

An Empirical Examination of the Bennett Hypothesis in Law School Prices

Robert Kelchen¹

Assistant Professor, Department of Education Leadership, Management and Policy

Seton Hall University

robert.kelchen@shu.edu

November 2017

Abstract: Whether colleges increase tuition in response to increased federal student loan limits (the Bennett Hypothesis) has been a topic of debate in the higher education community for decades, yet most studies have been based on small increases to Pell Grant or undergraduate student loan limits. In this paper, I leverage a large increase in Grad PLUS loan limits that took place in 2006 to examine whether law schools responded by raising tuition or other living expenses and whether student debt levels also increased. Using data from 2001 to 2015 across public and private law schools and both interrupted time series and difference-in-differences analytical techniques, I found rather modest relationships across both public and private law schools. I conclude with some possible explanations for the lack of strong empirical support for the Bennett Hypothesis.

¹ This project was supported by AIR Grant #RG15149 from the AccessLex Institute and the Association for Institutional Research. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the AccessLex Institute or the Association for Institutional Research. I would like to thank Joseph Fresco and Olga Komissarova for their research assistance throughout this project and Amy Li, Judith Scott-Clayton, and Douglas Webber for their helpful comments on an earlier version of this paper. All errors are my own.

A great deal of attention has been paid to the rapidly rising price of an undergraduate education. Between the 1996-97 and 2016-17 academic years, the inflation-adjusted listed price of tuition and fees increased by 112% at public four-year colleges and by 68% at private nonprofit colleges (Ma, Baum, Pender, & Welch, 2016). Yet less attention has been paid to increases in tuition prices throughout graduate and professional education (Baum & Steele, 2017), even though graduate enrollment has increased at a faster rate than undergraduate enrollment since 2000 (McFarland, Hussar, de Brey, Snyder, Wang, Wilkinson-Flicker et al., 2017).

Tuition prices in professional programs such as law, medicine, and business have increased at similar rates to undergraduate tuition over the last two decades. Law students now face sticker tuition and fee prices of nearly \$80,000 at public schools and \$135,000 at private schools over the course of three years (American Bar Association, 2015; author's calculations using American Bar Association data). Meanwhile, listed prices at medical schools are approximately \$130,000 for four years at public schools and \$210,000 at private schools (Association of American Medical Colleges, 2017).

While other graduate programs have seen large increases in sticker prices over the last two decades, PhD students see the majority of their charges covered by grants and scholarships. Law and medical students get about 20% of charges covered by scholarships—or one-third of what PhD students receive (Baum & Steele, 2017). This has resulted in student debt rapidly increasing among professional students, with law students seeing the largest increase. In 2012, 87% of law students with debt graduated with a median debt of \$140,616, up from \$88,634 in inflation-adjusted dollars in 2004 (Delisle, 2014).

One factor that some people believe contributes to increases in both tuition prices and student debt burdens is the availability of federal financial aid that students can access to finance their education. The idea that colleges take advantage of increased loan eligibility is widely attributed to William Bennett, who was President Reagan's Secretary of Education. In a 1987 opinion piece in *The New York Times* entitled "Our Greedy Colleges," he wrote: "Increases in financial aid in recent years have enabled colleges and universities blithely to raise their tuitions, confident that Federal loan subsidies would help cushion the increase" (Bennett, 1987).

This theory, which became known as the Bennett Hypothesis, has been hotly debated for decades and has been the subject of a number of empirical studies. However, all of this research was for the undergraduate student population and mainly focused on the relationship between federal grant aid and tuition prices (e.g., Archibald & Feldman, 2016; Heller, 2013; Stoll, Bradley, & Mahan, 2014). To date, there has been no empirical research examining whether the Bennett Hypothesis holds for graduate or professional programs in spite of post-baccalaureate students being responsible for about 40% of all outstanding student debt and the large typical loan burdens mentioned above (Delisle, 2014).

I conduct the first empirical examination of the Bennett Hypothesis in professional education in this paper by leveraging two policy changes that increased the availability and attractiveness of federal student loans to law school students. Prior to 2006, law students (along with most other professional students) could borrow \$18,500 per year in federal loans. This amount is well below typical tuition and fees at private colleges and slightly more than tuition and fees at public colleges), meaning that private loans or self-financing were needed to cover the rest of the cost of attendance. The Higher Education Reconciliation Act of 2005 created the Grad PLUS loan program as of July 1, 2006, which allowed students to borrow up to the full cost

of attendance in federal loans. The College Cost Reduction and Access Act of 2007 created a Public Service Loan Forgiveness program that significantly reduced repayment amounts for students working at qualified nonprofits for a period of ten years as of October 1, 2007 along with other income-driven repayment options that took effect in 2009. Both of these acts have the potential to make sticker prices less salient, but their effects have yet to be tested. I also consider non-tuition portions of the total cost of attendance to see whether colleges increased living allowances in an effort to better meet local living costs or to potentially offer students a higher standard of living while in law school.

My research questions are the following:

- (1) Did tuition/fees or living expenses for law school students increase at a faster rate following the creation of the Grad PLUS program in 2006 and the expansion of income-driven repayment in 2007?
- (2) Did the student debt burden of law school graduates increase at a faster rate following the creation of the Grad PLUS program in 2006 and the expansion of income-driven repayment in 2007?

Summary of Graduate and Professional School Borrowing

A large and growing percentage of educational expenses for graduate and professional students are being covered by student loans. Between the 2000-01 and 2010-11 academic years, total federal borrowing by graduate students increased from \$14.4 billion to \$38.4 billion (in inflation-adjusted dollars). Borrowing then declined slightly to \$35.6 billion in the 2015-16

academic year as overall enrollment in graduate school stayed flat after a decade of large increases (Baum, Ma, Pender, & Welch, 2016; National Center for Education Statistics, 2017). Graduate students make up only 15% of all students attending colleges that are eligible to receive federal financial aid, but they are responsible for about 38% of all federal loan dollars (author's calculation using data from Baum et al. (2016) and National Center for Education Statistics (2017)).

Graduate and professional school students were first able to access federal loans through the 1958 National Defense Education Act, which became the modern Perkins Loan program (Kelchen, 2014). Graduate students can still qualify to receive up to \$8,000 per year or \$60,000 in their lifetime in this need-based program, which provides about \$200 million per year in funding to students who attend participating colleges (New America, 2015). Access to federal loans was further expanded with the creation of the subsidized Stafford Loan program under the Higher Education Act of 1965 and the creation of the unsubsidized Stafford loan program under the Higher Education Amendments of 1992.

From the 1993-94 through the 2006-07 academic years, most graduate and professional students could borrow up to \$8,500 per year in subsidized loans (in which interest is not charged until six months after the student leaves school) and up to \$18,500 in subsidized and unsubsidized loans (in which interest accrues immediately) in a given year. Students were subject to a lifetime borrowing limit of \$65,500 in subsidized loans and \$138,500 in subsidized and unsubsidized loans (FinAid.org, 2017). In July 2007, the annual borrowing limit increased to \$20,500, while the annual limit for subsidized loans and the lifetime borrowing limit remained unchanged. The Budget Control Act of 2011 eliminated all subsidized loans for graduate and

professional students as of July 2012, but the \$20,500 annual and \$138,500 lifetime borrowing limits for any remaining subsidized and unsubsidized loans remained.²

Rising tuition prices and stagnant federal borrowing limits meant that more students had to turn to private loans or savings in order to pay for graduate or professional education. Law students were more likely than all other types of graduate or professional students to take out private loans in the 1990s and 2000s, with the percentage of law students with private loans rising from 13% in 1995-96 to 28% in 1999-2000 and 36% in 2003-04 (Woo & Shaw, 2015). The availability and terms of private educational loans are based in part on a student's creditworthiness, which is not a factor for subsidized and unsubsidized federal loans and could affect whether students are able to access credit for attending college.

The creation of the Grad PLUS program in 2006 addressed this potential gap in financing graduate and professional education by allowing students to borrow up to the full cost of attendance without any other lifetime borrowing limits. Grad PLUS loans are different from other federal loans in that a student must not have an 'adverse credit history'—or provide a cosigner if the borrower has adverse credit (Federal Student Aid, 2015). But this standard is easier for borrowers to meet than the requirements to receive a private loan at competitive interest rates, making credit available to more students.³ Law students quickly turned away from private loans as an option, with 20% of students holding private loans in 2007-08 and just 5% in 2011-12. By 2011-12, 59% of law students took out PLUS loans and graduates averaged nearly

² Since 1996, loan limits have been higher for students in certain health-related fields. These students can borrow up to \$47,167 in a given year (depending on the exact field of study) and \$224,000 over their lifetime (Federal Student Aid, 2008).

³ The only available data on the percentage of students who were denied Grad PLUS loans due to adverse credit come from the 2013-14 academic year, a period in which lending standards were temporarily tightened. During that period, 12% of applicants at public colleges, 8% at private nonprofit colleges, and 35% at for-profit colleges were unable to receive Grad PLUS loans (U.S. Department of Education, 2016). The denial rate has likely been much lower during most of the existence of the Grad PLUS program.

\$55,000 in Grad PLUS debt (author's calculations using data from the National Postsecondary Student Aid Study; Woo & Shaw, 2015).

