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 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 73 percent median increase in monthly earnings and 60 percent increase in median hourly wages. The mean annual earnings premium of a law degree is approximately $57,200 in 2013 dollars. The law degree earnings premium is cyclical and recent years are within historical norms.

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

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 and are more likely to be employed, likely because they become more productive—or develop "human capital"—through education, and perhaps also because education signals productivity to employers. Indeed, many empirical studies suggest that higher education not only correlates with better labor market outcomes—it *causes* them.[1]

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

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[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).

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?

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.

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 using OLS regression, we also consider outcomes at median as well as the 25th and 75th percentile, toward the bottom and top of the distribution, using quantile regression. We incorporate differences in unemployment, disability, and labor force participation rather than assume that all degree holders work full time.

The results suggest that—absent catastrophic and unprecedented changes exceeding changes already seen from 2008 to 2013[2] 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.

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 from the Census' large Survey of Income and Program Participation (SIPP). Part III investigates

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[2] We consider the "structural shift" hypothesis in Part IV *infra*.

ability sorting and selection into law school using the National Education Longitudinal Study. Part IV considers several other challenges to the robustness of the results. Part V presents estimates of the lifetime value of the law degree, including differences by gender and across points in the distribution. Part VII concludes.

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.[3] 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. In 2012, earnings of lawyer (excluding law firm partners and solo practitioners) were approximately $130,000 at the mean and $115,000 at the median.

However, BLS data for "lawyers" must be interpreted with caution when measuring the value of a law degree, 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.[4] Some law graduates are retired or are caring for dependents. Some law graduates choose employment opportunities in business or government rather than legal practice.[5] According to a June 2012 survey of pre-law students by Kaplan, "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." Other law graduates settle for non-legal or part time work because they are unable to find work as lawyers. In other words, for purposes of determining the law degree earnings premium, data on lawyer earnings is under-inclusive.

The economic value of a law degree turns not on whether law graduates practice law, 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. The labor market benefits of education

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[3] U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS (BLS), OCCUPATIONAL EMPLOYMENT STATISTICS (OES), *available at* http://www.bls.gov/oes/.

[4] 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 working.

[5] 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.

often extend to employment outside one's field of study.[6]

Recent empirical studies based on long-term outcome data suggest that the lifetime value of a *professional* degree is probably greater than $1 million.[7] However, these estimates include not only law graduates, but also medical and dental degree holders who likely earn more than law degree holders, as well as many others who likely earn less.[8] In other words, for purposes of estimating the law degree earnings premium, data on professional degree holders is over-inclusive.

B. 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", widely-read stories in the popular press, class action law suits against more than a dozen law schools, and articles and books by law professors.[9] These critics claim that a law degree is a 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*,[10] the *Wall Street Journal*,[11] and the *National Law Journal*.[12]

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[6] Yuping Tsai, *Returns to Overeducation: A Longitudinal Analysis of the U.S. Labor Market,* 29 ECON. EDUC. REV. 606 (2010); David Neumark, Hans Johnson, & Marisol Cuellar Mejia, *Future Skill Shortages in the U.S. Economy?* 32 ECON. EDUC. REV. 151 (2013).

[7] *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); Jennifer Cheeseman Day & Eric C. Newburger, U.S. Census Bureau *Current Population Reports, The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings* 4 (July 2002).

[8] For example, teachers, accountants, auditors, managers, nurses and clergy all will oftentimes earn a professional degree.

[9] Deborah Jones Merritt, *Greed,* INSIDE THE LAW SCHOOL SCAM BLOG, Aug. 10, 2012. 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. *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 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.

[10] *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).

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.[13] 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.[14]

II. ESTIMATING THE LAW SCHOOL PREMIUM WITH LONGITUDINAL DATA FROM SIPP
A. Data and Specification

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 approximately four years, following individuals over time, and our latest data comes from the beginning of 2013.[15] Although we break the data out year by year to examine time trends, our base specification aggregates income data across the four years that each person is typically in the sample. This gives us a better estimate of the lifetime earnings by averaging out some of the noise in year to year earnings.

We construct a sample of law degree holders using the SIPP's topical module on education administered early in the panel.[16] This means that we only know if someone is a law degree holder at the beginning of the survey. Those who start the survey in graduate school are dropped from the sample as the SIPP's data is insufficient to determine if they are pursuing a law degree. Our control group is constructed from those who have completed a bachelor's degree when the topical module on education is administered. Although we keep those who report being disabled or unemployed but looking for work, we do exclude those who are not working because they are caring for children or the elderly. In

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

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

[13] *See supra* note 9, Schlunk I and Schlunk II.

[14] *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.

[15] A small amount of data from the end of 1995, comprising around 1.5 percent of the sample, is also included. Though data in 1995 and 2013 are from partial years, we found no evidence that excluding these partial years substantively affects our results. Because educational attainment is measured at the start of each panel, the most recent law degree holders in sample will have graduated in 2008.

[16] We required law degree holders to report earning a professional school degree in the field of law and excluded a small number of individuals reporting a master's or doctorate degree. We also dropped all those imputed to be lawyers. We use longitudinal income imputations that simply fill in missing months based on prior and future month's earnings but we do not use any "hard" cross-sectional imputation that attempted to estimate income using the earnings of other people. Getting rid of these measurement problems caused a small and predictable rise in the law school premium.

unreported results we found that this exclusion made no material difference to the estimates.

Our basic empirical specification is straightforward:

$$y_{it} = \alpha \cdot Law_i + X_{it}\beta + \delta_t + \varepsilon_i$$

Where y_{it} is log annual earnings for worker i averaged over their years in the sample, with their median observation in year t. Law_i is a dummy variable for receipt of a law degree. The Law_i dummy is not indexed by time since we only look at those who have completed their degree by the beginning of the survey (when educational data are recorded). Our sample only includes those with either a bachelor's degree or a law degree, thus our comparison is the difference between a law degree and a terminal bachelor's degree. Our main coefficient of interest is the law school premium, α.

X_{it} captures available controls for gender, race and ethnicity,[17] dummy variable for five-year age groups, college major, years to college completion interacted with college major, and indicators for completing two or more years of advanced high school math, science, foreign languages, or English, public or private high school, and college prep high school,. All estimates are weighted with SIPP sample weights.

Although SIPP provides an excellent source covering the range of ages and a number of years, it is somewhat limited in measurements of ability. Part III investigates the direction of ability sorting using data from the NELS much richer data. Previewing the results, we find little evidence that ability sorting is biasing the SIPP estimates we provide here.

Below we report both OLS and quantile regression coefficients that compare bachelor's degree holders who are similar to law degree holders on many observable dimensions that predict earnings. It is this subset of similar bachelor's who we compare to law degree holders to estimate the law degree earnings premium. We defer to later research the differences in earnings associated with law degrees compared to alternate graduate degrees.

