Legislation, Regulation and Litigation: Demand for U.S. Legal Services in Historical Perspective*

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Abstract

In the twenty years between 1970 and 1990 the employment share of legal services more than doubled, reaching 1.15% of the private sector—in stark contrast to stability during 1850–1970 and in 1990–2015. During the same period the relative wage of legal services almost doubled, driven by commensurate increases in lawyers' wages and of law firm partners' income. We argue that that this demand shift was driven by important legislation and regulation events, starting in the mid-1960s and lasting throughout the 1980s. Using historical data, we observe a tight correlation between the employment and compensation of lawyers and the scope of, and uncertainty created by, federal regulations and legislation. This is supported by cross-state and micro-level analysis. Other factors, e.g., changes in lawyers' quality, patenting, firm density and technology are not important determinants of the demand shift. A back of the envelope calculation implies that 42% of income to lawyers and partners are in excess of what these payments would be if *relative* income remained at 1970 levels. This represents an excess cost of $104 billion dollars in 2015 alone.

JEL classifications: J2, J3, N3, K00.

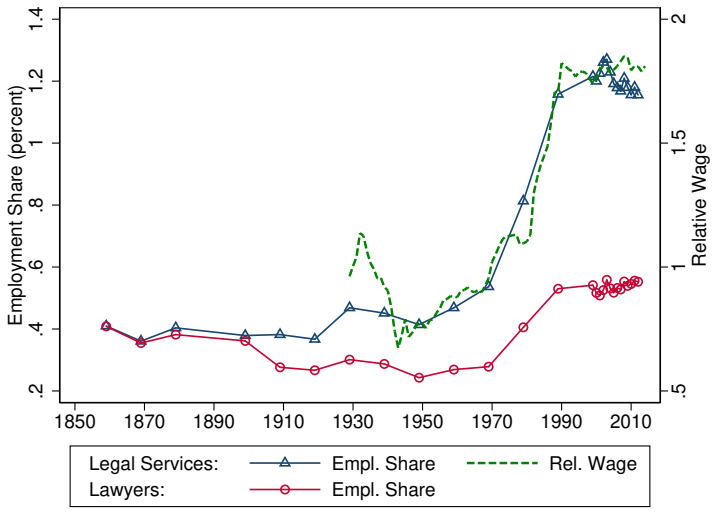
Keywords: legal services, lawyers, legislation, deregulation, litigation, labor demand.

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1 Introduction

Lawyers perform an indispensable role in modern societies that are governed by the rule of law. They represent individuals, firms and the government within the legal system, advise these entities about their rights and obligations, and perform the role of state verification in nearly every aspect of life. These tasks are part of the institutional underpinnings of the success of such economies.[1] A less benign view of lawyers sees much of their activity as rent seeking, with negative effects on the economy through the direct cost they levy, as well as through the negative effect of rent seeking on the allocation of talent.[2] In this paper we study the evolution of the size, composition and remuneration of the United States' legal services industry in light of these considerations.

Figure 1: Employment shares and relative wages of legal services



Notes: Employment measured in hours, and the shares are within the private sector. The relative wage of legal services is the average wage in legal services divided by the average wage in the private sector, excluding legal services. Hours worked is sourced from the decennial Census from 1850–2000, and the American Community Survey from 2001–2015. The relative wage in legal services series uses BEA data on compensation of employees and full-time equivalent employment.

The U.S. legal services industry experienced a secular expansion in 1970–1990, more than doubling from 0.53% to 1.15% of private sector employment. As Figure 1 illustrates, this stands in strong contrast to stability in the employment share in 1850–1970 and in 1990–2015. Lawyers' employment share declined slowly during 1850–1970, at which point it reverses trend and almost

[1] On the importance of institutions and, in particular, the rule of law, for economic development see Acemoglu et al. (2001), Easterly & Levine (2003), and Rodrik et al. (2004).

[2] On the importance of allocation of talent see Baumol (1990) and, in particular, Murphy et al. (1991), who estimate a negative correlation between the number of lawyers and growth in income per capita in a cross section of 91 countries.

doubles from 0.28% to 0.53% in 1990, and remains stable thereafter. During this long period of sustained economic growth, and through all the upheavals it experienced in this sample, the U.S. economy employed a stable share of labor in legal intermediation (or declining, for lawyers)—except in 1970–1990.

Figure 1 shows that the increase in relative employment in legal services coincides almost exactly with an increase in the relative wage of legal services. Within legal services, lawyers' relative wages more than doubled, while those of law firm partners increased by 30–50%. As these workers earn relatively high wages, this evolution contributes significantly to greater inequality, in particular, through the top percentiles of the income distribution.[3] In contrast, relative wages of non-lawyers in legal services do not exhibit a trend.