The other major change to graduate and professional student lending occurred with the expansion of income-driven student loan repayment options. A small Income-Contingent Repayment (ICR) plan was created in the 1992 Higher Education Act reauthorization, but it only was available to students at a select number of colleges and the terms (up to 20% of discretionary income for up to 25 years) were not appealing to most students.⁴ In 2007, the College Cost Reduction and Access Act created an Income-Based Repayment (IBR) program that allowed all federal loan borrowers to access an income-driven program that forgave any remaining debt after 25 years of paying 15% of the borrower's discretionary income. In the initial legislation, subsidized and unsubsidized graduate loans were eligible for IBR while Grad PLUS loans were not. However, Grad PLUS loans were included in the final rules that implemented IBR in 2008 in what was likely a drafting error (Shireman, 2017). Allowing grad students to access IBR likely contributed to the decline in private borrowing, as interest rates for private loans were often competitive with Grad PLUS but private loans did not offer income-driven repayment plans (Bhole, 2017).

Income-driven repayment options were further expanded in the early 2010s with the creation of three new plans (an updated IBR plan, Pay As You Earn, and Revised Pay As You Earn). These options can allow graduate and professional students to pay 10% of their discretionary income for as little as 20 years (Federal Student Aid, n.d.). All of these plans do tax any remaining balances that are forgiven, although these programs are too new for anyone to

⁴ "Discretionary income" is defined as any income over 150% of the federal poverty line (adjusted for family size).

have actually faced a tax bill for forgiveness and there have been multiple bills introduced over the last several years to eliminate these taxes (U.S. Government Accountability Office, 2016).

The other key piece of the 2007 legislation was the creation of the Public Service Loan Forgiveness (PSLF) program, in which borrowers working for government or qualified nonprofit agencies for a period of ten years while making payments could have the remainder of their loans forgiven without facing any tax burden on the forgiven balance. Law schools helped lead the push for PSLF in an effort to encourage students to choose public-interest law fields, especially as many law school graduates have high debt-to-income ratios under extended payment plans (Chapman & Lounkaew, 2015; Schrag, 2007).

Some analysts have suggested that the presence of income-driven plans and PSLF may make the traditional law school model economically viable for a higher percentage of students (e.g., Crespi, 2014). Although the Department of Education does not make specific data on law or graduate students' usage of IBR and PSLF available, overall trends suggest that law students are likely using these programs at high rates. Just over 600,000 borrowers across all fields have completed employment certification forms for PSLF with the Department of Education as of March 2017, which is an indicator of potential forgiveness in the future (Federal Student Aid, 2017).⁵ Additionally, the average loan balance in income-driven plans was nearly \$53,000 as of late 2016, which is far higher than the typical loan balance for students who did not attend graduate school (Federal Student Aid, 2017). The U.S. Government Accountability Office (2016) recently estimated that the Department of Education was significantly underestimating taxpayer costs under income-driven plans, in part due to the higher rates of high-debt students using these plans.

⁵ No students will actually receive loan forgiveness under PSLF until October 2017 at the earliest.

Theoretical grounding and literature review

The theoretical grounding for this study lies in resource dependency theory (e.g., Aldrich & Pfeffer, 1976), in which the vast majority of colleges are dependent on those outside the institution (such as prospective students, governmental bodies, and donors) to provide resources. Diversifying revenue sources has traditionally been important for tuition-reliant private colleges, but is becoming increasingly crucial for public colleges as state appropriations keep up with inflation but not with enrollment growth (Carlson, 2016). Professional programs provide an opportunity for colleges to diversify their revenue sources beyond undergraduate tuition dollars.

A growing number of universities are adopting variations of responsibility center management budgeting models for their professional programs, which require individual colleges or programs to generate their own revenue (Kosten, 2016; Strauss & Curry, 2002). In these models, a percentage of a program's revenue goes to the university's central administration to pay for overhead. Law schools frequently turn over 25% to 30% of their revenue to the administration, which brings complaints from law school deans that they are subsidizing other departments on campus (Segal, 2011). As any remaining proceeds stay within the department, both the department and the university have an incentive to raise additional revenue through tuition.

Professional programs also have an incentive to raise tuition in an effort to become (or appear) more prestigious. Bowen's (1980) revenue theory of costs stated that reputation is associated with a high price tag, and as such colleges will seek to raise and spend as much money as possible. This is augmented by the push from private-sector rankings providers such as *U.S. News & World Report* to directly reward programs that have high per-student expenditures--with the justification that additional resources will result in a higher-quality educational

environment (Morse, 2016). There is also some evidence of the “Chivas Regal” effect, in which colleges that slipped in the rankings raised their tuition in an effort to appear more prestigious (Askin & Bothner, 2016).

Colleges often counter mentions of Bowen’s revenue theory of costs with Baumol’s (1967) cost disease hypothesis, in which the heavy reliance on highly-skilled labor explains cost increases. Over the long term, it appears that Baumol’s cost disease is responsible for most of the rise in educational costs (Archibald & Feldman, 2008). However, there is some evidence in recent years that research universities’ actions that would broadly fall under Bowen’s theory contribute to rising costs more than Baumol’s cost disease (Martin & Hill, 2013; 2014).

The Bennett Hypothesis is related to Bowen’s and Baumol’s theories in the sense that colleges may not feel the need to be as efficient in their operations if students have ready access to financial aid that can help them pay for college. To this point, all of the empirical literature examining the veracity of the Bennett Hypothesis examines undergraduate tuition and fee prices instead of considering graduate or professional programs. The best available research on the Bennett Hypothesis with respect to undergraduate federal student loans finds a modest relationship between increased borrowing limits and listed tuition prices.

Lau (2014) found that for-profit colleges increased tuition prices by \$.51 for each one-dollar increase in loan limits, compared to \$.25 among community colleges. Lucca, Nadauld, and Shen (2015) estimated that increases in subsidized loans were more strongly associated with tuition increases (\$.45 to \$.60 for each dollar in loans) than unsubsidized loans (between zero and \$.17). They found stronger evidence of the Bennett Hypothesis at for-profit and expensive private nonprofit colleges than other sectors of higher education. This fits with Gillen’s (2012)

Bennett Hypothesis 2.0, which opined that selective colleges may respond to the availability of additional federal financial aid by raising their tuition more than less-selective institutions.

There has been more research examining whether increases in Pell Grant awards for undergraduate students is associated with higher listed tuition prices. These findings generally support mixed (Rizzo & Ehrenberg, 2004; Singell & Stone, 2007) or modest positive relationships (Lau, 2014; Lucca et al., 2015; Turner, 2014). Cellini and Goldin (2014) took a different empirical strategy, comparing the prices of for-profit colleges that received federal financial aid to those that did not and finding some support for the Bennett Hypothesis.

There are two main differences between undergraduate and graduate programs that could affect the relationship between federal student aid and tuition prices. The first difference is that changes to federal student loan limits and maximum Pell Grants for undergraduate students have been quite modest over time. Undergraduate loan limits increased by between \$2,000 and \$3,000 per year (with a lifetime increase of \$8,000 for dependent students and \$11,500 for independent students) between the 2006-07 and 2008-09 academic years—the first increases since 1993 (Wei & Skomsvold, 2012). The maximum Pell Grant increased by \$1,500 between the 2006-07 and 2011-12 academic years, but changed little over the preceding and following five-year periods (author's calculations using Federal Student Aid data). The implementation of Grad PLUS, on the other hand, could allow law students to take out more than \$40,000 per year in additional federal loans based on their cost of attendance.

The second key difference between undergraduate and graduate programs is that the higher loan limits for graduate students make at least partial student loan forgiveness far more likely for graduate students, meaning that the sticker price is less salient for some students. This is particularly true among borrowers who plan to pursue Public Service Loan Forgiveness due to

the relatively low earnings of individuals working for government or nonprofit agencies. Delisle and Holt (2014) examined law students' debt and income patterns and showed that a law school graduate with the median income of \$59,000 per year would not have their monthly payments under PSLF increase once their debt exceeded \$55,000 per year and a 75th percentile earner of \$95,000 per year would reach the 'zero marginal cost' threshold at \$117,000 in debt—still below the median debt in the sample of \$140,000. Georgetown University's law school famously set up a Loan Repayment Assistance Program that increased the sticker price of tuition in order to cover students' loan payments under PSLF, resulting in a program in which taxpayers covered the entire price tag of a law degree (Matthews, 2013).

Data, Methods, and Sample

To examine whether law schools' tuition prices, living allowances, or student debt burdens of graduates was affected by changes to federal student loan policies, I constructed a sixteen-year panel dataset from a number of sources. Details on the specific data sources, analytic methods, and institutions included in the analyses are provided below.

Data

My primary data source for these analyses is *U.S. News & World Report's* annual guidebooks containing rankings of graduate and professional programs. Each year, the magazine gathers information from participating institutions across a range of disciplines such as education, business, engineering, medicine, and law to both develop its program-level rankings and to help prospective students choose which program to attend. This is the most

comprehensive source of program-level information on law schools over time, as the U.S. Department of Education generally does not publish (or in many cases collect) program-level data for nonprofit institutions and the American Bar Association's publicly-available datasets are not available for as many years and lack some important metrics.