B. OLS Results

Table 1 reports on our base specification. In column 1, we report on the unadjusted log gap between

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[17] Although we had data on marital status, marital status could be simultaneously determined with educational attainment. In results available from the authors, we found that including marital status as a control did not alter the estimates.

the general population of bachelor's degree holders and law recipients.[18] 0.67 in logs translates into an average earnings gap of 95 percent. Thus there is a 95 percent raw earnings premium for a law degree when we average over log earnings.

One explanation for this enormous disparity may be selection: the kinds of bachelor's degree holders who attend law school may have been more likely to succeed compared to the general population of bachelor's degree holders, even without attending law school. Column 2 investigates this by controlling for the array of earnings predictors, X_{it}. With controls, the law degree premium drops only slightly, to 0.61. 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 STEM majors than for social science or humanities majors as well as the excluded category of "other" majors such as education.

Because of the large difference between men and women's earning profiles, columns (3) and (4) report on regressing the earnings premium separately for men and women. The male premium is somewhat lower than the female premium (0.53 vs. 0.70). 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.

Column (5) restricts the sample to full time workers (those working at least 35 hours per week) and give similar results to those in column (2), with the earnings premium of a law degree falling slightly from 0.61 to 0.54. Thus the premium does not seem to be strongly related to whether one is participating full time in the labor market.

The results of Table 1 are unambiguous—a law degree is associated with dramatically higher earnings. This could be because it increase wages (earnings per hour) or it could operate largely through increased work hours. Increased work hours may reflect reduced unemployment or underemployment, or increased hours may indicate law degree holders are routinely working much longer hours per day than they would prefer.

Table 2 reports on several alternate regressions that substitute alternate dependent variables for log earnings. The first row looks at results for log earnings per hour, otherwise known as log hourly wages. We compute the hourly wage as total annual earnings divided by total hours worked and then use the log of this as our dependent variable. The columns are the same as in Table 1. Column 1 reports a raw gap of 0.56, somewhat smaller than the original earnings 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

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[18] This regression, like all the others, does have time dummy variables included. These make no substantive differences in the results.

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degree slightly to 0.50, which translates into a 65 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 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 much closer across genders (0.47 and 0.54). Thus the gender gap in the law premium we found in Table 1 was mostly the result of differences in hours worked compared to the control group of bachelor's degree holders. Other coefficients are generally similar to those in Table 1.

Row 2 has weekly work hours as the dependent variable. We find that, after applying controls, law degree holders typically work 4.3 hours more per week (column (2)), or a little under an hour per day. Women with law degrees (column (4)) work about 5.7 hours more per week than college-educated women without law degrees, while men with law degrees (column (3)) work about 3.3 hours per week 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 3.2 hours more per week, or 40 minutes more per workday.

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.

In Row 3 of Table 2, we look at annual earnings in inflation adjusted 2013 dollars rather than log earnings. Our findings suggest a dramatic increase in earnings for law degree holders, of approximately $57,200 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 $57,600 more per year than men without a law degree, and women with a law degree earn approximately $51,800 per year more than women without a law degree. The earnings premium is larger for full time workers, who earn approximately $63,000 more per year with a law degree than without.

C. Quantile Regression Results

Previous studies have typically focused on differences in mean or median earnings,[19] although it is possible to estimate earnings premia at different points in the distribution of ability levels using quantile

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[19] Cheeseman Day & Newburger, *supra* note 7 at 2 n.6, 10-13 (using means); *See* Carnevale et al., *supra* note 7 at 1, n. 2 (using medians).

regression—for example, the 25th percentile of earners with a given level of education compared to the 25th percentile of a group of earners with similar observable ability levels but a lower level of education.[20] Such a distributional analysis would test claims that advanced degrees may not benefit less capable students as much as they benefit average or above average students.   We use the same controls in our quantile regressions as in our OLS regressions.[21]

For each of the prior dependent variables, Table 3 reports percentile estimates for the 25th, 50th, and 75th percentile in columns (2) through (4), reserving the first column for a repeat of our baseline OLS results. 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 2013 dollars, the annual earnings premium climbs from $21,700 at the 25th percentile to $38,900 at the 50th percentile, to $68,800 at the 75th percentile.   Translating logs into percentages, the median difference is 73% in earnings, with a median gap of 60% in (hourly) wages. The increase in work hours is around 5 hours at the 75th percentile and only 3.5 hours at the 25th percentile of ability levels.

Thus there appears to be a substantial earnings premium throughout the distribution.

D. The Law Degree Premium Over the Life Cycle

Because starting salaries are not always very good predictors of lifetime earnings, one advantage of the SIPP data over starting salary surveys is that we can check if the earnings premium is stable across the life cycle. 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)[22] in Figure 2. For each sample, we average earnings within five-year age blocks and show a smooth fourth order polynomial trend line.

Figure 2 is simply the raw earnings for the two groups. In Figure 3 we show estimates from the baseline model re-estimated to allow the law school earnings premium to vary by age. We find evidence that the premium rises substantially over the life cycle, from 40 to almost 80 log points. We can readily reject equality across the premia (p<0.001).

We use cross sectional data on earnings of similar individuals of different ages or experience levels to

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[20] Carnevale et al., *supra* note 7 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).

[21] Although we still control for age, the large number of dummy variables is computationally less stable for quantile regressions, so we substitute the age dummy variables for a quadratic in age. We tested this first in an OLS regression and found it made no substantive difference. It also made no difference in those quantile regressions that successfully converged.

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

construct "synthetic work-life earnings."[23] That is, we predict the future real earnings of young workers based on the current real earnings of similar older workers. This assumption is conservative, assuming zero increase in real earnings over time due to secular economic growth (although individual workers' wages increase as they become more experienced).[24] In reality, 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).[25] Recent estimates from long term Census data suggest that real lawyer earnings for white males increased about 0.25 to 1 percent per year from secular growth since the 1960s.[26]

III. Using NELS We Find Only Modest Evidence of Ability Sorting

SIPP provides excellent data on law degree holder earnings across ages and years, but does not provide as detailed control variables as we would prefer. We therefore further investigate the direction and magnitude of ability sorting using supplemental data from NELS. NELS is a panel data survey that tracks 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.

Theoretically, the overall effect of sorting may be either positive or negative.[27] Many law schools screen for ability by requiring minimum LSAT or college GPA for admission, which will tend to increase

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[23] Cheeseman Day & Newburger, *supra* note 7 at 1, 8 ("the estimates assume current cross-sectional earnings are representative of the patterns in future earnings."); *see* Carnevale et al., *supra* note 7 at 21-22 (replicating the Cheeseman Day & Newburger methodology).

[24] Cheeseman Day & Newburger, *supra* note 7 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 7 at 21 ("Productivity growth will [likely] lead to higher earnings in the future and therefore the career of today's young adults will lead to higher lifetime earnings than presented here").