The increase in both the employment and relative wages of lawyers implies a demand shift that outpaces supply. We argue that changes in the legal environment led to an increase in demand for legal intermediation and litigation, which are the main contributors to the increase in demand for lawyers. "Neoclassical" forces, such as increases in economic activity *per se*, patenting and firm density, do not contribute to this evolution. We also do not observe a change in the quality of lawyers that would explain the increase in their compensation. Evidence from micro level regressions imply that changes in the demographic composition of lawyers do not contribute to the evolution of their wage premium, either.

Starting in the mid-1960s and continuing through the 1970s and 1980s the U.S. passed a series of important acts. The first set of major legislation is often called "social regulation", and includes, as leading examples, the Civil Rights Act of 1964 and the National Environmental Policy Act of 1969 (signed into law on January 1, 1970). More broadly, social regulation included environmental laws, workplace and product safety rules, civil rights laws, and consumer protection laws, all of which increased the domain of interactions that fall within the law, thus increasing the scope for legal intermediation.

The second major source of change came in the form of economic regulation. Starting in the 1970s and persisting throughout the 1980s and early 1990s the U.S. embarked on a period of deregulation. The consensus at the time was that regulation of entry and prohibition of certain types

[3]For example, data from Bakija et al. (2012) show that lawyers are the fourth largest occupation within the top 1 percent income (excluding capital gains) earners, and their representation within this group grows from 7 percent in 1979 to 9 percent in 1993, after which it declines somewhat to 8.4 percent in 2005. Consistent with this, the share of national income accruing to lawyers in the top 1 percent increases from 0.6% in 1979 to 1% in 1993, and reaches 1.2% in 2005.

of activities was keeping prices artificially high, benefiting regulated industries and not consumers. However, removal of such barriers and restrictions does not necessarily imply less regulation. In fact, many legal scholars have characterized the outcome of deregulation as *more* regulation, often by way of litigation (Friedman, 1981).

We argue that the introduction of social regulation and economic deregulation of the 1960s, 1970s and 1980s affected legal intermediation in two main ways. First, by increasing the scope of the law, easing entry into the judicial system and by increasing the effective intensity of regulation, these acts expanded the "market" for lawyers and demand for their services. The increase in market size increased the ratio of lawyers to law firm partners. Second, deregulation of certain industries and broadly written social regulation increased uncertainty about outcomes once the judicial process starts, leading to greater sensitivity of outcomes to effort and, therefore, directly increasing remuneration of lawyers. Moreover, most of these acts included "fee-shifting" provisions that stipulate that if the plaintiff wins, the fees for the plaintiff's lawyer will be paid by the defendant. This was deliberately done in order to create an incentive for lawyers in the private sector to represent plaintiffs in Civil Rights, Environmental, and Workplace Safety cases, to name a few, which had an effect on the industry both through the quantity and price channels.

Consistent with our hypotheses, we observe a very tight correlation between legal services intensities (employment, remuneration and the lawyer-to-partner ratio) and litigation intensity, in particular litigation in the civil sphere. Furthermore, we collect data on the introduction of fee-shifting statutes, and on the number of pages of federal regulations from the Code of Federal Regulations. These two series also correlate tightly with the employment share of legal services, relative wages of the lawyers within legal services, and with the lawyer-to-partner ratio. We exploit state-level legislation events and state-level variation in the propensity to respond to federal legislation in order to help establish the link with legal intermediation intensity. Here, we find that states that are more likely to be exposed to federal civil rights and environmental legislation see larger increases in lawyers, and that this pattern is also true for state level deregulation in divorce, wrongful discharge, and banking.

Next, we assess the degree of "excess" cost of these reforms. We assume that the 1970–1990 quantity increase in employment in legal intermediation is efficient or socially desirable, whereas the price is not, either because of supply restrictions or inefficiently high cost due to increased uncertainty in judicial outcomes. We find that about 42 percent of the increase in labor payments to legal services (including law firm partners, associate lawyers and non-lawyers) are in excess of

what they would have been if income per worker in legal services relative to the rest of the private sector stayed at its 1970 ratio. To put things in context, this represents 104 billion dollars in 2015 alone.

We investigate the incidence of these excess payments by estimating simple wage regressions. In line with the evolution of relative wages, we find that all the excess payments that emerge from 1970 accrue initially only to lawyers, while non-lawyers working in legal services see virtually no gains. This is consistent with barriers to entry into the law profession. However, initially only incumbent lawyers see their incomes rise after 1970, whereas new lawyers do not see gains until 1985, after which they catch up rapidly with incumbents. This pattern is harder to reconcile with simple demand and supply dynamics, and points to complex rent sharing arrangements within law firms.