My team of research assistants and I entered and coded a number of data elements from the *U.S. News* guides from 2003 through 2018, reflecting data from the 2001-02 through 2016-17 academic years. The *U.S. News* guides contain three outcomes of interest. The first outcome—and the one which most directly tests the Bennett Hypothesis—is tuition rates for full-time students. I explored both in-state and out-of-state tuition prices for public law schools, while private institutions charged the same tuition price to all students. For a small number of programs that reported per-credit tuition prices instead of overall prices, I multiplied the per-credit price by 30 to reflect a full-time course load that would allow students to graduate in three years.

The second outcome of interest is the living allowance portion of the total cost of attendance, which is designed to cover room, board, and other non-tuition living expenses. Although colleges do not directly receive these funds, it is possible that law programs may have raised their living allowances in an effort to either recruit students or to better meet their needs. The final measure is the mean student loan debt of graduates, which covers about 90% of all law students who take on debt to finance their education.

The *U.S. News* guides also contained a number of other data elements that can be used as covariates in the regressions to help control for other factors that could be affecting law school pricing or debt levels. This is important due to large changes to the landscape of legal education following the Great Recession. The number of first-year law students rose steadily from 43,518

in fall 2000 to a high of 52,488 in fall 2010 before declining sharply to 37,071 in fall 2015 (American Bar Association, n.d.; Ward, 2016). I used enrollment levels, the percentage of part-time students, the percentage of female and racial/ethnic minority students, acceptance rates, median LSAT scores, and median GPAs from the *U.S. News* guides as covariates.⁶

Two other data sources provided supplemental information that both acted as a check to the data law schools reported to *U.S. News* and filled in missing data for less than five percent of programs each year (generally less-selective law schools that declined to participate in the *U.S. News* survey). The American Bar Association's Official Guide to ABA-Approved Law Schools and their Standard 509 Information website contained information on tuition, living expenses, student demographics, and LSAT/GPA scores for each academic year from 2004-05 forward. But because of the way the data are presented and the fact that student debt levels were missing, this was used as a supplementary source to *U.S. News* instead of a primary data source. The U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) contained information on law schools' in-state and out-of-state tuition prices during this period of study, although data were not available in the 2009-10 academic year and only available for a limited number of colleges in the 2008-09 academic year. These three sources yielded nearly identical values for common data elements, likely meaning that law schools provided reasonably accurate data to *U.S. News*. I also used IPEDS data on three other variables that could affect graduate tuition pricing—the percentage of enrollment that is graduate and professional students, tuition

⁶ Both *U.S. News* and the American Bar Association include Asian students in the racial/ethnic minority classification. Additionally, I estimated the median LSAT score and GPA by averaging the 25th and 75th percentiles of the distributions.

revenue as a percentage of overall revenue, and per-student endowment revenue—to reflect the reliance on graduate enrollment and the institution’s overall financial health.⁷

In an additional set of analyses, I examined tuition, living allowance, and student debt changes over time for undergraduate students as well as law students. Data on in-state and out-of-state tuition prices and living allowances for undergraduate students came from IPEDS, while median student debt burdens of bachelor’s degree recipients came from the College Scorecard. Additional control variables from IPEDS for undergraduates included the percentage of female and racial/ethnic minority students; I did not use admissions criteria due to a high percentage of missing data and the difficulty trying to equate LSAT and ACT/SAT scores.

Sample

My primary sample consisted of the 113 public and 95 private nonprofit law schools in the 50 states or Washington, DC that were accredited by the American Bar Association and operated at some point between the 2001-02 and 2015-16 academic years. This excluded seven for-profit colleges, only two of which were operating and had available data for at least two years prior to the 2006 introduction of Grad PLUS loans. This restriction also made sense because some of the IPEDS covariates (such as endowment values) were either unavailable or in a different format for for-profit colleges. Summary statistics of the law school dataset by institutional type in the 2014-15 and 2015-16 academic years can be found in Table 1.

[Insert Table 1 here]

⁷ For the small percentage of institutions that reported combined financial data with other institutions in their system due to sharing the same Federal Student Aid OPEID (Jaquette & Parra, 2014), I assigned the same per-FTE values to all colleges that share the same OPEID. However, because FTE data were unreliable for some freestanding law schools, I had to use endowment values per student instead of per FTE.

For the analyses comparing the pricing strategies and debt burdens at law schools and undergraduate institutions, I used a comparison group of public and private nonprofit institutions that had data on at least one of the outcomes of interest, primarily granted baccalaureate degrees, was not classified as a primarily faith-based institution in the 2010 Carnegie classifications, and did not have a law school. This resulted in a maximum sample size of 495 public and 1,061 private nonprofit institutions in the comparison group, although sample sizes varied somewhat across measures due to data availability.

Methods

To examine my research questions, I used two different analytic models (each of which was done separately for public and private nonprofit institutions) to examine the extent to which the Bennett Hypothesis holds for law schools. My primary analysis is based on an interrupted time series model that tests for whether there is a change in the trends for each of the outcomes after the Grad PLUS program was implemented in 2006 and students could borrow up to the full cost of attendance. The regression equation is the following for college i :

$$Y_i = \beta_0 + \beta_1 Time_t + \beta_2 Post_t + \beta_3 (Time * Post)_t + \beta_4 X_{it} + \epsilon_{it} + \mu_i, \quad (1)$$

where Y represents the (logged) outcome of interest for college i in the previous academic year, $Time$ represents the number of years since the beginning of the panel (2001-02), $Post$ is an indicator variable equal to 0 before the 2006-07 academic year and 1 after that period, and $(Time*Post)$ reflects the number of academic years since July 1, 2006 (with the 2006-07 academic year being equal to 1). For the tuition and room and board measures, covariates from the prior year were used to reflect the institution's characteristics as it sets prices. For student

debt, I used covariates from two years prior to allow for graduates to experience one year of law school under the new pricing system.

The X vector includes three sets of control variables: demographic characteristics from *U.S. News* data (program size, percent full-time, racial/ethnic distribution, and percent female), selectivity measures from *U.S. News* (acceptance rate, undergraduate GPA, and LSAT score), and institutional financial characteristics from IPEDS (graduate student share of overall enrollment, tuition reliance, and per-student endowments). Finally, ϵ represents an idiosyncratic error term and μ an institution-specific error term. All financial metrics were inflation-adjusted into 2016 dollars using the Consumer Price Index and logged in order for the results to be interpreted as percentage point changes.

For one set of analyses, I used the entire length of the dataset (through the 2015-16 academic year). But since first-year student enrollment in law schools declined by 30% between the fall 2010 and fall 2015 semesters (American Bar Association, n.d.; Ward, 2016), it could be possible that changes in the demand for legal education could also affect prices. I addressed this concern in two ways. First, I limited the time period in one set of analyses to end in the 2011-12 academic year (which used 2010-11 enrollment as a covariate). Second, I controlled for student enrollment in my models in an effort to capture any effects of enrollment changes.

I conducted a falsification test (using 2005 as the beginning of Grad PLUS instead of 2006) to examine whether there was a significant pre-treatment jump in tuition or student debt burdens using the full length of the panel. This could be possible if either colleges were anticipating changes to graduate student loans prior to 2006 or if some other unobserved factor was causing colleges to change their pricing strategies during this period. As shown in Appendix

1, the post-2005 dummy variable was not significant in any of the regressions, suggesting that any statistically significant effects observed in a post-2006 dummy variable would not be due to pre-treatment trends.

Because law schools' ability to raise their prices may vary by student demand (with more-selective programs possibly being able to raise tuition by larger amounts if additional federal financial aid is available), I divided law schools into two comparably-sized groups based on LSAT scores in the 2005-06 academic year. Schools with median LSAT scores at or below 157 in that year were classified as less selective alongside law schools that were not open or did not report LSAT scores in 2005-06, while schools with median LSAT scores above 157 were classified as being more selective.

As an additional analysis, I used a difference-in-differences strategy that tested for whether there was a change in tuition prices, living allowances, or debt burdens for law students following the implementation of Grad PLUS loans relative to undergraduate students at four-year colleges that did not have law schools. The regression equation is the following for college i :

$$Y_i = \theta_{0i} + \theta_{1i}Law_i + \theta_{2i}YrsPost_t + \theta_{3i}(Law * YrsPost)_{it} + \theta_{4i}X_{it} + \epsilon_{it} + \mu_i, \quad (2)$$

where Law is a dummy variable for law schools (versus undergraduate programs) and $YrsPost$ is the number of years since July 1, 2006. The key variable of interest is $Law*YrsPost$, which represents the differential slope for each year following 2006 between law schools and undergraduate institutions; a positive value would reflect a sharper increase in law students' prices faced and debt relative to undergraduate students. There were two blocks of control

variables in this analysis: demographic measures from IPEDS (percent female and percent minority) and the institutional financial characteristics discussed above.

Limitations

The first limitation of this study is that it is possible that the additional availability of federal student loan dollars affected who ended up enrolling in law schools, as it is plausible that improved access to student loans would encourage more students to enter law school. To check this, I ran regression models using enrollment levels as the outcome of interest instead of pricing levels or student debt. The coefficients (available upon request) show no significant relationship between the implementation of the Grad PLUS program and enrollment levels at public colleges and a negative relationship at private nonprofit colleges. These results taken together suggest that additional students were not induced to enroll based on the availability of Grad PLUS loans.