[25] *See* Thomas Lemieux, *Postsecondary Education And Increasing Wage Inequality*, 96 AM. ECON. REVIEW 195, 196-99 (2006); *see also See* Michael Simkovic, *Risk Based Student Loans,* 70 WASH. & LEE L. REV. 527, 537 (2013); Cheeseman Day & Newburger, *supra* note 7 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).

[26] E. Douglass Williams & Richard H. Sander, *Choosing to Become a Lawyer,* tbl. 3 (2013).

[27] *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.").

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, students who apply to and choose to attend law school are disproportionately drawn from college majors associated with relatively low earnings and likelihood of obtaining employment at college graduation.[28]

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 without 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 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).[29] 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.[30] 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

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[28] In our discussion of the robustness of results, we also consider the possibility that college major is endogenous—that is, that future law students choose low earnings college majors *because* they intend to go to law school.

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

[30] Dan A. Black et al., *The Economic Reward for Studying Economics*, 41 ECON. INQUIRY 364, 364 (2003); 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).

five college major categories, average normalized college grades (both overall 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 (from simple bivariate OLS regressions of the bachelor's degree sample) 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 differences in income. Thus, column 5 tells us the extent to which differences in income between bachelor degree holders and law graduates are due to observable differences other than a law degree.[31]

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 average earnings, while STEM majors have the second highest average earnings. 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 across major that are due to some majors awarding higher grades than others.[32] Higher

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[31] 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.

[32] Simkovic, *supra* note 25, 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).

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 coefficients 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.[33] 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.

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 10 percent increase in actual future earnings.[34] 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

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[33] 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 25 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.

[34] 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.

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. Regardless, the earnings gaps explained by this variable are far smaller than what we actually observe between law degree holders and bachelor's.

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.[35]

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 for the population to be mean 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 are correlated with each other and in many cases 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, many of the most likely sources of ability sorting are at least represented among our covariates. Law students come from different majors with higher grades and tests scores and better family background and a stronger focus on career and income. All of these factors are measured, albeit sometimes imperfectly, in our covariates.

Table 6 reports an OLS log earnings model using the NELS sample of those with just a bachelor's degree when the sample is age 28 and 29. 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 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.[36] Column 2 suggests a slightly lower 8 percent, as it ignores differences in expectations. In unreported results, we

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[35] 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.

[36] We simply apply the estimated model coefficients to the covariates of our law and non-law students and calculate the average difference.

also excluded controls for major, as these choices may be simultaneous with occupational choices, causing a bias from overcontrolling. The results were similar at (a 10 percent ability advantage).

This estimate comes with several caveats. First, because the bachelor's degree sample is selected, the estimated earnings coefficients may be biased. Similarly, measurement error in the variables can lead to underestimation of the coefficients. In unreported work we considered IV estimation that was consistent with classical measurement error, and found that the net change was small.[37]

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 also investigated joint estimation of the earnings and law school decision. Those results, available from the authors, suggest once again that unobservable ability is not driving the law school premium. To the extent that any remaining unobservable differences in ability bias our law premium up, such biases may be offset by the SIPP reporting bias discussed in Part IV.

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.[38] Thus the combined effect of higher grades, test scores, SES, college quality, career motivation 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 college major and proxies for ability, motivation and parental SES. The combined effect of these SIPP controls caused the earnings gap in Table 1 to fall from the first to second column by 6 log points.

Under all specifications we find evidence of modest ability sorting that explains only a small fraction of the observed law degree earnings premium. The differences in ability identified in the NELS analysis are comparable to the differences already taken into account through OLS and quantile regression using SIPP, and we therefore do not adjust our SIPP estimates based on the supplemental analysis in NELS.[39]

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[37]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.

[38] 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.

[39] The log earnings premium in SIPP for only those in their 20s appears to be somewhat smaller than the overall log earnings premium across age groups. Thus in an ideal world we'd like to be able to test our NELS earnings model across the life cycle. Unfortunately the NELS does not (yet) have any later follow up studies that could confirm these results as cohorts age.

IV. ROBUSTNESS

A. OLS compared to Instrumental Variables Estimates

A standard criticism of an OLS education coefficient is that ability bias moves the coefficient up. This has prompted a large and dynamic literature attempting to uncover the true causal effect of education. Several previous studies have attempted to estimate the causal effect of education on earnings using instrumental variables approaches in addition to OLS. These previous studies suggest that IV estimates using the same sample and control variables as OLS often produces *substantially higher estimates* of education earnings premiums than OLS.[40] IV estimates were higher than corresponding OLS estimates in ten out of the ten early studies reviewed by David Card; the differences were statistically significant in more than half of these studies.[41] Instruments included birth quarter interacted with birth year (a proxy for opportunity to drop out of school early),[42] state-specific tuition rates,[43] proximity to an educational institution when growing up,[44] birth cohort effects such as changes to the minimum school leaving age or effects of war on schooling,[45] and Vietnam war draft lottery numbers.[46]

Other studies have attempted to estimate the causal effect of education on earnings using twins with different levels of education.[47] Card's review of these studies suggests that within family twin estimates corrected for measurement error are generally only slightly lower than corresponding OLS estimates of

[40] See David Card, *The Causal Effect of Education on Earnings* 1834-46*, in* Handbook of Labor Economics, (Orley C. Ashenfelter & David Card eds., 3d ed. 1999) (reviewing the empirical literature).

[41] Agrist and Kruger (1991)(finding IV estimates higher than OLS in 2 out of 3 cohorts, with no statistically significant differences); Staiger and Stock (1997) (finding limited information maximum likelihood estimates 50 to 70 percent higher than corresponding OLS estimates); Kane and Rouse (1993) (finding IV estimates 15 to 50 percent higher than corresponding OLS estimates); Card (1995b)(finding IV estimates 30 percent above corresponding OLS estimates when using family background as a control); Conneely and Uusitalo (1997)(finding IV estimates 20 to 30 percent above corresponding OLS estimates using family background and military test scores as controls; however the differences ere not statistically significant); Maluccio (1997)(finding IV estimates more than double corresponding OLS estimates); Harmon and Walker (finding IV estimates 2.5 times higher than corresponding OLS estimates); Hausman and Taylor (1981)(using age and indicators of bad health and unemployment in panel data as instruments for education and finding higher estimates in IV than OLS); Ichino and Winter-Ebmer (1998) (finding IV estimates roughly 2 times OLS

[42] Angrist and Krueger (1991); Staiger and Stock (1997)

[43] Kane and Rouse (1993).

[44] Kane and Rouse (1993)(using distance to the nearest 2-year and 4-year college Card (1995b) (using proximity to a college or university while growing up); Conneely and Uusitalo (1997) (same); Maluccio (1997)(using distance to the nearest high school and an indicator for the presence of a private high school).

