachelors. Adding controls in column (2) reduces the premium of a law degree slightly to 0.45, which translates into a 57 percent wage premium.

In other words, a law degree increases both work hours and wages per hour, and most of the increase in earnings is due to increased earnings per hour.

When looking at hourly wages instead of monthly earnings, the difference between men and women is much smaller. In columns (3) and (4) for men and women respectively, the pay premium for lawyers is now almost identical in the two groups (0.44 and 0.47). Thus the gender gap in the law premium we found in Table 1 was largely the result of differences in hours worked compared to the control group of bachelor's degree holders. Otherwise, the results in Table 2 are generally similar to those in Table 1.

D. Increases in work hours are small and do not suggest overwork

We continue our investigation of differences in work hours in Table 3 below, in which our dependent variable is weekly hours of work. We find that, after applying controls, law degree holders typically work 3.9 hours more per week (column (2)), or about 45 minutes per day.[35] Women with law degrees (column (4)) work about 4.2 hours more per week than college-educated women without law degrees, while men with law degrees (column (3)) work about 3.3 hours per month more than men without law degrees.

When we restrict our sample to those who are working full time (column (5)), we see that law degree holders work about 3.3 hours more per week, or 40 minutes more per day.

The increase in hours among those who are working full time is mild, on average approximately a 7 percent increase, and does not provide much support for the view that most law degree holders suffer from involuntary overwork. We can therefore reasonably base our estimates of the overall earnings premium of a law degree on annual earnings.

E. The mean annual earnings premium is approximately $53,300

In Table 4, we look at annual earnings in inflation adjusted 2012 dollars rather than log monthly earnings. Our findings suggest a dramatic increase in earnings for law degree holders, of approximately $53,300 per year after applying controls (column (2)). This premium is higher for men, primarily because of longer work hours. Men with a law degree earn approximately $56,800 more per year than men without a law degree, and women with a law degree earn approximately $43,300 per year more than women without a law degree. The earnings premium is larger for full time workers, who earn approximately $57,600 more per year with a law degree than without.

The median annual earnings premium for all degree holders is approximately $32,300.

F. The earnings premium increases as law degree holders become more experienced

As discussed above, earnings typically peak in middle age, around age 50 to 55. Professional degree holders not only typically start out at higher earnings levels than bachelor degree holders, they also usually see their earnings increase at a much faster rate or over a longer period of time—that is, professional degree holders peak higher and later in life than bachelor's

[35] Assuming five days of work per week, four weeks per month, forty-eight weeks per year.

degree holders.[36] Because starting salaries are not very good predictors of lifetime earnings, earnings premia must be estimated at multiple ages or experience intervals.

Differences in growth rates highlight a flaw in one of the most widely read and influential critiques of the value of a law degree. Professor Schlunk's analysis assumes an unrealistically low 3.5 percent real growth rate of earnings for law degree holders as they gain experience.[37] Moreover, Professor Schlunk assumes that both law degree holders and bachelor's degree holders grow at the *same rate*.[38] He also assumes *zero* increase in earnings due to inflation over the course of a *35-year career,* apparently based on low inflation rates in one year in 2009.[39] These misspecifications dramatically bias down his estimates of the value of a law degree.

Labor economists typically use cross sectional data on earnings of similar individuals of different ages or experience levels to construct "synthetic work-life earnings."[40] That is, labor economists predict the future real earnings of young workers based on the current real earnings of similar older workers. This assumption is conservative: it assumes zero increase in real earnings over time due to economic growth (although individual workers' wages increase as they become more experienced).[41]

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[36] Cheeseman Day & Newburger, *supra* note 13 at 4-5 & Figure 4 ("The large differences in average work-life earnings among the educational levels reflect both differential starting salaries and also disparate earnings trajectories—that is, the path of earnings over one's life. As Figure 4 shows, the earnings paths of people with doctoral and professional degrees look very different from those of workers at other levels of education."); Carnevale et al., *supra* note 13 at 4-5 ("Bachelor's degree holders in the workforce grow by 50 percent [from ages 25-29 to 40-44]. By far, the biggest gain over the early years of one's career involves those with Professional degrees. Workers with Professional degrees earn 100 percent more in their 40's than they do in their initial years in the workforce.").

[37] Schlunk I at 10; Schlunk II at 317.

[38] Schlunk I at 10 n.17 ("I assume that lawyers on average experience productivity raises that are identical in percentage terms to those that I assume for non-lawyers"); Schlunk II at 318 n.70 (same).

[39] Schlunk I at 10 n.17 ("The rest of this essay has implicitly assumed no inflation . . . current inflation is essentially 0%, and hence the nominal rates are in fact also real rates."). ; Schlunk II at 315 n.60 (same).

Inflation in 2011 was 3.16 percent, and in 2010 it was 1.64 percent. Professor Schlunk may have been using inflation figures from 2009 in both his 2009 and 2012 analyses. Long-term historical inflation rates are 3 to 4 percent. *See infra* note 146.

[40] Cheeseman Day & Newburger, *supra* note 13 at 1, 8 ("the estimates assume current cross-sectional earnings are representative of the patterns in future earnings."); *see* Carnevale et al., *supra* note 13 at 21-22 (replicating the Cheeseman Day & Newburger methodology).

[41] Cheeseman Day & Newburger, *supra* note 13 at 8 ("these estimates do not account for any future productivity gains in the economy, and therefore, the estimates may be low."); Carnevale et al., *supra* note 13 at 21 ("Productivity growth will [likely] lead to

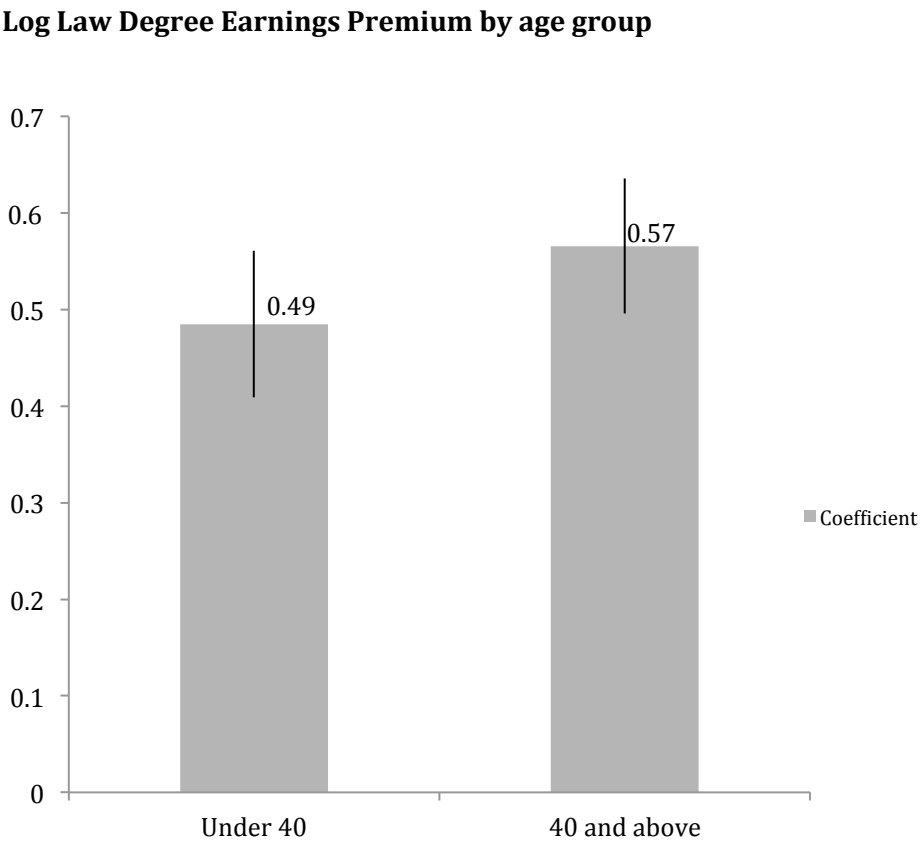
But for the last three decades, workers with advanced degrees have seen their real wage earnings increase at much faster rate than less educated workers (i.e., education has become more valuable after controlling for work experience).[42]

Following the economics literature, we attempt to estimate the earnings premiums among different age groups. We investigate this by estimating the earnings premium separately by decade of age. Coefficients are displayed below in figure 3. Those in their twenties and thirties get a 49 log point premium, which gradually rises to 57 points for those in their forties, fifties and sixties. Due to limited sample size, though, we cannot quite reject the possibility that the log premium is the same across all ages (p=0.11).

higher earnings in the future and therefore the career of today's young adults will lead to higher lifetime earnings than presented here").

[42] *See* Lemieux, *supra* note 1 at 196-99; *see also* Simkovic, *supra* note 33 at 537; Cheeseman Day & Newburger, *supra* note 13 at 3 & Fig. 2 (finding that the earnings advantage of advanced degree holders relative to bachelor's degree holders increased from 20 percent in 1975 to 44 percent in 1999).

Figure 3: The law degree earnings premium appears to increase with age and experience



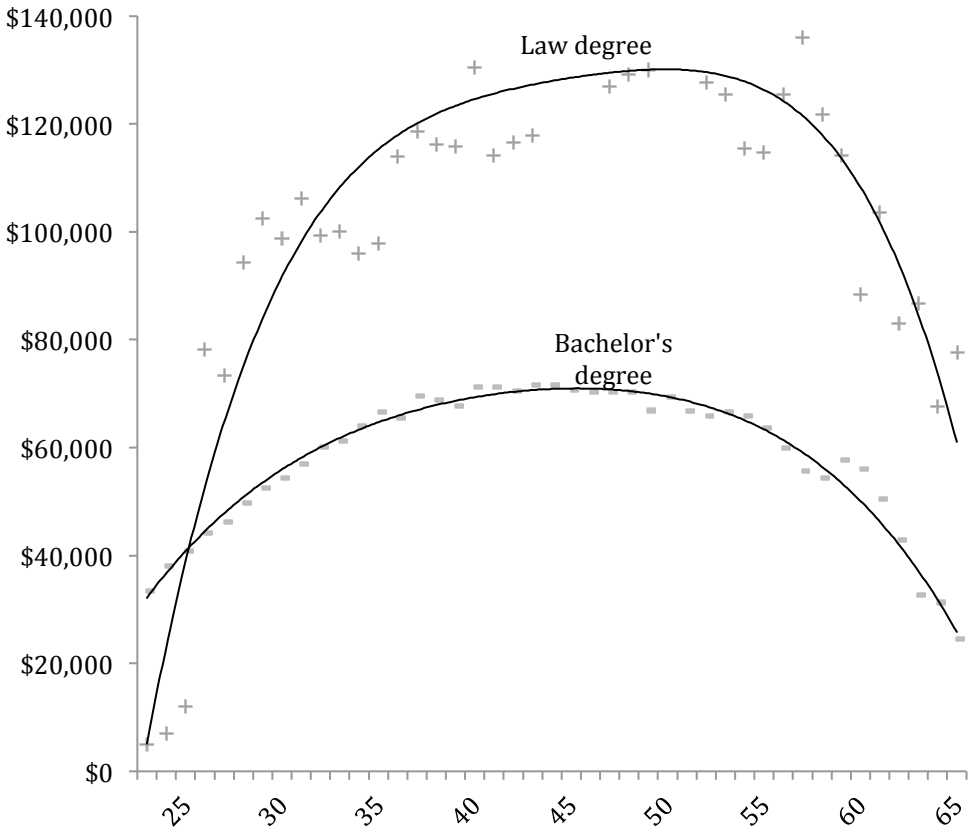
Source: U.S. Census Bureau, Survey of Income & Program Participation; Authors' calculations
Note: Vertical lines represent the 95 percent confidence interval.

For illustrative purposes, we present the mean lifetime earnings stream of all law degree holders and bachelor degree holders (not just those working full time)[43] in figure 4 below. We also show a smooth fourth order polynomial trend line through each sample.

[43] Law degree holders are more likely than bachelors to be employed and participate in the work force. *See* Part III, *infra.*

Figure 4: Law degree holders' annual earnings grow faster and peak later than bachelor degree holders'

Annual mean earnings by degree type and age, age 23-65
Real 2012 USD



Source: Survey of Income Program and Participation; Authors' calculations.
Note: Includes degree holders who are working, unemployed, or disabled.

This illustrates a problem in Professor Tamanaha's analysis. Professor Tamanaha compares the earnings of terminal bachelors who majored in political science at "midcareer"[44]—at peak earnings, typically in their 40s, with around 15 to 20 years of work experience[45]—to the earnings of

[44] *See supra* note 20, Tamanaha, FAILING LAW SCHOOLS at 139 (citing Schlunk I at 2 (citing the website Payscale.com (reporting a 2009 midcareer salary of $77,300 ($82,725 in 2012 dollars) for political science majors))).

[45] *See* 2009 Pay Scale College Salary Report Methodology Overview, *available at*

lawyers *at all age and experience levels*, and excluding high-earning law firm partners.[46] Because many law graduates who do not make partner transition to roles other than legal practice after their first few years, Tamanaha's sample will disproportionately include young and inexperienced law graduates. Professor Tamanaha also mismatches work statuses—exclusively full time bachelors versus mixed part-time and full-time lawyers—in a way that underestimates the earnings of lawyers relative to bachelor degree holders.

Lastly, Professor Tamanaha splices together inconsistent definitions of earnings from different sources with different sampling and reporting biases. His earnings figures for political science majors include most bonuses,[47] while his earnings figures for lawyers generally exclude them.[48] This inconsistency will bias averages because, for lawyers and other high-income individuals, bonus compensation can be substantial relative to salary.[49]

Under more consistent assumptions about age, experience, work status, and the definition of earnings, the earnings figures Professor Tamanaha presents as a median for legally-inclined bachelor degree holders are in fact close to the 75th percentile for such bachelor degree holders.[50]

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http://www.payscale.com/2009-best-colleges/salary-report.asp ("Mid-Career Employees [are] full-time employees with at least 10 years of experience in their career or field who hold a bachelor's degree and no higher degrees. For the graduates in this data set, the typical (median) mid-career employee is 42 years old and has 15 years of experience.").

[46] *See* Tamanaha, *supra* note 20, at at 139 (citing BLS data); U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS, OCCUPATIONAL EMPLOYMENT STATISTICS, FREQUENTLY ASKED QUESTIONS, ("'Employees' are all part-time and full-time workers who are paid a wage or salary. The survey does not cover the self-employed [or] owners and partners in unincorporated firms.").

[47] *See* Pay Scale College Salary Report Methodology Overview *supra* note 45 ("Salary [c]ombines base annual salary . . . bonuses, profit sharing, tips, commissions, overtime, and other forms of cash earnings, as applicable. Salary does not include equity (stock) compensation.").

[48] *See* BUREAU OF LABOR STATISTICS, *supra* note 46 (reporting that OES wage data exclude "premium pay" such as "nonproduction bonuses", but include "incentive pay, including commissions and production bonuses."). Bonuses to lawyers would likely be classified as non-production bonuses because they generally are "not directly related to output of an employee or group," as opposed to commissions measured as a percent of sales. BUREAU OF LABOR STATISTICS, GTP GLOSSARY OF PAY TERMS, *available at* http://www.bls.gov/respondents/gtp/glossary.htm. Although some law firms use billable hour thresholds for bonus eligibility, few law firms explicitly calculate associate bonuses as a fixed percent of revenue from billable hours. In other contexts, attorney bonuses are presumably even less likely to be tied to quantitative measures of productivity.

[49] *See infra* note 59.

[50] Anthony P. Carnevale, Jeff Strohl, & Michelle Melton, *What It's Worth: The Economic Value of College Majors* 34-40 (Georgetown Center on Education and the Workforce, May 24, 2011) (reporting median 2009 earnings between $42,000 and $55,000

The annual earnings figures Professor Tamanaha cites for lawyers are generally either at an early stage of their careers when earnings are relatively low,[51] are toward the bottom of the earnings distribution for lawyers,[52] or are otherwise biased down compared to the earnings figures he cites for bachelor degree holders. Professor Tamanaha underestimates the importance earnings growth[53] and consequently overstates the predictive power of starting salaries.[54]

G. Even at the 25th percentile, the earnings premium is large

Previous studies have typically focused on differences in mean or median earnings,[55] although it is possible to estimate earnings premia at different points in the distribution—for example, the 25th percentile of earners with a given level of education compared to the 25th percentile of earners with a higher level of education.[56] Such a distributional analysis would test claims that advanced degrees may not benefit less capable

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($45,000 to $59,000 in 2012 dollars) for *full time* workers with terminal bachelors' who majored in psychology and social work, humanities and liberal arts, law and public policy, and social sciences and 75th percentile earnings between $62,000 and $87,000 ($66,000 and $93,000 in 2012 dollars)). Earnings for all graduates, including those who are working part time, are unemployed, or disabled, are lower.