A concern regarding the difference-in-differences models is that undergraduate students were affected by some of the same student loan changes as graduate students (the expansion of income-driven repayment programs), while also being affected by different policy changes. Undergraduate loan limits were increased twice following 2006, but by a much smaller amount than what graduate students saw in 2006 (Wei & Skomsvold, 2012). Given some evidence that certain types of colleges responded to this increase in loan amounts by raising tuition (Lucca et al., 2015), this likely understates the results when compared to a model examining just professional students.

One other limitation worth noting is that I am unable to separate the creation of the Grad PLUS loan program in 2006 and the expansion of income-driven repayment programs that began in 2007 and continued through the early 2010s.⁸ This means that the results can be interpreted as a combination of the increase in loan limits (the traditional Bennett Hypothesis) and the expansion of income-driven repayment programs (which also affect price sensitivity). However, these concerns can be partially overcome by considering both the immediate post-2006 change in pricing strategies and debt alongside the trends following 2006.

Trends in Law School Pricing and Debt

Before turning to the regression results, I present the trends in tuition prices, living allowances, and debt burdens for public and private law schools. The inflation-adjusted values are graphically presented in the three panels of Figure 1, with the vertical line intersecting the graph reflecting the introduction of Grad PLUS loans (the 2006-07 academic year for tuition prices and living allowances and the 2007 graduating class for debt burdens among graduates).

[Insert Figure 1 here]

Listed tuition prices increased sharply during the 2000s across both public and private law schools. In-state tuition prices at public law schools rose from \$11,665 (in 2016 dollars) in 2001-02 to \$25,029 in 2012-13, with the largest increases (in dollar terms) occurring between 2007 and 2011 (Figure 1a). Prices then leveled off, with a \$25 decline in real tuition between the 2015-16 and 2016-17 academic years. Out-of-state tuition prices followed a broadly similar

⁸ Subsidized loans to graduate and professional students were also eliminated in 2012, but this change likely did not affect law students' borrowing patterns because subsidized loan limits were far below typical debt burdens.

trend, with listed rates rising from \$23,038 to \$38,393 by 2012-13 before slowly rising to \$39,551 in 2016-17. Tuition at private nonprofit law schools rose from \$31,365 to \$45,538 during the length of the panel, with the largest increases taking place in the late 2000s before a slowdown in the 2010s.

Room and board allowances at public law schools followed a similar path as tuition prices, with allowances increasing from \$16,108 to \$19,501 between 2001-02 and 2010-11 before holding nearly steady in real dollars at \$19,421 in 2016-17 (Figure 1b). The average living allowance at private law schools was higher than the average allowance at public law schools, which was likely due to private law schools being disproportionately located in more-expensive urban areas. Yet the trend was similar, with allowances rising from \$18,457 in 2001-02 to \$22,458 in 2010-11 before finally reaching \$22,726 in 2016-17.

Finally, student debt burdens of graduates at both public and private law schools increased steadily during the early 2000s before a sharp increase between 2008 and 2011 and a slow decline in recent years (Figure 1c). Debt burdens at public law schools rose from \$59,966 in 2001-02 to \$89,133 in 2012-13 before slowly rising to \$92,967 in 2015-16 and then dropping to \$89,325 in 2016-17. A similar pattern occurred at private nonprofit law schools, with debt rising from \$91,083 in 2001-02 to \$128,065 in 2012-13 and then falling to \$123,124 in 2016-17.

Results

In this section, I discuss the results from two different types of analyses. I first discuss the interrupted time series results comparing trends in law school pricing and debt burdens following

the introduction of Grad PLUS loans in 2006 and then discuss the difference-in-difference results comparing law schools and undergraduate institutions over the same time periods.

Interrupted time series results

I first examined whether the creation of Grad PLUS loans was associated with changes in tuition and fee prices in law schools—the most direct test of the Bennett Hypothesis. The results from the interrupted time series regressions (Table 2) provide relatively little support for the Bennett Hypothesis. At public law schools, the pre-treatment trajectory included large annual tuition and fee increases across both the shorter and longer panels. However, the post-2006 dummy variable (the immediate treatment effect, represented by a change in level) was not statistically significant from zero for the full length of the panel and was negative and significant (about four percentage points) when considering the shorter panel for both in-state and out-of-state tuition prices. The years*post-2006 dummy variable (the change in slope, representing the treatment effect over time) was approximately -2 percentage points. This suggests that the rate of increase slowed at public law schools—running counter to the Bennett Hypothesis. Among private nonprofit law schools, there was modest evidence to support the Bennett Hypothesis in the full panel, with a 1.7 percentage point jump in tuition and fees after 2006 in the model with all controls. Yet this was not statistically significant in the shorter model that ended before the sharp decline in law school enrollment in the early 2010s.

[Insert Table 2 here]

Table 3 contains regression results with living allowances (which go directly to students instead of law schools) as the outcome of interest. Once control variables are added, there were no statistically significant values for the pre-treatment trajectory, change in level, or change in

slope at public law schools across either the longer or shorter panels. The post-2006 dummy variable was statistically significant for private nonprofit institutions in the longer panel, with a 2.5 percentage point increase in living allowances immediately following the introduction of Grad PLUS. But since this trend did not hold over the shorter panel, it does not appear that private law schools responded to the implementation of Grad PLUS by increasing students' living allowances.

[Insert Table 3 here]

Turning to student loan debt of graduates as the outcome of interest (Table 4), there was at best a modest relationship between the introduction of Grad PLUS loans and student debt. For public law schools, neither the change in level nor the change in slope was consistently statistically significant from zero in the models with control variables. Private law schools, on the other hand, saw a significant decline in debt post-2006 in the model running through the 2011-12 academic year (6.0 percentage points, $p < .01$) and an increase in the change in slope over time of 1.8 percentage points ($p < .05$). These differences generally did not exist over the longer panel, somewhat weakening the support found for the relationship between federal loan availability and student debt burdens.

[Insert Table 4 here]

Because it is possible that more selective and less selective law schools may be able to respond to increased federal student loan limits in different ways, I ran my primary model (with all control variables) by institutional selectivity for the full length of the panel. As Table 5

shows, the patterns of results were generally similar across the two selectivity groups.⁹ However, there were a few exceptions. Less selective public law schools had an immediate decline in the debt of graduates and less selective private law schools had an immediate increase in living allowances, while more selective schools did not see a significant change. There was a negative trend in tuition and fees (the years*post-2006 variable) at less selective private nonprofit law schools, while there was an increase in the trend of debt burdens at the same institutions; this compares to insignificant coefficients for more selective nonprofit programs.

[Insert Table 5 here]

Difference-in-differences results

The second analytic strategy was to use difference-in-differences models to compare law schools and undergraduate institutions before and after the 2006 creation of Grad PLUS loans. Turning first to tuition and fees (Table 6), public law schools raised in-state tuition prices between two and three percentage points higher per year across the two different time periods than other colleges raised in-state prices for undergraduate students. Out-of-state tuition also increased at a higher rate for law students, with the annual increase being between one and two points larger than for undergraduate students. Part of this differential may be attributable to the Bennett Hypothesis, while another part could be due to limits that some states or university systems put on undergraduate tuition and/or fee increases. These findings are different than the interrupted time series results, which suggest a negative relationship between the creation of Grad PLUS and public law schools' tuition and fee prices.

⁹ The broadly similar pattern of results between more selective and less selective law schools also holds for analyses that run through the 2011-12 academic year instead of the 2015-16 academic year. These coefficients are available upon request from the author.

[Insert Table 6 here]

Private law schools actually had their tuition increase by 0.3 percentage points less per year than the rate of change for undergraduate students over the full time period, yet the coefficient was insignificant when restricting analysis prior to the decline in law school enrollment. Overall, this suggests that Grad PLUS loans do not appear to be driving tuition increases at private law schools over time.

There is no evidence that public law schools increased their living allowances at a higher rate than undergraduate institutions following 2006 in the difference-in-differences models (Table 7), matching the interrupted time series results from Table 3. Among private institutions, there is some evidence in the shorter time period of analysis that law schools increased their living allowances faster than undergraduate institutions. However, this coefficient is modest (less than one percentage point per year) and does not hold for the full time period of analysis.

[Insert Table 7 here]

Finally, Table 8 contains the results of difference-in-differences results with student debt of graduates as the outcome of interest. Most of the models do show that student debt for law school graduates increased faster than for bachelor's degree recipients, which generally matches the point estimates (that were not always statistically significant) in the interrupted time series models. Notably, the estimated coefficients are somewhat larger over the shorter time period than the longer time period that includes a substantial decline in law school enrollments.

[Insert Table 8 here]

Discussion and Future Work

Ever since William Bennett hypothesized that increased federal student loan availability would result in higher tuition prices, the so-called Bennett Hypothesis has been hotly debated by researchers and policymakers alike. Yet most studies either focus on federal grant programs or try to isolate effects based on incremental increases to federal borrowing limits. In this study, I provide the first quasi-experimental analysis of the creation of the federal Grad PLUS loan program in 2006—which represented an increase in federal loan eligibility of tens of thousands of dollars per year for many graduate and professional students.

My analyses suggest that the large increase in federal borrowing limits did not induce law schools to substantially increase tuition and fees (funds they do receive) or living allowances (funds they do not receive). However, the difference-in-differences models do suggest that any responses that do exist may be concentrated among public law schools instead of private nonprofit programs. This runs counter to prior literature at the undergraduate level (Lau, 2014; Lucca et al., 2015), but could be explained by the lack of tuition and fee controls in professional education that often exist for bachelor's degree programs at public colleges and universities.

