

# The Demand for Legal Education: The Long View

Deborah M. Hussey Freeland

## I. Introduction

Legal scholars and journalists herald a “sea change” in the market for legal services and, as a result, in the demand for legal education.<sup>1</sup> The recent decline in the number of law school applicants has been regarded as part of a crisis in American legal education.<sup>2</sup> For example, Paul Campos writes of the culmination of increasing law school tuition and a deteriorating long-term value of the law degree in an “inevitable social and economic crisis” that is signaled “most tellingly, [by] a drastic plunge in the number of people applying to law school” from 2010 to 2012.<sup>3</sup> Other articles commenting on downturns in the number of law school applicants similarly focus only on the few years preceding, expect the decline to continue, and call for radical changes in legal education.<sup>4</sup>

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1. See, e.g., William D. Henderson & Rachel M. Zahorsky, *Law Job Stagnation May Have Started Before the Recession—And It May Be a Sign of Lasting Change*, A.B.A. J. (Jul. 1, 2011); BRIAN Z. TAMANAHA, *FAILING LAW SCHOOLS* (2012); William D. Henderson, *A Blueprint for Change*, 40 PEPP. L. REV. 461 (2013); Ethan Bronner, *Law Schools’ Applications Fall as Costs Rise and Jobs Are Cut*, N.Y. TIMES (Jan. 30, 2013), available at <http://www.nytimes.com/2013/01/31/education/law-schools-applications-fall-as-costs-rise-and-jobs-are-cut.html>; James Langford, *New Columbia Dean Takes Helm amid Sea Change for Legal Education*, LAWDRAGON CAMPUS (Jan. 28, 2015), available at <http://campus.lawdragon.com/2015/01/18/new-columbia-law-dean-takes-helm-amid-national-enrollment-drop/>.
2. See, e.g., Paul Campos, *The Crisis of the American Law School*, 46 U. MICH. J.L. REFORM 177 (2012); Richard A. Westin, *The Need for Prompt Action to Revise American Law Schools*, 46 AKRON L. REV. 137 (2013); René Reich-Graefe, *Keep Calm and Carry On*, 27 GEO. J. LEGAL ETHICS 55 (2014).
3. Paul Campos, *The Crisis of the American Law School*, 46 U. MICH. J.L. REFORM 177, 222 n.165 (2012).
4. See, e.g., *supra* note 1; David H. Vernon & Bruce I. Zimmer, *The Size and Quality of the Law School Applicant Pool: 1982-1986 and Beyond*, 1987 DUKE L.J. 204 (also noting that enrollments were stable despite a decline in the number of law school applicants over a five-year period, so that the quality of the entering class was expected to decline); David H. Vernon & Bruce I. Zimmer, *The Demand for Legal Education: 1984 and the Future*, 35 J. LEGAL EDUC. 261 (1985); ASS’N

The tendency to extrapolate short-term trends to catastrophic conclusions is not confined to the legal education literature. For example, consider ecosystemic concerns regarding jellyfish blooms: the jellyfish population soars, observers extrapolate the trend into the future and predict a sea change in marine ecosystems that would deplete valuable fish stocks.<sup>5</sup> But a closer examination of the available long-term jellyfish population data indicates that the population oscillates: as a bloom ends, the ecosystemic threat is abated; the next bloom occurs and concerns rise until the population declines once again.<sup>6</sup>

Rather than extrapolate from short-term trends, I examine all available data on the total number of law school applicants.<sup>7</sup> Part II presents the data in question—all of it that we know of. Part III presents a statistical analysis of the time series of law school applicant data in its correlation with other long-term economic and demographic trends, identifying the highly statistically significant correlation of changes in the number of law school applicants with changes in the national unemployment rate. Part IV considers how the law school applicant data relate to other trends, focusing on relationships between the number of people awarded a bachelor's degree in a given year, the number of those who apply to law school, and the number of those who enroll, particularly with respect to whether and how gender dynamics affect the populations of law school applicants and matriculants. Part V compares the experience of the legal profession with that of the medical profession, as both have shared an unmet need for services, especially among lower-income populations. Part VI concludes.

## II. Long-Term Trends in the Demand for Legal Education

The demand for legal education, measured in terms of the number of people applying to law school, has declined over the past few years. Some extrapolate from this decline to a “new normal” (and thus, to the end of law school and the legal profession as we know it), while others suggest that it is a blip that will be accommodated by some budget cuts or the closing of a few excess schools. This article places the recent decline in its longer-term context,

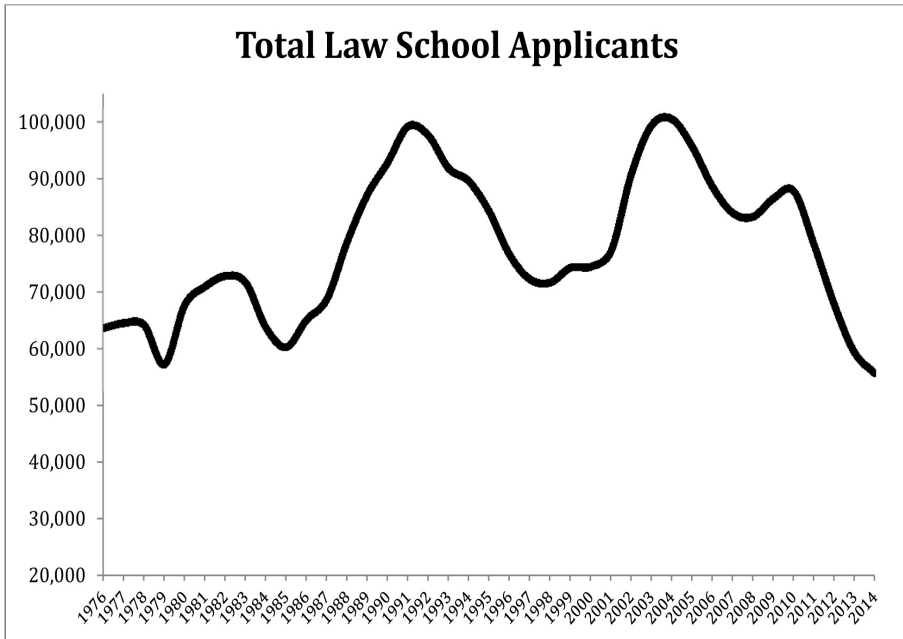
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OF AM. LAW SCH. & LAW SCH. ADMISSION COUNCIL, REPORT OF JOINT COMMITTEE ON THE DEMAND FOR LEGAL EDUCATION IN THE 1980'S (1980).

5. LISA-ANN GERSHWIN, STUNG!: ON JELLYFISH BLOOMS AND THE FUTURE OF THE OCEAN (2013).
6. Robert H. Condon, et al., *Recurrent Jellyfish Blooms Are a Consequence of Global Oscillations*, 110 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES 1000 (2013).
7. Data from the Law School Admission Council (LSAC) (on file with the author). To the best of the organization's knowledge, LSAC is the only organization that compiles law school applicant data. LSAC provided total numbers of law school applicants from 1976-1984 only with the caveat that before 1985, law schools were not required to report applicant information and did not have the resources or agenda to maintain and track applicant data. Thus, the data from 1976-1984 are less reliable and may underestimate the actual numbers of applicants. LSAC no longer provides a breakdown of law school applicants by gender for the years before 1985.

and uses quantitative analytical methods to explore changes in the demand for legal education over time.

Figure 1 shows the total number of law school applicants per year for 39 years. Viewed in this long-term context, some downturns that have generated concern are seen to be part of an oscillating process. The earlier declines that have sparked concern, such as that from 1982-86, yielded neither a sea change in legal education nor the depletion of the legal profession.



**Figure 1**

Nonetheless, the current decline may be different from those previous. To carry the analogy further, it is possible that the next bloom in the jellyfish population may occur in different oceanic conditions that tend to disrupt the population's normal oscillation. Perhaps the oceans will be sufficiently warmer and competitor populations sufficiently depleted that the jellyfish population function will have reached a tipping point from which it cannot recover, and the jellyfish population will remain high and dominate the oceans into the future.<sup>8</sup> Similarly, the legal profession may be undergoing structural and functional changes—whether driven by economic and cultural processes, by their misperception, or by a combination thereof—that will lead to a new normal level of demand for legal education. While we cannot reliably forecast from this unevenly nonlinear function, we can explore its correlation with other trends and begin to understand the conditions that accompany the blooms and abatements in the law school applicant population.

8. Richard Stone, *Massive Outbreak of Jellyfish Could Spell Trouble for Fisheries*, *YALE ENV'T* 360 (Jan. 13, 2011), <http://e360.yale.edu/content/print.msp?id=2359>.

### III. There Is a Highly Significant Correlation Between the Number of Law School Applicants and the Unemployment Rate of the Labor Force.

When unemployment rises, college graduates may opt for more education rather than for immediate entry into the job market, both to add to their value as employees and to wait for the job market to offer more or better opportunities. To explore whether and how the unemployment rate may be related to the number of law school applicants, Figure 2 compares the percentage of the labor force that is unemployed<sup>9</sup> with the number of law school applicants for each year for which law school applicant data are available.