[51] *See* Tamanaha, *supra* note 20. at 140 (discussing starting salaries for law graduates); *id.* at 141 (discussing earnings seven years after graduation from the *After the J.D. Survey*).

[52] *See id*. at 139 (comparing median earnings for political science majors to the 25th percentile of earnings for lawyers).

[53] *Id.* at 140 (citing Carnevale et al., *The College Payoff*, *supra* note 13 at 5). Tamanaha claims that "the earnings of lawyers . . . will increase modestly—about 10 years out average earnings peak and remain flat thereafter."

But Carnevale et al states:

> "By far, the biggest gain over the early years of one's career involves those with Professional degrees. Workers with Professional degrees earn 100 percent more in their 40's than they do in their initial years in the workforce."

See Carnevale et al., *The College Payoff*, *supra* note 13 at 5.

Carnevale et al. find that earnings of generic professional degree holders do not peak in their mid-30s, as Professor Tamanaha claims, but rather in their 40s after rapid growth. Other sources also report rapid earnings growth and even later earnings peaks. *See supra* note 36.

[54] *Id.* at 140.

[55] Cheeseman Day & Newburger, *supra* note 13 at 2 n.6, 10-13 (using means); *See* Carnevale et al., *supra* note 13 at 1, n. 2 (using medians).

[56] Carnevale et al., *supra* note 13 at 7-8 & Table 1A (estimating that the 25th percentile of professional degree holders earned about $500,000 more over the course of a career than the 25th percentile of bachelor's degree holders, while the 75th percentile of professional degree holders earned approximately $3 million more than the 75th percentile of bachelor degree holders); *see also id.* at 6, table 1 (estimating that only 17.2 percent of bachelor degree holders earn more than the median professional degree holder).

students as much as they benefit average or above average students.

We include percentile estimates for the 25th, 50th, and 75th percentile in columns (6) through (8) of Tables 1 through 4. Our estimates suggest that, on a percentage basis, the earnings premium is similar for those at the median and 25th percentile, and considerably higher for those at the 75th percentile. However, in dollar terms, the premium increases dramatically because those close to the top of the distribution are starting from a much higher base level of earnings.

In 2012 dollars, the annual earnings premium increases from $17,300 at the 25th percentile to $32,300 at the 50th percentile, to $62,200 at the 75th percentile. Translating logs into percentages, Table 1 estimates that the median difference is a little over 60% in earnings, while Table 2 finds a median gap of 50% in wages.

H. We may underestimate the value of a law degree because of reporting biases in SIPP data

Several studies that have compared SIPP earnings data to matched Social Security Administration earnings records have concluded that highly educated, high-earners tend to underreport their earnings to SIPP, while less educated, lower earning workers tend to overreport their earnings.[57] This is probably not primarily because of topcoding.[58] Instead, it appears that high income, highly-educated individuals tend to report regular monthly salary, and generally do not include end-of-year bonuses, pension contributions, or other benefits that can be substantial.[59] Less educated, lower income

[57] Roberto Pecace & Nancy Bates, *Using administrative records to assess earnings reporting error in the survey of income and program participation*, 26 J. ECON. & SOC. MEASUREMENT 173, 189 (2000) ("At the lowest end of the income distribution, the magnitude of misreporting is the highest and the tendency is for SIPP respondents to overreport earnings. . . . However, the reporting error changes directions and respondents tend to underreport earnings amounts as income increases."); Peter Gottschalk and Minh Huynh, *Are Earnings Inequality and Mobility Overstated? The Impact of Nonclassical Measurement Error*, 92 REV. ECON. & STATS. 302, 311 (2010) ("The net impact of nonclassical measurement error is that inequality, as measured by the variance of log earnings, is roughly 20% higher in the DER than in the SIPP.").

[58] Topcoding is less problematic in SIPP than in many other data sources. SIPP creates average topcoded values for all topcoded individuals within a certain category (i.e., Fulltime Black Women) and then assigns everyone within the category the topcoded value in the months when their income is above the topcoded level. However, if topcoded law degree holders have higher earnings than topcoded bachelors within the same category, topcoding could still bias our estimates down.

[59] Daphne Taras & A. Gesser, *How New Lawyers Use E-Voice to Drive Firm Compensation: The "Greedy Associates" Phenomenon,* 24 J. LAB. RES. 9, 21, 25 (2003) (noting $40,000 bonuses on $125,000 salaries at top firms in 2000 but no bonuses at some firms in 2001); William D. Henderson & David T. Zaring, *Young Associates in Trouble,*

individuals tend to report their monthly income in months when they worked full time, which is often less than 12 months a year, rather than what they actually earn in a typical month.

Our estimates of the return to a law degree compared to a bachelor's degree will therefore likely suffer from a downward bias (i.e., if this were the only bias, we would underestimate the value of a law degree).

I. The law degree earnings premium is still high after accounting for ability sorting

We investigate the direction and magnitude of ability sorting using supplemental data from NELS. We use panel data to track a large pool of students from middle school up to their late 20s. These students were interviewed repeatedly from 1988 to 2000. Because the sample is all the same age, entered the labor market at much the same time, and is interviewed before an extensive post-law-degree income could be observed, the data is not a good source to study the lifetime earnings of law degree holders or how those differences vary over time. The advantage of NELS is extensive data on academic achievement and family background from an early age. This lets us estimate which factors lead one to law school, as well as how those factors affect earnings for those who stay with a bachelor's degree.[60]

Theoretically, the overall effect of sorting may be either positive or negative.[61] Many law schools screen for ability by requiring minimum LSAT or college GPA for admission, which will tend to increase academic abilities of law students relative to the applicant pool. Law graduates may also be more motivated or come from more privileged backgrounds where the initial debt burden of law school is less worrisome. Those same advantages may be valuable regardless of whether the student attends law school. On the other hand, our data shows that students who apply to and

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105 MICH. L. REV. 1087, 1097 (2007) (reporting mean 2005 bonuses of $17,000 compared to mean salaries of $143,000); U.S. BUREAU OF LABOR STATISTICS, NATIONAL COMPENSATION SURVEY, EMPLOYER COSTS FOR EMPLOYEE COMPENSATION HISTORICAL LISTINGS MARCH 2004 – DECEMBER 2012, Tbl. 3 at 43-46, Tbl. 15 at 321-24 (Mar. 12, 2013).

[60] The larger sample size and wider age range in SIPP makes SIPP superior to NELS for estimating post-law school earnings. We use NELS not to estimate post-law school earnings, but rather to estimate the impact of selection and ability sorting.

[61] *See, e.g.*, James J. Heckman, Lance J. Lochner, & Petra E. Todd, *Earnings Functions, Rates of Return and Treatment Effects: The Mincer Equation and Beyond* 310, 349 *in* HANDBOOK OF THE ECONOMICS OF EDUCATION (Eric A. Hanushek & Finis Welch eds., 2006) ("The traditional ability bias model . . . predicts an upward bias in OLS estimates of the return to schooling. In a sequential model, people with a good draw at lower schooling levels drop out, thus producing a downward bias.").

choose to attend law school are disproportionately drawn from college majors associated with relatively low earnings and likelihood of obtaining employment at college graduation.

Using NELS, we identify background differences that systematically vary between those who attend law school and those who do not. We then estimate how those differences predict a change in later earnings, independent of law school attendance. If the factors that predict law school attendance also predict higher earnings among those who do not attend law school, this suggests positive ability sorting, as the law students have characteristics associated with high earnings. If ability sorting is positive, then some portion of the earnings premium associated with a law degree is due to differences in ability levels, and the *causal* effect of the law degree on earnings will be smaller than the observed differences in earnings.

On the other hand, if the factors that predict law school attendance do not predict high earnings without a law degree, this suggests more strongly that the bulk of the earnings premium associated with a law degree is *caused by* the law degree. We say "suggests" because even with our extensive controls, there are many possible differences that are still unobserved across the population.

We group students into five major groups based on categories in the 1997/2011 version of the International Standard Classification of Education (ISCED).[62] Our categories differ slightly from those found in ISCED because we classify business and economics majors separately from other social science majors due to their systematically higher earning potential.[63] Our five major categories are: humanities, social sciences, business and economics, science and engineering (STEM), and other (which includes a variety of degrees that have low numbers going into law).

We present descriptive statistics contrasting those whose highest degree is a bachelors with those who have a law degree in the first three columns of Table 5. The first column shows information for the bachelor's degree only group, the second column is for the law graduates, and the third column shows differences between the bachelor's degree only group and law graduates (calculated as law minus bachelor's). We present data on the percent of each group (either bachelor's or law) falling into each of five college major categories, average normalized college grades (both overall

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[62] UNITED NATIONS EDUCATIONAL SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO), INTERNATIONAL STANDARD CLASSIFICATION OF EDUCATION: ISCED 1997, Nov. 1997.

[63] Black et al., *supra* note 30, at 364; Peter Arcidiacono, *Ability Sorting and the Returns to College Major*, 121 J. ECONOMETRICS 344 (2004); PETER ARCIDIACONO ET AL., WHAT HAPPENS AFTER ENROLLMENT? AN ANALYSIS OF THE TIME PATH OF RACIAL DIFFERENCES IN GPA AND MAJOR CHOICE 20 (2011).

and broken down by major), scholarship receipt, college tuition cost, ranked importance of career and education goals, expected future income, normalized standardized test scores, and parental socioeconomic status (SES) (based on parental education, occupation, and income) at high school graduation. From the descriptive statistics, we can see that law graduates tend to have higher grades and test scores than those with only a bachelor's degree, but that law graduates disproportionately come from majors such as humanities and social sciences and are less likely to have majored in STEM or business and economics. We can also see that law graduates have higher standardized test scores, and, at the age of 18, report that they subjectively expect to earn higher incomes later in life and also come from a slightly higher SES family. They are not more likely to have a scholarship, but do attend slightly more expensive schools and care more about career and education goals.

In the fourth and fifth columns of Table 5, we show the predicted impact of each of these differences between the two groups on income. Column 4 shows the predicted impact of characteristics on an individual whose highest degree is a bachelor's, while column 5 aggregates the differences between our group of law degree holders and bachelor's degree holders and provides information on how differences in the various factors between the groups predict group differences in income. Thus, column 5 provides information on the extent to which differences in income between bachelor degree holders and law graduates are due to observable differences other than a law degree.[64]

As we show in column 4, the majors with the lowest predicted earnings are humanities, other, and social science. Business and economics majors have the highest predicted earnings, while STEM majors have the second highest predicted earnings (it should be noted that this is an average and may vary substantially by individual). In other words, law graduates disproportionately come from majors with low average predicted earnings. In column 5, we see that the difference in majors between our group of bachelors and law students predicts 4.4 percent *lower* income for law graduates, before we take into account any other differences.

In column 4, we also see that the predictive power of grades on earnings depends on major. Note that these grades are normalized by major to be mean zero, with a standard deviation of one. This eliminates differences

[64] The predicted income change is based on a simple bivariate regression of log earnings on the characteristic of interest. The full multivariate analysis (with standard errors) is available below in Table 6. Bachelor's earnings coefficients may be biased if there is a selection of who just gets a bachelor's degree. But since the number of bachelor's only degrees is far larger than those with graduate degrees the bias should not be too severe.

across major that are due to some majors awarding higher grades than others.[65] Higher grades typically predict higher earnings within each major, but for a one standard deviation increase in GPA, the effect is very small for humanities and social science majors (0.4 and 3 percent, respectively) and much larger for business and economics and STEM majors (10 percent and 16 percent respectively). Column 4 shows the impact of a hypothetical one standard deviation increase in GPA on individual predicted earnings, while column 5 shows the impact of the actual group differences in GPA between law graduates and bachelor's on predicted average group earnings. Because the actual group differences in GPA are less than one standard deviation, the predicted differences in column 5 are all smaller than the hypothetical differences in column 4.

Thus, among law graduates who majored in humanities and social sciences, higher GPA relative to bachelor's degree holders does not predict much higher earning potential (0.2 percent and 1.9 percent, respectively). Differences in GPA predict larger differences in earning potential for STEM and business and economics majors, but even there, the differences (7.6 percent and 8.9 percent respectively), are small relative to observed differences in earnings.[66] Moreover, STEM and business and economics majors account for less than one out of four law school graduates. While the raw GPA gap would lead us to predict a 3.3% earnings advantage for lawyers (in column 5), the fact that they come from majors with little return to grades makes this a loose upper bound.

We next look at scholarship or grant receipt but find no differences. We can see from the table that law degree bound students are academically stronger, but perhaps other students may receive more need-based aid. Law students do attend slightly more expensive, and therefore perhaps higher quality, colleges. This difference predicts an earnings difference of 2.4%. We also have a series of questions asking about the importance of career success, money, work, leisure, and education, which we aggregate into a normalized index. Lawyers are about 0.2 standard deviations higher than the bachelor's degree population, which predicts a 1.6% higher income.

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[65] Simkovic, *supra* note 33, at 570-80; Valen E. Johnson, *An Alternative to Traditional GPA for Evaluating Student Performance*, 12 STAT. SCI. 251, 251 (1997); Patrick D. Larkey, *Comment: An Alternative to Traditional GPA for Evaluating Student Performance,* 12 STAT. SCI. 269, 270 (1997); VALEN E. JOHNSON, GRADE INFLATION: A CRISIS IN COLLEGE EDUCATION (2003).

[66] STEM fields tend to have the lowest average grades even though students in these majors have higher average standardized test scores and spend more hours studying. *See* Simkovic, *Risk Based Student Loans, supra* note 33 at 570-77; VALEN E. JOHNSON, GRADE INFLATION: A CRISIS IN COLLEGE EDUCATION (2003); *Heterogeneous Human Capital, Occupational Choice, and Male-Female Earnings Differences*, 8 J. LAB. & ECON. 123, 140–41 (1990); Black et al., *supra* note 31, at 375.

In the third to last row, we see that each standard deviation increase in an 18-year-old's subjectively expected future earnings predicts a 2 percent increase in actual future earnings.[67] This may be in part because expected earnings are a good proxy for motivation, or because responses to this question reveal otherwise unobservable differences. Future law graduates expect to earn about 40 percent more than bachelor's, or about two-thirds of a standard deviation, and these differences in expectations therefore explain a 6.7 percent difference in actual earnings.

In the second to last row of Table 5, we see that a one standard deviation increase in high school standardized test scores predicts a 6 percent increase in earnings, and that, because law graduates' scores are on average 0.4 standard deviations higher than bachelor degree holders, group differences in test scores predict a 2.4 percent increase in earnings for law graduates.[68]

Lastly we have a measure of parental socioeconomic status (SES) as of the individual's high school graduation. This measure aggregates information on each parent's occupation and education plus family income to give a score normalized to one for the population to be mean equal to zero, standard deviation equal to one. Law graduates do well by this measure, with a 0.33 advantage over bachelor's degree holders. But since the return is only 8.6 percent per standard deviation increase, this translates into a 2.8 percent earnings advantage.

We cannot simply add these individual effects to calculate the overall effect because our explanatory variables may be correlated with each other and describe the same phenomenon. Therefore, to determine the aggregate effect of observable differences on the earnings premium, we run a multivariate regression. Although we cannot account for unobservable differences that are uncorrelated with our explanatory variables, observable differences provide helpful guidance as to the magnitude and direction of ability sorting.

Table 6 reports an OLS log earnings model run using the NELS sample of those with just a bachelor's degree. We include all variables from Table 5, plus demographics such as race and gender. The results are consistent with our findings above, though many coefficients are smaller due to

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[67] A number of intrepid high schoolers reported expected future earnings of several million dollars a year. We capped expected income at $200,000 for about 1% of the sample which increased the quality of the variable at predicting future income. We used the log expected income to compute the predicted return, and so use the log standard deviation (0.51) in our calculation.