[45] Harmon and Walker (1995)(using changes in the UK to minimum school-leaving age in 1947 and 1973); Hausman and Taylor (1981); Ichino and Winter-Ebmer (1998)(using birth cohort in European countries that were heavily affected by WWII as an instrument for schooling)

[46] This was based on the idea that higher education could be pursued to avoid the draft, and draft numbers were randomly assigned. Angrist and Krueger (1992). However, subsequent research suggested that draft lottery numbers did not predict education levels, and therefore were not a good instrument for education. Angrist and Kruger (1995)

[47] David Card, *The Causal Effect of Education on Earnings* 1846-51*, in* Handbook of Labor Economics, (Orley C. Ashenfelter & David Card eds., 3d ed. 1999) (reviewing the empirical literature).

the general population—on the order of 10 to 15 percent.[48]

Although our data cannot readily be analyzed using instrumental variables (IV) or twins data,[49] the existing literature suggests that such an approach would be more likely to increase our earnings premium estimates than to decrease them.[50] Further, it would take a tremendous amount of data specific to lawyers, given the typical power of instrumental variables approaches. Thus, given the current state of the literature, where no lifetime estimates of any kind are available, we feel the OLS results are a worthwhile starting point and the existing causal literature gives us no reason to doubt this.

B. Reporting biases in SIPP data

One reason that OLS estimates may not be as upward biased as often suspected is that measurement error tends to push the estimates down, canceling out some, or possibly all, of the upward ability bias. Setting aside errors in reported education, 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.[51] This is probably not primarily because of topcoding.[52] 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.[53] Less

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[48] *Id.* at 1851.

[49] We could use instrumental variables if, for example, we knew the name of the institution where respondents attended college and whether their college was part of a university that included a law school at the time of their attendance. Unfortunately, the name of respondents' college is not available in SIPP.

[50] See David Card, *The Causal Effect of Education on Earnings* 1840, *in* Handbook of Labor Economics, (Orley C. Ashenfelter & David Card eds., 3d ed. 1999) ("instrumental variables estimates of the return to schooling typically exceed the corresponding OLS estimates—often by 30% or more).

[51] 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.").

[52] 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.

[53] 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,* 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).

educated, lower income 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). This effect runs counter to any ability bias unaccounted for in our estimates.

C. College Major and Other Covariate Choices

It may be that by controlling for college major, we introduce bias rather than remove it. For example, humanities majors may typically be low earners, but those intent on law school may actually be substantially better than the average humanities major. Controlling for the humanities degree would then distort the resulting premium. We checked for evidence of this by looking if humanities majors had a wider spread of test scores in NELS, such that their outcomes may be more diverse. We found no evidence of this.

On the other end of the spectrum, our five major categories may be insufficient to fully capture the earnings diversity in college majors in a way that biases our results. We checked by re-running the regressions using the full set of dozens of majors reported by the SIPP. This did not alter our law degree premium.

For those in the later panels (from 2001 on) we know the state of their birth. Current state is an outcome and so not well suited for this kind of regression, but state of birth has no such difficulty. We re-ran the estimation on the subsample of data with this variable, but the results were unaffected. Similarly, we have estimated the model with controls for marital status, but including or excluding this variable had no effect on the estimates.

Currently we exclude nonworking mothers who report not working in order to care for children. Removing this sample restriction actually causes our estimate to go up (insignificantly) by 0.01. Since staying home with children is prevalent among both those with law degrees and bachelor's degree, it appears that nonworking mothers can be excluded or not without affecting the estimates.

D. Post-2008 Structural Shifts and the Recent Earnings Premium

Deteriorating employment outcomes for recent law school graduates have led some to question the value of a law degree. Real full time starting salaries, as opposed to the premium, for recent law school graduates declined by 20 percent between 2009 and 2012. The percent of graduates employed 9 months

after graduation has also declined 4 percent. Figure 1 shows the decline from data collected by the National Association for Law Placement (NALP).

However, the relevant measure for our 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.

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. We estimate lifetime earnings based on historical data from 1996 through 2013.[54] Using long-term historical 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 cyclical movements in *entry-level* wages, employment, and school enrollments.[55] 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. The historical variability of starting salary and employment for young law graduates is evident in Figure 1, which suggests that graduates in the last few years are facing market conditions similar to, and perhaps slightly less severe than, those experienced by young law graduates in the early to mid-1990s.

William Henderson argues that the legal profession is experiencing a "structural shift" due to globalization and technological change.[56] 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

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[54] 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 15.

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

[56] *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).

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 2013 and find a cyclical pattern. As can be seen in Figure 4, there are peaks in the earnings premium point estimate in 2001 and 2008, and troughs in 1999 and 2002.[57] Although the earnings estimate has declined from its 2008 peak in recent years, the estimate remains close to the long-term historical average. Indeed, the estimate was lower in the late 1990s and early 2000s than in the last three years, and the estimate 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. 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.

Figure 4 below shows the log earnings premium across all age groups, by year. In Figure 4, 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 5 below shows the log earnings premiums for exclusively the young, age 27 to 33, grouped into the four panels of the SIPP from which they were drawn. 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.[58]

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.[59] After declining in 2009, gross revenue and profits per partner at the largest law firms increased every year from 2010 through 2012.[60]

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[57] One can statistically reject the null hypothesis that the coefficients are the same throughout the sample period.

[58] But *see supra* note 15. Although our sample does not include those who graduated after 2008, our sample includes 2008 graduates who, as young and inexperienced workers, are likely vulnerable to many of the same shocks. Our sample also includes individuals who graduated during previous recessions, and the long-term impact of early-career recessions on subsequent earnings is therefore averaged into our results.

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

[60] *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,* AMERICAN LAWYER, May 30, 2012; *The 2013 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 nine years.

This is perfectly in line with the general trend of large returns to higher education. Recent work studying 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.[61]

Predictions of structural change in the legal industry date back at least to the invention of the typewriter.[62] Yet lawyers have done remarkably well financially with the introduction of new technologies and modes of work—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. Though each of these was seen by some as a potentially damaging structural shift in the return to law, the law degree still offers a large earnings premium. Once again, the premium is not determined exclusively by changes to law earnings, but also by the changes to the earnings of comparable bachelor's degree holders.

Various future changes may hypothetically bring down the premium to law school in the long run. On the other hand, 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 or by The Dodd-Frank Wall Street Reform and Consumer Protection Act or the Consumer Financial Protection Bureau; electronic communications and discovery making plaintiffs' work easier and driving more lawsuits; increased spending on lobbying and politics; growing inequality and higher pay for corporate executives; or any number of potential new regulatory regimes we've yet to even envision.

Turning back to the data, the decline in starting salaries and employment for recent law graduates appears to be part of a broad cyclical downturn following the shock of the financial crisis of 2007 to 2008 and the recession that followed. We find no evidence that it reduced the *relative* return to a law degree to below its historical average.

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. Historical data provides a baseline against which to measure the

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AMERICAN LAWYER, May 30, 2013 (reporting similar numbers for 2011 and 2012).

