Dollars and Sense: Student Price Sensitivity to Law School Tuition

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Abstract: Law school tuition prices have been on a steady upward trajectory over the past decade, leading to declining affordability. Using institution-level data on 194 law schools from 2006 to 2015, this study investigates whether students are price sensitive to increasing costs. Incorporating two-way fixed effects models, results suggest that higher tuition and fee prices are not associated with fewer applications to law school. However, higher estimated net costs of attendance are associated with greater numbers of first-year enrollments, particularly among private schools. When stratified by tiers on the basis of selectivity, this positive relationship exists among law schools in the third and fourth tiers, yet no association between net costs and enrollments are observed among law schools in the first, second, and fifth tiers.

Keywords: legal education; human capital; price sensitivity; tuition; selectivity

Introduction

Since the last recession, concerns have been raised among scholars and the media about the exorbitant prices of law school, growing student debt burdens, and uncertain employment prospects (Segel, 2011a; Tamanaha, 2012). In 2016-17, the median price of tuition and fees was $23,551 for in-state residents at public law schools, $38,649 for non-residents at public law schools, and $46,176 at private law schools, plus an average of $21,247 for living expenses (American Bar Association, n.d.; Author's calculations). The typical price of attending law school is thus higher than the median household income in the United States, which was $59,039 in 2016, the most recent year available (Federal Reserve Bank of St. Louis, n.d.).

High tuition prices result in limited affordability, and almost 90% of students must take out loans to pay for law school (American Bar Association, 2015). The average debt burden among graduates of public law schools in 2013 was $88,000 and at private schools, $127,000 (in 2014 dollars). Large debt levels can discourage graduates from pursuing lower-paying public service jobs (Dolin, 2007).

In addition, the last recession was detrimental to the legal job market, and numbers show that approximately a third of law school graduates do not secure jobs as lawyers, and only 55% secure permanent full-time lawyer jobs within nine months of graduation (Tamanaha, 2012, 2013). For the class of 2016, 8.8% were still unemployed ten months after graduation (American Bar Association, 2017a). With the exception of those working at large private firms, graduates do not earn lucrative salaries, with median starting salaries reported at $60,000 to $70,000 (Dinovitzer, Garth, & Sterling, 2013; Tamanaha, 2013).

News outlets such as the *New York Times* have commented on the astronomical cost of legal education, stating that some lower-ranked law schools run like a very lucrative business by

charging high tuition and enrolling large numbers of students (Segel, 2011a, 2011b). Scholars have also questioned the return on investment for attending law school, challenging the economic, intellectual, and personal benefits gained from earning a Juris Doctor degree (Chen, 2012; Dinovitzer et al., 2013; Dolin, 2007; Tamanaha, 2013). Tamanaha's (2012) book, *Failing Law Schools,* offered a blunt critique of law school as a poor investment.

The high price of law schools, combined with uncertain employment prospects, may deter future students from applying. Indeed, the legal job market has seen only a modest recovery from the recession, and law schools have faced declining enrollments in the last several years (American Bar Association, 2015). Between 2009-10 and 2014-15, 30% fewer students enrolled in a private law school and 18% fewer students enrolled in a public law school (ibid).

While existing research has examined the impacts of tuition and financial aid on undergraduate enrollment and found that enrollment tends to decrease when prices increase (Hemelt & Marcotte, 2011; Neill, 2009; Wetzel, O'Toole, & Peterson, 1998), no studies have examined law schools specifically. There exists a gap in the literature on how tuition prices and the cost of law school relate to students' decisions to apply to and ultimately enroll in law school.

This study is the first to investigate price sensitivity among law school students. Price sensitivity refers to the degree to which the price of a product or service (e.g. legal education) affects the consumer's (e.g. student's) purchasing behaviors. Using a national sample of law schools, this study poses the following research questions:

Research Questions

1. Are the number of applicants to law school associated with published annual tuition and fee prices?
2. Are first-year enrollments in law school associated with average net costs (tuition and

fees plus living expenses minus median grant awards)?

3. Are there differences in the relationship between first-year enrollment in law school and average net costs according to law school tiers?

I collected institution-level data from the American Bar Association (ABA) and the Law School Admissions Council (LSAC) from years 2006 to 2015, which covers the period before the recession impacted the legal job market. I conducted a series of analyses utilizing two-way fixed effects with the inclusion of institution-level variables to account for incoming student characteristics, selectivity, and student demographics, as well as state-level variables to control for economic and demographic conditions. Results suggest that on average, applications to law school are not associated with tuition and fees. Additional analyses indicate that first-year enrollments in law school are indeed associated with estimated net costs, particularly at private law schools. However, the effect is positive in that higher net costs are associated with increased first-year enrollments.

Moreover, I investigated whether effects of net cost and first-year enrollment differed between law schools from different tiers, based on the selectivity of the school. I categorized law schools into five tiers according to the median LSAT scores of entering students (Organ, 2017). Results indicate that law schools in the first, second, and fifth tiers experience no changes in first-year enrollments when net costs change. However, law schools in the third and fourth tiers see a positive effect in enrollments when net costs are higher.

Literature Review

In 2006-07, the median price of tuition and fees at public law schools was $12,983 for in-state residents, and $25,457 for non-residents, in CPI-adjusted 2016 dollars (American Bar Association, n.d.; Author's calculations). By 2016-17, as noted previously, these prices had

grown to $23,551 and $38,649 for residents and non-residents, respectively. Among private schools, median prices have risen from $32,972 in 2006-07 to $46,176 in 2016-17. Tuition and fees in 2016 ranged from approximately $11,434 for in-state residents at the University of North Dakota to upwards of $65,260 at Columbia University.

It is likely that law schools will continue their current trajectory of price increases, particularly since enrollment has been declining; fewer students are attending law school and generating fewer tuition dollars that are necessary to run a school's operating budget (American Bar Association, 2015). The increasing prices charged to law students have been attributed to generous increases in faculty and dean salaries, reduced teaching loads, expensive marketing campaigns, and redistributed merit-based scholarship funds to attract academically stellar students (Nichol, 2012). Yet, it is unknown whether increasing prices can be directly connected to student enrollment declines after controlling for other factors.

Undergraduate Price Sensitivity

No empirical research exists on the relationship between law school tuition prices and student demand. However, numerous studies have examined how undergraduate enrollment changes due to changes in published tuition prices (sticker price), and changes in net cost—typically defined as tuition and fees minus financial aid and scholarships. These studies generally find that increases in sticker price and net cost produce declines in enrollment.

Summarizing studies published between 1982 and 1996, Heller (1997) found that a $100 increase in tuition at two- and four-year institutions led to a 0.5% to a 1% decline in enrollment ($100 in 1996 is equivalent to $156 in 2017). Data from 1980 to 1992 indicated a 1.2% decline in enrollment at four-year institutions for every $1000 increase in tuition (equivalent to $1740 today), and a 4.7% decline for the same increase at two-year institutions (Kane, 1995). In a meta-

analysis of studies published between 1967 and 1982, declines in enrollment were consistently associated with tuition increases (Leslie & Brinkman, 1987). Analyzing more recent data from 1991 to 2006, Hemelt and Marcotte (2011) found that at four-year public institutions, an increase of $100 in tuition and fees (equivalent to $121 today) led to an enrollment decline of 0.25%.

More recent research has focused on enrollment changes due to the net cost of attending college, after a student's out-of-pocket prices are reduced by the receipt of financial aid. This becomes relevant after students are admitted and informed of their financial aid packages. Existing literature on undergraduates shows a positive effect on college attendance for students receiving federal need-based grants (Goldrick-Rab, Harris, & Trostel, 2009), state need-based grants (Toutkoushian, Hossler, DesJardins, McCall, & Canche, 2015), institutional merit-based aid (Leeds & DesJardins, 2015), and state merit-based aid (Cornwell, Mustard, & Sridhar, 2006; Stanley & French, 2009).