[68] Law students typically do better on all portions of the standardized test, math, reading, science, and social science, although the social science gap is particularly large. We considered specifications that looked at test scores by subject, but the results were largely the same.

additional controls. The first column reports coefficients and standard errors of a model with all the above variables. The second column excludes subjective earnings expectations, as these may be simultaneously determined with the choice to enter law. The coefficients in column 1 suggest that a typical law degree holder would earn 10.3 (s.e. 2.4) percent more than a typical bachelor's degree holder, even if the law degree holder had chosen to terminate his education with a bachelor's degree. Column 2 suggests a slightly lower 8 percent, as it ignores differences in expectations. In either case we find evidence of modest ability sorting that explains only a small fraction of the observed law degree earnings premium. To the extent that this biases our law premium up, it may be that the effect is close to zero once one accounts for the SIPP reporting bias discussed above.

This estimate comes with several caveats. First, because the bachelor's degree sample is selected, the estimated earnings coefficients may be slightly biased. Similarly, measurement error in the variables can lead to underestimation of the coefficients. In unreported work we considered IV estimation that was consistent even with classical measurement error, and found that the net change was small.[69]

Second, although we have included variables that proxy all the likely sources of difference between law graduates and bachelor's degree holders, we cannot rule out the possibility of some remaining unobserved differences. The small difference in predicted earnings from test scores, grades, internal motivation, college quality, and parental SES suggest that on average, law graduates' latent earning ability may not be strikingly different from others. We consider unobserved ability differences in greater detail in Appendix A. We find some evidence that suggests that remaining unobservable differences are probably not a major concern.

Third, the 10 percent gap is only about half due to the factors we discussed above. The other half is due to the race and gender variables we added as controls.[70] Thus the combined effect of higher grades, test scores, SES, college quality, and subjective expectations is quite small—about four to five percent. In addition, we already account for race and gender in our primary analysis using SIPP data, as well as including some proxies for ability, motivation and parental SES. These SIPP controls caused the

[69]Instrumenting college grades, test scores, and SES status by earlier survey values to purge measurement error changed our lawyer earnings ability gap from 10% to 15% and doubled the standard error to 4.2. We are unable to reject the null hypothesis that the original OLS version gives the same results as the IV version. The small change is perhaps due to the fact that downward bias in the coefficient for one variable tends to be offset by upward bias for other variables.

[70] We determine this by running the model with and without the demographic controls and comparing the resulting predictions. Excluding demographics, the predicted pay of law degree holders is 5% higher than bachelors.

earnings gap in Table 1 to fall from the first to second column by 6%.

In sum, observable differences between bachelors and law graduates suggest modest ability sorting.

III. LAW DEGREE HOLDERS ARE MORE LIKELY TO PARTICIPATE IN THE WORKFORCE, LESS LIKELY TO BE UNEMPLOYED, AND WORK MORE HOURS

The second step is to estimate a working life for workers with the degree and a working life for similar workers without. By convention, most previous studies have assumed a forty-year working life for both groups and focused on earnings of full time workers.[71] This approach could over-estimate lifetime earnings for less educated individuals relative to earnings of advanced degree holders, because individuals with higher levels of education are more likely to participate in the workforce, more likely to work full time, less likely to be unemployed or disabled, and have lower mortality rates (higher life expectancy).[72] Those with advanced degrees have a very high probability of surviving past age 65,[73] the last year for which we estimate earnings.

As noted above in Part II.D., law degree holders are more likely than bachelor degree holders to work full-time. Labor force participation (including either full or part-time work) is higher for law degree holders: 90 percent versus 86 percent. We also find lower unemployment and disability rates for law degree holders than for bachelors—2.4 percent versus 3 percent.[74]

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[71] Cheeseman Day & Newburger, *supra* note 13 at 1-3, 8; Carnevale et al., *supra* note 13 at 21-22; *cf.* Schlunk I & II (assuming a 35 year work life).

[72] Cheeseman Day & Newburger, *supra* note 13 at 2, 8; Jeffrey Hemmeter, 69 *Soc. Security Bull.* (2009) ("Workers with disabilities are more likely to have lower levels of education"); Erika Steinmetz, BUREAU OF THE CENSUS, CURRENT POPULATIONS REPORTS, AMERICANS WITH DISABILITIES: 2002 P70-107, 8 (2006) (less educated workers are more likely to be disabled); OECD Education at a Glance 116-17 (2011); S. Jay Olshansky et al., *Differences In Life Expectancy Due To Race And Educational Differences Are Widening, And Many May Not Catch Up,* 31 HEALTH AFF. 1803 (2012) (finding that within every race and gender group, those with higher educational attainment are expected to live years longer).

[73] For those with a bachelor's degree or higher, life expectancy at age 25 is greater than 82 for men and greater than 85 for women, and has been increasing over time. *See* CENTER FOR DISEASE CONTROL AND PREVENTION, HEALTH, UNITED STATES, 2011, DATA TABLE FOR FIGURE 32, LIFE EXPECTANCY AT AGE 25, BY SEX AND EDUCATION LEVEL: UNITED STATES 1996 AND 2006.

[74] The unemployment and labor force participation figures in this paragraph are raw figures, without exclusions of those caring for dependents or enrolled in school. The relative differences would be substantially similar with exclusions and controls.

However, both individuals with advanced degrees and those without face some risk of being unemployed or involuntarily employed less than full-time. Other approaches that could be used include estimating earnings for all individuals with earnings rather than only full time workers, or adjusting earnings of each group down using estimates of involuntary unemployment rates or involuntary labor force non-participation rates. Another approach is to simply provide at table or chart showing the *cumulative* value of the degree depending on number of years of workforce participation, and encouraging prospective students to estimate their own work-lives.

We construct synthetic lifetime earnings based on those who are working (part-time or full-time), or are involuntarily unemployed or disabled. We include disabled individuals because disability, like unemployment, indicates involuntary non-participation in the labor force, disability and unemployment risks vary with education level, and because many unemployed individuals claim disability and show up in official statistics as disabled rather than unemployed.[75] We exclude those who voluntarily opt out of the labor force to engage in activities they value, but the value of which cannot be measured from current earnings, for example, raising children, or studying full time toward an advanced degree.[76] We control for ability sorting by using propensity matching to weight our sample of bachelor degree holders by their likelihood of attending law school.

IV. THE EARNINGS PREMIUM OF A LAW DEGREE IS CYCLICAL AND RECENT FIGURES ARE WITHIN HISTORIC NORMS

We estimate lifetime earnings based on historic data from 1996 through 2011.[77] Using long-term historic data to project future earnings is the most reasonable approach in employment markets that are subject to cyclical booms and busts. Labor economists have found evidence that skilled labor markets—including the market for law graduates—feature large cyclical movements in *entry-level* wages, employment, and school enrollments.[78]

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[75] David H. Autor & Mark G. Duggan, *The Rise in Disability Rolls and the Decline in Unemployment*, 118 Q. J. ECON. 157 (2003).

[76] For some bachelors and some law graduates, the decision to raise children or pursue additional education rather than work may be driven by limited employment opportunities. These things occur both for those with bachelor's and law degrees. In estimates available from the authors, including individuals caring for dependents and pursuing additional education in our premium estimates did not substantively change the results.

[77] In this section, we exclude a small amount of data from the end of 1995 because it may not be sufficient to reliably estimate earnings for the full year. *See supra* note 31.

[78] *See* Robert J. Shiller, THE NEW FINANCIAL ORDER: RISK IN THE 21ST CENTURY 132

The entry level is more variable than the occupation as a whole because it is easier for employers to refrain from hiring new employees or to offer lower starting salaries than to terminate or reduce pay of experienced workers.

William Henderson argues that the legal profession is experiencing a "structural shift" due to globalization and technological change.[79] Although the labor market for law graduates is not the same thing as the legal sector—many workers in the legal sector did not attend law school, and many law graduates do not work in the legal sector—the structural shift hypothesis raises several questions.

First, is a profound shift currently observable in *relative* employment and wage data and distinguishable from ordinary cyclicality or past periods of change? Second, if profound shifts will take place in the future, is it likely that globalization and technological change will disproportionately harm law graduates while leaving bachelors unscathed, so that the *relative* outcomes for law graduates can be expected to decline?

With respect to the first question, we investigate changes in the law school earnings premium from 1996 to 2011 and find a cyclical pattern. As can be seen in figure 5 below, there are peaks in 2001 and 2007, and troughs in 1999 and 2002. Although the earnings premium has declined from its 2007 peak in recent years, the earnings premium remains close to (and slightly above) the long-term historic average. Indeed, the premium was lower in the late 1990s and early 2000s than in the last three years, and the premium today is about the same as it was in 1996.

The data does not suggest that law graduates were unaffected by the recession. Rather, earnings dropped for both law graduates and college graduates after the late 2000s recession, and law graduates maintained their relative advantage. It is this relative advantage—not absolute outcomes—that measures the value of the law degree. Our data suggest that law degree holders are not immune to economic downturns, but they have continued to fare better in the recent downturn than bachelor's degree holders without advanced degrees. Moreover, long-term historic data remains a reasonable and appropriate data source to forecast future earnings premiums.

Figure 5 below shows the log earnings premium across all age groups,

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(2003) (explaining the concept of cobweb cycles); Richard B. Freeman, *The Market for College-Trained Manpower: A Study in the Economics of Career Choice* 165–67 (1971) at 22–26; Sherwin Rosen, *The Market for Lawyers*, 35 J. LAW & ECON. 215, 221, 234-38 (1992); Ronald G. Ehrenberg, *An Economic Analysis of the Market for Law School Students,* NBER Working paper 2602 (May 1998) ("studies by economists of the labor market for lawyers suggest that it is dangerous to project trends.").

[79] *See, e.g,* William D. Henderson & Rachel M. Zahorsky, *Law Job Stagnation May Have Started Before the Recession—And It May Be a Sign of Lasting Change,* ABA J., July 1, 2011 (arguing for the "structural shift" hypothesis but acknowledging that changes in the legal employment market have thus far been far been relatively mild).

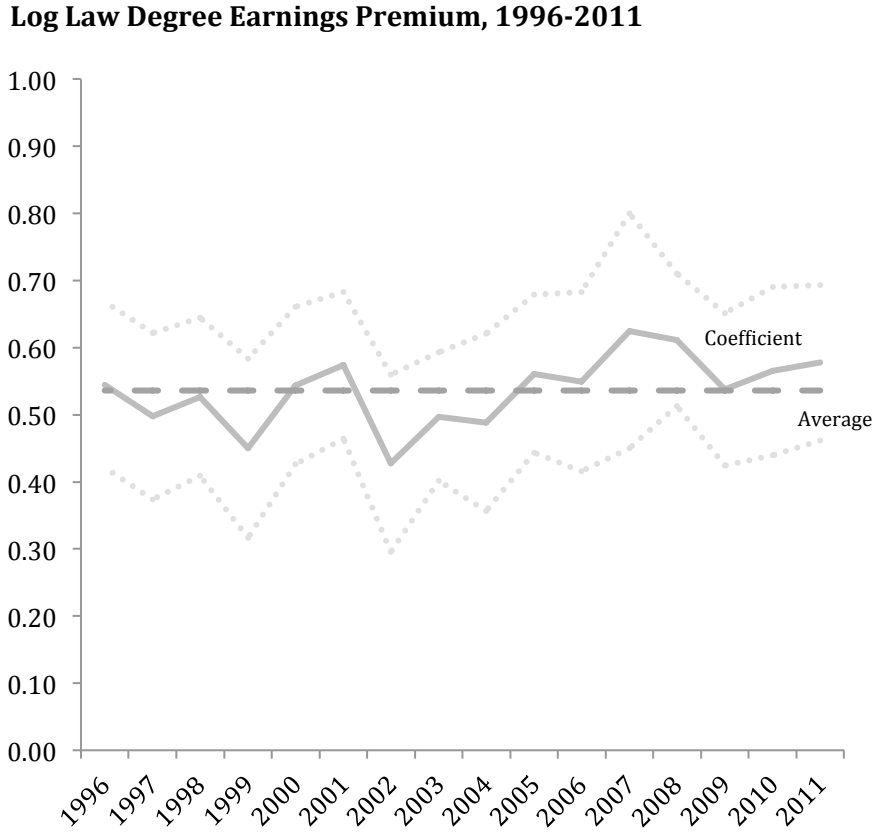
by year. In figure 5, the solid line is the earnings coefficient. Above and below the solid coefficient line, the dotted lines represent the 95 percent confidence interval. The horizontal dashed line is the multi-year average, with each year weighted equally.

Figure 6 below shows the log earnings premiums for exclusively the young, age 25 to 30, grouped into four-year time periods to increase precision. The vertical lines represent the 95 percent confidence interval, and the horizontal dashed line represents the multi-year average, with each four-year interval weighted equally.

As noted above, recent law graduates have seen large declines in absolute starting salaries and employment levels, but young law graduates continue to do well compared to young bachelor degree holders.[80]

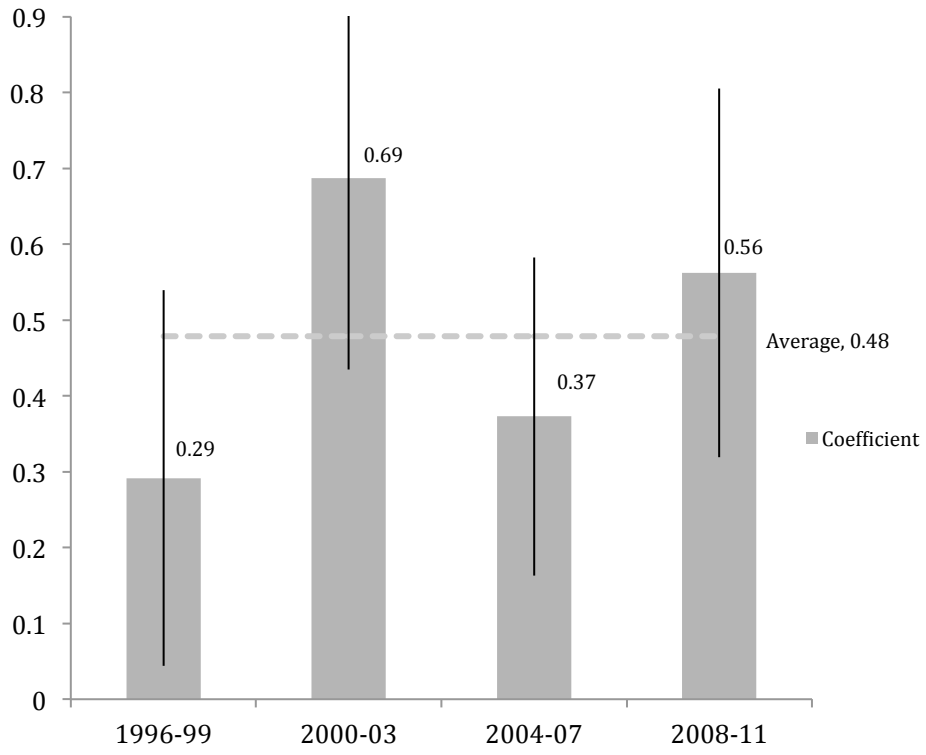
[80] *But see supra* note 31.

Figure 5: The law degree earnings premium is cyclical; Premiums in recent years are within historic norms



Source: U.S. Census Bureau, Survey of Income & Program Participation; Authors' calculations
Note: Solid line is the coefficient. Dotted lines represent 95 percent confidence interval.
Horizontal dashed line resents multi-year average with each year weighted equally.

Figure 6: Recent premiums for young law graduates are within historic norms



Source: U.S. Census Bureau, Survey of Income & Program Participation; Authors' calculations
Note: Vertical lines represent the 95 percent confidence interval; horizontal line represents the multi-year average, with each four-year interval assigned equal weight.

Nor is a profound shift evident in recent employment or profitability data for experienced lawyers. From 2008 to 2012, employment for lawyers was more robust than for the overall economy—lawyers increased from 0.41 percent of the workforce to 0.45 percent.[81] After declining in 2009, gross revenue and profits per partner at the largest law firms increased every year from 2010 through 2012.[82]

[81] *See* Bureau of Labor Statistics, Occupational Employment Statistics.

[82] *See The 2011 Am Law 200,* AMERICAN LAWYER, June 1, 2011 (reporting increasing gross revenue and profits per partner in the top 200 firms); *see also The 2012 Am Law 200,*

With respect to the second question, although no one can predict the future, the recent data does not reflect a law-specific structural shift reducing the value of the law degree. To the contrary, our point estimates have in fact increased over the last eight years.