[61] 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); David H. Autor, Lawrence F. Katz, & Melissa S. Kearney, *The Polarization of the U.S. Labor Market,* 96 AM. ECON. REV. 189, 193 (2006);

[62] See our 2013 working paper version on SSRN for a century of quotes of law's demise.

magnitude of the decline in the earnings premium that would be necessary for a law degree to no longer be a value-creating investment. Assuming current tuition levels and interest rates, the law degree lifetime earnings premium would have to fall by approximately 91 percent at the mean, 88 percent at the median, and 79 percent at the 25th percentile for a law degree to no longer be a value-creating investment.[63]

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.[64] This value will be apportioned between the law student through higher earnings, the federal government as recipient of income and payroll taxes,[65] and law schools as recipients of tuition revenue.

We assume that law degree holders attend law school from age 23 to age 25.[66] We estimate lifetime earnings streams from the age of 23 to 65 for all law degree holders and similar bachelor's, i.e., not just the population of full-time workers. We therefore incorporate differences in risk of unemployment or underemployment.[67] We also control for the differences in observable characteristics by reweighting our control sample of bachelor's to be comparable to our law degree holders. Using the covariates from our baseline specification, we estimate a probability of attending law school and then use this probability to reweight the bachelor's degree sample to be most comparable to the law students. For example, a bachelor's degree holder with a 15% chance of attending law school, based on their covariates, would

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[63] See discussion below in Part V.

[64] Our analysis estimates the value of a completed law degree, not the expected value of starting law school. 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"].

  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 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.

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

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

[67] 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.

receive three times the weight as someone with only a 5% chance of attending law school. In order to reduce noisy estimates, we aggregate earnings over the three or four years a person is in the sample. This does create some blurring in the slope of the age profile, but also helps us better capture lifetime averages rather than idiosyncratic events that can distort the values at a particular age.

Many previous studies have assumed a forty-year working life for both groups and focused on earnings of full time workers.[68] This approach could either overestimate lifetime earnings premiums by assuming unrealistically high utilization rates, or it could underestimate lifetime earnings premiums, 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).[69] Those with advanced degrees have a very high probability of surviving past age 65,[70] 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.[71]

However, both individuals with advanced degrees and those without face some risk of being unemployed or involuntarily employed less than full-time. We therefore 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.[72] 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

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[68] Cheeseman Day & Newburger, *supra* note 7 at 1-3, 8; Carnevale et al., *supra* note 7 at 21-22; *cf.* Schlunk I & II (assuming a 35 year work life).

[69] Cheeseman Day & Newburger, *supra* note 7 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).

[70] 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.

[71] 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.

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

children, or studying full time toward an advanced degree.[73] For our baseline specification we also show the cumulative value of the law degree depending on the number of decades of workforce participation.

For each year, we subtract the earnings of the bachelor's degree holders from similar law degree holders. During the first 3 years while the law degree holders are in law school, the bachelor's have higher earnings than the law degree holders. We discount the annual differences back to present value as of the start of law school 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.

We include a discount rate sensitivity analysis showing present values under alternate discount rate assumptions, varying from 0 to 6 percent real, or 3 to 9 percent nominal, in Table 8. 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,[74] in Table 9.

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.[75] We also include a 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).[76] The IRRs are in the 10 to 25 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.[77] We assume that costs of living while

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[73] 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.

[74] *See* Richard A. Brealey, et al., PRINCIPLES OF CORPORATE FINANCE 8th ED. 87-100 (2006).

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

[76] For one example, 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.

[77] 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

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.[78]

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 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 6 through 9. Table 6 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 $1,030,000, the median is $770,000, and the 25th and 75th percentiles are $430,000 and $1,420,000 respectively. These figures are in present value as of the start of law school, and are pre-tax and pre-tuition. In other words, these figures reflect the maximum that a combination of the government and the student should be willing to pay in direct costs, such as tuition, for a law degree. The Internal Rate of Return at the median is 14.3 percent in real terms, or approximately 17 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 *averaged over four years.* Most individuals at the 25th percentile or 75th percentile in a given year will move closer to the median in subsequent years. Even 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. Averaging individual earnings over four years reduces but does not eliminate the problem of regression to the median.

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.

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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.

[78] There are over 200 law schools around the country, so students have a variety of options in terms of location. Consumption is generally a function of income and is likely to be lower when income is lower while in school.

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.[79]

B. Gender differences in the value of a law degree

Table 7 estimates the value of a law degree separately for men and women. The mean value of a law degree is approximately $1,000,000 each for men and women, although the premium is higher for women in earlier years and higher for men in later years. The lifetime earnings premium appears to be higher for men at the upper end of the distribution and higher for women at the median and lower end of the distribution. Rounding to the nearest $10,000, the median values are $650,000 for men and $860,000 women. At the median, internal rates of return are 11.5 percent for men and 17.3 percent for women. At the 75th percentile, the value is approximately $1,550,000 for men and $1,420,000 for women. Many differences in earnings are likely due to differences in work hours and labor force participation.

Even at the 25th percentile of women, our estimate of the lifetime earnings premium of a law degree, $400,000 for men and $550,000 for women, 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, while education policy makers will be concerned with the impact on public finances.

We therefore attempt to deduct costs that probably do not provide higher consumption benefits to

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[79] 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* John A. Sebert, *The Cost and Financing of Legal Education,* 52 J. LEGAL EDUC. 516, 518-19 (2002);

higher-income, educated workers (but may provide public benefits) such as higher federal income and payroll taxes. 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,[80] 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.[81] 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 6 through 9 by 0.7.[82] Thus, the mean after tax value of a law degree is approximately $700,000 for both men and 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. Prospective students and law school administrators with more specific pricing information can compare the estimated after-tax value of a law degree to the individualized 3-year price of their law degree.[83]

Because we discount our present values to the start of law school, and already include opportunity costs in our present value calculation, comparing the cost of the degree to the private benefits of the degree involves a straightforward calculation—start with the after tax value of the law degree, then subtract three years of tuition, books, and other direct costs that are: necessary for a law degree; do not provide consumption benefits; are not matched by similar costs for bachelor's degree holders who work rather than attend school; and are not already taken into account through the opportunity costs of lower in

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[80] *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.

[81] *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).

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

[83] 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.

school earnings. These costs, like our lifetime earnings premiums, should be discounted back to the start of law school, and student loan interest accumulated during school should therefore not be included.

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 reduce risk and 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 6 through 9 by 0.37, which includes both direct taxes and the employer portion of the payroll tax. On average, the tax revenue benefit to the federal government of a law degree is approximately $380,000. At the 25th percentile, toward the bottom of the distribution, the tax revenue benefit is approximately $160,000. To the extent that prospective students are risk averse, income based repayment plans with debt forgiveness may benefit the public coffers by encouraging investment in education.