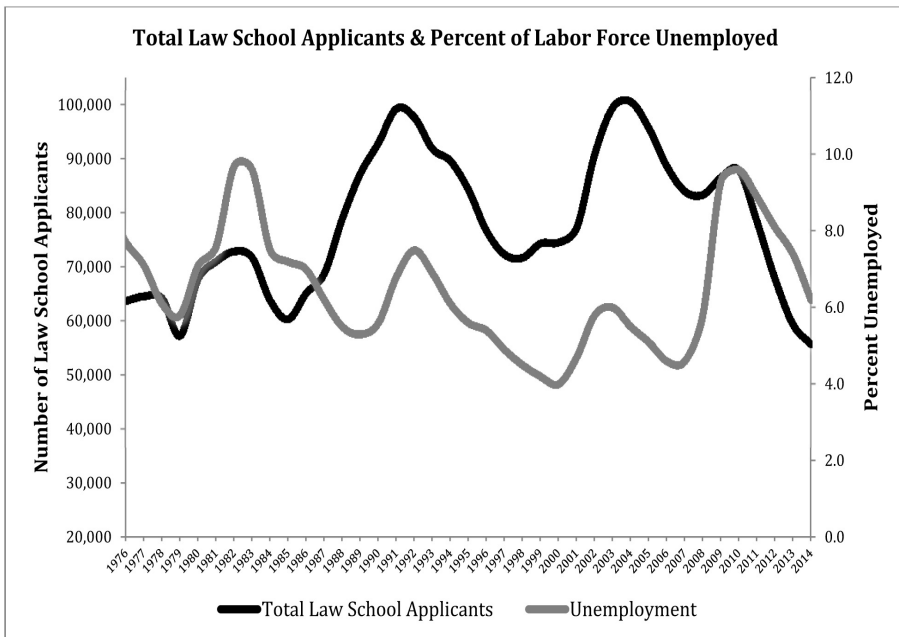
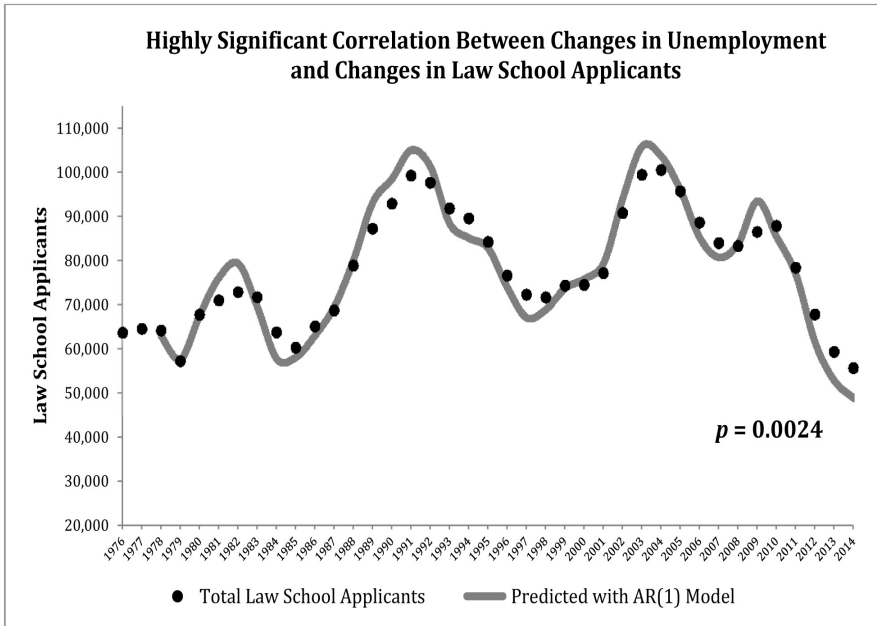


Figure 2

Though they differ in amplitude, the timing of the peaks in the unemployment rate roughly corresponds to that of those in the number of law school applicants. It would be helpful to develop the analysis beyond this initial observation by performing a quantitative assessment of any functional relationship between the two data sets. This analysis cannot be achieved directly through conventional statistical methods, because the observation of a population at adjacent points in time produces a series of measurements that are not independent of each other. Because of time correlations within the data, classical statistical methods that require the data to be independent cannot be applied directly. Methods of statistical modeling using time series analysis are appropriate.

9. U.S. Dept. of Labor, Bureau of Labor Statistics, *Employment Status of the Civilian Noninstitutional Population, 1943 to Date*, <http://www.bls.gov/cps/cpsaato1.htm> (last updated Feb. 12, 2015).

The first-order autoregressive model derived in the Appendix accounts for the time correlations in the data, and yields a fit with a p-value of 0.0024, which is well within the threshold value for high statistical significance of  $p < 0.005$ . Dedifferencing by adding the expected  $dL_i$  to the measured  $L_i$  allows us to compare the measured with the modeled trend in law school applicants, as shown in Figure 3.



**Figure 3**

This model allows us to calculate this year's expected change in the number of law school applicants if we know the previous year's change in both law school applicants and the unemployment rate, along with this year's change in the unemployment rate (Figure 3). While this does not provide a forecast of law school applicants into the future, it does indicate that changes in the unemployment rate of the labor force are strongly correlated with changes in the numbers of law school applicants.

#### **IV. Relationships Among Trends in the Number of Law School Applicants and Other Trends**

The change in the national unemployment rate is a strong correlate for the change in the number of law school applicants from year to year. It is also a potential driver, through the perception that the job market is bad and the accompanying strategy to apply to law school in the hope of building one's credentials while waiting for the market to improve.

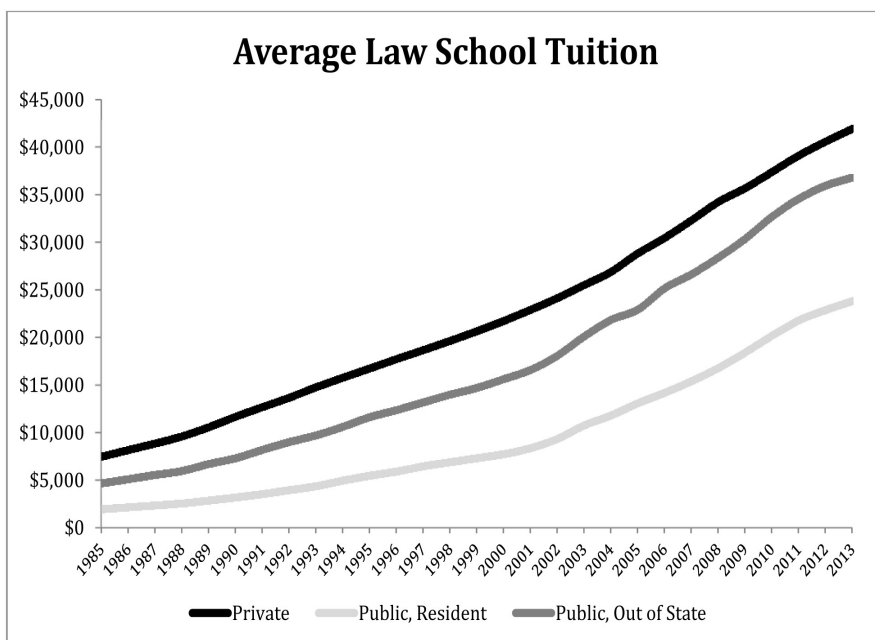
Other factors may also affect the observed changes in the demand for legal education from year to year. This Part first applies the above analysis

to some other factors that have been proposed to affect the number of law school applicants, then considers the relationships among the populations of bachelor's degree holders, law school applicants, and places in the first-year law school class, exploring gender dynamics within these populations.

*A. Assessing Correlations Between Changes in the Number of Law School Applicants and Other Potentially Influential Factors*

Similar analyses to that described above can be performed to check for correlations between the long-term trend in the number of law school applicants and other factors for which time series data are available.

As noted in Part I, the increase in law school tuition has been cited as a culprit for the decrease in the number of law school applicants. Law school tuition, whether the private school rate or public school (in-state or out-of-state) rates, at ABA-accredited law schools has increased monotonically over the period for which data are available (Figure 4).<sup>10</sup>



**Figure 4**

In contrast, the law school applicant data fluctuate, having a periodic appearance with varying peak heights (see Figure 1). While prospective law school applicants may consider law school tuition as they decide whether to apply to law school, the fluctuations in their decisions as a group do not correlate

10. American Bar Association, Law School Tuition (1985-2013; Public/Private), [http://www.americanbar.org/content/dam/aba/administrative/legal\\_education\\_and\\_admissions\\_to\\_the\\_bar/statistics/lawschool\\_tuition\\_averages\\_by\\_year\\_public\\_private.xls](http://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/statistics/lawschool_tuition_averages_by_year_public_private.xls) (last visited May 4, 2015).

directly with any inflections in this monotonic increase. Unsurprisingly, the time series analysis yields no significant results.

The annual average consumer price index<sup>11</sup> is a standard economic indicator that also increases monotonically but for one slightly outlying data-point since 1976. Analysis of the relationship between the consumer price index and the number of law school applicants also reveals no significant correlation.

Another hypothesis to explain an increase in the number of lawyers over the few years before 1985 attributes this increase to total population dynamics (the baby boom) and to an increase in the demand for higher education generally (the “education boom”).<sup>12</sup> This account elides the population of law school applicants with those of law students and members of the bar, using the number of those who become members of a bar as a proxy for the demand for legal education because of “a direct and virtually overlapping relationship” between those who hold bar membership “and their having been law students.”<sup>13</sup> However, not all applicants become law students, and not all students become members of the bar; also, this hypothesis blends the demand for legal education from an applicant with the supply of legal education awarded as a place in the entering law school class.