This is perfectly in line with the general trend of large returns to higher education. Economists who study outsourcing and automation have found that work that requires complex thought and cannot easily be broken down into simple rules or algorithms is more difficult to automate or outsource, and this favors highly educated workers such as law degree holders over those with moderate skill and less education.[83]

Predictions of structural change in the legal industry date back at least to the invention of the typewriter.[84] But lawyers have prospered while

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AMERICAN LAWYER, May 30, 2012; *The 2013 Am Law 200,* AMERICAN LAWYER, May 30, 2013 (reporting similar numbers for 2011 and 2012).

[83] David H. Autor, Frank Levy, & Richard J. Murnane, *The Skill Content Of Recent Technological Change: An Empirical Exploration*, 118 Q. J. ECON. 1279, 1322 (2003) (presenting empirical evidence that technology complements workers performing non-routine problem-solving and complex communication tasks, while replacing simpler tasks, and that this contributes to increased demand for educated workers relative to less educated workers); David H. Autor, Lawrence F. Katz, & Melissa S. Kearney, *The Polarization of the U.S. Labor Market,* 96 AM. ECON. REV. 189, 193 (2006); Alan S. Blinder, *How Many U.S. Jobs Might Be Offshorable?* 10 WORLD ECON. 41, 49, 58, 60, 75 (2009) (ranking lawyers as relatively difficult to offshore); Kyoung-Hee Yu & Frank Levy, *Offshoring Professional Services: Institutions and Professional Control*, 48 BRIT. J. INDUS. REL. 758 (2010) (discussing the difficulty of offshoring professional services).

[84] F. M. Finch, *Legal Education*, 1 COLUM. L. REV. 94, 95-96 (1901) ("current conditions [in 1901] are widely and radically different from those existing fifty years ago . . . the student in the law office copies nothing and sees nothing. The stenographer and the typewriter have monopolized what was his work . . . and he sits outside of the business tide"); Herbert Harley, *Group Organization Among Lawyers*, 101 ANNALS AM. ACAD. POL. & SOC. SCI. 33 (1922) (complaining about loss of independence and "fratricidal competition" for clients because of the growth of in-house corporate legal departments); John L. Garland, *A Punched Card Retrieval System for Automobile Accident Cases*, 4 M.U.L.L. MOD. USES LOG. L. 130 (1963) (suggesting that punch-card based indexing will "help restore balance to legal literature searching"); John L. Garland, *Computers and the Legal Profession*, 1 HOFSTRA L. REV. 43, 50 (1973) (discussing, *inter alia*, the time-saving benefits of a "computer-controlled typewriter"); Michael S. Landes, Project- Automated Legal Research, 52 A.B.A. J. 730 (1966) (noting that many lawyers felt "threatened" by computerized legal research using punch cards, magnetic tape, and microfilm, and describing such systems as part of a "second industrial revolution"); Louis M. Brown, *Emerging Changes in the Practice of Law*, 1978 UTAH L. REV. 599, 599-601 (1978) (discussing "disturbing technological changes" in legal practice from the introducing of the telephone, the typewriter, and also large changes from the introduction of female legal secretaries); *id.* at 602 (discussing pre-printed form documents and the photocopy machine as technologies that will make legal services more affordable for the middle class); *id.* at 602-14 (discussing replacement of lawyers with non-lawyers and computers for various purposes, and the erosion of the bar's monopoly on legal practice).

adapting to once threatening new technologies and modes of work[85]—computerized and modular legal research through Lexis and Westlaw; word processing; electronic citation software; electronic document storage and filing systems; automated document comparison; electronic document search; email; photocopying; desktop publishing; standardized legal forms; will-making and tax-preparing software. Through it all, the law degree has continued to offer a large earnings premium while people with less education and less skill—filing clerks and secretaries—have seen their real earnings stagnate or decline.

It remains easy to tell stories about how various changes will eventually have this or that effect, and currently impossible to falsify, since we cannot measure the future. One could just as easily list reasons why the value of a law degree will increase—higher compliance costs or more litigation driven by new healthcare laws[86] or by The Dodd-Frank Wall Street Reform and Consumer Protection Act or the Consumer Financial Protection Bureau;[87] electronic communications and discovery making plaintiffs' work easier and driving more lawsuits;[88] increased spending on lobbying and politics;[89]

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[85] Charles H. Wilson, *Plains, Trains and Civility,* 76 A.B.A. J. 77, 78 (1990) (describing the effect of word processing as "The client pays more and the lawyers [work more hours revising briefs]" and also describing the fax machine and photocopier as creating more work for lawyers); William T. Braithwaite, *How Is Technology Affecting the Practice and Profession of Law*, 22 TEX. TECH L. REV. 1113 (1991); Douglas E. Litowitz, *Has Technology Improved the Practice of Law*, 21 J. LEGAL PROF. 51, 52 (1997) ("technological inventions create new tasks and raise expectations, thereby canceling out the time which they save. . . . the law office of the 1990s is full of time-saving devices . . . yet we are working harder than ever."); Richard L. Marcus, *The Impact of Computers on the Legal Profession: Evolution or Revolution?* 102 NW. L. REV. 1827 (2008).

[86] John Huffman, *The Affordable Care Act in* HEALTHCARE LAW: A PRACTICAL GUIDE (Scott Becker, Michael MacDonald, Kathryn C. Meyer, & Beth Essig eds., Matthew Bender & Company, Inc. 2012)("The Patient Protection and Affordable Care Act of 2010 [as amended by the] Health Care and Education Reconciliation Act of 2010 [is] 2,700 [pages long and it] has already engendered tens of thousands of pages of rulemaking and promises many thousands more. . . . there are considerable gaps, ambiguities, unintended consequences and inconsistencies that will need to be addressed for years if not decades to come.").

[87] Arthur E. Wilmarth, *The Dodd-Frank Act's Expansion of State Authority to Protect Consumers of Financial Services,* 36 J. CORP. L. 893 (2011)(noting that Dodd-Frank removes federal pre-emption and permits more state regulation and enforcement).

[88] Richard D. Hurt, Jon O. Ebbert, Monique E. Muggli, Nikki J. Lockhart, & Channing R. Robertson, *Open Doorway to Truth: Legacy of the Minnesota Tobacco Trial*, 84 MAYO CLINIC PROC. 445, 452 (2009) ("The publicly available internal corporate records of tobacco companies are . . . a valuable resource for litigation efforts."); Amalia R. Miller & Catherine E. Tucker, *Electronic Discovery and the Adoption of Information Technology,* 29 J. L. ECON. & ORG. 1 (2013).

[89] Michael J. Cooper, Huseyin Gulen, & Alexei V. Ovtchinnikov, *Corporate Political Contributions & Stock Returns*, 65 J. FIN. 687 (2010); Larry M. Bartles, UNEQUAL

growing inequality and higher pay for corporate executives;[90] renewed interest in regulation in the wake of the financial crisis or the BP oil spill or the shale gas boom.[91]

The most sober interpretation of the recent decline in starting salaries and employment for recent law graduates is that it is part of a broad cyclical downturn following the shock of the financial crisis of 2007 to 2008 and the recession that followed. The historic data still offers the best, most objective indicator of value. That said, past performance does not guarantee future returns. The return to a law degree in 2020 can only be known for certain in 2020.

V. THE PRESENT VALUE OF A LAW DEGREE IS SEVERAL HUNDRED THOUSAND DOLLARS MORE THAN THE COST FOR MOST GRADUATES

A. Present value of a law degree at the start of law school

In this section we estimate the lifetime present value of a law degree at the start of law school using data from the SIPP. This can be understood as the total economic value of a legal education.[92] This value will be

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DEMOCRACY: THE POLITICAL ECONOMY OF THE NEW GILDED AGE (Princeton University Press, 2010); Ike Mathur & Manohar Singh, *Corporate Political Strategies*, 51 ACCT & FIN. 252 (2011); Jürgen Huber & Michael Kirchler, *Corporate Campaign Contributions and Abnormal Stock Returns After Presidential Elections,* PUB. CHOICE (2011).

[90] Thomas Lemieux, *The Changing Nature of Wage Inequality,* 21 J. POPULATION ECON. 21, 25 (2008) (linking rising inequality to rising education earnings premiums); *id.* at 30-31, 36; Steven N. Kaplan & Joshua Rauh, *Wall Street and Main Street: What Contributes to the Rise in the Highest Incomes?* 23 REV. FIN. STUD. 1004 (2010) (discussing the strong representation of lawyers and financial executives in the upper echelons of compensation).

[91] Philippe Aghion, Yann Algan, Pierre Cahuc & Andrei Shleifer, *Regulation and Distrust,* 125 Q. J. ECON. 1015 (2010) (distrust increases demand for regulation).

[92] Our analysis estimates the value of a completed law degree, not the expected value of starting law school. All higher education involves some risk of non-completion. Law school non-completion risk is relatively low. Most studies report law school non-completion rates of 4 to 12 percent. *See* Timothy T. Clydesdale, *A Forked River Runs Through Law School: Toward Understanding Race, Gender, Age, and Related Gaps in Law School Performance and Bar Passage*, 29 LAW & SOC. INQUIRY 711, 734-35 (2004) [hereinafter "Clydesdale"]; LAW SCHOOL ADMISSIONS COUNCIL, OFFICIAL GUIDE TO LAW SCHOOLS (2012) [hereinafter "LSAC GUIDE"]; ABA, ENROLLMENT AND DEGREES AWARDED 1963-2011 ACADEMIC YEARS; ABA TOTAL J.D. ATTRITION, 1981-2010.

To put law school non-completion rates in context, more than 40 percent of those who start 4-year bachelor degree programs do not complete those programs within 6 years. CHRON. HIGHER EDUC., COLLEGE COMPLETION: WHO GRADUATES FROM COLLEGE WHO DOESN'T, AND WHY IT MATTERS.

Most law student attrition takes place during the first year of law school. ABA TOTAL J.D. ATTRITION, 1981-2010. Therefore, the cost of non-completion, compared to not

apportioned between the law student through higher earnings, the federal government as recipient of income and payroll taxes,[93] and law schools as recipients of tuition revenue.

We assume that law degree holders attend law school from age 23 to age 25.[94] We estimate lifetime earnings streams from the age of 23 to 65 for all bachelor's and law degree holders, i.e., not just the population of full-time workers. We therefore incorporate differences in risk of unemployment or underemployment.[95] We also control for the differences in observable characteristics by reweighting our control sample of bachelor's to be identical to our law degree holders.[96] For each year, we subtract the earnings of the bachelor's degree holders from similar law degree holders. We then discount the difference back to present value using real discount rates of 3 percent (nominal discount rates of 6 percent) for our base case. This discount rate is typical in earnings premiums studies by labor economists, reflects the actual cost of capital typically faced by law students, and may be conservative in light of student loan prepayments.[97]

We include a discount rate sensitivity analysis showing present values under alternate discount rate assumptions, varying from 2 to 4 percent real, or 5 to 7 percent nominal. In addition, we estimate internal rates of return (IRR), real discount rates that would be necessary to reduce the net present value of a law degree zero,[98] in Tables 7 through 10.

For purposes of calculating our base-case internal rates of return, we assume annual law school net-tuition (tuition net scholarships and grants) of $30,000, or a total three-year cost of $90,000. This is consistent with data collected by the ABA on typical law school costs.[99] We also include a

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attending law school, is probably roughly two semesters of forgone earnings and tuition (around $55,000). Assuming 8 percent likelihood of non-completion, the expected value of non-completion is a loss of $4,400. Those wishing to include non-completion risk in present value estimates can multiply our results by the probability of completion (on average 0.92), then subtract $4,400. This would not substantially alter our conclusions.

Individuals can construct more tailored estimates based on non-completion rates and net-tuition costs at specific institutions or for specific types of students. Completion rates vary by school ranking and by race. *See* Clydesdale; LSAC Guide.

[93] *See* Part V.C., *infra.*

[94] SIPP data suggests that the typical starting age was historically closer to 24 or 25, but the trend is toward students starting younger.

[95] If we had only looked at full-time workers, the differences between men and women would be smaller, and the overall value would be slightly lower. This is because law degree holders are more likely to work full-time, and gender difference in earnings are partly attributable to differences in labor force participation and work hours.

[96] Using the covariates from Tables 1 to 4, we estimate a probability of attending law school and then use this probability to reweight the bachelor's degree sample.

[97] *See* Appendix B for a discussion of appropriate discount rates.

[98] *See* Brealey et al., *supra* note 129 at 87-100.

[99] After excluding subsidies from state and local governments, the average three year

sensitivity analysis of our internal rate of return under net-tuition costs ranging from zero (a full scholarship) to $60,000 per year (which is slightly more than 2012-13 full tuition, fees, and books at the most expensive law schools).[100] The IRRs are in the 10 to 30 percent range, much higher than any plausible discount rate for law degrees.

Our estimates account for the opportunity cost of lower earnings during law school compared to the earnings of a bachelor degree holder who is not attending school.[101] We assume that costs of living while in school are similar to costs of living while working full-time and that any differences reflect consumption benefits, and therefore need not be accounted for separate from opportunity costs of lower in-school earnings.

In addition to the lifetime value of the law degree, we also show the contribution of each of four decades of work to the total present value of the law degree. The first decade is the first ten years from the start of law

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net-tuition cost of a law degree is probably somewhere between $80,000 and $100,000. *See* AMERICAN BAR ASSOCIATION, LAW SCHOOL TUITION, 1985-2011 (listing average annual in state tuition of $22,116 and out of state tuition of $34,865 at public law schools and tuition of $39,184 at private law schools in 2010-2011).

ABA data suggests approximately $7,000 in internal grants and scholarships (i.e., tuition discounting) per student per year in 2010-2011, or $21,000 over 3 years. AMERICAN BAR ASSOCIATION, INTERNAL GRANTS AND SCHOLARSHIPS, 1991-2010 (showing $1,031,060,711 in grants and scholarships in 2010-2011); AMERICAN BAR ASSOCIATION, ENROLLMENT AND DEGREES AWARDED 1963-2011 (showing total J.D. enrollment of 147,525 in 2010-2011).

This suggests average annual net-tuition of between $15,116 for residents at public law schools, $27,865 for non-residents at public schools and $32,184 at private schools, or 3-year tuition of $45,348 for residents at public schools, $83,600 for non-residents at public law schools and $96,552 at private schools, and implies a 20 to 30 percent average tuition discount. Lower tuition charges for in state residents at public law schools may reflect public subsidies from state and local governments, or quality differences. We therefore emphasize out-of-state public tuition and private tuition in our estimates.

[100] *See* YALE LAW SCHOOL, STUDENT BUDGET AND COST OF ATTENDANCE (last visited Feb. 11, 2013), *available at* http://www.law.yale.edu/admissions/finaid_budget.htm; COLUMBIA LAW SCHOOL, COSTS AND BUDGETING, STANDARD COST OF ATTENDANCE (last visited Feb. 11, 2013), *available* at http://web.law.columbia.edu/financial-aid/costs-and-billing/costs-budgeting; CORNELL UNIVERSITY LAW SCHOOL, TUITION AND EXPENSES (last visited Feb. 11, 2013), *available at* http://www.lawschool.cornell.edu/admissions/tuition/tuition_expenses.cfm.

[101] We assume that law students earn $5,000 in their first year, $7,000 in their second year and $12,000 in their third year with part time and summer work, for a total of $24,000 during law school. SIPP data suggests typical three-year in-school earnings between $21,800 (median) and $48,000 (mean) for fulltime graduate and professional school students. Census data suggests substantial work hours among fulltime graduate and professional students *See* Jessica Davis, U.S. CENSUS BUREAU, SCHOOL ENROLLMENT AND WORK STATUS: 2011 (Oct. 2012). A strong assumption of zero earnings while in law school would reduce lifetime values by around $24,000 and would not substantially alter our conclusions.

school, including three years of law school and the first seven years of work after law school. The final "decade" actually includes thirteen years, from age 53 to age 65. The contribution of each decade to the value of a law degree may be of particular interest to those who anticipate relatively short-term participation in the workforce

Our results are displayed in Tables 7 through 10. Table 7 estimates the value of a law degree for both genders combined. The table includes mean values, as well as the 25th, 50th, and 75th percentile values. Rounding to the nearest $10,000, we find that the mean value of a law degree is $990,000, the median is $610,000, and the 25th and 75th percentiles are $350,000 and $1,100,000 respectively. The Internal Rate of Return at the median is 13 percent in real terms, or approximately 16 percent in nominal terms.