Conceptual Framework

Human capital theory posits that individuals that invest in further education and training attain greater skills and abilities, which increases their future earnings potential (Becker, 1975). Applying a rational choice framework, students are expected to make cost-benefit analyses on whether to enter and persist in higher education. Students consider financial information on tuition, fees, books, living expenses, financial aid, and opportunity costs such as foregone earnings (Stuart, Rios-Aguilar, & Deil-Amen, 2014). Human capital theory posits that students would anticipate future individual gains from investing in higher education (Becker, 1975).

Applying human capital theory to this study's research questions, students are expected to evaluate their decision to apply to law school, and enroll in a particular law school, according to their knowledge of costs associated and future earnings potential. A student first makes the

decision to apply to law school(s). After the student is accepted, the student then makes a second decision of whether and where to enroll, weighing the newly available information on the grants, scholarships, and/or tuition waivers received. Human capital theory proposes that students will make such choices regarding law school application and matriculation based on the information available to them in order to minimize present costs and maximize future benefits.

Informed by the conceptual framework of human capital theory and by the literature on undergraduate price sensitivity, I hypothesize that on average, higher law school tuition and fees will be associated with fewer applications to law school. Moreover, I hypothesize that as the estimated net cost of law school increases, the number of first-year law students who enroll will decline. Yet, the relationship between net costs and first-year enrollment may be more complex for law schools given the strong importance placed on prestige and rankings.

Law School Tiers

Data shows that graduates of the top 100 law schools, and in particular the top 10 and top 20 law schools as ranked by the *U.S. News and World Reports*, are most likely to secure higher-paying positions at large corporate law firms (Dinovitzer et al., 2013), with salaries between $145,000 and $160,000 (Tamanaha, 2013). Outside of the top 20 law schools, only the top 10% of the graduating class typically has a chance of securing a corporate law position, whereas most graduates will have starting salaries closer to $65,000 (Tamanaha, 2013). Organ (2017) finds that from 2010-2014, students with LSAT scores higher than 165 had the opportunity to pay lower net tuition prices by accepting scholarships at second and third tier law schools, yet more often chose to attend law schools in the top tier despite having to pay higher net tuition.

Applying human capital theory, prospective law students armed with information about job placement opportunities would likely be willing to pay higher costs to attend higher ranked

law schools. Therefore, I hypothesize that among selective law schools, students will either not be price sensitive (null relationship), or there would exist a positive relationship between net cost and enrollment. That is, even if students must pay higher costs, students will still readily enroll in selective law schools because of perceived better job outcomes upon graduation. On the contrary, among less selective or lower ranked law schools, students would be more price sensitive and less likely to enroll when costs increase.

Research Design

Data Sources

I collected institution-level data on law schools from two sources. The first was the American Bar Association (ABA). The ABA is a voluntary organization that supports the legal profession. All law schools are required to submit data for the Standard 509 Information Report as part of an annual questionnaire filed with the Section of Legal Education and Admissions to the Bar, and for accreditation purposes. Law schools must submit data for the previous academic year each October and post it online by December (American Bar Association, 2017b). I downloaded data on all schools from 2011 to 2015 from the Standard 509 reports on the ABA website (American Bar Association, n.d.).

According to the ABA, Standard 509 reports did not exist before 2011. Yet, it was important to include data prior to 2011 to capture trends before the legal job market crashed. Therefore, to gather institution-level data prior to 2011, I relied on the Law School Admission Council (LSAC). LSAC reports official ABA data for each law school each year in PDF format from 2006 to 2014 (Law School Admission Council, n.d.), which closely follow the Standard 509 reports. A team of graduate research assistants downloaded each school's report for years 2006 to 2010. The research assistants manually entered data on the variables of interest from the

PDF documents into an excel spreadsheet. Data on each law school was merged across years to form a panel dataset from 2006 to 2015. Any lags in reporting were correctly merged so that data reported for calendar year 2015 matched the academic year 2015.

Sample

The ABA website currently reports information on 204 ABA-approved law schools that confer the Juris Doctor (J.D.) degree. Ten schools (list of schools available upon request) had to be excluded from the analysis due to missing data, inconsistently reported data, having started a branch campus, merged, or closed down, or being located in Puerto Rico (for which state-level control variables were unavailable). Additionally, 16 schools opened or gained ABA approval after the start of the dataset and only their available years of data were included in the final sample. The five for-profit law schools were also included in the sample because on average, their tuition and fee prices were comparable to non-resident public prices and private non-profit prices, and conceivably served as alternative options for students who choosing between schools.

The final sample consisted of 194 law schools. There were 79 public law schools, 110 private non-profit law schools, and 5 private for-profit law schools. After excluding years for which law schools did not report data or had not opened yet, the total sample size across years 2006 to 2015 consisted of $N = 1893$ institution-years.

Descriptive Trends

Figure 1 displays the trend of annual law school tuition and fee prices across years 2006 to 2015. Prices are for students attending full-time, CPI-adjusted to 2015 dollars, separated by resident tuition at public law schools, non-resident tuition at public law schools, private non-profits, and for-profit law schools. As seen, the sticker price of resident tuition and fees at public law schools is, on average, the most affordable. Private, non-profit schools are the most highly

priced, followed closely by for-profit schools, then by non-resident prices at public schools. Tuition and fees have steadily risen during the 10-year period, with an especially noticeable jump from 2010 to 2011, after the recession. In more recent years, tuition and fee prices have flattened out, with slight increases in real dollars.

[Insert Figure 1: Law School Tuition and Fees by Year and Control]