Nonetheless, considering this hypothesis leads to the questions whether the number of law school applicants in a given year clearly varies with the population of 21-year-olds, or with that of bachelor’s degree awardees.<sup>14</sup> Performing the time series analysis presented here reveals no significant correlation in either case.

#### *B. Between Bachelor’s Degree and Matriculation: Law School Applicants*

In general, one cannot complete a law school application without having first earned a bachelor’s degree, and one cannot enroll in the first-year law school class without having first applied. Accordingly, the population of law school applicants is bookended by two other populations about whom basic demographic data is systematically collected: those who have earned bachelor’s degrees, and those who have enrolled in law school. The population of law school enrollees is a subset of the population of law school applicants, which is in turn a subset of the population of those who hold a bachelor’s degree.

11. U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Price Index* (9-17-2013), <http://www.bls.gov/cpi/cpifiles/cpia1.txt> (last updated Feb. 20, 2014).
12. Frank T. Read, President, Law School Admissions Council, *Demand for Legal Education into the Twenty-First Century* 8 (Jul. 18, 1985).
13. *Id.* at 6.
14. Population data calculated based on Joyce Martin, et al., *Births: Final Data for 2004*, 55 NAT’L VITAL STATISTICS REPORTS 35 (2006).

1. Gender Dynamics in the Pipeline to the Law School Applicant Pool

The population of those graduating with a bachelor's degree<sup>15</sup> has gradually increased in its proportion of women, with the number of men with bachelor's degrees exceeding that of women until 1981. The number of women who hold a bachelor's degree exceeds that of men for the first time (by 6,270) in 1982, and increases to a maximum of 265,702 more women than men in 2013, as shown in Figure 5.

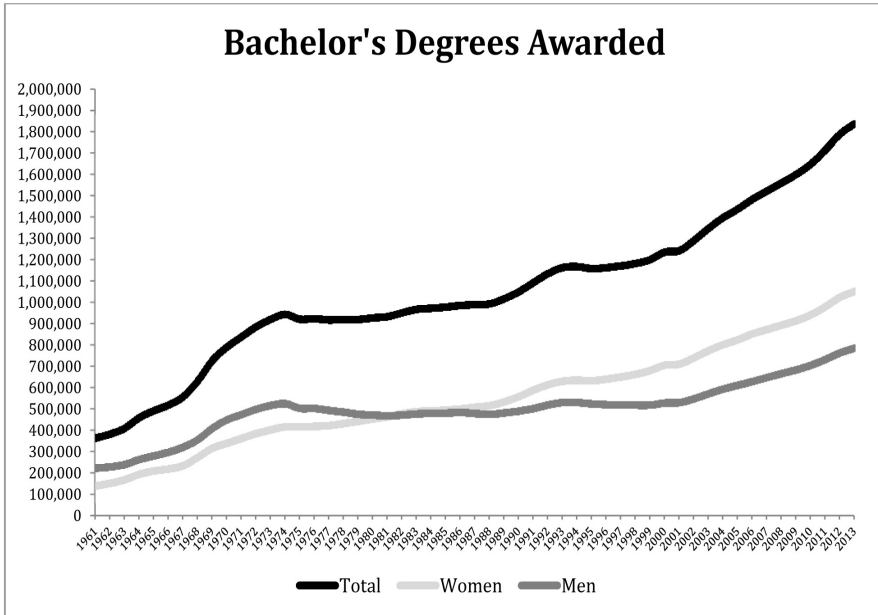


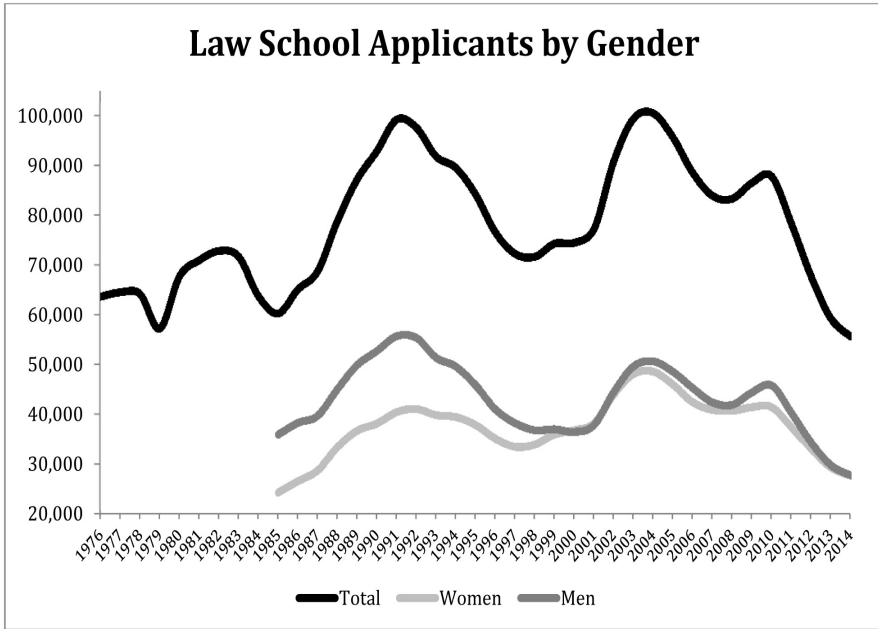
Figure 5

Women law school applicants are a subset of the population of women who have earned bachelor's degrees. Does the law school applicant pool reflect the gender dynamics of the population eligible to apply to law school by virtue of earning a bachelor's degree? Perhaps the influx of women holding bachelor's degrees into the law school applicant pipeline drives the total number of law school applicants. Or, however the population of women holding a bachelor's degree relates to the population of women law school applicants, perhaps changes in the numbers of women law school applicants drives changes in the total number of law school applicants.

Figure 6 shows gender differences in the law school applicant pool over all years of available data.

15. THOMAS D. SNYDER & SALLY A. DILLOW, DIGEST OF EDUCATION STATISTICS 2011 413 (2012) (source of data since 1970); NAT'L CENTER FOR EDUC. STAT., 120 YEARS OF AMERICAN EDUCATION, A STATISTICAL PORTRAIT 83-84 (Thomas D. Snyder, ed. 1993) (source of data before 1970).



**Figure 6**

In contrast to the bachelor's degree data, Figure 6 shows that the number of men law school applicants exceeds that of women law school applicants for all years except 2000 and 2001, when there are 353 and 335 more women than men in the law school applicant pool, respectively. Thus, despite the steady increase in the proportion of women holding bachelor's degrees, the numbers of men and women law school applicants remain roughly even as of the late 1990s.

Comparing Figures 5 and 6, we see that although more women than men have been earning bachelor's degrees since 1982, men have dominated the law school applicant pool until the late 1990s, after which men and women have been present in near-equal numbers. At least since the late 1990s, these data are not consistent with the hypothesis that the influx of women holding bachelor's degrees into the law school applicant pipeline drives the total number of law school applicants.

Further, changes in the numbers of men applying to law school account for a greater proportion of the changes in the total numbers of law school applicants in all but five of the years since 1985, as shown in Table 1.

**Table 1: Change in Number of Law School Applicants by Gender**

1	2	3	4	5	6	7	8	9	10
<i>Fall of</i>	<i>Total LSA</i>	<i>Change in # of Applicants</i>	<i>Women LSA</i>	<i>Change in # of Women Applicants</i>	<i>Change in Women LSA /Change in Total LSA</i>	<i>Men LSA</i>	<i>Change in # of Men Applicants</i>	<i>Change in Men LSA /Change in Total LSA</i>	<i>% Change in Men LSA -% Change in Women LSA</i>
1985	60,338	-3,463	24,325			35,987			
1986	65,168	4,830	26,606	2,281	0.47	38,349	2,362	0.49	1.68
1987	68,804	3,636	28,793	2,187	0.60	39,758	1,409	0.39	-21.40
1988	78,930	10,126	33,465	4,672	0.46	45,099	5,341	0.53	6.61
1989	87,288	8,358	36,770	3,305	0.40	49,967	4,868	0.58	18.70
1990	92,958	5,670	38,192	1,422	0.25	52,784	2,817	0.50	24.60
1991	99,327	6,369	40,500	2,308	0.36	55,789	3,005	0.47	10.94
1992	97,719	-1,608	41,140	640	-0.40	55,460	-329	0.20	60.26
1993	91,892	-5,827	39,899	-1,241	0.21	51,458	-4,002	0.69	47.38
1994	89,633	-2,259	39,531	-368	0.16	49,682	-1,776	0.79	62.33
1995	84,305	-5,328	37,933	-1,598	0.30	45,945	-3,737	0.70	40.15
1996	76,687	-7,618	35,173	-2,760	0.36	41,081	-4,864	0.64	27.62
1997	72,340	-4,347	33,530	-1,643	0.38	38,311	-2,770	0.64	25.93
1998	71,726	-614	33,992	462	-0.75	36,868	-1,443	2.35	310.26
1999	74,380	2,654	36,013	2,021	0.76	37,078	210	0.08	-68.24
2000	74,550	170	36,877	864	5.08	36,524	-554	-3.26	-834.12
2001	77,235	2,685	38,226	1,349	0.50	37,891	1,367	0.51	0.67
2002	90,853	13,618	44,043	5,817	0.43	44,514	6,623	0.49	5.92
2003	99,504	8,651	48,167	4,124	0.48	49,690	5,176	0.60	12.16
2004	100,604	1,100	48,676	509	0.46	50,720	1,030	0.94	47.36
2005	95,760	-4,844	46,053	-2,623	0.54	48,637	-2,083	0.43	-11.15
2006	88,662	-7,098	42,496	-3,557	0.50	45,370	-3,267	0.46	-4.09
2007	84,021	-4,641	40,957	-1,539	0.33	42,484	-2,886	0.62	29.02
2008	83,371	-650	40,777	-180	0.28	41,961	-523	0.80	52.77
2009	86,576	3,205	41,512	735	0.23	44,469	2,508	0.78	55.32
2010	87,912	1,336	41,524	12	0.01	45,899	1,430	1.07	106.14
2011	78,474	-9,438	37,504	-4,020	0.43	40,402	-5,497	0.58	15.65
2012	67,865	-10,609	33,203	-4,301	0.41	34,443	-5,959	0.56	15.63
2013	59,384	-8,481	29,367	-3,836	0.45	29,869	-4,574	0.54	8.70
2014	55,717	-3,667	27,800	-1,567	0.43	27,790	-2,079	0.57	13.96