We contribute to several strands of literature. First, by taking an historical perspective we add to the existing literature that studies legal services and lawyers in particular. An early example is Pashigian (1977), who argues that demand for lawyers in 1920–1970 is driven mostly by increases in real GNP, not by changes in regulation. With hindsight, our paper shows that this cannot be the case. First, since output per worker is increasing throughout our sample, but lawyers as a share of the labor force is either declining or stable for most of it. Second, the rapid growth in the employment share of lawyers from 1970 does not coincide with an acceleration in real output growth—quite the opposite.

The evolution in the number of lawyers and their remuneration is also documented by Sander & Williams (1989). While they provide a rich portrait of legal services, they come short of offering an explanation for the changes that they document. In fact, Sander & Williams (1989) argue that supply increased more than demand and rule out the role of "social regulation" as a source of change, which we, in contrast, identify as one of the main drivers.[4] Hadfield (2000) discusses the causes of high legal fees, in particular complexity and uncertainty of the legal process. However, Hadfield (2000) does not offer an explanation for why they increase and then cease to increase when they do. By taking into account the timing and incidence of legislation and regulation, our historical approach allows us to offer an explanation that is based on changes in the legal environment, which trigger (some of) the mechanisms discussed by Hadfield (2000), as we discuss in more detail below.

[4]Sander & Williams (1989) dismiss social regulation as a major cause of change because (they estimate that) corporations have over time become more important sources of activity and income for lawyers in legal services. However, we note that corporations may be funding much defensive legal services as a result of the threat of litigation that is enabled by social regulation, a phenomenon that legal scholars have sometimes called the "invisible fist" (Olson, 1991).

Another example is Garicano & Hubbard (2007), who use the 1992 Census of Services Industries to show how market size is associated with a higher ratio of associate lawyers to partners. In line with the information hierarchies theory of Garicano (2000), in larger markets there is a stronger incentive to delegate simpler and easier tasks to associate lawyers, leaving only the more difficult or complex tasks to partners. While Garicano & Hubbard (2007) provide evidence in the cross section, we find that following a long period of stability, the ratio of associate lawyers to partners increases sharply from 1970 to 1990. The timing of the shift in the composition within lawyers corresponds to the increase in the scope of legal intermediation and the "market size" for lawyers, as well as with an increase in the uncertainty and complexity of legal intermediation.

Second, we contribute to the literature on the allocation of talent. Baumol (1990) describes several historical episodes where changes in "the rules" affected private incentives faced by entrepreneurs to conduct unproductive activities. Murphy et al. (1991) formalize this notion in a model, and empirically find that countries with more lawyers grow more slowly; this point is also made in Magee et al. (1989). Here we study some of the sources of variation in legal activity intensity. Relatedly, we contribute to the literature on demand for skill and inequality, which mostly focuses on technological change and globalization. In contrast, we illustrate how changes in the legal environment and in regulation affect relative demand for specific skilled or talented individuals and can be important factors behind the increase in their relative wages. Philippon & Reshef (2012), Boustanifar et al. (2017) make this point in the context of the financial sector, while Gottlieb et al. (2023) make this point in the context of the medical sector.

We also contribute to a growing literature on the indirect costs of the introduction of new legislation and the creation of new regulatory bodies in the U.S. from the mid-1960s through the 1980s. While we show how these institutional changes increased the demand for lawyers and for litigation, Brooks & Liscow (2020) show that these changes increased the cost of building infrastructure over the same period.[5] Trebbi et al. (2023) measure the cost of regulatory compliance for firms in the current day, and the heterogeneity in that cost across industries and firm size. Lawyers rank in the top 10 of occupations with the highest regulation task intensity.

Lastly, our finding that changes in the legislative environment increased the demand for lawyers is consistent with research on the role of lawyers in shaping legislation (Bonica, 2017; Barton, 2010; Hadfield, 2000). Bonica (2017) studies the prevalence of lawyers in Congress and shows that

[5]They attribute this change in costs to the increase in "citizen voice," brought upon by the new environmental legislation that required consideration of impacts on affected parties, and allowed citizen groups to request changes.

lawyer-legislators are significantly more likely to support bills that benefit the legal profession, such as fee-shifting statutes.

The rest of the paper is organized as follows. The next section briefly describes our data sources and presents a set of empirical facts that we previewed in Figure 2. Section 3 discusses the demand for legal services, and studies long run historical correlates of legal activity. In Section 4 we exploit variation across states and time to bolster the historical correlations and identify specific channels through which changes in the legal system affect demand for legal intermediation. Lastly, in Section 5 we perform a back of the envelope exercise to measure the "excess cost" of legal services, borne by the increase in relative wages post 1970. We then investigate the wage premium of lawyers in the micro data, and document how this premium and its incidence have changed over time.

2 Facts

We draw on several data sources in order to portray the evolution of legal services in the U.S.[6] We organize the discussion around changes in relative quantities, changes in relative wages, and changes in composition—the latter reflecting changes in organization and fields of specialization.