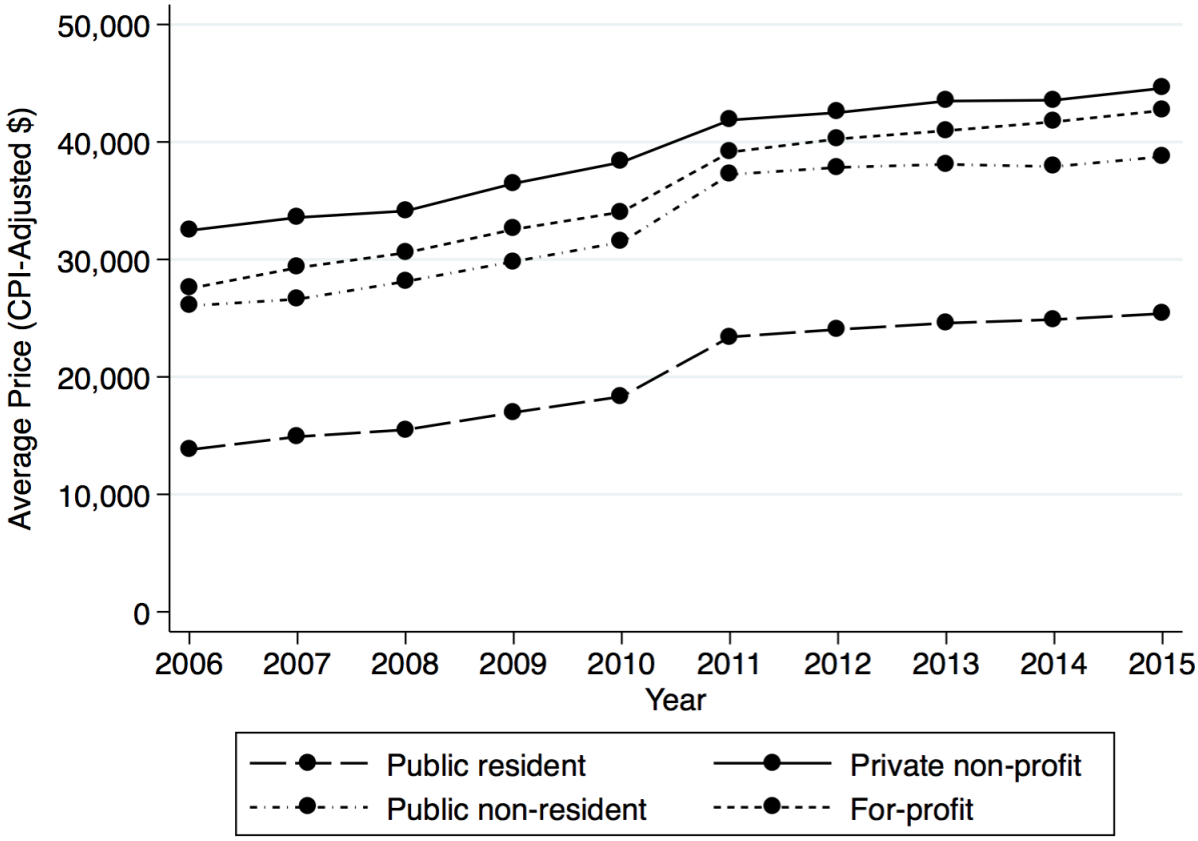


Figure 2 shows the average number of applications to law schools. The for-profit trends are more varied since there were only five for-profit law schools and individual school trends affect the average more drastically, and not all schools were open during all years. As seen, total applications to public and private non-profit law schools have been trending downwards over the last decade.

[Insert Figure 2: Law School Applications by Year and Control]

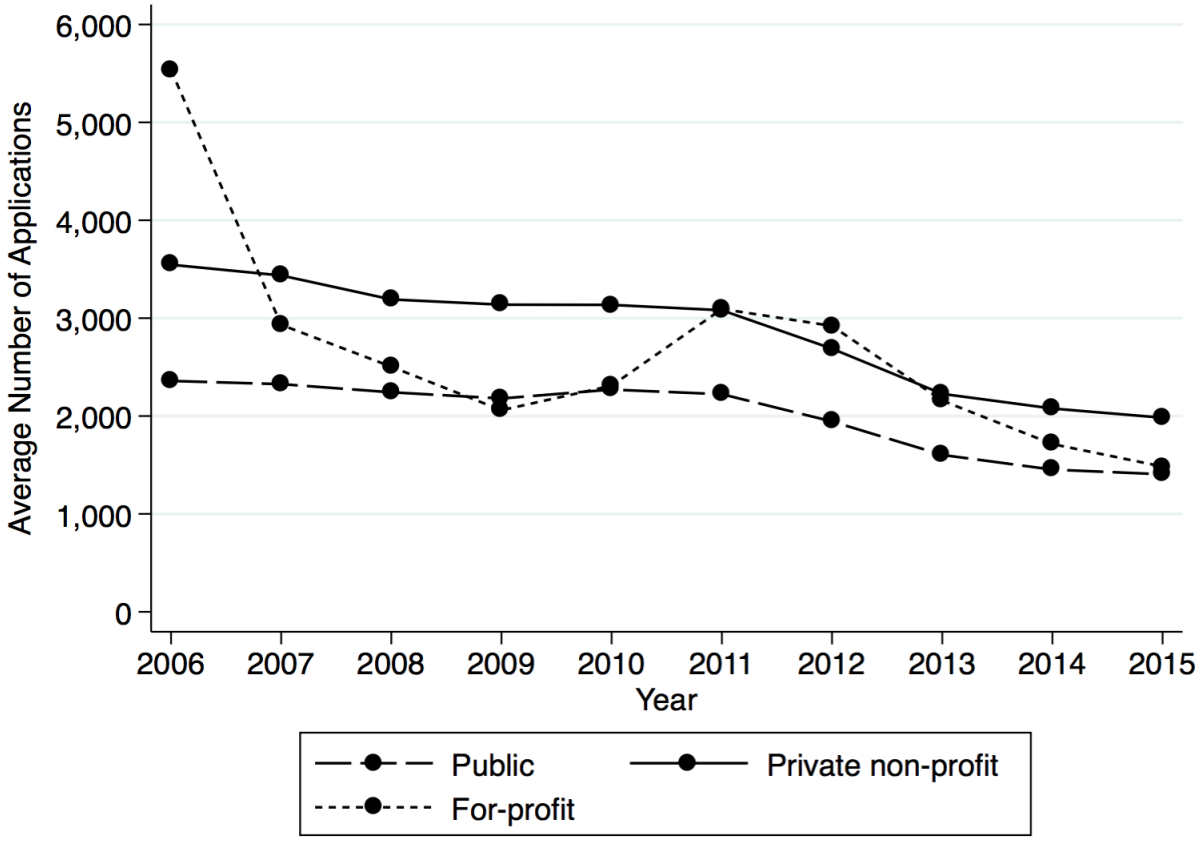
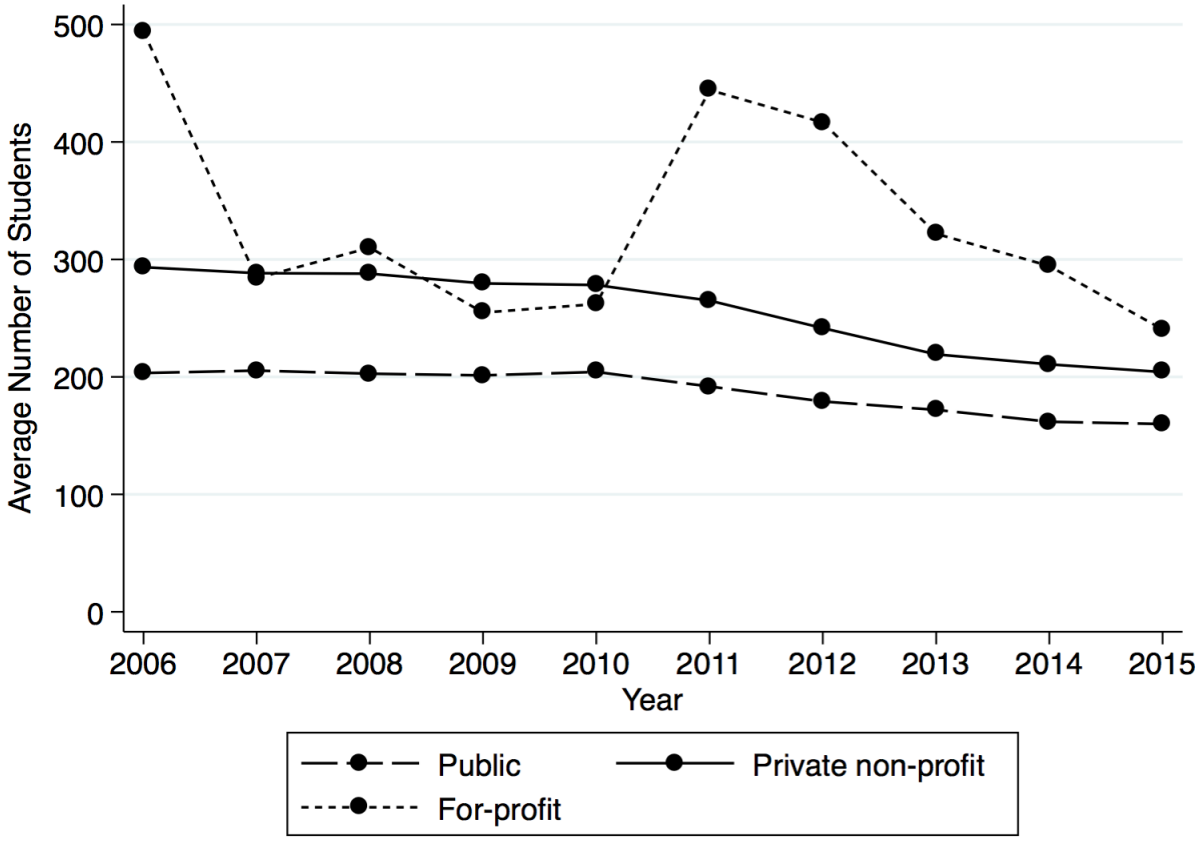


Figure 3 displays the average number of first-year students at each law school by control. There is a visually declining number of students over time among public and private, non-profit schools. First-year enrollment at for-profits is more haphazard, and roughly follows the trend of applications shown in Figure 2. Due to the unusual trends seen at for-profit law schools, I excluded them as a robustness check in all analyses reported in the Results section.