It should be noted that our 25th percentile and 75th percentile values are more extreme than the 25th percentile and 75th percentile values for actual individual law degree holders over the course of a lifetime. This is because our percentile estimates are constructed synthetically, based on the 25th percentile and 75th percentile earners *each year*. However, most individuals at the 25th percentile or 75th percentile in a given year will move closer to the median in subsequent years. Tracking individuals over 3 years, we find substantial regression toward the mean, with those near the 25th percentile in the first year moving up on average 9 percentiles by the third year, and those in the 75th percentile in the first year moving down on average 8 percentiles by the third year.

These results suggest that even at the 25th percentile, the value of a law degree exceeds typical net-tuition costs by hundreds of thousands of dollars. At the mean and 75th percentiles, the difference is close to one million dollars. We therefore reject the claim that law degrees are priced above their value. Indeed, the value compared to net-tuition prices suggests that legal education is a competitive market in which surplus redounds to the benefit of student-consumers.[102]

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[102] There are 202 J.D.-conferring ABA approved law schools in the United States, most of which compete across state lines for enrollments. *See* AMERICAN BAR ASSOCIATION, ABA-APPROVED LAW SCHOOLS (visited July 8, 2013), *available at* http://www.americanbar.org/groups/legal_education/resources/aba_approved_law_schools.html.

Seventeen law schools were approved or provisionally approved from 2002 to 2012, which suggests few barriers to entry. *See* AMERICAN BAR ASSOCIATION, ABA-APPROVED LAW SCHOOLS BY YEAR (visited Jan. 20, 2013), *available at* http://www.americanbar.org/groups/legal_education/resources/aba_approved_law_schools/by_year_approved.html.

The widespread use of tuition discounting highlights intense price competition among educational institutions, including law schools. *See* Robert E. Martin, *Tuition Discounting: Theory and Evidence,* 21 ECON. EDUC. REV. 125 (2002); John A. Sebert, *The Cost and Financing of Legal Education,* 52 J. LEGAL EDUC. 516, 518-19 (2002); Robert E. Martin,

B. Gender differences in the value of a law degree

Table 8 estimates the value of a law degree separately for men and women. We find large gender differences at the higher end of the distribution. Rounding to the nearest $10,000, the mean value of a law degree is $1,030,000 for men and $820,000 for women. The median values are $580,000 each for both men and women, although the premium is higher for women in earlier years and higher for men in later years. At the median, internal rates of return are 11.5 percent for men and 14.3 percent for women. Higher earnings for men at the high end of the distribution are likely due to longer hours and increased labor force participation among men.[103] We find that married women work fewer hours, while married men work more hours.

Even at the 25th percentile of women, our estimate of the lifetime earnings premium of a law degree, $350,000, exceeds the typical cost of a law degree by a wide margin. That is, in spite of lower average lifetime earnings premiums for women compared to men, a law degree remains a good investment for most women who obtain a law degree.

Table 9 presents present value estimates under alternate discount rate assumptions, and Table 10 presents internal rates of return under alternate law school net-tuition cost assumptions. Our basic result, that the value of a law degree exceeds its costs, is robust.

C. The value of the law degree to the degree holder depends on federal tax rates

Until now, we have not distinguished between the public and private benefits of a legal education. However, a prospective student deciding whether attending law school is a good financial investment will be interested in the *after-tax* value of a law degree.

We therefore attempt to deduct costs that probably do not provide higher consumption benefits to higher-income, educated workers (but may

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Tuition Discounting Without Tears, 23 ECON. EDUC. REV. 177 (2004); James L. Doti, *Is Higher Education Becoming a Commodity?* J. HIGHER EDUC. POL'Y & MAGMT. 363 (2004); Sandy Baum et al., *Tuition Discounting: Institutional Aid Patterns at Public and Private Colleges and Universities, 2000-01 to 2008-09*, The COLLEGE BOARD, 4, 6 (2010) (; *see also supra* note 99 (calculating a 20 to 30 percent tuition discount at law schools based on recent ABA data).

[103] Our results could be interpreted to be consistent with gender discrimination, if, for example, discrimination in promotions leads some women to drop out of the labor force after the first decade or two. On the other hand, some reduced participation in the labor force may be a voluntary decision based on work-life balance and family considerations.

provide public benefits) such as higher federal income and payroll taxes.[104]

In the U.S., marginal income tax rates increase as taxable income increases. Based on current tax rates and models from the Organization of Economic Organization and Development (OECD) and the Urban-Brookings Tax Policy Center, we estimate that the average effective federal tax rate on the law degree earnings premium is usually between 25 and 35 percent,[105] although tax rates could change in the future.

We simplify our analysis by assuming that state and local taxes are equal to consumption benefits in the form of better local services, and therefore need not be deducted from the earnings premium.[106] Similarly, we assume that higher spending on rent, food, and clothing reflect consumption benefits and need not be deducted.

The private benefits of a law degree (i.e., the value to the law degree holder), can be approximated by multiplying the values in Tables 7 through 9 by 0.7.[107] Thus, the mean after tax value of a law degree is $720,000 for men and $570,000 for women. For low earners, such as those in the 25th percentile, values should be multiplied by 0.75. For very high earners, such as 75th percentile men, or for those anticipating higher tax rates in the future, values can be approximated with a 0.65 multiple.

Except for our IRR calculation, we do not attempt to estimate the precise value of a law degree after the cost of tuition because tuition costs are not transparent. Law schools engage in extensive tuition discounting, and tuition sticker price is therefore a poor guide to the true net-tuition cost of a law degree.[108] Prospective students and law school administrators with more specific pricing information may wish to compare the estimated after-tax value of a law degree to the individualized 3-year price of their law degree.[109]

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[104] *See* OECD, EDUCATION AT A GLANCE 168, 170-75 (2011).

[105] *See* OECD, TAXING WAGES 2008–2009 at 109 (2010) (estimating that the 2009 marginal federal U.S. tax rate was 21 percent for workers making $30,000 per year, and increased to 37 percent for workers making $100,000 per year). Marginal combined federal income and employee social security taxes cap out at closer to 30 percent for single earner married couples and those with children. Note that these numbers are larger in models that estimate the "tax wedge" and include the employer portion of payroll taxes, which would be improper for our purposes.

[106] *See* Brian D. Galle, *Federal Fairness to State Taxpayers: Irrationality, Unfunded Mandates, and the 'Salt' Deduction,* 106 MICH. L. REV. 805, 808, 813-14, 829 (2008) (describing the conventional view that taxpayers choose the bundle of state and local taxes and services that they want, as well as limitations of that view).

[107] Approximately 70 percent of the earnings premium will benefit the student, while 30 percent will benefit the federal government.

[108] *See supra* note 102.

[109] Because we discount our estimated law degree value to the *start* of law school, interested parties can multiply annual net-tuition by three and compare the results to our estimates of after-tax value.

Even at the 25th percentile and after subtracting federal taxes, the value of a law degree will still typically exceed its cost, although the private returns are substantially reduced. Income Based Repayment plans with debt forgiveness may dramatically increase the private returns on education toward the bottom of the distribution.

D. Public return on legal education exceeds public investment

Public benefits of legal education include the portion of the lifetime value of a law degree that accrues to the federal government through taxes, reduced risk of unemployment and reliance on social services, and profits from student loan interest. The federal tax revenue benefits of a law degree can be estimated by multiplying the values in Tables 7 through 9 by 0.37.[110] On average, the tax revenue benefit to the federal government of a law degree is approximately $370,000. For male law degree holders, the average tax revenue benefit is $380,000, and for female law degree holders, it is $300,000. At the 25th percentile, toward the bottom of the distribution, the tax revenue benefit is approximately $110,000.[111]

The public benefits are substantial. Indeed, the public benefits will typically exceed the cost of a law degree. Thus, on average and ignoring obvious behavioral changes, the federal government would hypothetically profit from legal education even if it provided legal education free at the point of service. Along with law graduates' low student loan default rates, substantial tax revenue benefits suggest that concerns about harm to taxpayers from law student loan defaults or IBR-related costs are overstated. On average and even toward the bottom of the distribution, legal education in fact improves the federal government's finances.

High marginal tax rates on labor and progressive income taxation may discourage some individuals from pursuing a law degree, even though a law degree would be socially beneficial.[112] The government could ameliorate these disincentives toward investment by reducing tax rates on labor, directly subsidizing higher education, or making educational expenditures more fully tax deductible. To the extent that prospective students are risk averse, income based repayment plans with debt forgiveness may help encourage investment in education.

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[110] The additional 7 percent represents the employer portion of payroll taxes.

[111] Assuming a 25 percent tax rate plus 7 percent employer payroll taxes.

[112] Further empirical study would be needed to determine whether these theoretical predictions match actual behavior.

VI. LAW STUDENTS RARELY DEFAULT ON THEIR STUDENT LOANS

Even though law students have relatively high debt levels,[113] compared to students in other academic programs, law students default on their student loans infrequently. As shown in Table 11 and Table 12, law students are only about one-quarter to one-third as likely to default on their loans as students in other programs offering bachelor's and advanced degrees.

We estimate law graduates relative default rates as follows. The U.S. Department of Education ("DOE") reports cohort default rates ("CDR") by academic institution, but generally not by programs within institutions. Law graduate default rates can be approximated by looking at average default rates of law schools that report their default rate as independent institutions—that is, not as part of a larger university. Table 11 shows these law schools' three-year cohort default rates for 2009—the most recent three-year data currently available.[114] We can compare these default rates to the same three-year CDR measure for all postsecondary institutions,[115] or for institutions whose highest degree is a master's, doctor's, or professional degree.[116]

Across comparison groups, average default rates of former law students

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[113] According to the ABA, those students who borrowed for law school typically borrowed between $76,000 at public schools and $125,000 at private schools. AMERICAN BAR ASSOCIATION, AMOUNT BORROWED FOR LAW SCHOOL, 2001-2010. These numbers do not include undergraduate debt.

Law school debt figures exceed 3-year net-tuition costs. Debt likely includes opportunity costs, because students may borrow during law school to cover living expenses that they would have covered with earnings if they were not in school. Because we separately include opportunity costs of foregone earnings in our analysis, debt levels should not be used as a comparison with the after-tax value of the law degree. Instead, 3-year net-tuition should be used. *See supra* note 99 and accompanying text.

[114] 2009 is both the first official and (as of this writing) most recent three-year CDR released by the DOE. Three-year CDRs provide additional time for students to default and the rates are therefore higher than two-year CDRs). However, our results on relative default rates are similar across CDR measures. Trial three-year CDRs are available from 2005 to 2008. Official two-year cohort default rates are available from 1990 to 2010.

The three-year 2009 CDR is the percent of graduates who entered repayment in fiscal year 2009 (from October 1, 2008 to September 30, 2009) and then defaulted within 3 fiscal years, that is, defaulted between October 1, 2008 and September 30, 2011. *See* U.S. DEPARTMENT OF EDUCATION, COHORT DEFAULT RATE GUIDE (2012) at 2.1-5.

[115] In addition to 4-year bachelor's and advanced degree granting institutions, this will include many vocational and 2-year junior college programs. The relatively high overall default rate across institutions highlights the fact that law degree programs help bring down the average default rate on federal student loans.

[116] The default rates of institutions whose highest degree is a master's or doctor's degree will often be a blended rate combining default rates for both undergraduate and graduate students at the institution, including Ph.D, master's, and professional students.

(3.3 percent) are substantially lower than those of former students who enrolled programs whose highest degree is a master's, doctor's, or professional degree (10.4 percent) which in turn is lower than the overall rate across educational institutions (13.4 percent).

Default rates are not loss rates. In the event of default, after netting out collection costs and taking into account the time value of money, the federal student loan program typically recovers 75 to 82 percent of value.[117] In other words, loss rates can be approximated by multiplying default rates by 21.5 percent.

The data suggests that loans to law students are profitable for the federal government. The federal student loan program as a whole is profitable.[118] Because law graduates both pay higher interest rates[119] and default less frequently than other borrowers, legal education contributes to profitability.

Law student default rates may be over-estimated because our sample of law schools consists disproportionately of low-ranked institutions. Only two institutions in our sample, U.C. Hastings and Brooklyn, were ranked in the top half of law schools in 2009 by *U.S. News and World Report*.[120] These two institutions collectively account for only 11.5 percent of students in repayment in our sample, whereas the top half of law schools presumably account for approximately 50 percent of the population of former law students in repayment. We therefore also report adjusted figures for law schools, in which we assign Brooklyn and U.C. Hastings a combined 50 percent weight. The adjusted law school 3-year CDR drops from 3.3 to 2.7 percent.

Table 12 contains information similar to Table 11, except that Table 12 shows two-year CDRs for 2008, 2009, and 2010.[121] Table 12 shows that although default rates have trended up across higher education during the post-financial crisis recession, law students continue to be much less likely

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[117] DEP'T OF EDUC., STUDENT LOANS OVERVIEW, FISCAL YEAR 2013 BUDGET REQUEST, at R-31. This high recovery rate may be due in part to the limits on bankruptcy discharge and extensive mechanisms available to collect defaulted federal student loans.

[118] *See* DEBORAH KALCEVIC & JUSTIN HUMPHREY, MARCH 2012 BASELINE PROJECTIONS FOR THE STUDENT LOAN AND PELL GRANT PROGRAMS, CONGRESSIONAL BUDGET OFFICE, tbls.2 & 3 (Mar. 13, 2012) (projecting a *negative* subsidy, i.e., profit, for federal student loans originated in 2013 and beyond).

[119] Graduate students pay higher interest rates than undergraduates on federal student loans. *See* Simkovic, *Risk Based Student Loans, supra* note 33, at 565-66.

[120] University of California—Hastings was ranked 39. Brooklyn was ranked 61. There are approximately 200 ABA accredited law schools, so both University of California—Hastings and Brooklyn are ranked roughly at the 75th percentile of law schools.

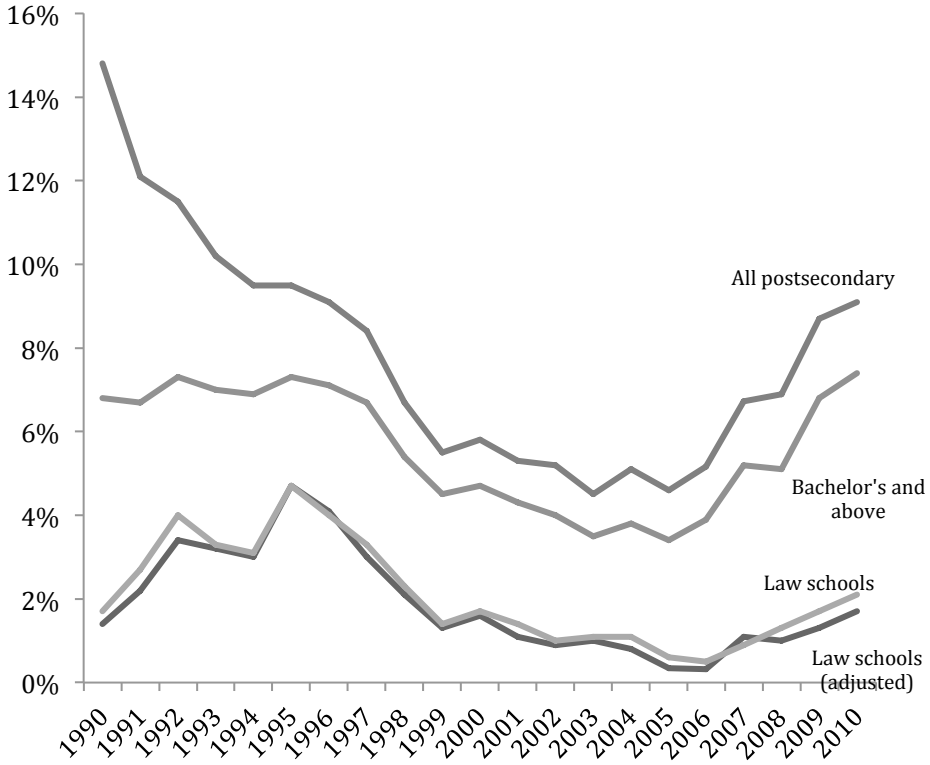
[121] The 2-year 2010 CDR is the percent of graduates who entered repayment in fiscal year 2010 (from October 1, 2009 to September 30, 2010) and then defaulted within 2 fiscal years, that is, defaulted between October 1, 2009 and September 30, 2011. *See* U.S. DEPARTMENT OF EDUCATION, COHORT DEFAULT RATE GUIDE at 2.1-5 (2012).

than other students to default. Specifically, the adjusted law student default rate increased from 1 percent in 2008 to 1.7 percent in 2010, compared to an increase from 5.4 percent in 2008 to 7.1 in 2010 for students who enrolled programs whose highest degree is a master's, doctor's, or professional degree, and an overall increase across institutions from 6.9 percent in 2008 to 9.1 percent in 2010.