For the 30 years for which data are available (column 1), Table 1 shows the total number of law school applicants (column 2) and whether and how much this number has increased or decreased from year to year (column 3). Similarly, column 4 provides the number of women law school applicants, and column 5 identifies the changes in that number from year to year. Column 6 normalizes the data in column 5, showing the change in the number of women applicants as a proportion of the change in the total number of law school applicants. That is, column 6 shows how much of the total change in the number of applicants is due to the change in the number of women

applicants. The number of men applying to law school is given in column 7, and the annual change in that number in column 8. Column 9 indicates how much of the change in the total number of applicants is due to changes in the number of men applying to law school.

As we see in column 10, changes in the number of men applying to law school account for a greater proportion of the change in the total number of applicants for 25 of these 30 years. These data are not consistent with the hypothesis that the subset of women law school applicants drives the total number of law school applicants.

## 2. Gender Dynamics in the Pipeline from the Law School Applicant Pool to the First-Year Law School Class

Those who enroll in the first year of law school are clearly a subset of the law school applicant pool. Do changes in the number of available places in the first-year law school class drive fluctuations in the number of law school applicants, or vice versa?

The total number of places in the law school entering class shows a slowly increasing trend over the 63 years from 1947 to 2010, and decreases thereafter (Figure 7).<sup>16</sup> While there are always more men than women in the first-year law school class, the proportions become roughly equal in 2000-2001, and diverge somewhat thereafter.

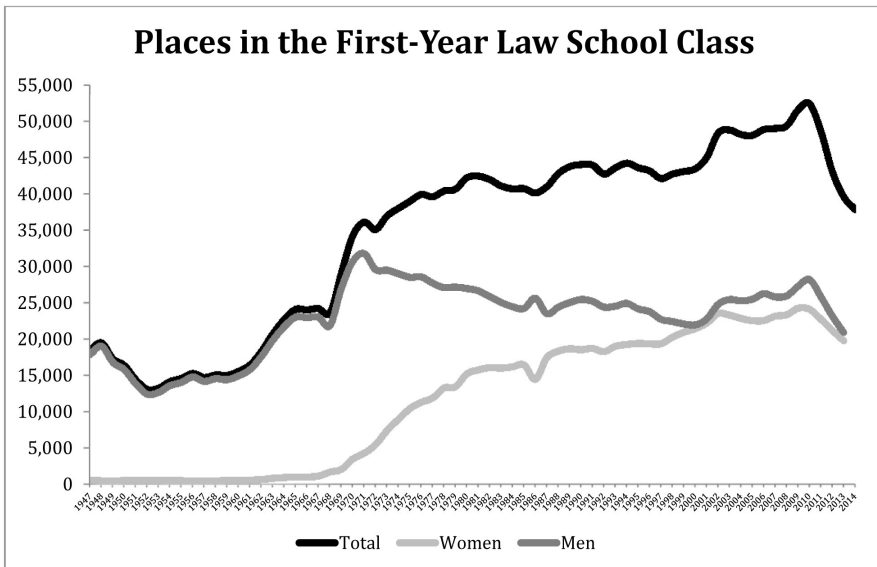


Figure 7

16. First-year law school enrollment has been thought to represent the number of places, or “slots,” in the entering law school class (*see infra* note 30). However, a law school may have capacity for more students than it enrolls. The recent decrease in the total number of places in the entering class may be due in part to an increase in the number of unfilled slots.

As they considered the future of legal education in 1985, David Vernon and Bruce Zimmer followed James White in attributing a “surge of interest in legal education” in general from the 1970s through the early 1980s specifically to an increase in the number of women applicants, though they provide a gender breakdown of applicant data for only two years in the 1980s.<sup>17</sup> Unfortunately, although Vernon & Zimmer refer to a gender breakdown of law school applicant data for the entire period from 1971 to 1983, the institution that held their data no longer provides a gender breakdown of applicant data before 1985.<sup>18</sup> Thus, we cannot examine their numbers directly to assess this inference about how the number of women applicants relates to the number of women enrollees (that an increase in the former resulted in an increase in the latter).

However, we can note that for the number of women applicants to drive an increase in women’s enrollment, those women applicants (whether there are more or fewer of them from year to year) would have to enroll in increasing numbers. The number of women enrolled in the first-year law school class has generally increased from 1971 through the 1980s and beyond, reaching a maximum of 24,305 in 2009. The data shown in Figure 7 are consistent with this inference.

Vernon & Zimmer then inferred that increasing numbers of women applicants drove an increase in total law school enrollment from the 1970s to the early 1980s. Shifting their focus to the gender breakdown of students enrolled in the first-year law school class, they indicate that between 1971 and 1983 first-year enrollments increased by 14 percent while the number of men first-year law students decreased by 21 percent.<sup>19</sup> Meanwhile, the number of first-year women law students increased from 4,326 in 1971 to 16,049 in 1983. These data comport with those currently available from the American Bar Association,<sup>20</sup> as shown in Figure 7.

17. David H. Vernon & Bruce I. Zimmer, *The Size and Quality of the Law School Applicant Pool: 1982-1986 and Beyond*, 1987 DUKE L.J. 204, 237 (citing David H. Vernon & Bruce I. Zimmer, *The Demand for Legal Education: 1984 and the Future*, 35 J. LEGAL EDUC. 261, 270-71 (1985)). Vernon & Zimmer in *The Demand for Legal Education* describe the applicant pool and the process of admitting students with the best credentials as resulting in increasing women’s enrollment, but do not provide the applicant data except for the numbers of men and women applicants in 1982 and 1984 (citing James P. White, *Enrollment of Women in ABA-Approved Law Schools* (Sept. 7, 1984) (“[T]he significant increase in the number of women students began in 1970 and continued dramatically throughout the decade.”)).
18. See *supra* note 7.
19. David H. Vernon & Bruce I. Zimmer, *The Demand for Legal Education: 1984 and the Future*, 35 J. LEGAL EDUC. 261, 270 (1985).
20. American Bar Association, First Year and Total J.D. Enrollment by Gender 1947-2011, [http://www.americanbar.org/content/dam/aba/administrative/legal\\_education\\_and\\_admissions\\_to\\_the\\_bar/statistics/jd\\_enrollment\\_1yr\\_total\\_gender.pdf](http://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/statistics/jd_enrollment_1yr_total_gender.pdf) (last visited May 4, 2015). Trends in first-year law school enrollment look similar to those in the numbers of women and men earning a J.D. or LL.B. (data from THOMAS D. SNYDER & SALLY A. DILLOW, DIGEST OF EDUCATION STATISTICS 2011 438-39 (2012) not shown) or an M.D. (see *infra* Part V).

Again, we lack the applicant data to assess this inference about how the number of women applicants relates to the total number of enrollees (and again, that an increase in the former resulted in an increase in the latter). However, we can notice that for the number of women applicants to drive an increase in total enrollment, total enrollment would have to increase and women's enrollment would have to increase more than men's enrollment (whether the latter declines, does not change, or increases more slowly). The data shown in Figure 7 for the period from the 1970s through the early 1980s (and beyond, to 2001) fit this description, and are thus consistent with Vernon & Zimmer's inference that an increase in the number of women applicants resulted in an increase in the number of women enrolling in the first-year law school class.

When we now examine law school enrollment from 1947 to 2014, we see that the period from the 1970s to early 1980s does show an increase in total enrollment, but not because more women are being added to the class as well as more men. Instead, we see an increase in enrollment for both genders from 1968 to 1971 that corresponds to the steepest climb in the entire history of law school enrollment. This is where we see a "surge" in the supply<sup>21</sup> of legal education, which generally continues to increase more slowly until 2010, when it decreases steeply.

From 1971 through 2001, we see women taking more places in the entering law school class as men take fewer. This phenomenon is also consistent with the second inference of White and of Vernon & Zimmer that an increase in the number of women enrollees drove an increase in total enrollment, and also extends its scope beyond the 1970s and early 1980s to the thirty years from 1971 to 2001. However, this second inference does not entail the first: it does not require the number of women applicants similarly to have increased through that period, since the proportion of women applicants who actually enroll in law school may change from year to year. For the years for which a gender breakdown of applicant data is available, this increase in law school enrollment does not appear to be correlated with (let alone result from) an increasing demand for legal education from women.