VII. CONCLUSION

After controlling for observable differences, we find that a law degree is associated with approximately a 73 percent increase in expected median monthly earnings and a 65 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 historical norms. Applying reasonable discount rates, we estimate the mean lifetime value of a law degree in 2013 dollars as of the start of law school to be approximately $1,030,000 before taxes, and $720,000 net of taxes.

Median pre-tax lifetime values are approximately $770,000 (after taxes, $540,000). 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.[84]

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. 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.

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[84] *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).

Figure 1: Starting salaries and employment for recent law graduates have declined

Employed 9 mos. after graduation
Percent of recent law grads

Median FT starting salary
Real 2013 USD thousands

% Employed

Median FT Starting
Salary (Real 2013
USD thousands)
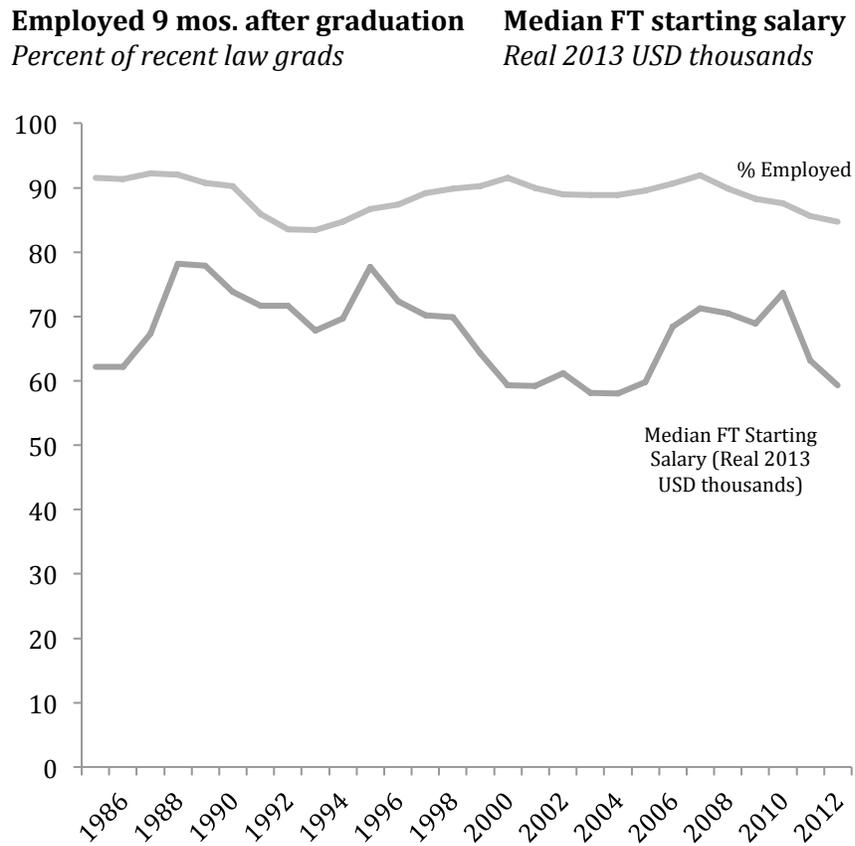
Source: National Association for Law Placement (NALP)

Figure 2: Law degree holders' annual earnings grow faster and peak later than bachelor degree holders'

Annual mean earnings by degree type and age, age 26-65
Real 2013 USD
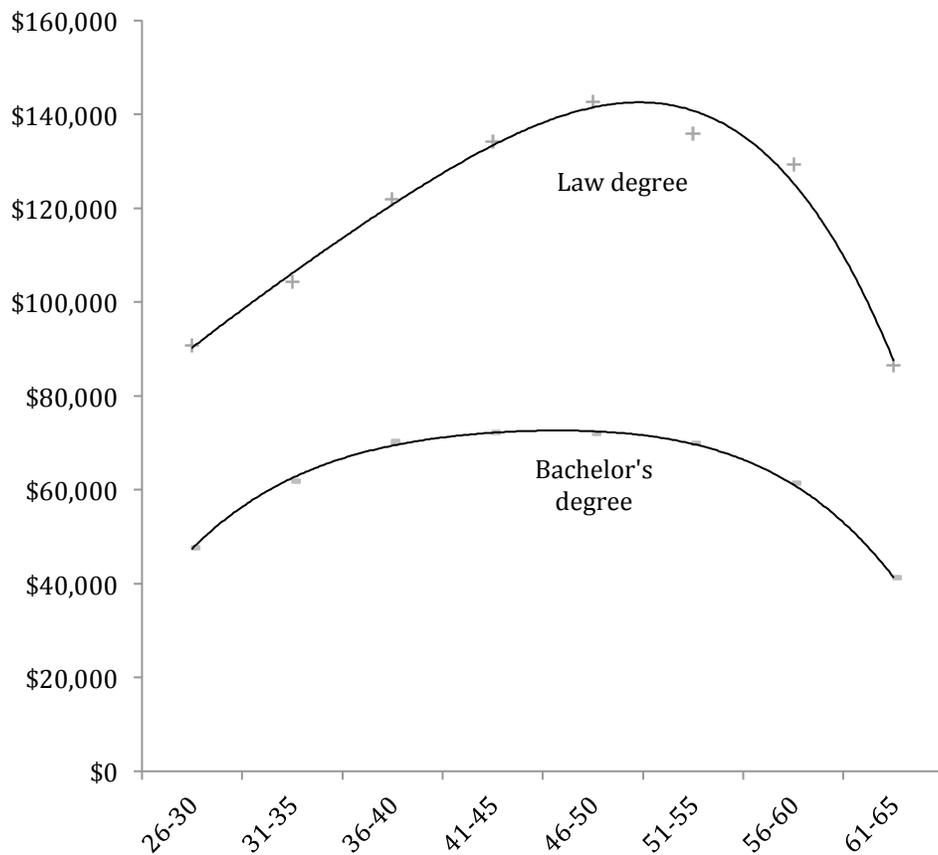
Source: Survey of Income Program and Participation; Authors' calculations.
Note: Includes degree holders who are working, unemployed, or disabled.