In fact, law school borrowers have had low default rates in every year of data released by the Department of Education. Figure 7 below shows two-year cohort default rates for law schools (both adjusted and unadjusted), compared to two-year cohort default rates for bachelor's and above programs, as well as all postsecondary educational institutions. The data cover twenty cohort years, from 1990 to 2010.

Figure 7: Law students rarely default on their student loans

Federal Student Loan 2-Year Cohort Default Rates by Institution type, 1990-2010
Number in default divided by number in repayment



Source: U.S. Department of Education

Note: Sample of law schools is similar to that in Tables 7 and 8, but includes Dickinson (1990 to 1996), McGeorge (1990 & 1994), and Stanford (1991 & 1992). Data was not available in early years for Southern New England (starts 1997), CUNY (starts 1999), Massacussetts Andover (starts 1999), Florida Coastal (starts 2000), Appalachian (starts 2002), and Ave Maria (starts 2003).

These *relatively* low rates of default for law students cannot be explained by features of federal student loans such as income based repayment (which in any case is a recent program), limits on discharge in bankruptcy, or favorable collection regimes, because those features are not exclusive to law students. Nor can these results be explained by deferment—law graduates are *less* likely than undergraduates to pursue additional education.

Although it is possible that default rates could change in the future as more recent graduates enter repayment, recent student loan default rate data

suggest that a law degree remains relatively low-risk even in a recession. Student loan default data undercut claims by Professor Chen and Professor Tamanaha that a large proportion of graduates of expensive private law schools are unable to service their debts.

The data suggests that the law degree reduces the risk of distress by reducing the likelihood of unemployment, increasing labor force participation, and increasing expected earnings over the course of a lifetime.

VII. CONCLUSION

After controlling for observable differences, we find that a law degree is associated with approximately a 60 percent increase in expected median monthly earnings and a 50 percent increase in hourly wages, as well as reduced risk of unemployment or underemployment. We find earnings differences between men and women, and that these differences are due primarily to differences in hours worked. The law degree earnings premium is cyclical and recent years are within historic norms. Applying reasonable discount rates, we estimate the mean lifetime value of a law degree in 2012 dollars as of the start of law school to be approximately $1,000,000 before taxes, and $700,000 net of taxes.

Median pre-tax lifetime values are approximately $600,000 (after taxes, $420,000). This suggests that, for most law school graduates, the value of a law degree typically exceeds its cost by a very large margin. Moreover, law school attendance provides a large benefit to public finances through student loan interest payments and tax revenue.

There are a number of important limitations to our study. Although we control for some ability sorting using variables available in SIPP, we cannot rule out the possibility of selection or omitted variable bias. However, there are theoretical reasons to believe that selection bias could be either positive or negative, and these may offset each other. In addition, SIPP data has been found to underestimate educational earnings premiums, and we therefore are likely underestimating the value of a law degree. To the extent that selection bias is positive, reporting biases in SIPP earnings data may counterbalance it. We investigate ability bias using the NELS sample and find little evidence that those prone to attending law school could earn comparable amounts with just bachelor's degrees.

Another important limitation is that we are measuring *population level* differences in earnings. Individual outcomes may vary from those typically found at the population level, and we can only account for a limited proportion of the total variance in earnings.

We also cannot determine the earnings premium associated with attending a specific law school. Because our data covers a representative

sample of law degree holders, the law degree holders in our sample will have attended a variety of law schools. Previous empirical studies have reached different conclusions about the extent to which the earnings premium varies by law school ranking and geography.[122]

Nevertheless, our results suggest that attending law school is generally a better financial decision than terminating one's education with a bachelor's degree. We report distributional data and differences by gender. Our findings suggest that even for relatively low earners, a law degree will typically more than pay for itself over the course of a lifetime. Even at many low-ranked law schools, student loan default rates are relatively low. Downside risk of attending law school is mitigated for individual students through income based repayment and related programs that spread risk. In sum, a law degree is often a good investment.

Legal education provides a substantial financial benefit to the federal government. Because the federal government is a large diversified lender and tax collector, outcomes for the federal government will approach the population mean—which is highly profitable—and the government is therefore well situated to absorb and spread risks of investment in higher education.

[122] *See, e.g.*, Paul Oyer & Scott Shaefer, *The Returns to Attending a Prestigious Law School* (2010) (finding a large "elite" law school premium); c*f.* Richard Sander & Jane Yakowitz, *The Secrets of My Success: How Status, Prestige and School Performance Shape Legal Careers*, 9 J. EMPIRICAL LEGAL STUD. 893 (2012) (finding that earnings and likelihood of making partner depends more on individual law school grades than on institutional law school prestige).

APPENDIX A: SELECTION AND ABILITY SORTING

The main text examines observed characteristics that relate to ability, motivation, or socio-economic advantages that increase the likelihood of law school attendance and also lead to higher earnings among those who do not attend law school. This appendix considers unobservable differences between those who attend law school and those who terminate their education with a bachelor's degree. Unobservable differences are by their nature challenging to measure, but we can estimate likely values for the correlation and check the robustness of our analysis by considering how much correlation in the unobservables would be required for selection and ability sorting to fully explain the law school earnings premium.

For this sensitivity analysis, we use SIPP data[123] and a standard switching regression model where agents choose law school if $Z_i\delta + ui > 0$ and choose a bachelor's degree otherwise. Z_i is our familiar list of SIPP variables, δ is the vector of their associated coefficients, and u_i captures unobserved differences across people making them more or less likely to get a law degree. Those who choose law school have log earnings of $X_i\beta_{law} + \varepsilon_{i,law}$ where X_i are the SIPP control variables for person i, β_{law} is the coefficient vector applicable to law school grads and $\varepsilon_{i,law}$ is unobserved characteristics that affect a person's earnings as a lawyer. Thus a person with a high $\varepsilon_{i,law}$ and a high u_i is someone who is likely to be a lawyer and is likely to earn more than average as a lawyer. Those with only a bachelors degree have log earnings of $X_i\beta_{bach} + \varepsilon_{i,bach}$ where the terms are analogous to the lawyer earnings equation.[124] We allow the two earnings error terms to each have their own variance but give them both the same correlation (ρ) to the law selection equation error term, u_i.

Under these assumptions, ρ measures the extent to which high interest in attending law school (u_i) correlates to high earnings ability without a law degree (ϵ_i). Two approaches could be used to identify ρ: either using an exclusion restriction where an element of Z differed from X; or by imposing a functional form assumption on the unobserved errors, such as joint normality.[125] Given the difficulty in finding a credible exclusion restriction, we provide estimates based on assumed bivariate normality of the error terms.

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[123] While the NELS data is more extensive, the limited number of observations and the limited post-law degree earnings data make it poorly suited to this question.

[124] We consider models where the earnings difference is a constant as well as where it is allowed to vary by observable characteristics, so that the β coefficient vectors are different. The results from the two models were quite similar.

[125] The exclusion restriction approach is similar in spirit to instrumental variables estimation, although the actual mechanics differ.

We then estimate the three coefficient vectors, β_{law}, β_{bach} and δ along with the associated variances and the correlation parameter, ρ.[126] We summarize our conclusions here; the full results are available upon request from the authors.

Based on the model, the average difference in wages due to the better returns to law school—which is the law school premium—is 0.45 which is identical to the log wage premium in Table 2. The result is so close because we find no evidence that those who prefer law school are likely to be exceptional earners because of unobservable differences. The reported ρ is actually slightly negative and precisely estimated to be very close to zero at -0.04 (0.02). In terms of unobservables, we find little evidence that the cream of the crop of bachelor's degree holders disproportionately choose to attend law school. As we have seen in the text, their observable characteristics are better than average, and indeed they would be expected to earn slightly more than average, but in neither observable or unobservable differences do we find evidence that would explain away a large portion of the law school earnings premium.

Unfortunately the above estimates rely on a fairly strong, untestable assumption of bivariate normality in the unobserved error terms. Thus we do not present the results as independently conclusive, but rather as additional support for our prior work with NELS data.

We now consider the robustness of our results, specifically, how large would the effect of ability sorting need to be to eliminate a causal effect of law school attendance on earnings. Using the switching regression analysis, where agents pick between one of two options, we can illustrate how the law school premium dissipates with a rising correlation in the unobservable component. We simplify our analysis be assuming equal β coefficients for law school and bachelor's degrees, except for a higher constant term premium for law school.

There are several reasons to believe that the correlation in the unobservable portion (u_i and ϵ_i) should be noticeably less than the correlation in the observable correlation. First, since Z_i and X_i are the same vectors, they will likely be correlated. Second, if most of the coefficients

[126] Likely due to measurement error, log earnings and wages in the raw data are far from normally distributed. While we are not assuming normality of the *observed* distribution but of the *latent* distribution before the mixing, serious distortions in the tails will disturb the maximum likelihood estimates. Thus we estimate a log wage model excluding all those with wages below $6 or above $300 in 2012 dollars. This removes 4.3% of the sample and makes the distributions decidedly more normal (skewness drops from -0.84 to 0.43 and kurtosis from a very large 10.7 to an almost normal 3.6). It is perfectly reasonable that the mixture of distributions would exhibit some skewness and kurtosis, so we find the summary statistics reassuring. We experimented with heavier truncation but it had no effect on the estimates.

have the same sign, measurement error in the variables will cause both of them to move together even if there is no relation between the measures. Third, the unobservable components must absorb all the random idiosyncratic events. This low signal to noise ratio will drive down the correlation between the two unobservable components far more than it will affect the observed components. In fact, any component in the unobservables that is correlated with the observable variables will get subsumed into the observed index, likely raising the correlation in the observed indices while lowering it for the unobserved portion. The observed covariates are chosen precisely because theory and prior empirical studies suggest that they are important determinants of earnings and schooling decisions.

Because correlation in unobservables is likely lower than correlation in observables, and because we find that the correlation in the observable components of the selection and earnings equation ($Z_i\hat{\delta}$ and $X_i\hat{\beta}$) is about 0.33, we expect the unobserved correlation to be considerably lower than one third. In fact, by varying ρ exogenously, we find that it would take a ρ of approximately 0.25 to make the law school premium go away, which is quite high.

For example, consider the correlation in each worker's earnings in the first and last year of SIPP earnings data for that worker. We limit our analysis to those workers for whom we have earnings data covering four full years. Earnings and the third lagged version of earnings have a correlation of 0.6. Thus, earnings over even a few years have a correlation with themselves of only a little over one half. This low correlation suggests that it is not very likely that the earnings error term in one period is strongly correlated with the error term in the one-time decision to obtain a law degree. Even if one thought there was some positive correlation, such as 0.1, the law school premium would still be approximately 60 percent of its OLS value.

Although future research would help shed additional light on the unobserved ability component, the evidence available to date suggests that the ability sorting problem is minimal, whereas it would have to be very large to explain the law school premium.

APPENDIX B: DISCOUNT RATES

Calculation of lifetime earnings premiums requires application of an appropriate discount rate to the stream of annual earnings premiums. Discount rates are used to convert future income streams into their present value. The higher the discount rate, the lower the present value of the

future income streams. This article uses a base case real discount rate of 3 percent (equal to a nominal discount rate of 6 percent), which reflects the rate typically used in similar studies by labor economists. The discount rate is also consistent with actual financing costs typically faced by law students, with empirical studies of subjective discount rates of the highly educated, and with student loan prepayment behavior by law students.

A. Most labor economists use discount rates between 0 and 3 percent

Most studies by economists have generally either used a discount rate of 2.5 to 3 percent equal to the risk free interest rate (i.e., the long term treasury rate) or inflation, or no discount rate.[127] Some studies have related appropriate discount rates to the actual student loan interest rates faced by prospective students.[128] The corporate finance literature suggests incorporating the costs of financing into the discount rate.[129]

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[127] *See* Cheeseman Day & Newburger, *supra* note 13 (using no discount rate); Carnevale et al., *supra* note 13 at 21 (proposing a 2.5 percent discount rate); Sandy Baum, Jennifer Ma & Kathleen Payea, COLLEGE BOARD, EDUCATION PAYS (2010), 12 Figure 1.2 (applying a 3 percent discount rate); Oyer & Schafer, *supra* note 122, at 34 and n.20 ("[w]e believe that 10% is probably too large a discount factor"); Edward M. Gramlich, A GUIDE TO BENEFIT-COST ANALYSIS, 2d.ED. (1990) (encouraging the use of approximately a 3 percent discount rate in benefit-cost analysis).

[128] *See* Ehrenberg, *supra* note 78, at 21; Heckman, *supra* note 61 at 313 (discussing the traditional view that "if the [Internal Rate of Return] exceeds the interest rate, further investment in education is warranted.").

[129] The corporate finance literature suggests using a Weighted Average Cost of Capital (WACC) that incorporates the costs of both debt and equity financing. *See* Tim Koller et al., VALUATION: MEASURING AND MANAGING THE VALUE OF COMPANIES, 4th ED. 102-112 (2005); Richard A. Brealey, et al., PRINCIPLES OF CORPORATE FINANCE 8th ED. 445-63, 511-512 (2006). Whereas the cost of debt is observable, the cost of equity is not. Instead, it must be estimated using theories such as the Capital Asset Pricing Model (CAPM), or the Fama & French Three-Factor model. Equity premium estimates are controversial, variable, and have generally declined based on recent empirical research. *See, e.g.,* Eugene F. Fama & Kenneth R. French, *The Equity Premium,* 57 J. FIN. 637 (2002) (arguing that equity premia should be estimated based on dividends and earnings rather than observed returns); Ravi Jagannathan, Ellen R. McGrattan & Anna Scherbina, *The Declining U.S. Equity Premium,* 24 FED. RES. BANK OF MINNEAPOLIS Q. REV. 3 (2000) (estimating that equity premiums declined from 7 percent in 1926 to 1970 to 0 from 1982 to 1999); Elroy Dimson, Paul Marsh, & Mike Staunton, *The Worldwide Equity Premium: A Smaller Puzzle,* 467 HANDBOOK OF THE EQUITY RISK PREMIUM (Rajnish Mehra ed., 2008) (presenting long term worldwide historic data suggesting that equity premiums are 3 to 3.5 percent).

It is unclear how such theories could be applied to labor markets in which lifetime earnings are not tradable, investments can be financed 100 percent with student loans, interest rates are statutory rather than risk-based, and debt service payments depend on borrower income.

B. Real student loan interest rates will typically be between 2 and 4 percent

Because advanced degrees can be financed 100 percent with federal student loans, the maximum financing cost equals the weighted average real interest rate on federal student loans. The nominal interest rates on federal student loans for a three-year law degree, estimates of the real interest rates, and borrowing limits are displayed in Table A1. In estimating real interest rates, we assume 3 percent inflation per year, which is slightly lower than long-term historic averages.

Our estimates of interest rates faced by borrowers are probably too high[130]—that is, the present value of the degree we calculate based on the figures in Table A1 will be too low—because we have not included tax incentives[131] or generous loan forgiveness programs for low income borrowers.[132]

Table A2 uses the figures in Table A1 to calculate the weighted average interest rate for student debtors, depending on the amount that they borrow. The third column on the right, Average Real Interest Rate, contains high-end estimates of the actual financing costs faced by law students. As suggested by Table A2, the likely cost of financing a law degree is between 2 and 4 percent real interest per year.

The financing costs would be lower if any of the following occurs: (1) the law student is able to obtain private loans at lower cost than the highest cost federal loans available to him; (2) the student (or the student's family) uses some of their own funds to initially finance the law degree; or (3) the student graduates and repays the loan before he or she leaves the labor force. Any of these actions would make sense if the alternative investments

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[130] We have not included origination fees. Origination fees may partially offset tax incentives and loan forgiveness programs discussed below.

[131] *See* 26 U.S.C. § 221(b) (2006); U.S. DEPARTMENT OF THE TREASURY, INTERNAL REVENUE SERVICE, PUBLICATION 970: TAX BENEFITS FOR EDUCATION 30 (Mar 21, 2012). (detailing education tax advantages worth at least $8,000 for the typical 3 year law degree).