I offer three potential factors that could explain the relatively modest relationship between law school prices and the availability and attractiveness of federal student loans for students. First, law schools as a whole did not appear to actively attempt to engage in additional rent-seeking behavior by increasing their prices in an effort to gain additional tuition revenue. Some programs have responded to particular incentives under Public Service Loan Forgiveness to shift the incidence from students to taxpayers (such as the Georgetown Law example discussed earlier), but there appear to be few institutions that sharply increased tuition rates above and beyond what they were doing prior to 2006.

The second potential explanation is that since law schools are an example of a higher education marketplace in which prospective students have reasonably good information about individual programs, a program that increases tuition more than its competitors may have seen a decline in enrollment—and potentially overall tuition revenue. If all law schools raised tuition by a similar amount, this concern could be lessened. Yet game theory suggests that programs have a strong incentive to deviate from the consensus in order to increase enrollment levels of price-sensitive students, and this could be particularly true in the post-Great Recession environment in which the number of prospective law students fell precipitously.

Finally, it is possible that the number of law students who faced credit constraints prior to the adoption of the Grad PLUS program could have been relatively low due to the presence of a robust private loan market during the 2000s. There is evidence that the adoption of Grad PLUS, combined with improved income-driven repayment terms, induced students to switch from private to federal loans during this period (Bhole, 2017). It is likely that Grad PLUS loans extended access to capital to at least some students, but a sizable percentage of students could already access loans up to the full cost of attendance.

Grad PLUS loans and income-driven repayment plans have generated a great deal of discussions in policy circles in recent years due to their implications on the federal budget. Grad PLUS loans are currently counted as generating profits for the federal government, although the growth of income-driven repayment programs may change that assumption going forward (Congressional Budget Office, 2017; U.S. Government Accountability Office, 2016). The results of this study suggest that policymakers may want to be less concerned about colleges using the availability of Grad PLUS loans as a way to fill institutional coffers, but more research needs to be done to confirm these findings in other professional programs. Notably, research should be

done using programs in which fewer students would be interested in pursuing Public Service Loan Forgiveness to see whether the presence of PSLF may have affected the relationships present among law students. In future work, I plan to extend my analyses to include MBA programs (which had the same pre-2006 federal loan limits as law schools) and medical schools (which had higher loan limits, but still often less than the cost of attendance).

Finally, more research should be done to explore whether the availability of Grad PLUS loans and income-driven repayment programs changed the types of students who enrolled in law schools or their post-graduation outcomes. If Grad PLUS loans reduced credit constraints for certain groups of students who may not have been able to get private loans, then the racial, gender, and/or socioeconomic makeups of law schools' applicant pools (and potentially their student bodies) may have also changed as a result. The availability of income-driven repayment programs for all federal loans could have also induced more students to pursue lower-paying work in public service fields, yet there has been no research to this point examining whether that has actually happened.

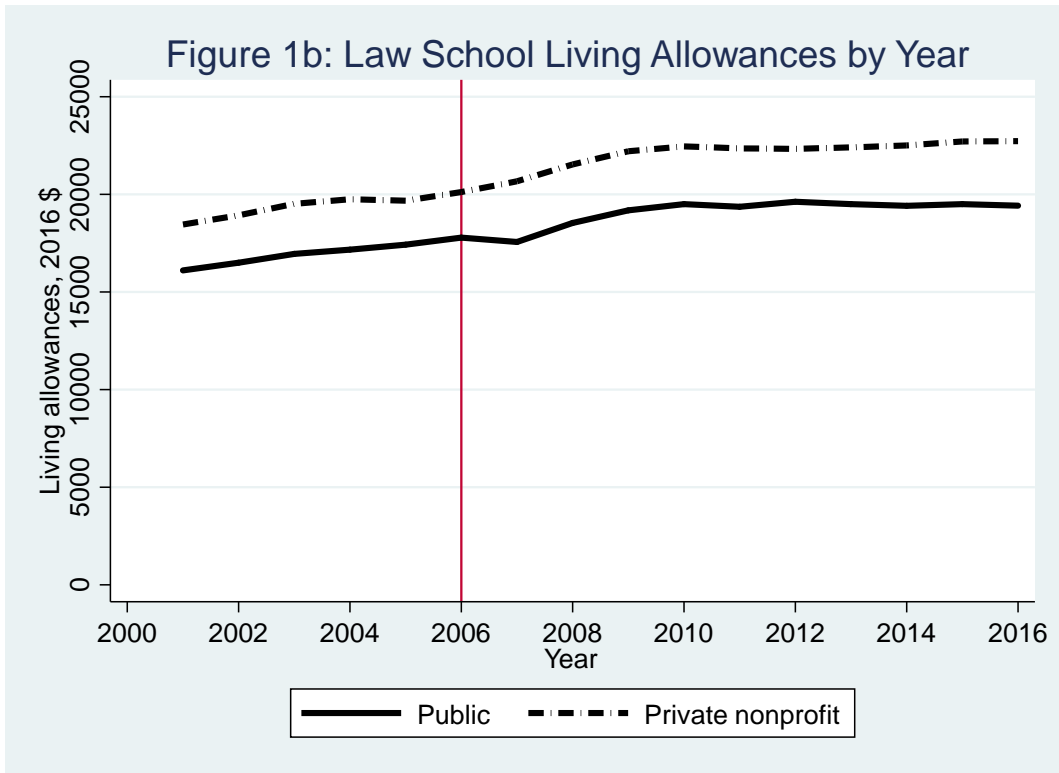
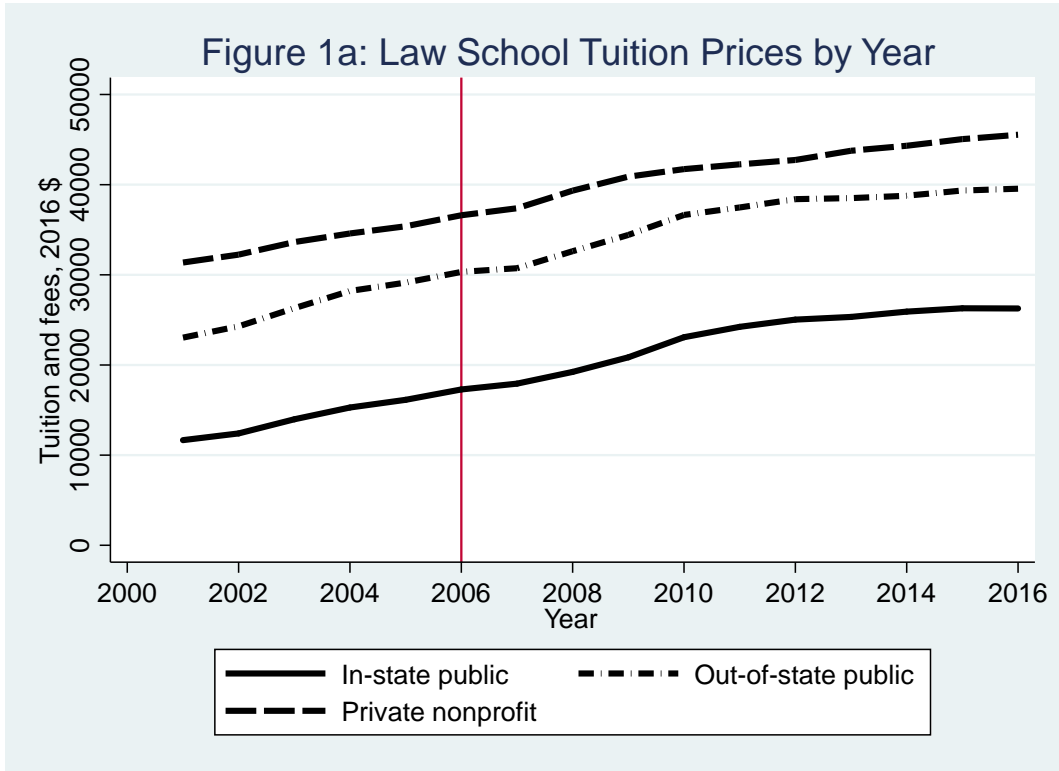
References

- Aldrich, H. E., & Pfeffer, J. (1976). Environments of organizations. *Annual Review of Sociology*, 2, 79-105.
- American Bar Association (n.d.). *Statistics*. Accessed 28 July 2017 from https://www.americanbar.org/groups/legal_education/resources/statistics.html.
- Archibald, R. B., & Feldman, D. H. (2008). Explaining increases in higher education costs. *The Journal of Higher Education*, 79(3), 268–295.
- Archibald, R. B., & Feldman, D. H. (2016). *Federal financial aid policy and college behavior*. Washington, DC: American Council on Education.
- Askin, N., & Bothner, M. S. (2016). Status-aspirational pricing: The “Chivas Regal” strategy in U.S. higher education, 2006-2012. *Administrative Science Quarterly*, 61(2), 217-253.
- Association of American Medical Colleges (2015, October). *Medical student education: Debt, costs, and loan repayment fact card*. Accessed 14 November 2016 from <https://www.aamc.org/download/447254/data/debtfactcard.pdf>.
- Association of American Medical Colleges (2017, February). *Tuition and student fees*. Accessed 25 July 2017 from <https://www.aamc.org/data/tuitionandstudentfees/>.
- Baum, S., Ma, J., Pender, M., & Welch, M. (2016). *Trends in student aid*. Washington, DC: College Board.
- Baum, S., & Steele, P. (2017, June). *The price of graduate and professional school: How much students pay*. West Chester, PA: AccessLex Institute.
- Bennett, W. J. (1987, February 18). Our greedy colleges. *The New York Times*. Accessed 14 November 2016 from <http://www.nytimes.com/1987/02/18/opinion/our-greedy-colleges.html>.
- Bhole, M. (2017). *Why do federal loans crowd out the private market? Evidence from graduate PLUS loans*. Working paper, Stanford University.
- Bowen, H. R. (1980). *The costs of higher education: How much do colleges and universities spend per student and how much should they spend?* San Francisco, CA: Jossey-Bass.
- Carlson, A. (2016). *SHEF: FY 2015 state higher education finance*. Boulder, CO: State Higher Education Executive Officers Association.
- Cellini, S. R., & Goldin, C. (2014). Does federal student aid raise tuition? New evidence on for-profit colleges. *American Economic Journal: Economic Policy*, 6(4), 174-206.
- Chapman, B., & Lounkaew, K. (2015). An analysis of Stafford loan repayment burdens, *Economics of Education Review*, 45, 89-102.