Also, while both total enrollment and women's enrollment generally increase together for this period, the number of women applicants per place in the law school class is actually lower than the number of men vying for those places until 2000, after which the gender-based demand is roughly equal (Figure 8), despite the presence of significantly more women than men with bachelor's degrees per place since the late 1980s (Figure 9).

21. While Vernon & Zimmer seem to be referring to enrollment when they discuss a surge of interest in legal education (see David H. Vernon & Bruce I. Zimmer, *The Size and Quality of the Law School Applicant Pool: 1982-1986 and Beyond*, 1987 DUKE L.J. 204, 237, and David H. Vernon & Bruce I. Zimmer, *The Demand for Legal Education: 1984 and the Future*, 35 J. LEGAL EDUC. 261, 270 (1985)), conceptually, an interest in or *demand* for legal education corresponds more faithfully to the number of applicants, while a *supply* of legal education corresponds to the number of available places in the first-year law school class.

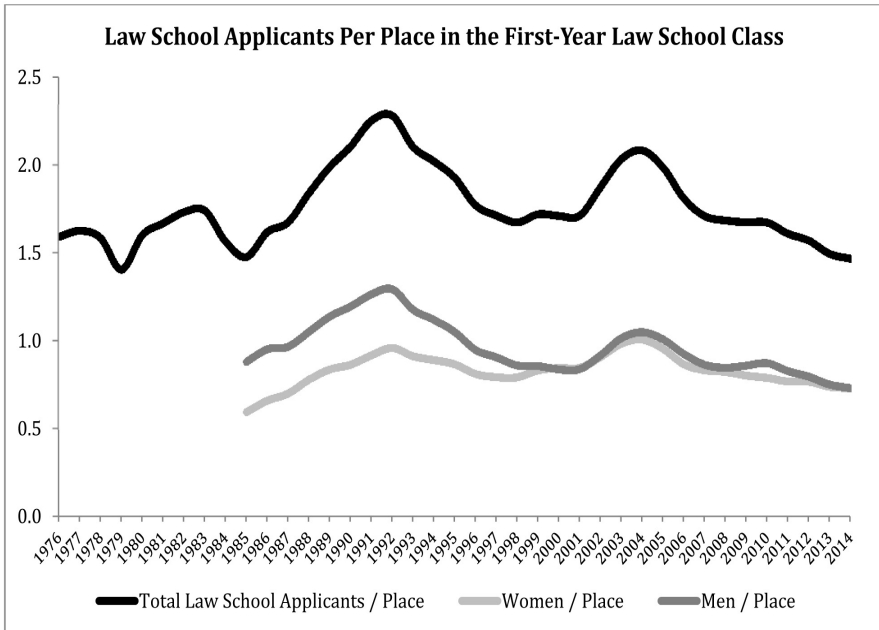


Figure 8

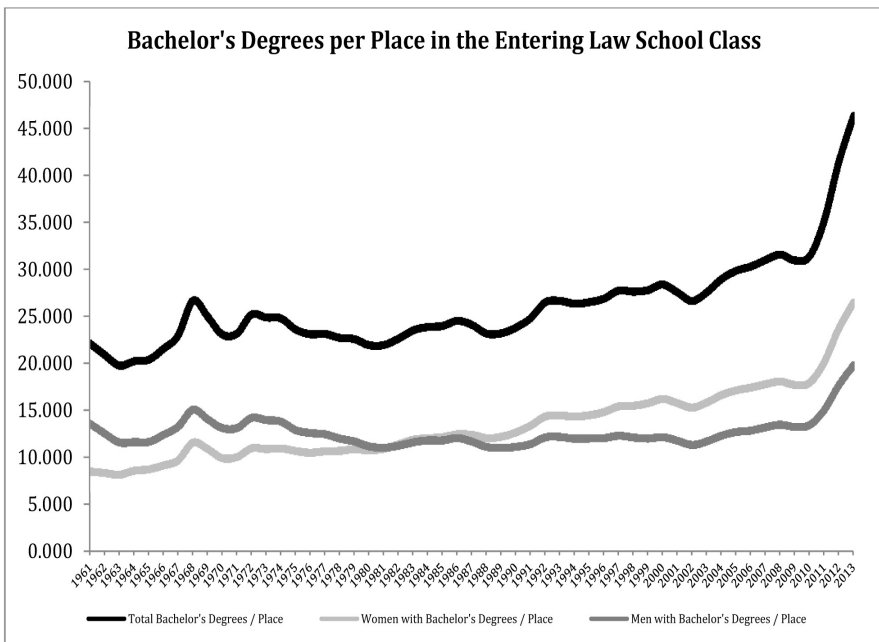


Figure 9

Accordingly, though the increase in demand for legal education in general may have been driven specifically by increases in women earning bachelor's degrees and entering the applicant pool in the 1970s and early 1980s, women do not appear to drive the demand for legal education thereafter.<sup>22</sup>

Leaving gender aside, Figure 10 compares the shapes of the trends in law school applicants and available places in the first-year law school class. The total number of law school applicants also appears not to drive the first-year enrollment strongly up or down (or vice versa), except possibly since 2010.

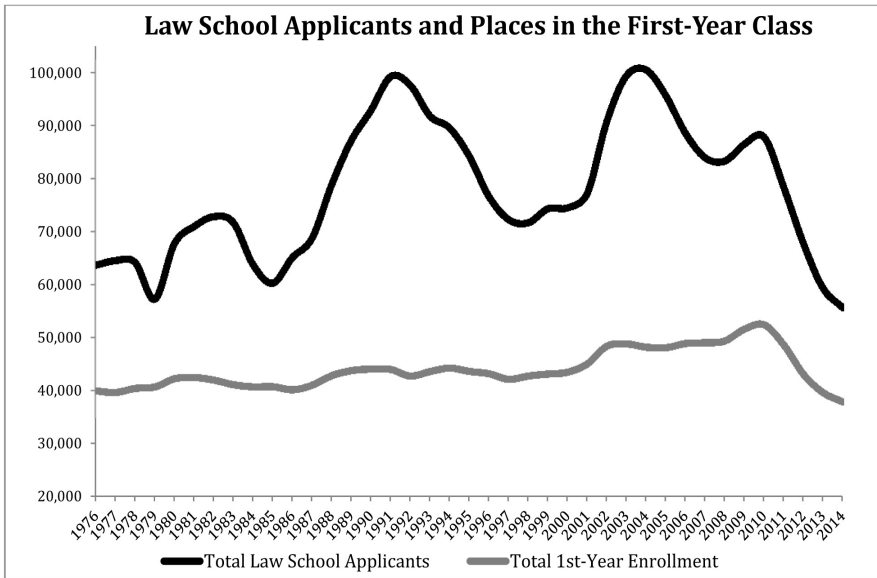


Figure 10

This dampened reflection of the number of law school applicants in the first-year enrollment is consistent with Vernon & Zimmer's conclusion that when the number of law school applicants declines, while schools may decrease their enrollment somewhat in an effort to maintain the mean GPA and LSAT scores of the entering class, they attempt to maintain class size even as the quality of the applicant pool declines.<sup>23</sup>

The most recent decline in law school applicants appears to differ from those previous in that law school enrollments since 2010 show a greater concurrent decline than they did in 1982-1985, 1991-1998, or 2004-2008. The number of

22. Regarding the period from 1982-1986, see David H. Vernon & Bruce I. Zimmer, *The Size and Quality of the Law School Applicant Pool: 1982-1986 and Beyond*, 1987 DUKE L.J. 209 ("Between 1982 and 1986...the number of male senior applicants fell at a faster rate than did the number of female senior applicants—24.5% versus 13%.") and 211 ("There were 9% fewer female applicants in 1986 than in 1982, while the number of male applicants fell by 20% over the same time period.") (referring to pre-1985 data no longer available from LSAC).

23. David H. Vernon & Bruce I. Zimmer, *The Size and Quality of the Law School Applicant Pool: 1982-1986 and Beyond*, 1987 DUKE L.J. 204, 217, 219-20, 228.

places in the first-year class typically had been more robust to fluctuations in the number of law school applicants.

Adding to the chain of inferences from an increase in the number of women applying to law school to an increase in law school enrollment, Vernon & Zimmer in turn attributed the addition of 25 new law schools from 1972 (149 ABA-accredited law schools) to 1985 (175 ABA-accredited law schools) to the increasing demand for legal education from women.<sup>24</sup> However, the number of ABA-accredited law schools has continued to increase beyond the end of the period that could be consistent with their interpretation (in 2001) to 204 as of 2014. The growth in the number of law schools since 1947 is shown in Figure 11, which indicates that its steepest increases occurred from about 1968 to 1975, and 2004 to 2008.