[132] Income Based Repayment Plans and similar plans cap federal direct loan repayments at roughly 10 percent of income per year for 10 to 20 years, after which any unpaid balance of the student loan will be forgiven. This reduces the costs of capital for low-income graduates and mitigates downside risk. In addition, many law schools offer their own loan forgiveness programs for low-income graduates or those pursuing public interest work. Philip G. Schrag & Charles W. Pruett, *Coordinating Loan Repayment Assistance Programs with New Federal Legislation*, 60 J. LEGAL EDUC. 583, 590–97 (2010).

A new federal plan, Pay As You Earn, is more generous, effectively capping payments at around 7 to 8 percent of income. *See* Alison Damast, *Obama's New 'Pay as You Earn' Plan a Windfall for MBAs,* BLOOMBERG BUSINESSWEEK, Nov. 2, 2012 ("The new plan essentially eliminates any downside").

available to private investors, the student, or the student's family offer a lower risk-adjusted rate of return than the interest rate on the student's most expensive federal student loan. In fact, many law graduates prepay their loans ahead of schedule, which suggests that law graduates' subjective discount rates are lower than student loan interest rates, and also that the interest rate on student loans is higher than the return on other investments available to law graduates.[133]

Similarly, actual financing costs will be lower than those in Table A2 for former law students who are unable to make their standard loan payments. Thanks to new debt forgiveness and flexible repayment options for federal student loans, as income falls, so do debt service payments and therefore the student borrower's cost of capital. A recent analysis of federal income based repayment as modified by the new Pay As You Earn program suggests that a law student would pay roughly 4.5 to 7.3 percent of her income as debt service for at most twenty years.[134] Our estimates suggest that even at the 25th percentile, toward the bottom of the income distribution, a law degree confers a much larger increase in earnings.[135] In other words, the downside risk of a law degree relative to a terminal bachelor's degree is small. Real discount rates should therefore probably be toward the low end of a 2 to 4 percent range.

C. Studies questioning the value of a law degree use high discount rates

Compared to the 3 percent discount rates applied in labor market studies by economists and suggested by the actual costs of financing a law degree with federal student loans, Professor Schlunk applies real discount rates of between 8 and 27 percent[136] (i.e., nominal rates of 11 to 30 percent). When coupled with assumed low earnings growth, this effectively suggests that law graduates see their real incomes decline every year of their working lives and peak in their first year after law school—an implication that several economists have explicitly rejected as unlikely.[137]

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[133] Within three years of graduation, 16 percent of law graduates in the *After the JD* study had no educational debt. Four years later, 36 percent of those graduates had no education debt. The percent of graduates with more than $100,000 in debt dropped from 21 percent to 8 percent. Ronit Dinovitzer et al., ABA AND NALP, *After the JD II: Second Results from a National Study of Legal Careers* (2009).

[134] Schrag, *Failing Law Schools* (2013) *supra* note 132, at 8-12; *supra* note 132.

[135] *See supra* Part II and Tables 1 through 4.

[136] Schlunk I at 11; Schlunk II at 318.

[137] *See* Ehrenberg, *supra* note 78, at 20 (finding that "lawyers' earnings grow at least initially at rates that far exceed likely rates of discount"); Oyer & Shaefer, *supra* note 127 at 34, n.20 ("[A 10% discount factor] suggests that real wages would be dropping for most of the twenty years we measure.").

Prospective law students have already delayed entry into the workforce by completing high school and college, and they are considering three years of additional education-related delay. They have demonstrated their willingness to sacrifice present consumption for a long-term investment in their careers. This suggests modest, or at least not idiosyncratically large, subjective discount rates.[138] Law graduates' prepayment of student loans confirms that their subjective discount rates are generally lower than student loan interest rates.[139]

Professor Schlunk also assumes that an investment in a law degree is about as risky as a private equity investment.[140] This seems implausible. Private equity investors frequently lose their entire investment—if they cannot service their debts, their equity may be wiped out in bankruptcy.[141] By contrast, law graduates' degrees and earnings capacity do not disappear if they cannot make a loan payment. Income Based Repayment plans adjust debt service requirements down when income falls, thereby minimizing graduates' downside risk.[142] The data suggests that even toward the bottom of the distribution, law degrees increase income by more than the cost of IBR payments.

Like Professor Schlunk, Professor Chen assumes that law graduates face high risks of financial distress. According to Professor Chen, law students' debt to income ratios immediately after graduation will often exceed the debt-to-income ratios preferred by mortgage lenders when they lend money to individuals to buy a personal residence, and according to Professor Chen this suggests that many law graduates may not have "good financial viability."[143]

However, the corporate finance literature suggests that the implications of financial ratios vary by industry.[144] Professor Chen does not consider

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[138] *See* Gary S. Becker & Casey B. Mulligan, *The Endogenous Determination of Time Preference*, 122 Q. J. ECON. 729, 751 (1997) ("more patience may be the reason why some people choose to continue their schooling."); Glenn W. Harrison, Morten I. Lau & Melonie B. Williams, *Estimating Individual Discount Rates in Denmark: A Field Experiment,* 92 AM. ECON. REV. 1606, 1615-16 (2002) (finding that higher levels of education, skill, and income are all associated with lower subjective discount rates).

[139] See *supra* note 133.

[140] Schlunk II at 317 ("Perhaps the best way to analogize the relevant income stream is as a non-diversifiable equity income stream . . . that puts me in the mind of the income streams I confronted when advising investors in the private equity sector").

[141] *See* Michael Simkovic & Benjamin Kaminetzky, *Leveraged Buyout Bankruptcies, the Problem of Hindsight Bias, and the Credit Default Swap Solution*, 2011 COLUM. BUS. L. REV. 118 (2011).

[142] *See supra* note 132.

[143] Chen, *supra* note 20 at 1186-91, 1197-99, 1202-04.

[144] *See, e.g.*, Bill McDonald & Michael H. Morris, *The Statistical Validity of the Ratio Method in Financial Analysis: An Empirical* Examination, 11 J. BUS. FIN. & ACCT. 89

whether the debt-to-income ratios applied in the context of housing finance are predictive in the context of education finance. Nor does he consider actual student loan default rates of law graduates. We consider actual student loan default rates in section VI, and find that law student default rates are extremely low. This may be due in part to rapid earnings growth for law graduates, which reduces the predictive value of starting salaries.

(1984); Michael Bradley, Gregg A. Jarrell & E. Hahn Kim, *On the Existence of an Optimal Capital Structure: Theory and* Evidence, 39 J. FIN. 857, 876 (1984); John R. Graham et. al, INTRODUCTION TO CORPORATE FINANCE: WHAT COMPANIES DO, ABRIDGED, 3d EDITION 41 (2011).

TABLE 1: DIFFERENCE IN LOG EARNINGS BETWEEN BACHELOR'S AND LAW DEGREE

						Percentiles		
	No controls	Controls	Men	Women	Full-Time Workers	25th	50th	75th
Law Degree	0.59	0.53	0.49	0.59	0.49	0.44	0.47	0.59
	(0.03)	(0.03)	(0.03)	(0.04)	(0.02)	(0.03)	(0.02)	(0.02)
Female		-0.39			-0.22	-0.37	-0.30	-0.29
		(0.01)			(0.01)	(0.02)	(0.01)	(0.01)
College Major								
Business		0.04	0.06	0.00	0.04	0.03	0.03	0.04
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Education		-0.25	-0.26	-0.24	-0.23	-0.21	-0.24	-0.29
		(0.02)	(0.03)	(0.02)	(0.01)	(0.03)	(0.02)	(0.02)
Science/Engineering		0.08	0.11	-0.02	0.09	0.11	0.12	0.08
		(0.01)	(0.02)	(0.03)	(0.01)	(0.02)	(0.02)	(0.02)
Social Sciences		-0.16	-0.11	-0.21	-0.11	-0.16	-0.17	-0.16
		(0.02)	(0.03)	(0.03)	(0.01)	(0.03)	(0.02)	(0.02)
Humanities		-0.15	-0.13	-0.18	-0.10	-0.19	-0.14	-0.11
		(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
>2 years high school work in								
Math		0.08	0.07	0.10	0.05	0.08	0.06	0.06
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Sciences		-0.00	0.02	-0.02	-0.00	0.01	0.01	0.01
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
English		0.02	0.03	0.01	0.02	0.04	0.02	0.00
		(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Foreign Lang.		0.05	0.06	0.03	0.06	0.03	0.04	0.06
		(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Public HS		-0.04	-0.05	-0.02	-0.04	-0.01	-0.02	-0.04
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
College Prep HS		0.06	0.06	0.06	0.07	0.08	0.06	0.06
		(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Observations	109,211	109,131	57,450	51,681	85,689	109,131	109,131	109,131
R-squared	0.02	0.11	0.09	0.05	0.13			

Year controls used in all columns but not shown. Age, race, and marital status controls used in all columns except column 1, but not shown. Year controls are year dummy variables. Age controls are five-year interval dummies. Sample are those age 25-65 with either a law or bachelor's degree. Standard errors are clustered by individual.

TABLE 2: DIFFERENCE IN LOG WAGE BETWEEN BACHELOR'S AND LAW DEGREE

						Percentiles		
	No controls	Controls	Men	Women	Full-Time Workers	25th	50th	75th
Law Degree	0.50	0.45	0.44	0.47	0.43	0.36	0.40	0.52
	(0.02)	(0.02)	(0.03)	(0.04)	(0.02)	(0.03)	(0.02)	(0.02)
Female		-0.21			-0.15	-0.17	-0.18	-0.19
		(0.01)			(0.01)	(0.01)	(0.01)	(0.01)
College Major								
Business		0.01	0.04	-0.03	0.03	-0.01	0.00	0.01
		(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Education		-0.25	-0.24	-0.25	-0.23	-0.22	-0.27	-0.30
		(0.01)	(0.03)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Science/Engineering		0.08	0.11	-0.01	0.10	0.10	0.10	0.08
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Social Sciences		-0.15	-0.11	-0.18	-0.11	-0.15	-0.17	-0.16
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Humanities		-0.13	-0.12	-0.15	-0.10	-0.14	-0.14	-0.11
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
>2 years high school work in								
Math		0.06	0.05	0.07	0.04	0.06	0.06	0.05
		(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Sciences		0.01	0.03	-0.01	0.00	0.01	0.01	0.02
		(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
English		0.01	0.01	-0.00	0.01	0.03	0.01	-0.02
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Foreign Lang.		0.05	0.06	0.05	0.05	0.04	0.05	0.05
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Public HS		-0.04	-0.04	-0.03	-0.03	-0.03	-0.03	-0.05
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
College Prep HS		0.07	0.06	0.07	0.07	0.07	0.06	0.06
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	106,869	106,792	56,153	50,639	85,689	106,792	106,792	106,792
R-squared	0.03	0.09	0.08	0.05	0.10			

Year controls used in all columns but not shown. Age, race, and marital status controls used in all columns except column 1, but not shown. Year controls are year dummy variables. Age controls are five-year interval dummies. Sample are those age 25-65 with either a law or bachelor's degree. Standard errors are clustered by individual.

TABLE 3: DIFFERENCE IN WEEKLY HOURS BETWEEN BACHELOR'S AND LAW DEGREE

						Percentiles		
	No controls	Controls	Men	Women	Full-Time Workers	25th	50th	75th
Law Degree	4.40	3.88	3.30	4.23	3.29	2.10	3.43	5.37
	(0.47)	(0.47)	(0.58)	(0.78)	(0.32)	(0.42)	(0.23)	(0.47)
Female		-6.72			-3.40	-6.31	-3.13	-6.37
		(0.18)			(0.12)	(0.18)	(0.10)	(0.21)
College Major								
Business		0.86	0.30	1.24	0.47	0.76	0.79	1.02
		(0.23)	(0.30)	(0.34)	(0.15)	(0.24)	(0.13)	(0.27)
Education		-0.23	-0.41	0.30	0.15	0.19	-0.17	0.43
		(0.31)	(0.59)	(0.36)	(0.20)	(0.30)	(0.17)	(0.35)
Science/Engineering		-0.33	-0.69	-0.50	-0.33	0.03	-0.17	-0.38
		(0.27)	(0.34)	(0.49)	(0.19)	(0.28)	(0.16)	(0.32)
Social Sciences		-0.90	-0.90	-0.91	0.02	-1.11	-0.25	-0.23
		(0.33)	(0.51)	(0.44)	(0.22)	(0.33)	(0.18)	(0.38)
Humanities		-0.86	-0.97	-0.73	0.16	-1.23	-0.52	-0.20
		(0.29)	(0.44)	(0.39)	(0.20)	(0.29)	(0.16)	(0.32)
>2 years high school work in								
Math		0.76	0.83	0.66	0.34	0.57	0.25	0.58
		(0.23)	(0.34)	(0.30)	(0.15)	(0.23)	(0.13)	(0.26)
Sciences		-0.36	-0.51	-0.09	-0.27	-0.29	-0.17	-0.32
		(0.24)	(0.34)	(0.32)	(0.15)	(0.24)	(0.13)	(0.26)
English		0.74	1.01	0.36	0.30	0.51	0.40	0.81
		(0.28)	(0.38)	(0.40)	(0.19)	(0.28)	(0.15)	(0.31)
Foreign Lang.		0.15	0.44	-0.07	0.09	0.08	0.08	0.37
		(0.19)	(0.26)	(0.28)	(0.13)	(0.19)	(0.11)	(0.22)
Public HS		-0.21	-0.38	0.11	-0.45	0.22	-0.00	-0.39
		(0.24)	(0.33)	(0.35)	(0.17)	(0.24)	(0.13)	(0.27)
College Prep HS		0.00	0.23	-0.25	0.18	0.14	0.09	0.12
		(0.19)	(0.27)	(0.27)	(0.13)	(0.20)	(0.11)	(0.22)
Observations	119,690	119,584	62,078	57,506	86,447	119,584	119,584	119,584
R-squared	0.03	0.16	0.15	0.14	0.05			

Year controls used in all columns but not shown. Age, race, and marital status controls used in all columns except column 1, but not shown. Year controls are year dummy variables. Age controls are five-year interval dummies. Sample are those age 25-65 with either a law or bachelor's degree. Standard errors are clustered by individual.

TABLE 4: DIFFERENCE IN EARNINGS BETWEEN BACHELOR'S AND LAW DEGREE

						Percentiles		
	No controls	Controls	Men	Women	Full-Time Workers	25th	50th	75th
Law Degree	58,824	53,327	56,787	43,284	57,649	17,344	32,280	62,200
	(3,114)	(3,029)	(4,101)	(3,698)	(3,392)	(1,114)	(1,255)	(1,702)
Female		-24,373			-19,338	-11,561	-15,992	-22,460
		(649)			(717)	(493)	(545)	(727)
College Major								
Business		4,471	5,260	1,820	4,864	820	1,756	3,416
		(941)	(1,420)	(1,000)	(1,042)	(637)	(712)	(966)
Education		-12,261	-16,896	-10,488	-15,074	-3,575	-9,433	-17,308
		(821)	(2,011)	(777)	(996)	(832)	(924)	(1,219)
Science/Engineering		4,775	5,657	168	6,310	2,837	6,885	7,762
		(1,086)	(1,492)	(1,274)	(1,225)	(758)	(847)	(1,140)
Social Sciences		-7,668	-7,686	-8,183	-6,813	-5,047	-8,345	-10,991
		(1,160)	(2,192)	(1,054)	(1,352)	(884)	(995)	(1,346)
Humanities		-4,644	-3,778	-5,694	-3,316	-5,409	-6,948	-8,020
		(1,120)	(2,035)	(1,009)	(1,315)	(781)	(862)	(1,166)
>2 years high school work in								
Math		4,482	4,775	3,870	3,975	1,923	2,894	4,449
		(752)	(1,344)	(734)	(883)	(618)	(690)	(926)
Sciences		-189	230	-29	-206	124	415	508
		(811)	(1,403)	(815)	(943)	(633)	(706)	(944)
English		894	1,862	-537	192	2,172	1,128	716
		(973)	(1,497)	(1,034)	(1,116)	(746)	(830)	(1,119)
Foreign Lang.		4,269	6,261	2,094	5,177	1,020	1,960	4,000
		(672)	(1,078)	(656)	(757)	(522)	(584)	(785)
Public HS		-4,446	-6,127	-1,682	-4,987	-861	-1,364	-3,385
		(1,109)	(1,868)	(968)	(1,278)	(644)	(728)	(998)
College Prep HS		4,217	5,285	2,856	5,402	2,108	2,897	3,947
		(691)	(1,124)	(686)	(793)	(529)	(591)	(801)
Observations	119,690	119,584	62,078	57,506	86,447	119,584	119,584	119,584
R-squared	0.04	0.13	0.10	0.09	0.12			

Year controls used in all columns but not shown. Age, race, and marital status controls used in all columns except column 1, but not shown. Year controls are year dummy variables. Age controls are five-year interval dummies. Sample are those age 25-65 with either a law or bachelor's degree. Standard errors are clustered by individual.