[Insert Figure 3: Law School First-Year Enrollments by Year and Control]



Outcome Variables and Main Predictor Variables

Number of applications. The first outcome variable of interest was the number of students who applied to each law school (excludes transfer students). Out of the 194 law schools in the dataset, 112 schools (57.7%) did not offer part-time programs. Data on the total number of applications to each law school (full-time applicants and part-time applicants, where applicable) was used to accommodate the noteworthy number of schools that operated part-time programs. Described in the Results, I substituted the total number of applications to full-time programs as a robustness check.

The main predictor variable of interest in the first research question was the published price of annual tuition and fees. For tuition and fee prices, data on full-time programs was used

to ensure better consistency between programs that offer both full-time and part-time programs and those that only offer full-time programs.

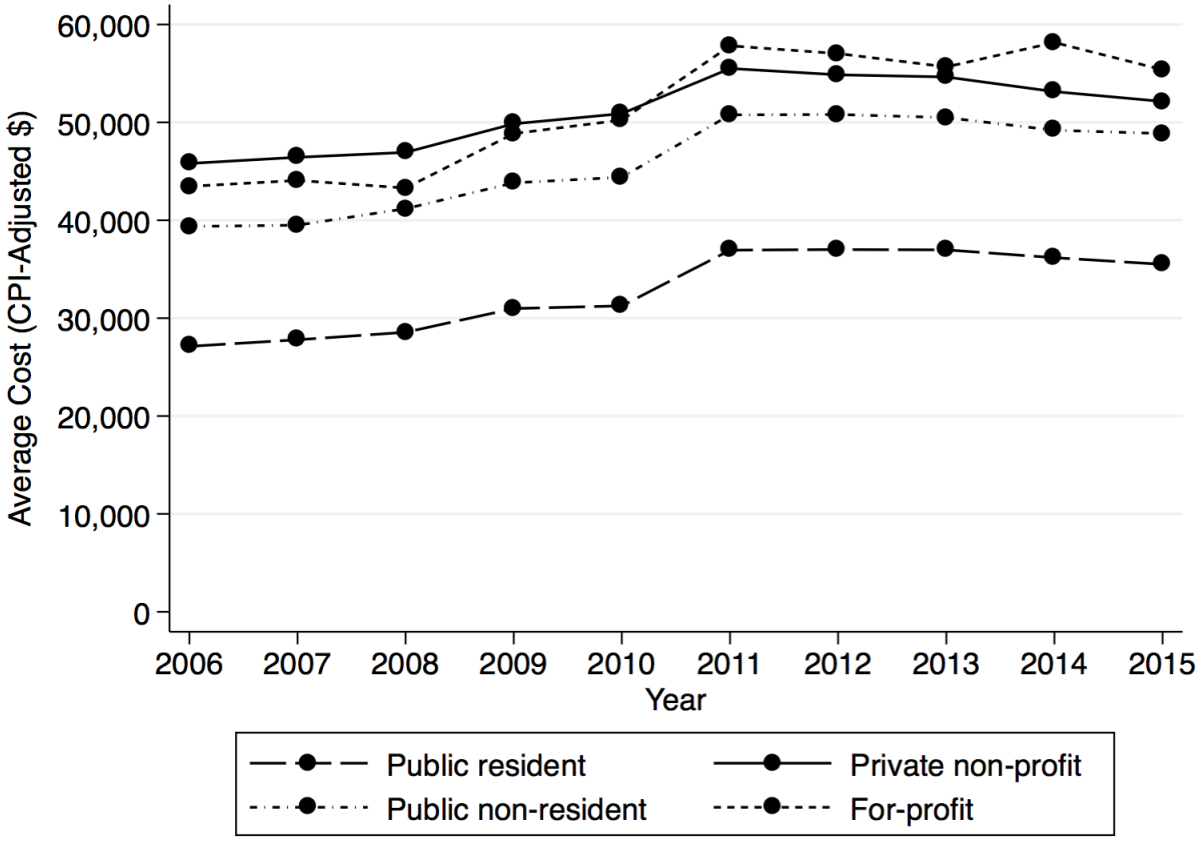
Number of first-year enrollments. The second outcome variable was the number of total first-year students who enrolled at each law school. The ABA reports first-year student data across full-time and part-time students, and does not differentiate by enrollment intensity.

The predictor variable for first-year enrollments must be one that approximates financial aid provided to students. Since the ABA reports data at the institutional level, individual student financial aid packages cannot be tracked. However, the median grant award among all full-time students is reported (not on first-year students only). I approximated the median grant award by creating an interaction variable between the median grant awarded to full-time students and the percent of all full-time students receiving grants, which accounts for the students who received zero dollars in financial assistance. Therefore, the net cost for a school can be approximated by subtracting the estimated average grant award from the sum of full-time tuition, fees, and estimated living expenses. The value for "living off campus" was used to calculate living expenses because it was reported for the most schools, versus "living on campus" or "living at home". Net cost was calculated according to equation 1:

$$Net\ Cost_{Full-time} = Tuition_{Full-time} + Fees_{Full-time} + Living\ Expenses_{Full-time} - (Median\ Grant\ Award_{Full-time} * Percent\ Awarded\ Grants_{Full-Time}) \quad (1)$$

Figure 4 shows the estimated net cost across public law schools using resident tuition, public law schools using non-resident tuition, private non-profit law schools, and for-profit law schools. Estimated costs of attending public law schools are the lowest across time, particularly for students who are eligible to pay resident tuition. Private law schools had the highest costs from years 2006-2010, until for-profit law schools exceeded these costs from 2011-2015.

[Insert Figure 4: Estimated Net Cost of Attending Law School by Year and Control]



Institutional Control Variables

A series of institution-level control variables from the ABA were added to help account for other factors that may affect the relationship between the outcome variables and the main predictor variables. Three control variables capturing financial aid were added: (1) the percent of all students who received grants; (2) the percent of all students who received a full tuition waiver, and (3) the percent of all students who received a half tuition waiver.[1] Based on human capital theory, students would make decisions on where to apply to law school not only on the published tuition and fee prices, but also on the percentage of the previous class who received grants and scholarships, because these numbers would reflect the likelihood of the student

themselves being awarded funding to offset the sticker price of law school once admitted.

Additional control variables included the median undergraduate GPA of all applicants, the median LSAT score of all applicants, the percent of all students currently enrolled who were female, the percent of all students currently enrolled who were people of color, the ratio of students to faculty and administrators (student to faculty ratio data was not available), and the typical first year section size for full-time students. These variables were intended to capture incoming student characteristics, selectivity, student demographics, and academic features of the law school. These characteristics likely affect prospective students' choices of where to apply and their likelihood of matriculating if accepted.