- Congressional Budget Office (2017, January 25). *CBO's January 2017 baseline projections for the student loan program*. Accessed 12 September 2017 from <https://www.cbo.gov/sites/default/files/recurringdata/51310-2017-01-studentloan.pdf>.
- Crespi, G. S. (2014). Will the income-based repayment program enable law schools to continue to provide Harvard-style legal education? *SMU Law Review*, 67, 51-140.
- Delisle, J. (2014). *The graduate student debt review*. Washington, DC: New America.
- Delisle, J., & Holt, A. (2014). *Zero marginal cost: Measuring subsidies for graduate education in the Public Service Loan Forgiveness program*. Washington, DC: New America.
- Federal Student Aid (2008, April 18). *Aggregate loan limit for graduate and professional students preparing for the health professions*. Accessed 27 July 2017 from <https://ifap.ed.gov/dpcletters/041808GEN0804.html>.
- Federal Student Aid (2015, March). *Direct PLUS loans and adverse credit*. Washington, DC: Author.
- Federal Student Aid (2017). *Federal student loan portfolio*. Accessed 28 July 2017 from <https://studentaid.ed.gov/sa/about/data-center/student/portfolio>.
- Federal Student Aid (n.d.). *Income-driven plans*. Accessed 28 July 2017 from <https://studentaid.ed.gov/sa/repay-loans/understand/plans/income-driven>.
- FinAid.org (2017). *Historical loan limits*. Accessed 27 July 2017 from <http://www.finaid.org/loans/historicallimits.phtml>.
- Gillen, A. (2012). *Introducing Bennett Hypothesis 2.0*. Washington, DC: Center for College Affordability and Productivity.
- Heller, D. E. (2013). *Does federal financial aid drive up college prices?* Washington, DC: American Council on Education.
- Jaquette, O., & Parra, E. E. (2014). Using IPEDS data for panel analyses: Core concepts, data challenges, and empirical applications. P. 467-533 in M. B. Paulsen (Ed.), *Higher education: Handbook of theory and research (Vol. 29)*. Dordrecht, the Netherlands: Springer.
- Kelchen, R. (2014). National Direct Student Loans/Perkins. P. 335-337 in D. Brewer & L. Picus (Eds.), *Encyclopedia of education economics and finance*. Thousand Oaks, CA: SAGE Publications.
- Kosten, L. A. (2016). *Outcomes-based funding and responsibility center management: Combining the best of state and institutional budget models to achieve shared goals*. Indianapolis, IN: Lumina Foundation.
- Lau, C. V. (2014). *The incidence of federal subsidies in for-profit higher education*. Job market paper, Northwestern University.

- Lucca, D. O., Nadauld, T., & Shen, K. (2015). *Credit supply and the rise in college tuition: Evidence from the expansion in federal student aid programs*. New York, NY: Federal Reserve Bank of New York Staff Report No. 733.
- Ma, J., Baum, S., Pender, M., & Welch, M. (2016). *Trends in college pricing*. Washington, DC: The College Board.
- Martin, R. E., & Hill, R. C. (2013). *Involuntary and voluntary cost increases in private research universities*. Baton Rouge, LA: LSU Department of Economics Working Paper 2013–05.
- Martin, R. E., & Hill, R. C. (2014). *Measuring Baumol and Bowen effects in public research universities*. Working paper. Accessed 29 November 2016 from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2153122.
- Matthews, D. (2013, August 9). How Georgetown Law gets Uncle Sam to pay its students' bills. *The Washington Post*. Accessed 31 July 2017 from <https://www.washingtonpost.com/news/wonk/wp/2013/08/09/how-georgetown-law-gets-uncle-sam-to-pay-its-students-bills>.
- McFarland, J., Hussar, B., de Brey, C., Snyder, T., Wang, X., Wilkinson-Flicker, S. et al. (2017). *The condition of education 2017*. Washington, DC: National Center for Education Statistics.
- Morse, R. (2016, March 15). Methodology: 2017 best law schools rankings. *U.S. News & World Report*. Accessed 29 November 2016 from <http://www.usnews.com/education/best-graduate-schools/articles/law-schools-methodology?int=9d0608>.
- National Center for Education Statistics (2017, May). *Total fall enrollment in degree-granting postsecondary institutions, by level of enrollment, sex, attendance status, and race/ethnicity of student: Selected years, 1976 through 2015*. Accessed 27 July 2017 from https://nces.ed.gov/programs/digest/d16/tables/dt16_306.10.asp.
- New America (2015, March 16). *Federal student aid: A background primer*. Accessed 26 July 2017 from <https://www.newamerica.org/post-secondary-national-policy-institute/our-blog/federal-student-aid-2/>.
- Rizzo, M., & Ehrenberg, R. G. (2004). Resident and nonresident tuition and enrollment at flagship state universities. P. 303-349 in C. M. Hoxby (Ed.), *College choices: The economics of where to go, when to go, and how to pay for it*. Chicago, IL: University of Chicago Press.
- Schrag, P. G. (2007). Federal student loan repayment assistance for public interest lawyers and other employees of governments and nonprofit organizations. *Hofstra Law Review*, 36(1), 27-63.
- Segal, D. (2011, July 16). Law school economics: Ka-ching! *The New York Times*. Accessed 29 November 2016 from <http://www.nytimes.com/2011/07/17/business/law-school-economics-job-market-weakens-tuition-rises.html>.
- Shireman, R. (2017). Learn now, pay later: A history of income-contingent student loans in the United States. *The ANNALS of the American Academy of Political and Social Science*, 671, 184-201.

- Singell, Jr., L. D., & Stone, J. A. (2007). For whom the Pell tolls: The response of university tuition to federal grants-in-aid. *Economics of Education Review*, 26(3), 285-295.
- Stoll, A., Bradley, D. H., & Mahan, S. M. (2014). *Overview of the relationship between federal student aid and increases in college price*. Washington, DC: Congressional Research Service
- Strauss, J. C., & Curry, J. R. (2002). *Responsibility center management: Lessons from 25 years of decentralized management*. Washington, DC: National Association of College and University Business Officers.
- Turner, L. J. (2014). *The road to Pell is paved with good intentions: The economic incidence of federal student grant aid*. Working paper.
- U.S. Department of Education (2016). *Negotiated rulemaking 2013-2014: Program integrity and improvement*. Accessed 27 July 2017 from <https://www2.ed.gov/policy/highered/reg/hearulemaking/2012/programintegrity.html>.
- U.S. Government Accountability Office (2016). *Federal student loans: Education needs to improve its income-driven repayment plan budget estimates*. Washington, DC: Author.
- Ward, S. F. (2016, December 15). Slight increase in 1Ls in 2016, new ABA data shows. *ABA Journal*. Accessed 28 July 2017 from http://www.abajournal.com/news/article/slight_increase_in_1ls_for_2016_aba_consumer_info_shows.
- Wei, C. C., & Skomsvold, P. (2012). *Borrowing at the maximum: Undergraduate Stafford loan borrowers in 2007-08*. Washington, DC: National Center for Education Statistics.
- Woo, J. H., & Shaw, S. (2015). *Trends in graduate student financing: Selected years, 1995-96 to 2011-12*. Washington, DC: National Center for Education Statistics.