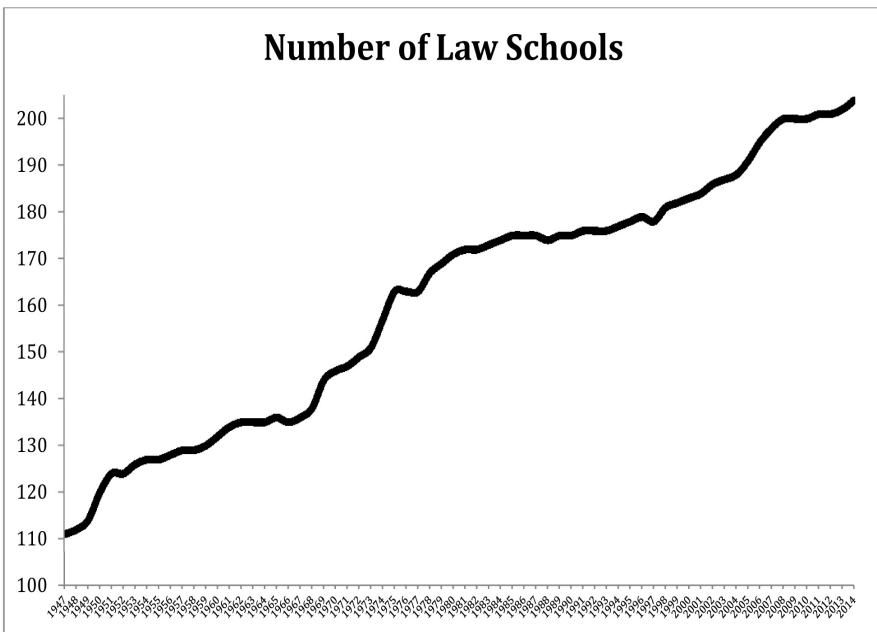


Figure 11

Thus, larger surges in the supply of legal education as reflected in the number of law schools occur before and after the period Vernon & Zimmer characterize as the surge in the demand for legal education due to increasing interest from women. The first surge in the number of law schools does coincide with the surge in enrollees of both genders in 1968 to 1971, shown in Figure 7; the second surge, from 2004 to 2008, does not appear to have a gender component, as gender demand per unit of supply is almost equal through that period (see Figure 8).

24. *Id.* at n.49 (current ABA data vary slightly from those reported by Vernon & Zimmer, so it now looks like the addition of 26 new law schools).



### V. Comparison: Long-Term Trends in Medical Education

In contrast to the number of law school applicants, the number of applicants to medical schools rose to an all-time high in 2014 (Figure 12).<sup>25</sup> Although there is a tremendous unmet need for legal services, reports of there being too many lawyers persist. This heterogeneity may arise from differences in demand from different classes of customer: while the ranks of the top-grossing law firms that serve major corporate clients may be contracting, the poor and even the middle class cannot access the legal services that they need. Meanwhile, there appears to be a clear shortage of physicians:

At a time when the nation faces a shortage of more than 90,000 doctors by the end of the decade and millions are gaining access to health insurance, we are very glad that more students than ever want to become physicians. . . . Students are doing their part by applying to medical school in record numbers. Medical schools are doing their part by expanding enrollment.<sup>26</sup>

Changes in the numbers of applicants to law school and applicants to medical school appear to be uncorrelated.<sup>27</sup>

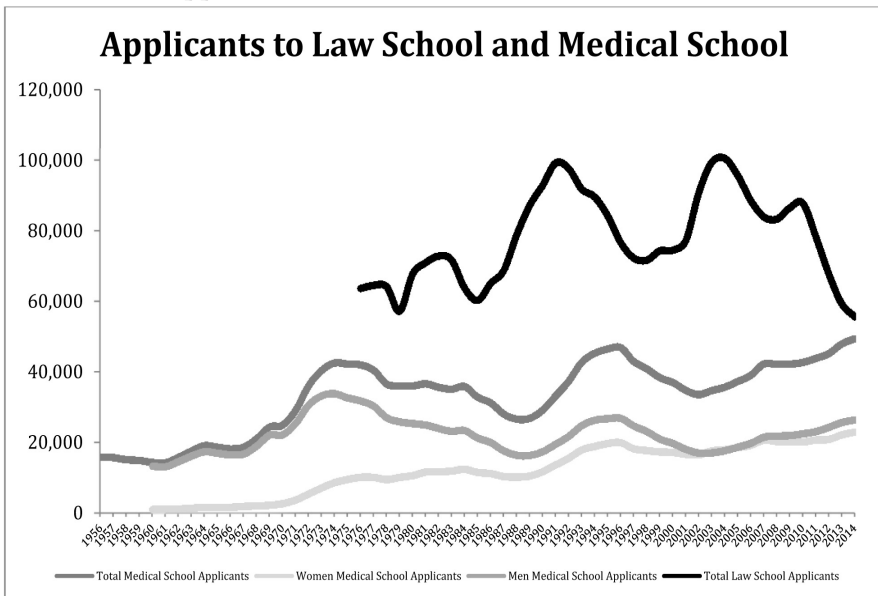


Figure 12

25. Data for 1956-2012 from the ASSOCIATION OF AMERICAN MEDICAL COLLEGES, *AAMC DATA BOOK* (Katherine Brandenburg, et al., eds. 2013), Table B1, 15-17 and Table B9, 35-36; data for 2013 and 2014 from Association of American Medical Colleges, *Table 7: Applicants, First-Time Applicants, Acceptees, and Matriculants to U.S. Medical Schools by Sex, 2003-2014*, available at <https://www.aamc.org/download/321470/data/factstable7.pdf>.
26. Association of American Medical Colleges, *Medical School Applicants, Enrollment Reach All-time Highs* (Oct. 24, 2013), <https://www.aamc.org/newsroom/newsreleases/358410/20131024.html> (last visited Jun. 12, 2014).
27. See *supra* Part III; similar analysis results in no significant correlation.

The number of medical schools shows an increase parallel to that of law schools from 95 in 1972 to 125 in 1985, but subsequently remains very stable (Figure 13). To meet the current demand for the production of additional physicians, there has been an increase from 126 fully accredited four-year medical schools in 2011 to 129 in 2012, with 12 more schools in the accreditation process.<sup>28</sup>

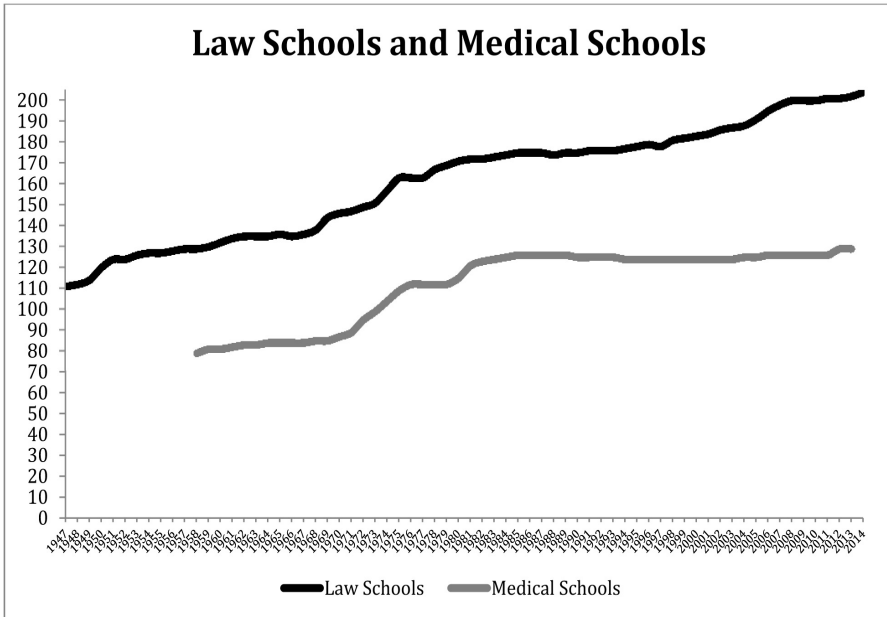


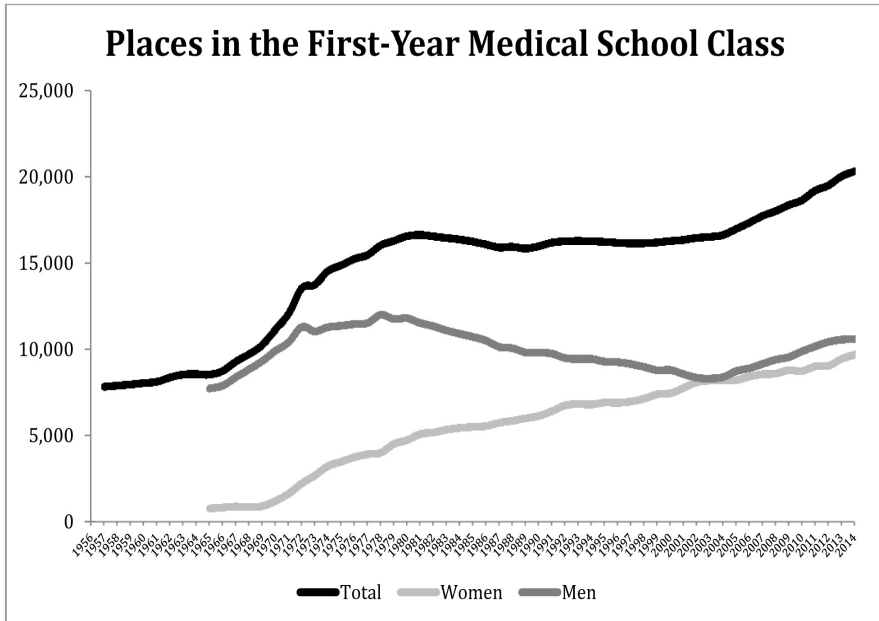
Figure 13

Perhaps, as for legal education, this similarly timed increase in the supply of medical education is consistent with an increasing demand from women applicants.<sup>29</sup> Figure 14 shows how the total number of places in the entering medical school class has changed over the past 58 years, with data on the gender of matriculants available for the past 50 years.<sup>30</sup>

28. Data for 1970-2013 from ASSOCIATION OF AMERICAN MEDICAL COLLEGES, AAMC DATA BOOK (Katherine Brandenburg et al., eds. 2014), Table A2, 8; data for 1958-1969 from *id.*, Table A1, 5.