State Control Variables

In order to control for the number of students who would conceivably apply to and enroll in law school, there needed to be some measure accounting for the number of college graduates. This would approximate the demand for law school attendance, analogous to controlling for high school graduates by state when studying college enrollment (Hemelt & Marcotte, 2011). Based on my exploration, no data source exists on the annual number of college graduates by state. IPEDS reports colleges graduates based on the location of the college, but does not account for online degrees or interstate mobility. Therefore, I relied on the American Community Survey (ACS), which reports annual educational attainment data by state. There are several age groups for which the population holding a bachelor's degree or higher is reported: 18 to 24; 25 to 34; 35 to 44, 45 to 54, and 65 years and up (Census Bureau American Fact Finder, 2017).

The ACS data can approximate the number of bachelor's-holding individuals residing in a state for each year. Conceptually, the demand for law school might be estimated based on the total population of individuals residing in a state who already hold a bachelor's degree,

regardless of how many years they have been out of college. According to LSAC data, approximately half of all law school applicants from 2011 to 2015 were 22-24 years of age, 30% were 25-29, approximately 15% were 30-39, and 5% were age 40 or above (Dustman & Gallagher, 2015). Numbers were nearly identical for years 2005 to 2009 (Law School Admission Council, 2010). Consequently, the ACS category of bachelor's degree-holders from age 18 to 24, combined with 25 to 34-year olds would closely approximate the number of individuals in a state who would potentially apply to and enroll in law school. Granted, this variable is an imperfect measure, since some students leave the state of their undergraduate institution to attend law school, yet it is a compelling proxy. I downloaded data from 2006 to 2015 using the American Community Survey 1-year estimates and calculated the number of individuals aged 18 to 34 who held a bachelor's degree or higher. In all analyses, I included the logged version of this variable as a control.

Furthermore, I added unemployment data from the Bureau of Labor Statistics. I used each state's annual average unemployment rate of the total civilian non-institutional population (Bureau of Labor Statistics, 2017). Additionally, I collected each state's personal income per capita from the Bureau of Economic Analysis, which was CPI-adjusted to 2015 dollars (Bureau of Economic Analysis, n.d.). Controlling for unemployment and personal income per capita accounts for a state's relative wealth and economic and social conditions that could affect students' decisions to enroll in law school, and the opportunity costs of attending law school (Hemelt & Marcotte, 2011; Leslie & Brinkman, 1987). Summary statistics for all variables in this study are shown in Table 1 for all law schools combined, public law schools, and private law schools.

[Insert Table 1]

Table 1: Summary Statistics

	All Law Schools		**Public Law Schools**		**Private Law Schools**	
Variable	Mean	SD	Mean	SD	Mean	SD
Total applications	2,488	1,834	1,993	1,514	2,824	1,954
Total first-year enrollment	229	146	187	80	258	172
Resident tuition + fees, FT student			20,269	9,390		
Non-resident tuition + fees, FT student	36,767	8,981	33,286	9,288	39,128	7,944
Estimated living costs	19,724	4,319	17,929	3,707	20,942	4,282
Estimated net cost, resident FT student			32,902	8,891		
Estimated net cost, non-resident FT student	49,052	9,676	45,919	9,211	51,178	9,406
Median FT grant award * % FT students on grants	7,440	5,428	5,296	4,683	8,893	5,418
Median FT grant award	12,779	7,041	8,870	5,707	15,429	6,614
Percent students on grants	53.21	19.80	52.63	20.19	53.61	19.53
Percent students on half to full tuition waivers	13.64	10.14	12.11	9.01	14.67	10.73
Percent students on full tuition waivers	3.18	4.89	2.99	4.83	3.31	4.93
Median undergraduate GPA	3.39	0.23	3.46	0.19	3.35	0.25
Median LSAT score	157	6	157	5	157	7
Percent female students	46.92	5.49	46.00	5.77	47.55	5.21
Percent students of color	23.48	13.30	23.22	15.09	23.66	11.94
Student to faculty and administrators ratio	3.88	1.25	3.78	1.07	3.95	1.36
Typical first-year section size (FT)	67	21	65	22	69	21
State: Population of 18-34 year olds with BA or higher	670,380	601,508	504,819	509,225	782,661	632,768
State: Personal income per capita	46,054	7,456	43,475	5,961	47,803	7,853
State: Unemployment rate	6.95	2.23	6.69	2.23	7.12	2.22
	N = 1893		N = 765		N = 1128	

Values are for full-time and part-time students combined unless otherwise noted. All financial variables CPI-adjusted to 2015 values.

Empirical Model

As described earlier, a panel dataset was created, for a total sample size of $N = 1893$ institution-years. Data on multiple observations of individual units over time can be analyzed using fixed effects models. Unobserved characteristics of units may be correlated with both predictor (or treatment) and outcome variables, and controlling for such unobservables using fixed effects can reduce selection bias (Schneider, Carnoy, Kilpatrick, Schmidt, & Shavelson, 2007). Each law school has certain characteristics that are unchanged across time, captured by the fixed effect, which is treated as a parameter to be estimated (Angrist & Pischke, 2009).

Formally, the model is as follows:

$$Y_{ist} = \alpha_i + \lambda_t + \delta D_{ist} + X_{ist}\beta_1 + X_{st}\beta_2 + \varepsilon_{ist} \qquad (2)$$

where Y_{ist} is the outcome variable (applications; first-year enrollments) for law school i in state s in year t. α_i and λ_t are school- and year-fixed effects, respectively. School fixed effects control for time-invariant characteristics that might affect outcomes and allow for the examination of within-school variation. Year fixed effects control for national trends affecting all law schools. D_{ist} is the main predictor variable of interest for law school i in state s in year t. δ is the parameter of interest and provides an estimate of the effect of the predictor variable on the outcome variable. X_{ist} and X_{st} are vectors of school- and state-level control variables (Angrist & Pischke, 2009; Rabe-Hesketh & Skrondal, 2012). I clustered standard errors at the school level to correct for panel heteroskedasticity and account for serial correlation in the error term (Beck & Katz, 1995).

All financial variables were CPI-adjusted to 2015 dollars. Tuition and fees, living expenses, and all institution- and state-level control variables were lagged by one year when analyzing the applications outcome to reflect the prices and information available at the time

students applied to law school. Same-year values of predictor and control variables were used when analyzing enrollments to reflect information relevant when students entered law school.

I conducted a stepwise model building process and added blocks of variables in groups (Tabachnick & Fidell, 2013). To predict total applications, I first ran a base model with only the lagged tuition and fees variable. Next, I added the lagged variable for living expenses, and institution control variables. The third model adds the block of state control variables. The fourth model includes school fixed effects, and the fifth model additionally includes year fixed effects.

In the first set of analyses, the entire sample of law schools was used; non-resident tuition was used for public schools, prices for which are slightly lower (see Figure 1) but still a reasonable alternative choice compared to the tuition prices of private schools. In a second analysis, the sample included public law schools only using resident tuition prices. Third, the same set of public schools were included but non-resident tuition was substituted. Private schools, including for-profit schools, were used in a fourth analysis.

To address the third research question, I divided law schools into tiers. I utilized median LSAT scores of incoming first-year students as a proxy for selectivity. After exploring the distribution of LSAT scores in my data, I chose to incorporate the initial 5-tiered system of categorizing law schools developed by Organ (2017). Law schools were placed into five tiers according to the median LSAT score of the entering class: 165+; 160-164; 155-159; 150-154; and less than 150 (Organ, 2017). Tiers were a time-varying variable; a school could be in tier 1 in one year and tier 2 in the next, although many schools remained in the same tier across all years (e.g. Yale was always in tier 1; University of Washington was always in tier 2). For all law schools in each of the five tiers, I ran the same model formalized in equation 2.