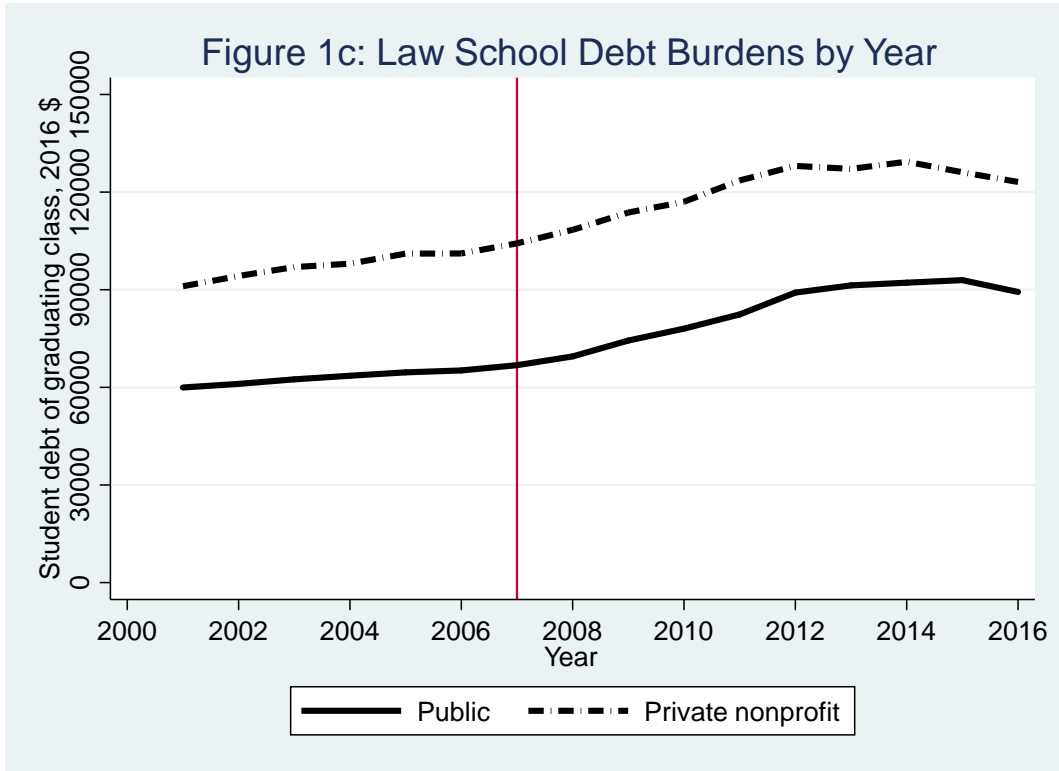


Table 1: Summary statistics of the law school dataset.

Characteristic	Public		Private nonprofit	
	Mean	(SD)	Mean	(SD)
<u>Outcomes of interest (2015-16 academic year, 2016\$)</u>				
In-state tuition and fees	24,044	(10,343)	45,049	(8,827)
Out-of-state tuition and fees	39,348	(8,538)	--	--
Living allowance	19,500	(3,731)	22,710	(4,162)
Debt of 2015 graduates	92,967	(22,569)	126,103	(27,042)
<u>Law school demographic controls (2014-15 academic year)</u>				
Total enrollment	498	(207)	644	(354)
Percent part-time students	9.2	(13.2)	12.9	(14.5)
Percent female students	45.5	(5.6)	49.3	(5.0)
Percent minority students	25.5	(15.5)	27.0	(12.8)
<u>Law school selectivity controls (2014-15 academic year)</u>				
Percent of students admitted	49.0	(14.3)	54.9	(18.3)
Median LSAT	155.9	(5.1)	155.1	(6.8)
Median GPA	3.40	(0.19)	3.33	(0.23)
<u>Institutional control variables (2014-15 academic year)</u>				
Percent of revenue from tuition	27.3	(12.3)	58.5	(24.2)
Percent of enrollment as grad students	30.2	(21.5)	49.1	(25.3)
Per-student endowment (in 2016\$)	33,412	(44,589)	135,287	(291,821)
Maximum number of law schools	85		113	

Sources: U.S. News and American Bar Association data (outcomes and law school control variables), Integrated Postsecondary Education Data System (institutional control variables).

Table 2: Interrupted time series results for law schools' tuition prices.

Variable	In-state tuition and fees				Out-of-state tuition and fees			
	Full dataset		Through 2011-12		Full dataset		Through 2011-12	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Years since start of panel (pre-treatment trajectory)	0.089*** (0.044)	0.075*** (0.007)	0.090*** (0.004)	0.087*** (0.007)	0.064*** (0.004)	0.057*** (0.006)	0.064*** (0.003)	0.066*** (0.006)
Post-2006 dummy (change in level--immediate treatment effect)	0.024* (0.014)	0.010 (0.010)	-0.041** (0.016)	-0.045*** (0.016)	0.011 (0.011)	0.012 (0.012)	-0.037*** (0.012)	-0.034*** (0.023)
Years*post-2006 dummy (change in slope--treatment effect over time)	-0.042*** (0.005)	-0.025*** (0.008)	-0.022*** (0.005)	-0.023*** (0.008)	-0.032*** (0.004)	-0.022*** (0.007)	-0.017*** (0.004)	-0.019*** (0.007)
Includes control variables?		X		X		X		X
Number of law schools	85	81	83	74	85	81	83	74
Adjusted R-squared	0.316	0.381	0.250	0.250	0.327	0.352	0.261	0.230

Variable	Tuition and fees			
	Full dataset		Through 2011-12	
	(1)	(2)	(3)	(4)
Years since start of panel (pre-treatment trajectory)	0.032*** (0.002)	0.028*** (0.003)	0.032*** (0.002)	0.035*** (0.003)
Post-2006 dummy (change in level--immediate treatment effect)	0.028*** (0.006)	0.017*** (0.006)	0.000 (0.006)	0.001 (0.006)
Years*post-2006 dummy (change in slope--treatment effect over time)	-0.009*** (0.002)	-0.004 (0.003)	0.000 (0.002)	-0.004 (0.003)
Includes control variables?		X		X
Number of law schools	114	112	113	109
Adjusted R-squared	0.234	0.259	0.182	0.151

Sources: See Table 1.

Notes:

(1) * represents $p < .10$, ** represents $p < .05$, and *** represents $p < .01$.

(2) All financial variables have been logged and inflation-adjusted into 2016 dollars using the Consumer Price Index.

(3) Regressions have a one-year lag between control variables and outcomes metrics and also include institutional fixed effects.

Table 3: Interrupted time series results for law schools' living allowances.

Variable	Public law schools				Private nonprofit law schools			
	Full dataset		Through 2011-12		Full dataset		Through 2011-12	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Years since start of panel (pre-treatment trajectory)	0.016*** (0.005)	0.007 (0.009)	0.017*** (0.006)	0.020* (0.011)	0.017*** (0.003)	0.010* (0.005)	0.017*** (0.003)	0.016*** (0.006)
Post-2006 dummy (change in level--immediate treatment effect)	0.012 (0.016)	0.000 (0.019)	-0.028 (0.021)	-0.036 (0.024)	0.034*** (0.010)	0.025** (0.010)	-0.002 (0.011)	-0.003 (0.011)
Years*post-2006 dummy (change in slope--treatment effect over time)	-0.004 (0.005)	0.007 (0.010)	0.007 (0.007)	0.001 (0.012)	-0.006* (0.003)	0.001 (0.006)	0.006* (0.004)	0.004 (0.006)
Includes control variables?	X		X		X		X	
Number of law schools	84	80	81	74	113	112	109	109
Adjusted R-squared	0.088	0.113	0.071	0.087	0.123	0.140	0.116	0.113

Sources: See Table 1.

Notes:

(1) * represents $p < .10$, ** represents $p < .05$, and *** represents $p < .01$.

(2) All financial variables have been logged and inflation-adjusted into 2016 dollars using the Consumer Price Index.

(3) Regressions have a one-year lag between control variables and outcomes metrics and also include institutional fixed effects.

Table 4: Interrupted time series results for law school graduates' debt burdens.

Variable	Public law schools				Private nonprofit law schools			
	Full dataset		Through 2011-12		Full dataset		Through 2011-12	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Years since start of panel (pre-treatment trajectory)	0.022*** (0.008)	0.035* (0.021)	0.024*** (0.009)	0.027** (0.012)	0.026*** (0.006)	0.003 (0.014)	0.026*** (0.005)	0.026*** (0.007)
Post-2006 dummy (change in level--immediate treatment effect)	-0.043 (0.027)	-0.049* (0.029)	-0.050 (0.032)	-0.046 (0.033)	-0.010 (0.018)	-0.009 (0.021)	-0.060*** (0.020)	-0.060*** (0.021)
Years*post-2006 dummy (change in slope--treatment effect over time)	0.023** (0.009)	0.011 (0.022)	0.023** (0.011)	0.016 (0.015)	0.004 (0.006)	0.027* (0.015)	0.020*** (0.007)	0.018** (0.009)
Includes control variables?		X		X		X		X
Number of law schools	84	79	80	77	113	109	109	109
Adjusted R-squared	0.218	0.320	0.075	0.152	0.198	0.154	0.127	0.102

Sources: See Table 1.

Notes:

(1) * represents $p < .10$, ** represents $p < .05$, and *** represents $p < .01$.

(2) All financial variables have been logged and inflation-adjusted into 2016 dollars using the Consumer Price Index.

(3) Because of how data are reported to *U.S. News*, there is one more pre-treatment year (the same year of data includes debt for 2006 graduates [pre] and tuition prices in 2006-07 [post]).

(4) Regressions have a two-year lag between control variables and outcomes metrics and also include institutional fixed effects.

Table 5: Interrupted time series results by institutional selectivity.