29. See *supra* Part IV.B.2.

30. The Association of American Medical Colleges equates the number of matriculants with the number of places in the first-year medical school class. Association of American Medical Colleges, AAMC DATA BOOK (Katherine Brandenburg, et al., eds. 2013), Table B11, 39-40. The number of matriculants is distinguished from the first-year enrollment, which is very slightly higher because it includes those who are repeating their first year. Because the differences are expected to be very small and because the Law School Admission Council does not make this distinction, the first-year enrollment in law school is taken to be the number of places available in the first-year law school class.

**Figure 14**

In contrast with the law school entering class, the numbers of both men and women in the first-year medical school class generally rose through the 1970s. Only as of about 1980 do we see the phenomenon that characterizes the entering law school class since the 1970s, in which the number of women in the class increases as the number of men decreases. While there are always more men than women in the class, the proportions are close to equal in 2002-2004, and then diverge somewhat.

Since 1957, the number of medical school applicants per place in the first-year medical school class has fluctuated between about 1.7 and 3.0 (Figure 15), with major peaks in the early 1970s and mid-1990s. This general behavior resembles that of the analogous metric for law schools, though the magnitudes are slightly higher and the peaks occur at different times.

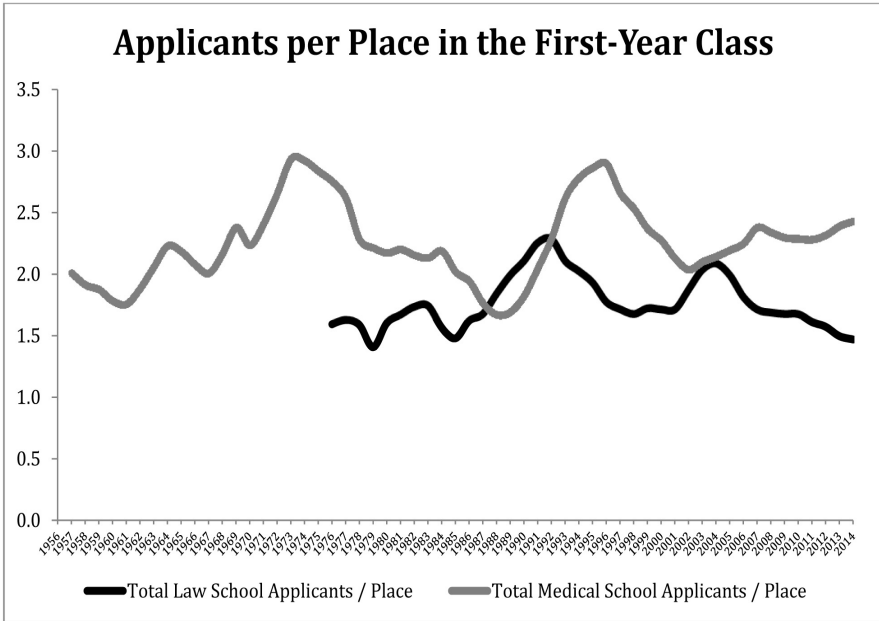


Figure 15

For men and women, the ratio of applicants per place in the entering medical school class converge from 2002-2007, before and after which there are more men per place (Figure 16). In the law school context, the gender ratios converged by 1999 and have remained close.

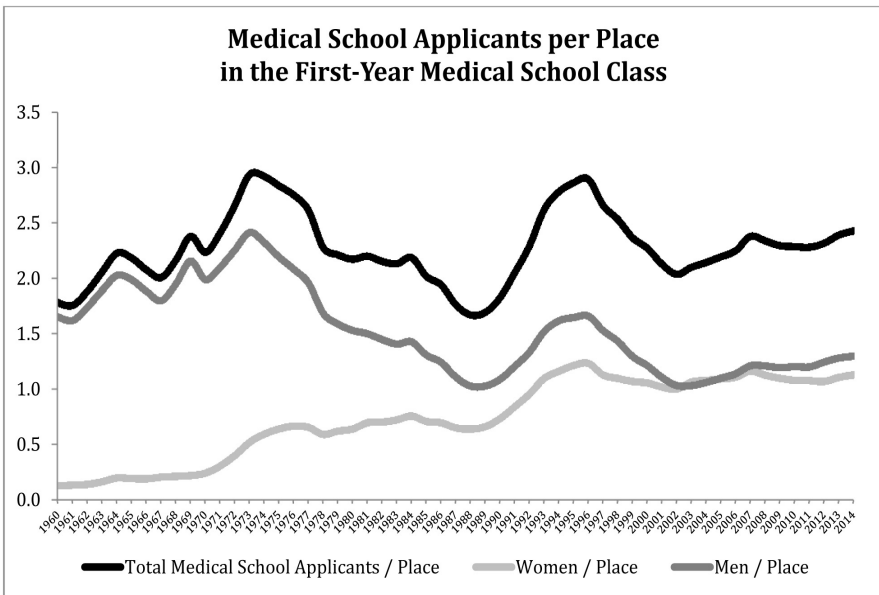
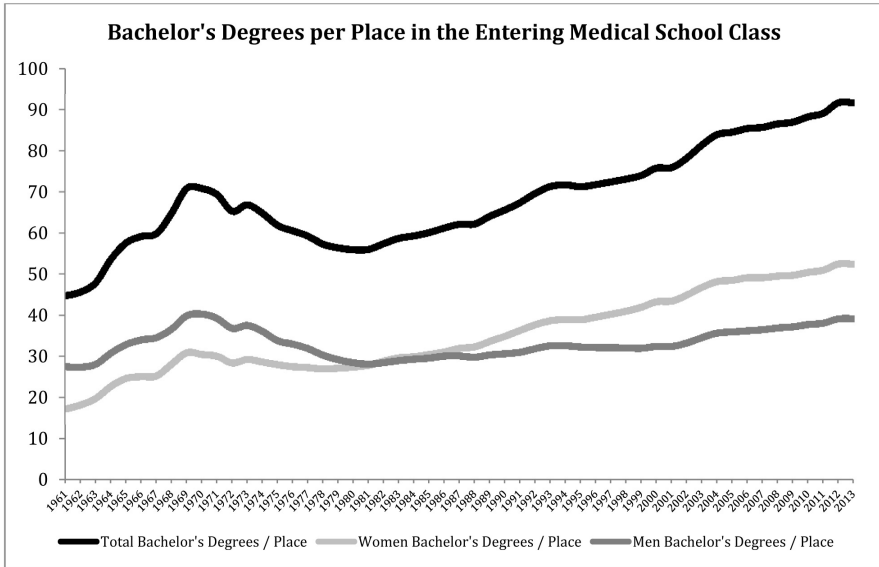


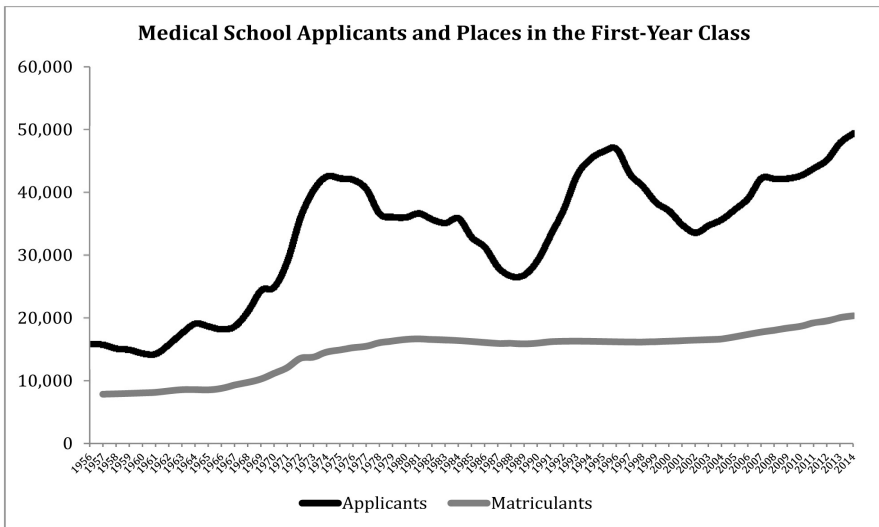
Figure 16

The number of bachelor's degree holders per place in the first-year medical school class similarly has risen from a low of 45 in 1961 to a high of 92 in 2012 (Figure 17).



**Figure 17**

Figure 18 compares the shapes of the trends in medical school applicants and available places in the first-year medical school class. The number of matriculants is very stable, appearing for the most part to be indifferent to changes in the number of applicants.