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

Log Law Degree Earnings Premium by age group
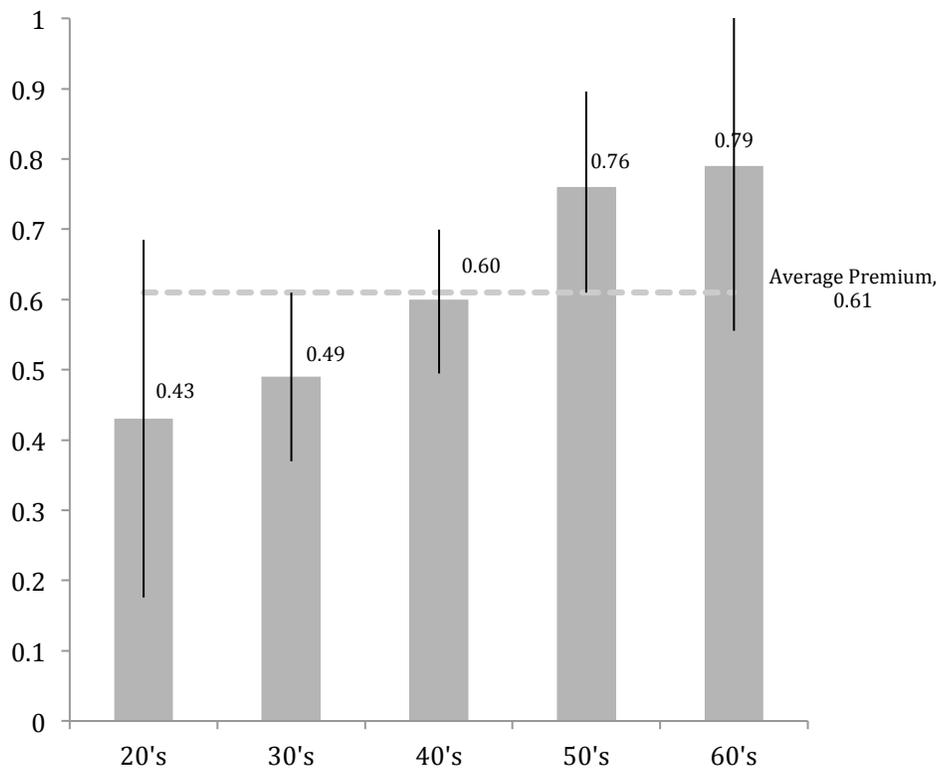
Source: U.S. Census Bureau, Survey of Income & Program Participation; Authors'
calculations Vertical lines represent the 95 percent confidence interval; horizontal line
represents the multi-year average.

Figure 4: Premiums in recent years are within historical norms

Log Law Degree Earnings Premium, 1996-2013
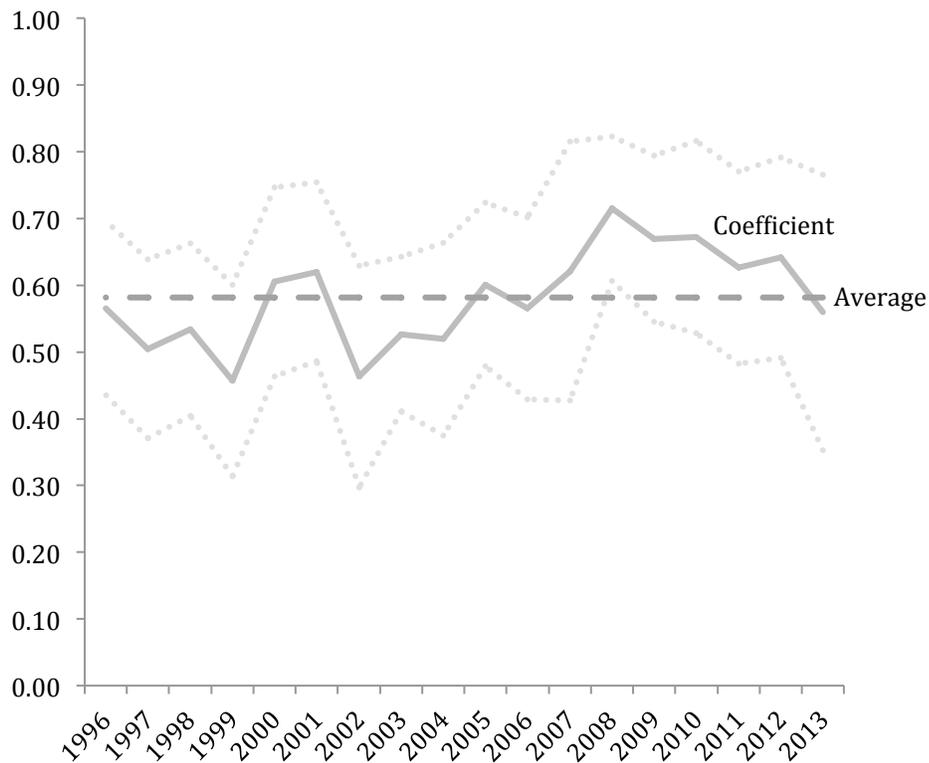
Source: U.S. Census Bureau, Survey of Income & Program Participation; Michael Simkovic &
Frank McIntyre, *The Economic Value of a Law Degree*
Note: Solid line is the coefficient. Dotted lines represent 95 percent confidence interval.
Horizontal dashed line resents multi-year average with each year weighted equally. A joint test
rejects the hypothesis that the coefficients are equal across all years (p<0.001).

Figure 5: Recent premiums for young law graduates are within historical norms

Log Law Degree Earnings Premium, 1996-2013
Graduates age 27 to 33
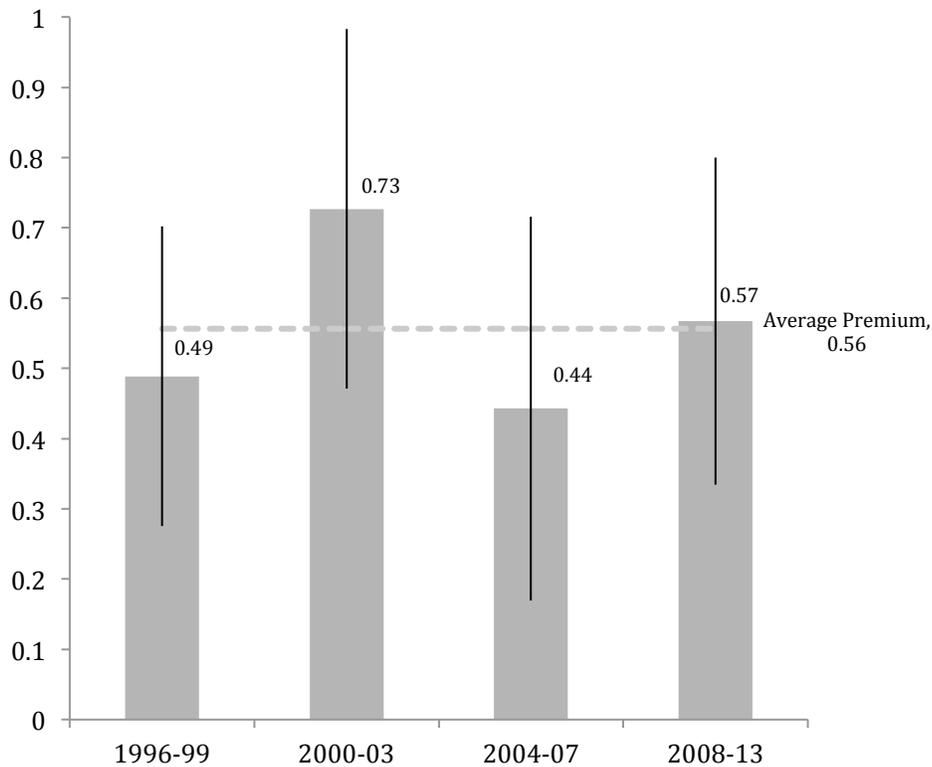
Source: U.S. Census Bureau, Survey of Income & Program Participation; Authors' calculations Vertical lines represent the 95 percent confidence interval; horizontal line represents the simple average of the four groups. A joint test rejects the hypothesis that the coefficients are equal across all years (p<0.001).