We use the following micro data sources: the U.S. Censuses of 1850–2000, the American Community Survey (ACS) in 2001–2015, and in some cases we use the Current Population Survey (CPS) in 1967–2015. These data allow distinguishing individuals within an industry by occupation (and other demographics). The main disadvantage of these sources for our setting is the reporting of income: wages and other income are self-reported and top coded, i.e., the highest values are censored. In addition, it is difficult to distinguish between employees and proprietors, in particular, between associate lawyers who are employees and law firm partners and sole proprietors.[7] We verify that the total number of lawyers (using sampling weights) in the Censuses and surveys is in line with data from the American Bar Association (ABA) from 1878 and on.

We supplement the censuses and surveys with industry-level data from the Bureau of Economic Analysis (BEA) in 1929–2015. The BEA data have three main advantages over the survey data: (1) the data do not suffer from top coding and include all forms of compensation, (2) all workers are accounted for on a full-time equivalent basis, and (3) it is possible to distinguish proprietors and their income from employees and their wages.

[6] We keep the data description to a minimum here and relegate additional details to Appendix A.

[7] Although some individuals report income as business income (in addition or instead of wage income), this distinction is insufficient to characterize the status of proprietorship.

Our source for the composition of lawyers' fields of specialization is the Census of Services. The Census of Services is conducted every five years starting in 1967, but legal services firms are asked about lawyers' fields of specialization only in 1972–1992. We obtain the total number of lawyers in the U.S., their numbers by field of specialization—and similar numbers for 28 states.[8]

2.1 Employment shares

Figure 1 depicts the evolution of employment shares of legal services and lawyers in private sector employment. We juxtapose the employment share of legal services with its relative wage, which we define below in Section 2.2. The most important feature of Figure 1 is the sharp increase of employment shares from 1970 to 1990, compared to the relative stability before and after this period. The employment share of legal services more than doubles during these 20 years, from 0.53% to 1.15%; for lawyers employed in legal services, the increase is from 0.28% to 0.53%, nearly doubling.[9] A smaller increase in legal services employment share is evident from 0.38% in 1920 to 0.51% in 1940, but this is dwarfed by the more-than-doubling during 1970–1990, after which it remains relatively stable, at 1.2% on average.[10] These numbers change little when calculating employment shares out of total employment, including the public sector.[11] The long run evolution of legal services' employment share is similar to the evolution of its wage bill share and value added share. Importantly, all these share series increase significantly in the 1970–1990 period.[12]

We now ask whether the aggregate employment share changes displayed in Figure 1 reflect compositional changes across states. State bar examinations are natural barriers to mobility of lawyers across state borders and render mobility of lawyers across state borders to be much lower than for the rest of the labor force. This makes states a natural unit of observation, because changes in lawyers' employment within a state is mostly driven by new entry, and much less by mobility across states.

We decompose the changes in aggregate employment shares into compositional changes in state

[8]Due to data limitations, we cannot complete this information for all states. See Appendix A for more details.

[9]Data on full time equivalent employment shares from the BEA and hours shares from the CPS agree with the Censuses/ACS employment share series, both in terms of timing and in terms of magnitude. See Figure A1(a) for a comparison. The only significant deviation is between 1930 and 1940, where the BEA full-time equivalents series imply somewhat higher employment shares in legal services.

[10]The increase from 1920 to 1940 is probably associated with financial activity up to the 1929 crash, and then the relative stability of employment in legal services compared to the rest of the U.S. economy during the Great Depression. Below we investigate the relationship between legal services and financial services.

[11]See Figure A1(b) in the appendix. Public sector employment during 1970–1990 slightly increases from 7% to 8% of total employment, and thus has little effect on the overall pattern.

[12]See Figure A1(d). The wage bill share and value added share overlap almost perfectly after 1980. The wage bill share and value added shares increase much more than the employment share in 1970–1990, commensurate with the increase in the relative wage during this period.

sizes (employment) and within-state changes in employment shares using the following exact decomposition formula

$$\Delta S = \underbrace{\sum_i \Delta n_i \overline{s}_i}_{\text{Between}} + \underbrace{\sum_i \overline{n}_i \Delta s_i}_{\text{Within}} , \tag{1}$$

where ΔS is the aggregate change in the employment share of either legal services or lawyers over some period, i denotes a state, Δn_i is the change in the employment share of state i, $\overline{s}_i$ is the average employment share of either legal services or lawyers within state i during the period, $\overline{n}_i$ is the average employment share of state i, and Δs_i is the change in the employment share of either legal services or lawyers within state i. The first sum, "Between", captures the importance of compositional changes in state sizes, whereas the second sum, "Within", captures the importance of within-state changes in employment share.