**Figure 18**

In sum, in contrast to evidence that the quality of the law school applicant pool has been declining in recent years, the American Association of Medical Colleges reports that:

The overall quality of this year's application pool remained strong, with nearly three-quarters of applicants reporting research experience and two-thirds reporting voluntary community service. This year's applicants reported an average undergraduate GPA of 3.54 and a combined median MCAT® score of 29.<sup>31</sup>

The long-term trends in numbers of medical school applicants and matriculants continue to rise as a shortage of physicians is forecast.

## VI. Conclusion

Changes in the number of law school applicants from year to year for the past 39 years are highly significantly correlated with changes in the national unemployment rate. The model that relates these two time series allows us to predict very closely what this year's number of law school applicants will be, if we know last year's number of applicants and the unemployment rate for last year and this year. While this model cannot be used for future years for which we do not yet know the unemployment rate, it does reveal that the two series have been closely related for almost four decades.

Meanwhile, hypotheses that increasing law school tuition or fluctuations in the total population or in the rate of inflation play a significant role are not supported. Further, though it is possible that an increase in demand for legal education in general may have been driven specifically by increases in the number of women entering the applicant pool in the 1970s and early 1980s, women do not appear to drive the demand for legal education thereafter. After 2000, the gender-based demand for legal education is roughly equal, even though there have been significantly more women than men with bachelor's degrees per place in the first-year law school class since the late 1980s. In general, the number of places in the first-year class has been robust to fluctuations in the number of law school applicants until 2010.

The unmet demand for medical services is reflected in an increase in medical school applicants and matriculants, and the quality of the applicant pool has been strong. In contrast, the unmet demand for legal services enjoys no parallel increase in law school applicants and matriculants, and the quality of the applicant pool may be declining. It could be helpful to law schools to determine how a response to the unmet need for physicians materializes in an increasing number of matriculants, and whether similar efforts would be feasible in the context of law-school enrollment.

It will be interesting to pursue further the question of how changes in the legal profession relate to the observed changes in the demand for legal

31. Association of American Medical Colleges, *Medical School Applicants, Enrollment Reach All-time Highs* (Oct. 24, 2013), <https://www.aamc.org/newsroom/newsreleases/358410/20131024.html> (last visited Jun. 12, 2014).

education. For example, some propose that a shrinking legal job market may be a major reason for the recent decline in the demand for legal education, though the number of law school graduates employed in a legal position oscillates around a gentle upward trend from 20,079 in 1982 to 28,746 in 2013, with a peak of 31,086 in 2007.<sup>32</sup> A more complete understanding of the complex changes in the work-flow structure of the legal profession may deepen our understanding of changes in the demand for legal education.

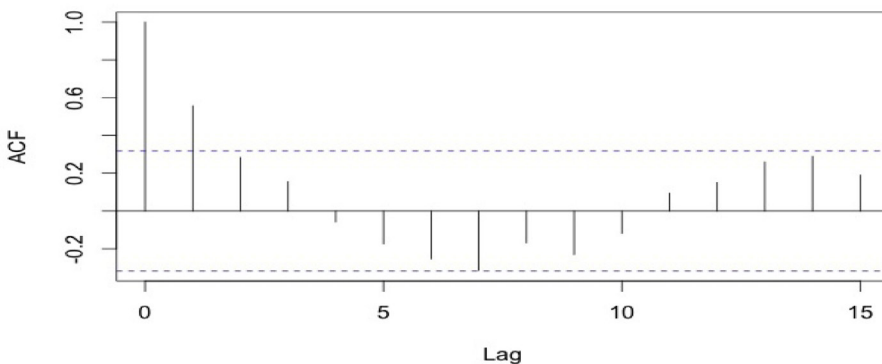
32. Data from NALP NATIONAL SUMMARY REPORTS for 1982-2013.

## VII. Appendix: A First-Order Autoregressive Model Reveals Highly Statistically Significant Correlation Between Changes in the Number of Law School Applicants and Changes in the National Unemployment Rate

The available analytic tools rely on the assumption that the time series to be analyzed exhibits at least weak stationarity, or consistency of statistical properties over time. By inspection of Figure 2, we see that the law school applicant curve does not appear to have a stationary relationship with the unemployment curve that could be analyzed with a linear model. Therefore, we transform the data from the time series by taking the first differences. For example, the first difference of the law school applicant data  $\nabla LSA = LSA_t - LSA_{t-1}$ , where  $LSA_t$  is the number of law school applicants at time  $t$ . In this transformation we lose one data-point, but we gain a differenced law school applicant series and a differenced unemployment series, the relationship of which has the stationarity required for meaningful statistical analysis.

As a first approximation, a plot using the first differences of the unemployment data as the predictor (or independent variable) and the first differences of the law school applicant data as the outcome (or dependent variable) can be fit with a simple linear regression. An autocorrelation function allows us to assess whether this model suffices by showing whether statistically significant correlations remain at some time lags between data-points in the transformed series. The autocorrelation and partial autocorrelation functions of the residuals of the simple linear fit (Figure A1)<sup>33</sup> reveal that the simple linear model did not capture all of the structure in the data, in that significant time correlations appear at lags other than 0 (in particular, at a lag of 1). So, even though the p-value for this simple linear fit is 0.0027,<sup>34</sup> the p-value is meaningless because the model assumes that these residuals are independent and identically distributed.

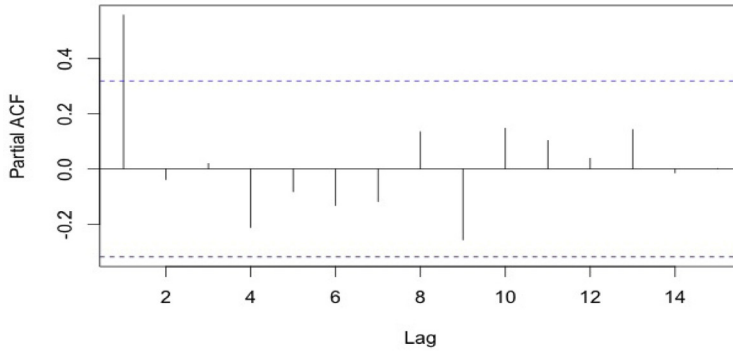
### Autocorrelation Function of Residuals of Simple Linear Fit



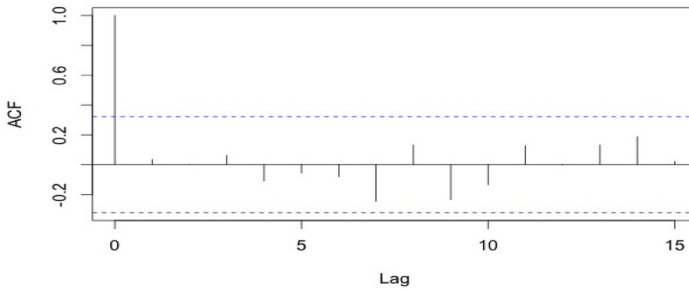
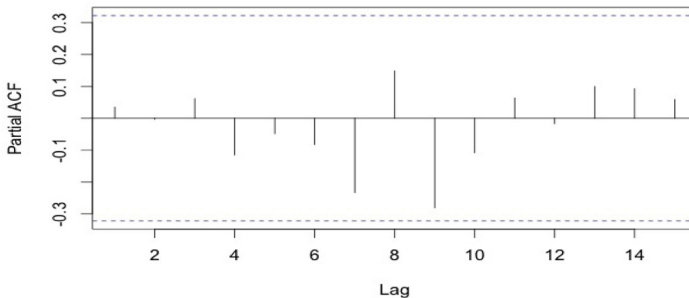
33. Time series analysis was conducted and Figures A1 and A2 were produced using the following software: Simon Urbanek, et al., R for Mac OS X GUI, The R Foundation for Statistical Computing, <http://www.R-project.org> (last visited May 4, 2015).

34. The commonly accepted value for statistical significance is  $p < 0.01$ , and for high statistical significance  $p < 0.005$ .



**Partial Autocorrelation Function of Residuals of Simple Linear Fit****Figure A1**

Another model of the relationship between the transformed series of law school applicant and unemployment data is necessary. Examining the partial autocorrelation function of the innovations of the fit in combination with the autocorrelation function (Figure A2) suggests that a first-order autoregressive model (AR(1)) is appropriate.<sup>35</sup>

**Autocorrelation Function of Innovations of Fit with Model****Partial Autocorrelation Function of Innovations of Fit with Model****Figure A2**

35. ROBERT H. SHUMWAY & DAVID S. STOFFER, *TIME SERIES ANALYSIS AND ITS APPLICATIONS* 108 (3d ed. 2011).

The AR(1) model for the relationship between the differenced time series has the form:

$$dL_i = \alpha dU_i + \phi(dL_{i-1} - \alpha dU_{i-1}) + \delta_i,$$

where  $dL_i$  is the  $i^{\text{th}}$  first difference of the law school applicant series,  $dU_i$  is the  $i^{\text{th}}$  first difference of the unemployment series,  $\alpha$  and  $\phi$  are the coefficients of the fit, and  $\delta_i$  are the innovations. Fitting the AR(1) model using the generalized least squares method with maximum likelihood yields the expected first differences in the total number of law school applicants (the expected  $dL_i$ ) with  $\alpha = 2593.4152$  and  $\phi = 0.5499868$ . The autocorrelation and partial autocorrelation functions of the innovations of this fit show no significant time correlations (except that when the time lag is 0, of course each data-point is correlated with itself) (Figure A2). The p-value of the fit is 0.0024.