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

	(1) No controls	(2) Controls	(3) Men	(4) Women	(5) Full-Time Workers
Law Degree	0.67 (0.03)	0.61 (0.03)	0.53 (0.04)	0.7 (0.06)	0.54 (0.03)
Female		-0.43 (0.01)			-0.24 (0.01)
College Major -- baseline "Other"					
Business and Economics		0.16 (0.02)	0.17 (0.02)	0.1 (0.02)	0.14 (0.01)
STEM		0.19 (0.02)	0.2 (0.02)	0.12 (0.03)	0.19 (0.01)
Social Sciences		-0.06 (0.02)	-0.04 (0.03)	-0.1 (0.03)	-0.03 (0.02)
Humanities		-0.05 (0.02)	-0.05 (0.03)	-0.06 (0.03)	-0.03 (0.02)
>2 years Adv. HS work in					
Math		0.09 (0.01)	0.06 (0.02)	0.11 (0.02)	0.03 (0.01)
Sciences		-0.00 (0.01)	0.03 (0.02)	-0.03 (0.02)	0 (0.01)
English		0.02 (0.02)	0.05 (0.02)	-0.01 (0.03)	0.01 (0.01)
Foreign Lang.		0.04 (0.01)	0.05 (0.02)	0.03 (0.02)	0.06 (0.01)
Public HS		-0.04 (0.02)	-0.05 (0.02)	-0.03 (0.02)	-0.04 (0.01)
College Prep HS		0.06 (0.01)	0.05 (0.02)	0.07 (0.02)	0.06 (0.01)
Observations	29,487	29,467	15,505	13,962	21,667
R-squared	0.02	0.14	0.11	0.06	0.16

Year controls used in all columns but not shown. Age, race, and time to college completion 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 23-65 with either a law or bachelor's degree. Observations are individuals averaged over all years of the sample. College major effects are reported at a four year graduation window with the baseline being "Other" majors.

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

	(1) No controls	(2) Controls	(3) Men	(4) Women	(5) Full-Time Workers
Log Wage	0.56 (0.03)	0.5 (0.03)	0.47 (0.03)	0.54 (0.05)	0.48 (0.03)
Weekly Hours	4.82 (0.55)	4.34 (0.55)	3.3 (0.66)	5.73 (1.00)	3.16 (0.39)
Annual Earnings	63,642 (3,631)	57,199 (3,547)	57,647 (4,634)	51,826 (4,935)	63,002 (4,137)

Each row reports on full regressions using the dependent variable in the left column. Controls as in Table 1 used in all columns but not shown. Sample are those age 23-65 with either a law or bachelor's degree. Observations are individuals averaged over all years of the sample.

TABLE 3: LAW DEGREE PREMIUM ACROSS THE EARNINGS DISTRIBUTION USING QUANTILE REGRESSION

	OLS	25th	50th	75th
Log Earnings	0.61 (0.03)	0.50 (0.04)	0.55 (0.02)	0.69 (0.02)
Log Wage	0.50 (0.03)	0.43 (0.03)	0.47 (0.02)	0.56 (0.02)
Weekly Hours	4.34 (0.55)	3.50 (0.57)	4.04 (0.37)	5.05 (0.48)
Annual Earnings	$57,199 (3,547)	$21,714 (1,210)	$38,915 (1,207)	$68,827 (1,878)

Each row reports on full regressions using the dependent variable in the left column. Controls as in Table 1 used in all columns but not shown. Sample are those age 23-65 with either a law or bachelor's degree. Observations are individuals averaged over all years of the sample.

TABLE 4: OBSERVABLE ABILITY DIFFERENCES BETWEEN LAW GRADUATES AND COLLEGE GRADUATES PREDICT ONLY SMALL DIFFERENCES IN EARNINGS

	Average		Difference	Percent predicted income change based on	Percent Bachelor's earning difference predicted from law graduate differences in characteristics
	Bachelor	Law			
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 5: 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.

		Percentiles		
	Mean	25th	50th	75th
Lifetime value	1,031	432	766	1,422
Contribution per decade				
Years 1-10 (Age 23-32)	140	43	75	157
Years 11-20 (Age 33-42)	276	126	232	424
Years 21-30 (Age 43-52)	365	174	228	462
Years 31-43 (Age 53-65)	250	88	230	380
Internal Rate of Return				

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 in terms of foregone earnings, 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. Real 2013 dollars.

TABLE 7: PRESENT VALUE OF LAW DEGREE (IN 2013 $1000'S) 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	998	395	645	1553	981	554	857	1420
Contribution per decade								
	90	25	20	47	183	88	120	198
	264	125	181	407	324	155	284	523
	406	171	245	723	247	129	192	338
(Age 53-65)	238	74	199	376	227	181	261	362
Internal Rate of Return	15.6	10.4	11.5	16.2	19.4	14.2	17.3	20.7

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 in terms of foregone earnings, 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. Real 2013 dollars.

TABLE 8: SENSITIVITY ANALYSIS: PRESENT VALUE OF LAW DEGREE (IN 2013 $1000'S) UNDER ALTERNATE DISCOUNT RATE ASSUMPTIONS (BOTH GENDERS COMBINED)

			Percentiles		
		Mean	25th	50th	75th
Lifetime value					
Real discount rate	*Nominal discount rate*				
0	3	2,094	888	1,611	2,903
2	5	1,292	544	971	1,784
4	7	831	346	611	1,144
6	9	555	227	398	762

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 in terms of foregone earnings, but do not include tuition or federal taxes.

TABLE 9: SENSITIVITY ANALYSIS: INTERNAL RATE OF RETURN
UNDER ALTERNATE LAW SCHOOL NET TUITION COST ASSUMPTIONS (BOTH GENDERS COMBINED)

			Percentiles	
	Mean	25th	50th	75th
Internal Rate of Return				
Annual net tuition				
0	28.1	23.2	23.2	27.8
15,000	21.4	15.0	17.6	22.7
30,000	17.6	11.3	14.3	19.3
45,000	15.0	9.1	12.2	16.9
60,000	13.1	7.5	10.6	15.1

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 in terms of foregone earnings, but do not include federal taxes. Internal Return Rate is Real (i.e., net-inflation). Net tuition and lifetime earnings are in 2013 dollars.