Results

Relationship Between Applications and Tuition and Fee Prices

The first research question in this study asks whether total applications to law school is associated with changes in published annual tuition and fee prices. Estimates for the base model with only the tuition and fees variable to predict applications are in Table 2, Column 1. Estimates for the model with living expenses and all school-level control variables are in Column 2. The third model added the block of state control variables (Column 3). The fourth model additionally included school fixed effects (Column 4), and finally, the last model added the year fixed effects (Column 5). The last model, considered the full model, was the best fit according to the *R*-squared value.

[Insert Table 2]

Shown by the regression estimates for "Tuition + fees" in the first row of Table 2 across Columns 1-4, there was a negative relationship between published prices for the previous year's law school tuition and fees and the current year's total applications to law school. However, this relationship was no longer statistically significant after year fixed effects were included (Column 5). That is, once year-to-year time trends were accounted for, the negative association between tuition prices and applications disappeared.

Table 2: Applications to All Law Schools (Log)

	(1)	(2)	(3)	(4)	(5)
Tuition + fees (non-resident, log)	-0.882^{***}	-0.348^{***}	-0.482^{***}	-0.353^{***}	-0.119
	(0.086)	(0.071)	(0.092)	(0.086)	(0.070)
Living expenses (log)		0.035	-0.054	-0.020	0.050
		(0.062)	(0.068)	(0.064)	(0.061)
Percent students receiving grants		-0.002^{*}	-0.002^{*}	-0.001	0.000
		(0.001)	(0.001)	(0.001)	(0.001)
Percent students on half to full tuition waivers		-0.004^{*}	-0.004^{*}	-0.001	0.000
		(0.002)	(0.002)	(0.002)	(0.002)
Percent students on full tuition waivers		-0.007^{**}	-0.007^{**}	-0.005^{*}	-0.005^{*}
		(0.002)	(0.002)	(0.002)	(0.002)
Median grant (log)		0.020	0.017	0.013	0.022^{*}
		(0.011)	(0.012)	(0.012)	(0.010)
Median undergraduate GPA		0.083	0.096	0.119	0.167
		(0.095)	(0.103)	(0.104)	(0.114)
Median LSAT score		0.075^{***}	0.071^{***}	0.046^{***}	0.031^{***}
		(0.005)	(0.005)	(0.006)	(0.007)
Percent total female students		0.009^{**}	0.010^{**}	0.004	0.001
		(0.003)	(0.003)	(0.003)	(0.003)
Percent students of color		-0.000	-0.002	-0.004^{*}	-0.000
		(0.002)	(0.002)	(0.002)	(0.002)
Student to faculty and administrators ratio		0.112^{***}	0.112^{***}	0.080^{***}	0.045^{*}
		(0.018)	(0.018)	(0.017)	(0.017)
Typical first-year section size		0.003^{**}	0.003^{**}	0.002^{**}	0.001^{*}
		(0.001)	(0.001)	(0.001)	(0.001)
State: Population 18-34 year olds with BA (log)			0.203^{***}	-0.740^{***}	0.197
			(0.042)	(0.144)	(0.204)
State: Personal income per capita (log)			0.296	-0.699	-0.194
			(0.271)	(0.391)	(0.379)
State: Unemployment rate			0.018^{***}	0.016^{***}	0.002
			(0.004)	(0.005)	(0.010)
School FE				*X*	*X*
Year FE					*X*
R squared	0.33	0.55	0.55	0.60	0.64
N (school-years)	1699	1699	1699	1699	1699

Robust standard errors in parentheses. All predictor variables are lagged one year.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The next set of models, shown in Table 3, repeats the full model results for the sample of all schools in Column 1. Table 3, Column 2 reports the full model analyzing total applications to public law schools predicted using resident tuition, Column 3 uses non-resident tuition, and Column 4 presents results for the sample of private law schools. Results indicate that resident and non-resident tuition and fee prices among public law schools were unrelated to applications for admissions. Results for private schools were similar. The hypothesized negative relationship between tuition prices and applications was not supported. There was limited justification for excluding year fixed effects, since there are annual trends affecting all law schools that are unaccounted for using the existing control variables (e.g. changes to bar examinations, accreditation, recruitment practices). Year fixed effects are especially important to account for pre-existing time trends in panel data (e.g. see Wolfers, 2006). Thus, given the results reported in Table 3, I conclude that there is no association between the price of tuition and fees at law schools and the number of applications to law school.

[Insert Table 3]

Robustness checks. As a robustness check, I used different year cutoffs to see whether the null relationship between applications to law school and sticker prices still held. In particular, the economic and job outlook conditions during and following the Great Recession of 2007 to 2008 may have affected the strength of the relationship between tuition and applications. A student may have been less price sensitive to tuition increases since their job prospects were less plentiful. Framed in human capital theory, if the student was unemployed, they would not incur lost wages by returning to school and their opportunity cost would be lower. I conducted the

Table 3: Applications to Law Schools (Log)

	(1) All Schools	(2) Public Schools	(3) Public Schools	(4) Private Schools
Tuition + fees (non-resident, log)	−0.119		−0.107	−0.159
	(0.070)		(0.071)	(0.197)
Tuition + fees (resident, log)		−0.009		
		(0.116)		
Living expenses (log)	0.050	0.047	0.059	0.028
	(0.061)	(0.092)	(0.091)	(0.074)
Percent students receiving grants	0.000	0.000	0.000	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Percent students on half to full tuition waivers	0.000	−0.001	−0.001	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Percent students on full tuition waivers	−0.005*	−0.005	−0.005	−0.005
	(0.002)	(0.003)	(0.003)	(0.003)
Median grant (log)	0.022*	0.018	0.019	0.032*
	(0.010)	(0.011)	(0.011)	(0.013)
Median undergraduate GPA	0.167	0.341	0.333	0.116
	(0.114)	(0.194)	(0.196)	(0.103)
Median LSAT score	0.031***	0.035**	0.035**	0.033***
	(0.007)	(0.012)	(0.012)	(0.008)
Percent total female students	0.001	0.002	0.003	0.000
	(0.003)	(0.004)	(0.004)	(0.005)
Percent students of color	−0.000	0.005	0.005	−0.003
	(0.002)	(0.004)	(0.004)	(0.003)
Student to faculty and administrators ratio	0.045*	−0.011	−0.011	0.066**
	(0.017)	(0.017)	(0.017)	(0.023)
Typical first-year section size	0.001*	0.001	0.001	0.002*
	(0.001)	(0.000)	(0.000)	(0.001)
State: Population 18-34 year olds with BA (log)	0.197	−0.000	0.030	0.220
	(0.204)	(0.266)	(0.260)	(0.286)
State: Personal income per capita (log)	−0.194	0.466	0.442	−1.101*
	(0.379)	(0.439)	(0.468)	(0.525)
State: Unemployment rate	0.002	0.007	0.007	−0.002
	(0.010)	(0.013)	(0.013)	(0.014)
School FE	*X*	*X*	*X*	*X*
Year FE	*X*	*X*	*X*	*X*
R squared	0.65	0.65	0.66	0.67
N (school-years)	1699	688	688	1011

Robust standard errors in parentheses. All predictor variables are lagged one year.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

same analysis on the full model using the years before the Great Recession, across years 2006 to 2009, to 2010, and to 2011, which also produced null findings.