Table 1 reports the results using Equation (1) for the changes in the employment shares of legal services (Panel A) and of lawyers employed in legal services (Panel B), for several time periods. The main takeaway of Table 1 is that factors that specifically affect demand for legal services and lawyers, and not economic activity in general, play an important role in explaining the aggregate changes. In particular, in 1970–1990, within-state changes account for virtually 100% of the aggregate changes. This may arise due to state-specific forces or due to federal-level change that affect state-specific intensities. In contrast, factors that affect relative state sizes (employment), while keeping the proportion of lawyers fixed, are less important. In fact, state compositional changes almost always move in the opposite direction.

2.2 Relative wages

We now turn to examine the evolution of relative wages of three different groups within legal services—all relative to average wages in the non-legal services private sector, denoted $w_{nonlegal}$. These groups are (1) all employees, (2) lawyers, and (3) law firm partners and other (typically sole) proprietors.

We define the relative wage of legal services as the ratio of the average labor income among all employees in legal services to $w_{nonlegal}$,

$$\omega_{legal} = \frac{w_{legal}}{w_{nonlegal}} . \tag{2}$$

Here we rely on BEA data to construct full time equivalent wage series. This has the advantage of not requiring adjustments for top coding, since all labor income is included in the BEA underlying

Table 1: Decompositions of changes in employment shares across states

A. Legal Services

Period	Change	Between, %		Within, %	
1860-1880	0.001	0.015	1373	-0.014	-1273
1880-1910*	-0.023	-0.001	5	-0.022	95
1910-1930	0.079	0.015	19	0.064	81
1930-1950	-0.069	0.005	-7	-0.073	107
1950-1970	0.107	-0.002	-2	0.109	102
1970-1990	0.584	-0.007	-1	0.591	101
1990-2010	0.026	-0.009	-36	0.035	136

B. Lawyers

Period	Change	Between, %		Within, %	
1860-1880	-0.019	0.017	-86	-0.036	186
1880-1910*	-0.105	-0.001	1	-0.104	99
1910-1930	0.021	0.008	38	0.013	62
1930-1950	-0.066	0.003	-4	-0.068	104
1950-1970	0.029	-0.001	-5	0.031	105
1970-1990	0.237	-0.006	-2	0.243	102
1990-2010	0.011	-0.007	-62	0.018	162

Notes: The table reports decompositions of the Change in aggregate employment shares across states, using equation (1). We use employment of legal services and lawyers in legal services as a share of total employment in the economy. Change = Between + Within. The % are the percent of Between or Within in Change. *The Census of 1890 is not available. Sources: authors' calculations based on data from U.S. Censuses (1860-2000) and American Community Surveys (2010).

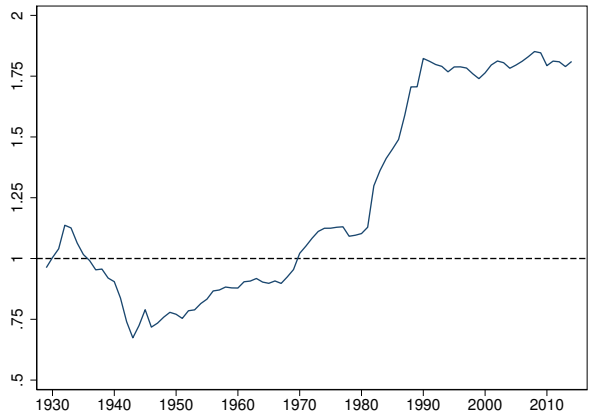
series. Figure 2(a) shows that ω_{legal} drops from 1.13 in 1933 to 0.67 in 1943, after which it increases at a moderate rate until 1975, when it reaches the same level as in 1933. From 1980 to 1990 the relative wage in legal services increases sharply from 1.1 to 1.82, after which it remains approximately stable.[13]

We define the relative wage of lawyers within legal services, $\omega_{lawyer|legal}$, as the ratio of the average labor income among all lawyers within legal services to $w_{nonlegal}$, mirroring Equation 2. We compute $\omega_{lawyer|legal}$ in two ways. First, we use Census and ACS data for both the numerator and denominator, denoted $\omega^{Cen/ACS}_{lawyer|legal}$. When doing so, we multiply top-coded wages by 1.5 in 1940–2002. From 2003 we do not adjust top coded wages in the ACS, which reports all wages up to the 99.5th percentile by state of residence; above this threshold wages are coded as the state mean of wages above the state-specific 99.5th percentile.[14]

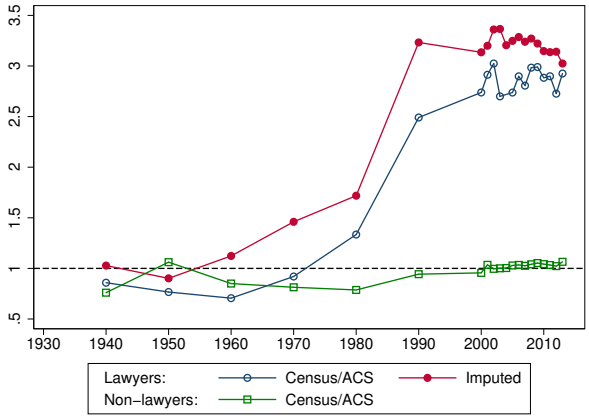
[13]Relative wage data based on Censuses and the ACS broadly agree with this evolution; see Figure A2(a).