Variable	In-state tuition		Out-of-state tuition		Living allowances		Debt of graduates	
	Less selective	More selective	Less selective	More selective	Less selective	More selective	Less selective	More selective
Years since start of panel (pre-treatment trajectory)	0.069*** (0.010)	0.073*** (0.009)	0.063*** (0.010)	0.054*** (0.008)	0.002 (0.010)	0.017 (0.015)	0.005 (0.044)	0.054*** (0.017)
Post-2006 dummy (change in level--immediate treatment effect)	0.002 (0.019)	0.003 (0.018)	0.000 (0.019)	0.016 (0.016)	0.025 (0.019)	-0.027 (0.031)	-0.121** (0.060)	0.004 (0.024)
Years*post-2006 dummy (change in slope--treatment effect over time)	-0.024** (0.011)	-0.019* (0.010)	-0.028** (0.011)	-0.022** (0.008)	0.010 (0.011)	-0.004 (0.016)	0.048 (0.047)	-0.010 (0.018)
Number of law schools	40	41	40	41	39	41	39	40
Adjusted R-squared	0.314	0.561	0.310	0.433	0.163	0.025	0.191	0.275

Variable	Tuition and fees		Living allowances		Debt of graduates	
	Less selective	More selective	Less selective	More selective	Less selective	More selective
Years since start of panel (pre-treatment trajectory)	0.033*** (0.005)	0.028*** (0.004)	0.001 (0.008)	0.017*** (0.006)	-0.030 (0.024)	0.027* (0.014)
Post-2006 dummy (change in level--immediate treatment effect)	0.025** (0.010)	0.018** (0.008)	0.051*** (0.016)	-0.008 (0.013)	-0.027 (0.035)	-0.025 (0.021)
Years*post-2006 dummy (change in slope--treatment effect over time)	-0.012** (0.006)	0.000 (0.004)	0.011 (0.010)	-0.007 (0.007)	0.067*** (0.026)	0.002 (0.015)
Number of law schools	63	49	63	49	60	49
Adjusted R-squared	0.442	0.356	0.044	0.139	0.070	0.066

Sources: See Table 1.

Notes:

(1) * represents $p < .10$, ** represents $p < .05$, and *** represents $p < .01$.

(2) All financial variables have been logged and inflation-adjusted into 2016 dollars using the Consumer Price Index.

(3) More selective law schools had a median LSAT above 157 in 2005-06 (the median value that year. Schools that were not open in 2005 are classified as less selective.

(4) All models include all three sets of control variables (law school enrollment/demographics, law school admissions/selectivity, and institutional financial controls) and institutional fixed effects. Results with fewer sets of controls are available upon request.

Table 6: Difference-in-differences results for tuition prices at law schools versus undergraduate institutions.

Variable	In-state tuition and fees				Out-of-state tuition and fees			
	Full dataset		Through 2011-12		Full dataset		Through 2011-12	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Law school vs. undergraduate institution	0.947*** (0.038)	0.935*** (0.036)	0.911*** (0.040)	0.888*** (0.038)	0.679*** (0.034)	0.657*** (0.036)	0.653*** (0.034)	0.647*** (0.035)
Number of years post-2006	0.059*** (0.001)	0.054*** (0.001)	0.089*** (0.001)	0.089*** (0.001)	0.042*** (0.001)	0.037*** (0.001)	0.061*** (0.001)	0.061*** (0.001)
Law school*number of years post-2006	0.017*** (0.001)	0.017*** (0.001)	0.033*** (0.002)	0.029*** (0.002)	0.012*** (0.001)	0.012*** (0.001)	0.024*** (0.002)	0.023*** (0.002)
Includes control variables?		X		X		X		X
Number of institutions	568	556	565	552	568	556	565	552
Adjusted R-squared	0.594	0.544	0.535	0.531	0.456	0.433	0.428	0.428

Variable	Tuition and fees			
	Full dataset		Through 2011-12	
	(1)	(2)	(3)	(4)
Law school vs. undergraduate institution	0.531*** (0.041)	0.530*** (0.036)	0.528*** (0.042)	0.536*** (0.037)
Number of years post-2006	0.041*** (0.001)	0.038*** (0.001)	0.058*** (0.001)	0.057*** (0.001)
Law school*number of years post-2006	-0.002*** (0.001)	-0.003*** (0.001)	0.001 (0.001)	0.000 (0.001)
Includes control variables?		X		X
Number of institutions	1,090	1,049	1,086	1,051
Adjusted R-squared	0.192	0.202	0.165	0.179

Sources: See Table 1.

Notes:

(1) * represents $p < .10$, ** represents $p < .05$, and *** represents $p < .01$.

(2) All financial variables have been logged and inflation-adjusted into 2016 dollars using the Consumer Price Index.

(3) Regressions have a one-year lag between control variables and outcomes metrics and also include year fixed effects.

Table 7: Difference-in-differences results for living allowances at law schools versus undergraduate institutions.

Variable	Public				Private nonprofit			
	Full dataset		Through 2011-12		Full dataset		Through 2011-12	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Law school vs. undergraduate institution	0.388*** (0.021)	0.359*** (0.023)	0.382*** (0.023)	0.358*** (0.024)	0.616*** (0.027)	0.544*** (0.029)	0.608*** (0.030)	0.573*** (0.029)
Number of years post-2006	0.020*** (0.001)	0.014*** (0.001)	0.033*** (0.001)	0.033** (0.002)	0.021*** (0.001)	0.016*** (0.001)	0.028*** (0.002)	0.028*** (0.002)
Law school*number of years post-2006	0.000 (0.001)	0.002 (0.001)	0.003 (0.002)	0.003 (0.002)	0.000 (0.001)	0.002 (0.001)	0.007*** (0.003)	0.008*** (0.003)
Includes control variables?	X		X		X		X	
Number of institutions	546	535	539	529	1,049	1,013	1,035	1,008
Adjusted R-squared	0.358	0.352	0.343	0.345	0.310	0.372	0.301	0.350

Sources: See Table 1.

Notes:

(1) * represents $p < .10$, ** represents $p < .05$, and *** represents $p < .01$.

(2) All financial variables have been logged and inflation-adjusted into 2016 dollars using the Consumer Price Index.

(3) Regressions have a one-year lag between control variables and outcomes metrics and also include year fixed effects.

Table 8: Difference-in-differences results for student debt burdens at law schools versus undergraduate institutions.

Variable	Public				Private nonprofit			
	Full dataset		Through 2011-12		Full dataset		Through 2011-12	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Law school vs. undergraduate institution	1.353*** (0.031)	1.385*** (0.029)	1.337*** (0.033)	1.358*** (0.029)	1.632*** (0.024)	1.694*** (0.024)	1.618*** (0.025)	1.647*** (0.025)
Number of years post-2006	0.023*** (0.002)	0.025*** (0.002)	0.039*** (0.002)	0.039*** (0.002)	0.013** (0.002)	0.016*** (0.001)	0.030*** (0.001)	0.031*** (0.001)
Law school*number of years post-2006	0.009*** (0.002)	0.004*** (0.002)	0.011*** (0.002)	0.009*** (0.003)	0.003*** (0.001)	-0.002** (0.001)	0.015*** (0.002)	0.013*** (0.002)
Includes control variables?	X		X		X		X	
Number of institutions	567	550	563	551	1,079	1,033	1,068	1,038
Adjusted R-squared	0.784	0.826	0.749	0.802	0.801	0.846	0.774	0.801

Sources: See Table 1.

Notes:

(1) * represents $p < .10$, ** represents $p < .05$, and *** represents $p < .01$.

(2) All financial variables have been logged and inflation-adjusted into 2016 dollars using the Consumer Price Index.

(3) Regressions have a two-year lag between control variables and outcomes metrics and also include year fixed effects.

(4) Because of how data are reported to *U.S. News*, there is one more pre-treatment year (the same year of data includes debt for 2006 graduates [pre] and tuition prices in 2006-07 [post]).

(5) All debt burdens are for graduates only.

Appendix 1: Falsification tests using 2005 as adoption of Grad PLUS (instead of 2006).

Variable	Public law schools				Private nonprofit law schools		
	In-state tuition	Out-of-state tuition	Living allowance	Debt of graduates	Tuition and fees	Living allowance	Debt of graduates
Years since start of panel (pre-treatment trajectory)	0.090*** (0.011)	0.066*** (0.010)	0.009 (0.014)	0.032 (0.039)	0.034*** (0.005)	0.018** (0.008)	0.007 (0.025)
Post-2005 dummy (change in level--immediate treatment effect)	0.008 (0.015)	0.016 (0.013)	-0.009 (0.020)	-0.035 (0.034)	0.003 (0.007)	-0.002 (0.011)	-0.035 (0.024)
Years*post-2005 dummy (change in slope--treatment effect over time)	-0.039*** (0.011)	-0.030*** (0.010)	0.006 (0.015)	0.012 (0.040)	-0.009* (0.005)	-0.005 (0.008)	0.023 (0.026)
Number of law schools	81	81	80	80	112	112	109
Adjusted R-squared	0.384	0.356	0.113	0.316	0.391	0.134	0.152

Sources: See Table 1.

Notes:

(1) * represents $p < .10$, ** represents $p < .05$, and *** represents $p < .01$.

(2) All financial variables have been logged and inflation-adjusted into 2016 dollars using the Consumer Price Index.

(3) Because of how data are reported to *U.S. News*, there is one more pre-treatment year for debt (the same year of data includes debt for 2005 graduates [pre] and tuition prices in 2005-06 [post in the falsification test]).

(4) All models include all three sets of control variables (law school enrollment/demographics, law school admissions/selectivity, and institutional financial controls) and institutional fixed effects. Results with fewer sets of controls are available upon request.