TABLE 5: OBSERVABLE ABILITY DIFFERENCES BETWEEN LAW GRADUATES AND COLLEGE GRADUATES PREDICT ONLY SMALL DIFFERENCES IN EARNINGS

	Average				
	Bachelor's	Law	Difference	Percent predicted income change based on	Percent Bachelor's earning difference Predicted from law graduate differences in characteristics
College Major					
Humanities	14%	28%	14%	-	
Social Sciences	7%	40%	33%	3%	
Business	23%	16%	-7%	32%	
STEM	27%	7%	-20%	16%	
Other	29%	8%	-21%	3%	
Total	100%	100%	0%		-4.4%
				From a one std dev. increase	
Normalized College GPA*	-0.10	0.48	0.58	5.7%	3.3%
College GPA by Major*					
Humanities	-0.13	0.31	0.43	0.4%	0.2%
Social Sciences	-0.11	0.51	0.62	3%	1.9%
Business	-0.17	0.72	0.90	10%	8.9%
STEM	-0.28	0.19	0.48	16%	7.6%
Other	0.11	0.79	0.69	-2%	-1.4%
College Scholarship or Grant	0.49	0.51	0.02	0.1%	~0.0%
College Cost Decile	6.32	6.98	0.66	4.5%	2.4%
Importance of Career and Education	-0.01	0.20	0.21	7.8%	1.6%
Subjective expected income at age 18	$52,200	$73,100	$20,900	10%	6.7%
HS Standardized Test Scores**	0.57	0.97	0.40	6%	2.4%
SES	0.49	0.82	0.33	8.6%	2.8%

The sample comes from the National Education Longitudinal Study (NELS). Number of observations is 1926.
* College GPA normalized within each major.
**High School standardized test scores, Importance of Career and Education, SES are normalized variables so that standard deviation equals 1 for the overall population.

TABLE 6: OBSERVABLE ABILITY DIFFERENCES BETWEEN LAW GRADUATES AND COLLEGE GRADUATES PREDICT ONLY SMALL DIFFERENCES IN EARNINGS

	OLS Dependent Variable = Log Income at age 28 for those not in school	
	(1)	(2)
Female	-0.22 [0.03]	-0.24 [0.03]
Race/Ethnicity		
Black	0.05 [0.06]	0.06 [0.06]
Hispanic	0.08 [0.06]	0.11 [0.06]
Other	0.06 [0.06]	0.06 [0.06]
College Major		
Humanities (Baseline)	Baseline	
Social Sciences	-0.04 [0.07]	-0.04 [0.06]
Business	0.29 [0.05]	0.31 [0.04]
STEM	0.14 [0.05]	0.15 [0.04]
Other	0.05 [0.04]	0.05 [0.04]
College GPA by Major		
Humanities	0.04 [0.04]	0.04 [0.04]
Social Sciences	0.05 [0.05]	0.04 [0.05]
Business	0.08 [0.03]	0.08 [0.03]
STEM	0.13 [0.03]	0.15 [0.03]
Other	0 [0.03]	0 [0.03]
College Scholarship or Grant	0.04 [0.03]	0.03 [0.03]
College Cost Decile	0.02 [0.01]	0.02 [0.01]
HS Standardized Test Scores	0.01 [0.02]	0.01 [0.02]
Subjective Earnings Expectation at age 18 (log)	0.09 [0.03]	
Importance of Career and Education	0.05 [0.02]	0.05 [0.01]
Parent SES	0.07 [0.02]	0.07 [0.02]
Constant	9.18 [0.31]	10.14 [0.06]
Observations	1,390	1,510
R-squared	0.16	0.16

The sample comes from the National Education Longitudinal Study (NELS). The samples is those from the NELS survey with just a bachelor's degree. Robust standard errors in brackets. Humanities majors used as baseline.

TABLE 7: PRESENT VALUE OF INCREASED LIFETIME EARNINGS FROM LAW DEGREE (BOTH GENDERS COMBINED)

		Percentiles		
	Mean	25th	50th	75th
Lifetime value	990,039	348,600	606,313	1,097,781
Contribution per decade				
Years 1-10 (Age 23-32)	151,735	58,587	48,535	106,223
Years 11-20 (Age 33-42)	282,790	102,906	176,515	392,682
Years 21-30 (Age 43-52)	316,095	121,492	197,819	347,677
Years 31-43 (Age 53-65)	239,419	65,615	183,445	314,199
Internal Rate of Return	19.0	11.4	12.8	16.9

All work statuses, both genders, 3 percent real discount rate (6 percent nominal). Sample includes degree holders who are currently employed, unemployed, or disabled, but excludes those who are currently not working because they are caring for children, and also excludes those who are currently full time students. Bachelor degree sample is weighted using propensity score matching, so that bachelor degree holders are similar (based on observable data) to law degree holders other than law degree attainment. Reported values include the opportunity cost of attending law school, but do not include tuition or federal taxes. Internal Return Rate is Real (i.e., net-inflation). Internal Rate of Return calculation assumes $30,000 annual net tuition. Other figures do not incorporate tuition costs.

TABLE 8: PRESENT VALUE OF LAW DEGREE IS HIGHER FOR MEN THAN FOR WOMEN BECAUSE OF HIGHER EARNINGS IN LAST 2 DECADES

	Men				Women			
		Percentiles				Percentiles		
	Mean	25th	50th	75th	Mean	25th	50th	75th
Lifetime value	1,028,938	315,778	580,993	1,150,742	819,582	351,750	578,369	961,070
Contribution per decade								
Years 1-10 (Age 23-32)	139,205	33,042	25,817	78,578	166,690	75,503	75,349	142,137
Years 11-20 (Age 33-42)	273,517	76,054	152,492	336,237	292,005	146,926	210,278	345,750
Years 21-30 (Age 43-52)	356,829	123,098	192,602	398,749	212,239	94,336	160,793	282,507
Years 31-43 (Age 53-65)	259,388	83,574	210,082	337,178	148,647	34,984	131,949	190,675
Internal Rate of Return	18.4	9.3	11.5	15.9	19.3	13.3	14.3	18.5

All work statuses, 3 percent real discount rate (6 percent nominal). Sample includes degree holders who are currently employed, unemployed, or disabled, but excludes those who are currently not working because they are caring for children, and also excludes those who are currently full time students. Bachelor degree sample is weighted using propensity score matching, so that bachelor degree holders are similar to law degree holders (based on observable data) other than law degree attainment. Reported values include the opportunity cost of attending law school, but do not include tuition or federal taxes. Internal Return Rate is Real (i.e., net-inflation). Internal Rate of Return calculation assumes $30,000 annual net tuition. Other figures do not incorporate tuition costs.

TABLE 9: SENSITIVITY ANALYSIS: PRESENT VALUE OF LAW DEGREE UNDER ALTERNATE DISCOUNT RATE ASSUMPTIONS (BOTH GENDERS COMBINED)

	Real discount rate is 2 percent (5 percent nominal)				Real discount rate is 4 percent (7 percent nominal)			
		Percentiles				Percentiles		
	Mean	25th	50th	75th	Mean	25th	50th	75th
Lifetime value	1,230,354	429,452	769,868	1,384,279	805,099	285,629	482,004	879,286
Contribution per decade								
Years 1-10 (Age 23-32)	165,568	64,083	55,760	119,023	138,937	53,483	41,863	94,406
Years 11-20 (Age 33-42)	326,198	118,738	202,976	380,051	245,674	89,377	153,825	286,606
Years 21-30 (Age 43-52)	401,036	154,373	251,030	440,383	249,908	95,909	156,361	275,319
Years 31-43 (Age 53-65)	337,552	92,258	260,101	444,822	170,579	46,860	129,955	222,954

All work statuses, both genders combined. Sample includes degree holders who are currently employed, unemployed, or disabled, but excludes those who are currently not working because they are caring for children, and also excludes those who are currently full time students. Bachelor degree sample is weighted using propensity score matching, so that bachelor degree holders are similar to law degree holders in most respects other than law degree attainment. 3 percent inflation (nominal discount rate = real + 3%). Reported values include the opportunity cost of attending law school, but do not include tuition or federal taxes.

TABLE 10: SENSITIVITY ANALYSIS: INTERNAL RATE OF RETURN UNDER ALTERNATE LAW SCHOOL NET TUITION COST ASSUMPTIONS

	Men				Women			
		Percentiles				Percentiles		
	Mean	25th	50th	75th	Mean	25th	50th	75th
Internal Rate of Return								
Annual net tuition								
0	30.9	21.5	19.4	22.9	32.8	32.9	25.7	28.8
15,000	22.9	12.9	14.3	18.7	24.2	19.1	18.4	22.5
30,000	18.4	9.3	11.5	15.9	19.3	13.3	14.3	18.5
45,000	15.6	7.2	9.7	14.0	16.0	9.9	11.7	15.8
60,000	13.5	5.8	8.3	12.5	13.7	7.7	9.9	13.8

All work statuses. Sample includes degree holders who are currently employed, unemployed, or disabled, but excludes those who are currently not working because they are caring for children, and also excludes those who are currently full time students. Bachelor degree sample is weighted using propensity score matching, so that bachelor degree holders are similar to law degree holders in most respects other than law degree attainment. Reported values include the opportunity cost of attending law school, but do not include federal taxes. Internal Return Rate is Real (i.e., net-inflation). Net tuition and lifetime earnings are in 2012 dollars.

TABLE 11: LAW STUDENTS ARE LESS LIKELY TO DEFAULT ON THEIR STUDENT LOANS THAN STUDENTS FROM OTHER POSTSECONDARY EDUCATION PROGRAMS

School(s)	**Number in Default**	**Number in Repayment**	**3-Year Cohort Default Rate FY 2009 (%)**
All Postsecondary Education Institutions	493,969	3,680,040	13.4
Bachelor's and below	243,381	1,265,199	19.2
Master's, Doctor's or Professional[116]	250,588	2,414,841	10.4
Law School Unadjusted Total	238	7277	3.3
Law School Adjusted Total	195	7277	2.7
Charlotte School of Law	0	2	0
Vermont Law School	0	207	0
Charleston School of Law	0	93	0
William Mitchell College of Law	3	339	0.9
New England School of Law	4	351	1.1
San Joaquin College of Law	1	69	1.4
Ave Maria School of Law	2	118	1.7
Brooklyn Law School	8	457	1.8
California Western School of Law	6	326	1.8
University of California, Hastings	8	382	2.1
University of New Hampshire School of Law	3	146	2.1
Albany Law School of Union University	5	223	2.2
South Texas College of Law	10	371	2.7
Southwestern Law School	8	297	2.7
CUNY School of Law at Queens College	4	134	3.0
Michigan State University College of Law	9	295	3.1
Atlanta's John Marshall Law School	4	129	3.1
New York Law School	15	471	3.2
Phoenix School of Law	2	52	3.8
Thomas M. Cooley Law School	56	1290	4.3
Florida Coastal School of Law	19	436	4.4
John Marshall Law School (Chicago)	26	502	5.2
Thomas Jefferson School of Law	17	256	6.6
Appalachian School of Law	9	127	7.1
Massachusetts School of Law at Andover	19	204	9.3
Source: United States Department of Education			

TABLE 12: RECENT COHORTS OF LAW STUDENTS CONTINUE TO HAVE LOWER THAN AVERAGE DEFAULT RATES EVEN AS DEFAULTS TREND UP

School(s)	**2-Year Cohort Default Rate (%)**		
	2008	**2009**	**2010**
All Postsecondary Education Institutions	6.9	8.7	9.1
Bachelor's and below	10.5	12.2	12.1
Master's, Doctor's or Professional[116]	5.1	6.8	7.4
Law School Unadjusted Total	1.3	1.7	2.1
Law School Adjusted Total	1.0	1.3	1.7
Vermont Law School	0	0	0
University of New Hampshire School of Law	0.7	1.4	0.6
Charleston School of Law	0	0	0.7
South Texas College of Law	0.5	0.8	0.7
CUNY School of Law at Queens College	0.8	1.5	0.8
Albany Law School of Union University	0.5	0.9	0.9
Southwestern Law School	1.4	1.0	0.9
University of California, Hastings	0.8	1.3	1.0
Atlanta's John Marshall Law School	7.1	1.5	1.3
Brooklyn Law School	0.3	0.4	1.3
Appalachian School of Law	0.9	3.9	1.4
New England School of Law	1.2	0.3	1.5
William Mitchell College of Law	1.0	0.9	1.8
California Western School of Law	1.8	0.9	2.0
Michigan State University College of Law	0.6	1.7	2.4
Charlotte School of Law	0	0	2.5
New York Law School	0.5	1.7	2.6
Florida Coastal School of Law	1.6	1.7	2.6
John Marshall Law School (Chicago)	1.2	2.8	3.0
Thomas M. Cooley Law School	2.2	2.7	3.1
San Joaquin College of Law	5.7	0	3.1
Massachusetts School of Law at Andover	4.8	7.4	3.6
Phoenix School of Law	0.0	1.9	3.8
Thomas Jefferson School of Law	0.8	2.4	3.8
Ave Maria School of Law	1.0	0.8	4.7

APPENDIX TABLE A1: INTEREST RATES AND FEDERAL LOAN LIMITS FOR A 3-YEAR GRADUATE DEGREE

Loan Type	Nominal Interest Rate (%)	Nominal less auto-debit incentive[145]	Real Interest Rate (%)[146]	3 year borrowing limit ($)
Perkins[147]	5	5	2	24,000
Stafford[148]	6.8	6.55	3.55	61,500
Grad PLUS[149]	7.9	7.65	4.65	Remaining educational costs

APPENDIX TABLE A2: WEIGHTED AVERAGE INTEREST RATE BY AMOUNT BORROWED

Law school debt ($)	Average Nominal Interest Rate less auto debit (%)	Average Real Interest Rate[146] or WACC (%)
25,000	5.06	2.06
50,000	5.81	2.81
100,000	6.34	3.34
150,000	6.78	3.78
200,000	6.99	3.99

[145] The Federal Direct Loan Program offers a 0.25 percent interest rate reduction to borrowers who use automatic withdrawal from their bank accounts to make payments. U.S. DEPARTMENT OF EDUCATION, ENTRANCE COUNSELING GUIDE FOR DIRECT LOAN BORROWERS 15 (2010).

[146] We assume 3 percent annual inflation. Annual inflation has averaged over 3 percent since 1914, and over 4 percent since 1962. *See* U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS, *Consumer Price Index, All Urban Consumers*, *available at* ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt. The Federal Reserve recently announced a short-term inflation target of up to 2.5 percent and a long-term target of 2 percent. Aki Ito, *Evans Won New Fed Consensus Linking Rates to Unemployment,* BLOOMBERG, Dec. 24, 2012.

[147] The nominal interest rate on Perkins loans is 5 percent. 20 U.S.C. § 1087dd(c)(1)(D) (2006). The annual Perkins loan borrowing limit for a graduate or professional student is $8,000. 20 U.S.C. § 1087dd(a)(2). Perkins loans may not be available at all institutions for all students. Students without full access to Perkins loans should adjusted their weighted average interest rate upward accordingly.

[148] The nominal interest rate for Stafford loans is 6.8%. 20 U.S.C. § 1087E(b)(7) (2006). The annual Stafford loan borrowing limit for a graduate or professional school student is $20,500, consists of $8,500 per year in subsidized Stafford loans and $12,000 in unsubsidized Stafford loans. 20 U.S.C. § 1078(b)(1)(A)(v) (2006) (stating the subsidized Stafford loan borrowing limit); 20 U.S.C. § 1078–8(d)(A)(i) (2006) (stating the unsubsidized Stafford loan borrowing limit).

[149] The nominal interest rate for PLUS loans is 7.9%. 20 U.S.C. § 1087E(b)(7) (2006). The borrowing limit for PLUS loans is the student's estimated cost of attendance, less other financial aid. 20 U.S.C. § 1078-2(a)(1) (2006) (discussing eligibility for PLUS loans); 20 U.S.C. § 1078-2(b) (2006).