[14]We drop 2004 because it is an extreme outlier in terms of the number of top-coded wage observations. See Appendix A for more information on top coding in the censuses and ACS.

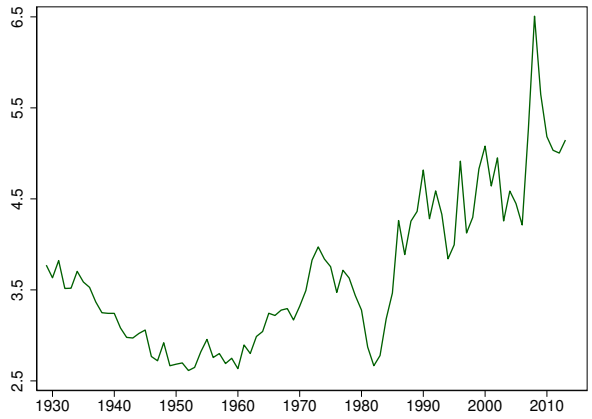
Figure 2: Relative Wages for Legal Services, Lawyers and Law Firm Partners



(a) Legal services



(b) Lawyers (excl. partners) and non-lawyers



(c) Relative income of partners



(d) Lawyers, including partners

Notes: The relative wage of legal services (in (a)) is the average wage in legal services divided by the average wage in the private sector, excluding legal services. The relative wage series uses BEA data on compensation of employees and full-time equivalent employment. The relative wage of lawyers and non-lawyers within legal services (in (b)) uses Census/ACS data on wages, relative to the average wage in the rest of the private sector (outside of legal services). Top coded wages in Census/ACS series are multiplied by a factor of 1.5 until 2002, inclusive. From 2003 and on ACS data report wages up to the 99.5^{th} percentile within state of residence, and the average wage above this threshold. The Imputed lawyers relative wage series uses the average wage of non-lawyers employed in legal services and the employment share non-lawyers employed in legal services from the Census/ACS, together with the average wage in legal services using BEA data (displayed in (a)), in order to infer the relative wage of lawyers in legal services; see Equation (4). Relative income of law firm partners, in (c), is given by average (full-time equivalent) proprietors' income (self-employed) in legal services divided by the average wage in the rest of the private sector, excluding proprietors' income, using BEA data. Relative wages of lawyers and law firm partners in legal services (in (d)) are imputed. The imputation uses the average wage of non-lawyers employed in legal services and the employment share non-lawyers employed in legal services from the Census/ACS times the share of employees in persons engaged in legal services form the BEA, together with the average income of all persons engaged in legal services using BEA data.

The second methodology is designed to address top coding in the Census wage data. Here, we combine Census/ACS data with BEA data to impute the relative wage of lawyers. The average wage in legal services is, in general,

$$w_{legal} = \lambda w_{lawyer|legal} + \ (1-\lambda)\, w_{nonlawyer|legal} \ , \tag{3}$$

where λ is the employment share of lawyers within legal services. We can use Census/ACS data to compute the average wage of non-lawyer employees in legal services $w^{Cen/ACS}_{nonlawyer|legal}$, because we know that non-lawyers' wages are very rarely top-coded.[15] We also know the employment share of lawyers within legal services, $\lambda^{Cen/ACS}$, from the Census/ACS. Then, we use the BEA data to compute the average wage in legal services w^{BEA}_{legal}, which does not suffer from top-coding. Rearranging Equation (3) and using the series above we have:

$$\omega^{imputed}_{lawyer|legal} = \frac{w^{imputed}_{lawyer|legal}}{w^{BEA}_{nonlegal}} = \frac{w^{BEA}_{legal} - (1-\lambda^{Cen/ACS}) w^{Cen/ACS}_{nonlawyer|legal}}{\lambda^{Cen/ACS}} \cdot \frac{1}{w^{BEA}_{nonlegal}} \ , \tag{4}$$

where $w^{BEA}_{nonlegal}$ is average non-legal services wages using the BEA data.[16]

Figure 2(b) shows that both relative wages of lawyers, using both methodologies,increase in 1960–1980, and then increase more sharply in 1980–1990. From 2000 and on both series are relatively flat, $\omega^{Cen/ACS}_{lawyer|legal}$ at around 2.85 and $\omega^{imputed}_{lawyer|legal}$ at around 3.2. It is reassuring that these two series, using different methodologies and sources, agree with each other so well.[17] Since $\omega^{imputed}_{lawyer|legal}$ does not suffer from top coding, it is higher than $\omega^{Cen/ACS}_{lawyer|legal}$, which applies an imperfect top coding correction. The series are closer at the end of the sample, when top coding in $\omega^{Cen/ACS}_{lawyer|legal}$ becomes less restrictive. Figure 2(b) also shows that there are hardly any wage gains in relative wages for non-lawyers: $\omega_{nonlawyer|legal}$ declines gradually from 1.06 in 1950 to 0.78 in 1980, and then rises to about 1 in 1990, after which it remains flat.