Additionally, I analyzed the subset of years after the Great Recession starting at 2008, 2009, 2010, and 2011. When analyzing all schools from 2011 to 2015, the coefficient for lagged non-resident tuition and fees had a value of -0.321, which was statistically significant at the $p <$ .01 level. The outcome variable and main predictor variable were both logged so that regression coefficients can be interpreted by exponentiating the coefficient. Contextualized, $1,000 increase in non-resident tuition and fees (an approximate 2.44% increase based on a mean of $41,030 from 2011-2015) would be associated with a 0.77% decline in applications ($1.0244^{\beta=-0.321} - 1 = -0.0077$). However, the 2011 to 2015 subset of years was the only one that indicated a negative relationship between law school tuition and fee prices and applications.

Furthermore, I used the same years to conduct robustness checks for sub-samples of public and private law schools, which yielded null findings. As a whole, results suggest that students did not alter their application behavior in response to changing tuition and fee prices, except for perhaps a slight decline immediately following the Great Recession.

Second, I conducted the same set of analyses using the outcome of all applications to full-time only law school programs, and substituted values of control variables for full-time students only (median GPA, median LSAT score, percent students of color, percent of full-time students receiving grants and on tuition waivers). Results were substantively identical. Third, due to the unique case of for-profit law schools, I removed those schools and estimated models using the full sample of schools and the sample of private schools, which consistently showed no relationship between law school sticker prices and the number of applications.

Relationship Between Net Cost and First-Year Enrollments

The second research question asks whether the enrollment of first-year students in law school is associated with net cost. Table 4 reports estimates for four full models utilizing all school and state control variables, along with school fixed effects and year fixed effects. Estimates from Column 1 indicate that net costs were positively related to the number of first-year students. For every $1,000 increase in net costs (an approximate 2.04% increase based on the mean of $49,052), there was a 0.4% increase in first-year enrollment ($1.0204^{\beta=0.205} - 1 = 0.004$). The mean of first-year enrollment is 229, and 0.4% is nearly one student. If a law school raised its net cost of attendance by about $1,000 in one year, that school can expect an additional student to enroll as a first-year, which is counterintuitive to the hypothesized idea that higher net costs would produce enrollment declines.

[Insert Table 4]

Next, estimates in the second column show that among public law schools only and using resident tuition, net costs were not associated with first-year enrollment. The same held true for non-resident tuition (Column 3).

The fourth column shows that among the sample of private law schools, higher net costs were associated with higher first-year enrollment, with a $1,000 increase in net costs (about a 1.95% increase based on the mean of $51,178) is associated with a 0.76% increase in enrollment ($1.0195^{\beta=0.393} - 1 = 0.0076$). Among the private school sample, the mean of first year enrollment is 258, so a 0.76% increase is equivalent to about two students. Therefore, at the average private law school, an approximate $1,000 increase in the net cost of attendance would hypothetically attract two additional students. Once again, this contradicts the hypothesized idea

Table 4: First-Year Enrollments at Law Schools (Log)

	(1) All Schools	(2) Public Schools	(3) Public Schools	(4) Private Schools
Estimated net cost (non-resident, log)	0.205**		−0.000	0.393*
	(0.073)		(0.057)	(0.152)
Estimated net cost (resident, log)		0.031		
		(0.060)		
Percent students on half to full tuition waivers	−0.001	−0.000	−0.000	−0.000
	(0.001)	(0.001)	(0.001)	(0.002)
Percent students on full tuition waivers	−0.004*	−0.005*	−0.005*	−0.002
	(0.002)	(0.002)	(0.002)	(0.003)
Median undergraduate GPA	0.046	−0.066	−0.063	0.062
	(0.035)	(0.073)	(0.075)	(0.047)
Median LSAT score	0.001	0.002	0.002	0.001
	(0.005)	(0.006)	(0.006)	(0.007)
Percent female students	−0.003	0.003	0.003	−0.006
	(0.002)	(0.003)	(0.003)	(0.003)
Percent students of color	0.002	0.005*	0.005*	0.002
	(0.002)	(0.003)	(0.003)	(0.002)
Student to faculty and administrators ratio	0.060**	0.072***	0.072***	0.055*
	(0.023)	(0.017)	(0.017)	(0.024)
Typical first-year section size	0.002*	0.001	0.001	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
State: Population 18-34 year olds with BA (log)	−0.034	0.026	0.038	−0.081
	(0.149)	(0.153)	(0.153)	(0.225)
State: Personal income per capita (log)	−0.391	−0.056	−0.071	−0.778
	(0.285)	(0.267)	(0.271)	(0.479)
State: Unemployment rate	0.001	0.018	0.018	−0.009
	(0.008)	(0.009)	(0.009)	(0.011)
School FE	*X*	*X*	*X*	*X*
Year FE	*X*	*X*	*X*	*X*
R squared	0.40	0.44	0.44	0.42
N (school-years)	1893	765	765	1128

Robust standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

that higher net costs would lead to enrollment declines. Excluding the five for-profit schools led to identical results.

Another surprising finding was that a greater percent of students on full tuition waivers was associated with lower first-year enrollments in the sample of all schools and both public school samples. The intuitive expectation is that the more students who received financial aid, the more likely these students would enroll in a particular law school. However, this was not the case. To address the issue of multicollinearity, I analyzed separate models that only included one of the three variables capturing financial aid (estimated net cost, percent on half to full tuition waivers, or percent on full tuition waivers). The conclusions remained the same.

Robustness checks. I conducted an alternative analysis where instead of using estimated net cost to predict first year enrollment, I substituted tuition and fees as one predictor variable and living expenses as a second predictor variable. Interestingly, these two variables were unrelated to first-year enrollment for all samples.

I additionally ran models using one-year lags of the institution- and state-level control variables. Results showed that estimated net costs of attendance were positively related to first-year enrollments in the sample of all schools and the sample of private schools, consistent with results reported in Table 4.

Lastly, I estimated models for the full sample of law schools and for the sample of private schools while excluding the five for-profit schools. Both models still indicated that higher net costs were associated with greater first-year enrollments.

Relationship Between Net Cost and First-Year Enrollments Within Law School Tiers

To address the third research question, I conducted analyses predicting first-year enrollments using net costs, running a separate model for each of the five tiers of law schools.

Table 5 reports estimates for first-year enrollments in relation to estimated net costs, stratified by law school tiers. Among the top two tiers of law schools with the highest median LSAT scores, at 160 and above, there appears to be no relationship between net cost and first-year enrollment (Columns 1 and 2). Consistent with hypotheses, students chose to enroll at highly competitive law schools irrespective of the estimated cost of attendance.

[Insert Table 5]

On the other hand, amongst the third and fourth tiers according to median LSAT scores, higher net costs were associated with greater numbers of first-year enrollments. That is, more students enrolled at third and fourth tier law schools, with median LSAT scores ranging from 150-159, when net costs were higher. These results differed from hypothesized directions. Students were *more* willing to pay higher out-of-pocket prices to attend *less* prestigious law schools, even though the employment prospects of graduating from such law schools were less certain. Nevertheless, this relationship did not hold for the lowest tier of law schools, tier 5, where median LSAT scores were less than 150. Evidently, students were not willing to pay more to attend the lowest tier of law schools, although these law schools also did not observe declines in enrollment when net costs increased.