We now turn to gauging the relative income of law firm partners within legal services. These are excluded from the calculation of ω_{legal} and $\omega_{lawyer|legal}$, as the latter pertain to wages of employees only. We compute $\omega_{partners|legal}$ using BEA data on proprietors' income within legal services, which pertains to non-wage income. Figure 2(c) shows that $\omega_{partners|legal}$ drops from 1929 to

[15] Only 0.45% of non-lawyers in legal services report wages that are top coded (compared to 11% for lawyers); as above, we multiply top-coded wages by 1.5 in 1940–2002, and make no adjustments from 2003 and on.

[16] In Equation (4) w^{BEA}_{legal} and $w^{BEA}_{nonlegal}$ are the same as what we use when evaluating the numerator and denominator of Equation (2), respectively. Here we mark the data source for clarity.

[17] Differences in denominators make it possible for both $\omega^{imputed}_{lawyer|legal}$ and $\omega^{cen/ACS}_{nonlawyer|legal}$ in Figure 2(b) to be above ω_{legal} in Figure 2(a) in early years. For example, in 1940 $\omega^{imputed}_{lawyer|legal} = 1.05$, $\omega^{cen/ACS}_{nonlawyer|legal} = 1.28$, and $\omega_{legal} = 0.9$. The reason is that denominator in $\omega^{cen/ACS}_{nonlawyer|legal}$ is $w^{cen/ACS}_{nonlegal}$, whereas in ω_{legal} it is $w^{BEA}_{nonlegal} > w^{cen/ACS}_{nonlegal}$.

1950, remains flat until 1960, and then overall increases almost linearly, except for one big drop in during 1978–1986. This drop is driven by proprietors income within legal services, not by the number of proprietors. It is a pattern that we see in proprietors income across industries, thus is not specific to partners in the legal industry (See Appendix Figure A3).[18] In Figure 2(d) we incorporate proprietors' income into $\omega^{imputed}_{lawyer|legal}$ (we add proprietors' income to ω^{BEA}_{legal} in Equation (4)) and find a trend for lawyers that mimics the lawyers' relative wage series in (b), but at a much higher level, reflecting the higher compensation of partners.[19] In Section 5.1 we leverage micro level data and show that the increase in the relative wage of lawyers and law firm partners cannot be attributed to changes in demographic composition of these classes of workers.

Aggregate changes in relative wages could reflect compositional changes across states or changes across occupations within legal services. We decompose the changes in relative wages into compositional changes following the same exact decomposition approach we used for the decomposition of employment shares (Equation (1)), where $\Delta\omega$ is the outcome of interest instead of ΔS.[20] Appendix Table A1 reports the results using (18) for $\Delta\omega_{legal}$ across occupations (Panel A), across states (Panel B), and for $\Delta\omega_{lawyer|legal}$ across states (Panel C). The main message of Table A1 is that within-state and within-occupation changes in relative wages matter much more than changes in composition. This is despite large changes in the occupational composition of legal services over time (see Section 2.3 below).

2.3 Composition of Legal Services

In this section we discuss changes in composition within legal services in three dimensions: the share of lawyers to non-lawyers, the share of partners to lawyers, and the fields of specialization of lawyers.

Before 1900 legal services were provided virtually only by lawyers, when lawyers were more than 95.5% of all workers in legal services (including law firm associates, partners, and sole proprietors). After 1900 the share of lawyers in legal services drops, first sharply to 72% in 1910, and then more gradually until it reaches 41% in 2002, after which it increases slightly to 48% in 2015 (Figure 3(a)). By inspecting Census questionnaires, we can rule out that the virtual 100% lawyers' share in

[18] Using IRS data, Sander & Williams (1989) also find a drop in the proprietors' income in legal services around the same time that we do in the BEA data.

[19] The increase from trough to peak is slightly less for $\omega_{lawyer|legal}$ relative to $\omega_{partners|legal}$, while partners are at a much higher level overall. The level of ω_{legal} is overall lower, and the increase is much less, as can be expected. These observations are reassuring, because they are in line with skill and hierarchy ranking of partners, associate lawyers and other employees in legal services, despite very different methodologies.

[20] See Appendix B for the formula.

legal services in 1850 and the drop in their share later on are mere artifacts. These questionnaires make it clear that the high share of lawyers before 1900 does not capture secretaries and other legal assistants.