Table 5: First-Year Enrollments (Log) at Law Schools by Median LSAT Tier

	(1) 165+	(2) 160-164	(3) 155-159	(4) 150-154	(5) < 150
Estimated net cost (non-resident, log)	0.005	0.005	0.228*	0.279*	0.344
	(0.075)	(0.075)	(0.092)	(0.138)	(0.299)
Percent students on half to full tuition waivers	0.001	0.001	−0.002	−0.000	−0.003
	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)
Percent students on full tuition waivers	−0.002	−0.002	−0.001	−0.006*	−0.012
	(0.003)	(0.003)	(0.002)	(0.003)	(0.014)
Median undergraduate GPA	0.012	0.012	−0.088	−0.090	0.061
	(0.086)	(0.086)	(0.141)	(0.149)	(0.252)
Percent female students	0.001	0.001	0.001	−0.005	−0.014
	(0.003)	(0.003)	(0.005)	(0.003)	(0.010)
Percent students of color	0.004	0.004	−0.002	0.002	0.013*
	(0.004)	(0.004)	(0.003)	(0.004)	(0.006)
Student to faculty and administrators ratio	0.099***	0.099***	0.035*	0.079*	0.025
	(0.026)	(0.026)	(0.017)	(0.031)	(0.023)
Typical first-year section size	0.002*	0.002*	0.004***	0.004***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
State: Population 18-34 year olds with BA (log)	0.230	0.230	−0.224	−0.218	0.894
	(0.295)	(0.295)	(0.254)	(0.169)	(0.742)
State: Personal income per capita (log)	−0.903	−0.903	−0.153	−0.140	0.252
	(0.612)	(0.612)	(0.409)	(0.297)	(1.033)
State: Unemployment rate	−0.010	−0.010	−0.008	−0.009	0.076*
	(0.012)	(0.012)	(0.010)	(0.015)	(0.036)
School FE	*X*	*X*	*X*	*X*	*X*
Year FE	*X*	*X*	*X*	*X*	*X*
R squared	0.51	0.51	0.50	0.39	0.46
N (school-years)	382	382	516	550	201

Robust standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Limitations

Before describing the broader implications of this study's results, I note several limitations. The first is that there are additional ways of measuring law school tiers, selectivity, and prestige. For instance, the U.S. News and World Report utilizes a complex method of ranking law schools (Seto, 2007), which could more fully capture student viewpoints of prestige when making decisions of where to enroll. Due to data limitations, I was unable to incorporate the U.S. News rankings and instead used LSAT scores, which are one component of the U.S. News rankings.

A second limitation of this study is that the analyses are not intended to be causal. The two-way fixed effects model analyzes associations between law school tuition prices and applications, as well as associations between net prices and enrollments. However, the model cannot definitively conclude that higher tuition prices caused fewer applications to law school. Applying quasi-experimental modeling techniques would be appropriate if causal claims are desired.

Third, this study is limited in that it incorporates school-level data rather than individual-level data. Information on financial aid is aggregated at the school level, so net costs are estimated values across an entire class of students. Future research would benefit from examining student-level data to more precisely capture what individuals are paying to attend law school.

A fourth limitation of this study is that the time period of 2006 to 2015 covers the Great Recession of 2007-08 and its aftermath. The recession had a particularly strong impact on the legal job market, for which a lucrative job market for law school graduates shrank (Nichol, 2012). Applications to and enrollment in law school during the approximate period of 2007 to

2010 may not be reflective of general patterns in the data. The inclusion of year fixed effects should help mitigate some of these concerns. The recession also caused universities to find ways to limit tuition increases over concerns that rapid tuition increases will reduce enrollment and have disproportional negative impacts on students of color and low-income students (Ehrenberg, 2013). Consequently, law school tuition-setting behaviors may have been particularly unusual due to the Great Recession.

Discussion

Although the literature on undergraduate price sensitivity suggests that students make enrollment decisions based on sticker price as well as net price (Heller, 1997; Hemelt & Marcotte, 2011; Wetzel et al., 1998), results from the present study suggest that price sensitivity does not fully translate to law school students. First, applications to law school are not associated with the published prices of tuition and fees. Second, first-year enrollments in law school are indeed associated with estimated net costs among law schools and particularly at private law schools, yet in the opposite direction of expectations. That is, first-year law students enroll at higher numbers when net costs are higher. Third, law schools in the third and fourth tiers experience increases in first-year enrollment when net costs are higher, while law schools in the first, second, and fifth tiers observe no changes in first-year enrollment when net costs change.

It appears that theories around undergraduate sensitivity to tuition prices do not necessarily pertain to law school. One possibility is that law school is a fundamentally different pursuit than college and one that elicits greater commitment. Students tend to be older and more professionally established. Once students have decided that they intend to go to law school, an increase in published tuition prices is not going affect their decision to apply. Moreover, once the student has been accepted to law school, a change in the net cost is not going to deter the student

from enrolling. In fact, increases in net cost at private law schools is associated with higher numbers of students enrolling. One possibility is that private law schools are more concentrated in urban areas, where cost of attendance are higher, and students are willing to pay premiums to attend law school in locations with opportunities for summer internships.

Another explanation for the lack of support for price sensitivity (where enrollments decline when costs increase) could be that law school students are more knowledgeable about options to finance their legal education, and an increase in cost will not incentivize them to forgo enrollment. As mentioned previously, 90% of students take out loans to finance their legal education (American Bar Association, 2015), and many may be informed about loan repayment options. Particularly relevant are those created by Congress in 2007, including the Public Service Loan Forgiveness (PSLF) program and the Income-Based Repayment Plan (IBR) (Schrag & Pruett, 2011). The IBR option allows a graduate with a federally-guaranteed or federally-extended loan to pay a percentage of their adjusted gross income not exceeding 10%, which is much lower than what would be required under a standard 10-year repayment plan. Payments occur up to 25 years, and any balance still remaining will be forgiven. Graduates entering full-time public service work can have their remaining debt forgiven after only 10 years under PSLF. Both IBR and PSLF have been important for lawyers graduating after the 2008 recession to avoid defaulting on student loans (Schrag & Pruett, 2011). Consequently, students who choose to apply to and enroll in law school may be knowledgeable enough about their borrowing and loan repayment options that increases in the sticker price and net price of law school do not substantially alter decisions.

One surprising finding from this study is that students accepted to law schools ranked in the third and fourth tiers according to median LSAT scores are willing to enroll in higher

numbers even when net costs increase. Despite the greater risk of employment uncertainty associated with graduating from a lower-tiered law school, students continue to enroll at such law schools even when costs are higher, which is a phenomenon that warrants further research. Yet, students are not price sensitive at top tier nor second tier law schools, which is more consistent with human capital theory and theories around price sensitivity. Because the returns on investment are higher for graduating from a top tier law school, enrollments stay stable even when students must pay higher net costs.

A practical implication of results from this study is that law schools in the top and second tiers are in a coveted position where they seem to be able to increase costs (at reasonable levels) and still attract similar numbers of applicants and first-year students. Because it does not appear that students are substantially dissuaded from applying or enrolling due to price increases, highly selective law schools should be confident that they can increase prices and continue to attract a large pool of students.

Future research should also examine the differences in enrollment decisions by race and by gender. An ABA task force reports that people of color remain profoundly underrepresented in law school and the legal profession (American Bar Association, 2015). If students of color are more price sensitive, then rising law school tuition prices may perpetuate these already existing inequitable participation rates. Women are also underrepresented in the legal profession, with 35% of lawyers reporting as female in 2017 (American Bar Association, 2017), and may be disproportionally deterred by increases in sticker price or net cost. Further research into enrollment patterns by race and gender would offer a more nuanced understanding.

In conclusion, this study contributes new insights on student price sensitivity in legal education. Findings highlight the willingness of students to apply to and enroll at law schools

despite increases in tuition and fees. At private law schools and at law schools in third and fourth tiers, first-year students are even willing to pay higher net costs. This study reveals that there is in fact, a lack of price sensitivity in legal education.

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Endnotes:

1 The four variables: (1) median grant amount; (2) percent of students receiving grants; (3) percent of students receiving full tuition waivers; and (4) percent of students receiving half tuition waivers were all significantly correlated with one another. The variables were still included in the models to adequately control for as many financial aid characteristics as possible that could confound the relationship between tuition and fees prices and whether or not a student chose to apply to a particular law school.