The sharp drop in lawyers' share within legal services and the commensurate rise of the share of clerical and paralegal staff in 1900–1910 coincides with the rapid diffusion of early information and communication technologies—telephones, typewriters, improved filing techniques, tabulation techniques, and sorting cards—as discussed in Yates (2000). These technologies were very likely used particularly intensively in legal services, raising the demand for (and use of) qualified clerical works, who could apply these technologies and at the same time perform the tasks that would be previously performed by lawyers, thus increasing the division of labor within legal services.[21] However, ICT alone cannot explain the historical evolution of the share of lawyers (associates and partners) within legal services. From 1950 and on, Legal Services were not particularly ICT-intensive relative to the rest of the economy, and only in 1995 exhibit a differentially faster ICT intensity increase, relative to other sectors (Figure A5(a)).[22]

Another important dimension in which the internal composition of legal services has changed is the decline in the share of law firm partners and sole proprietors to lawyers in legal services, shown in 3(b). This ratio is stable around 0.85 until 1970, after which it drops sharply to 0.45 in 1990, after which it continues to decline much more moderately. The implied increase in the ratio of lawyers to partners and sole proprietors is consistent with an increase in the scope and "market for legal intermediation" after 1970. Building on the theory of information hierarchies (Garicano, 2000), Garicano & Hubbard (2007) use the 1992 Census of Services Industries to show how the extent of the market is associated with a higher ratio of associate lawyers to partners.[23] The time series trend we document, coinciding with an increase in the relative size of the legal services industry, is complementary to their cross-section analysis.

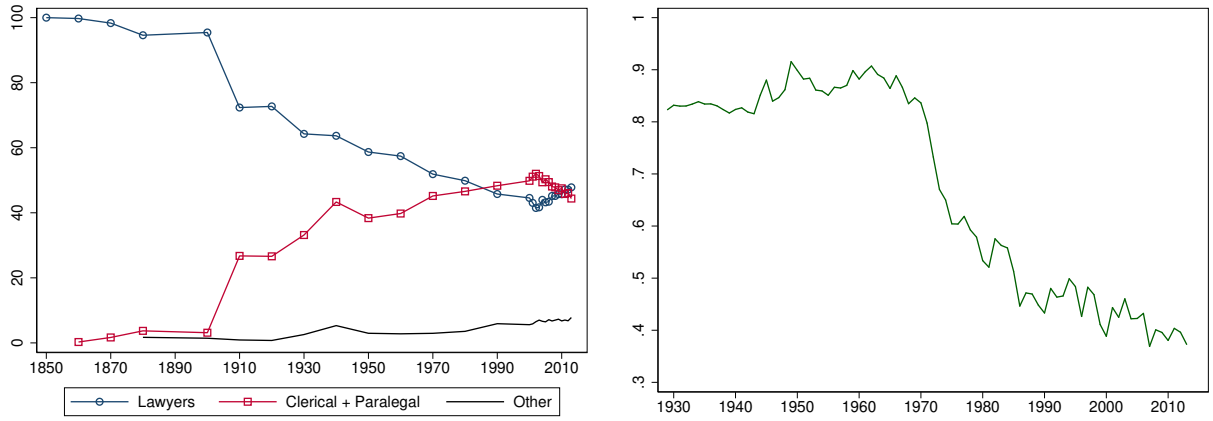
Yet another important dimension in which the internal composition of legal services has changed is lawyers' fields of specialization. We use publicly available data from the Census of Services to

[21] Michaels (2007) argues that this early ICT revolution increased the demand for office workers in manufacturing industries in the early twentieth century and that this phenomenon was more pronounced in more complex industries. Unfortunately, we could not obtain data on the relative stock of telephones and such technologies in the legal services in the early part of the sample.

[22] A complementary interpretation of the rise in the share of clerical and paralegal workers within legal services can be given through the lens of information hierarchies, as in Garicano (2000). According to this view, the rapid diffusion of early ICT would have improved the ability to delegate simpler and easier tasks to office workers lower in the law firm hierarchy, leaving the more difficult or complex tasks to lawyers.

[23] Garicano & Hubbard (2007) argue that their mechanism does not apply to clerical and paralegal workers in law firms due to legal limitations on the range of activities that such workers can perform. For example, they cannot communicate legal advice directly to clients, which prevents hierarchies to expand through their level of employment.

Figure 3: Lawyers and the Composition of the Legal Industry



(a) Lawyers within legal services (%)

(b) Partners as Share of Lawyers (within legal services)

Notes: Employment in the legal services industry is sourced from the decennial Census from 1850–2000, and the American Community Survey from 2001–2015. Paralegals were not listed as an occupation before 1980, so they would be included in our "clerical" group pre-1980. This includes all occupations classified as: "Clerical and Kindred", "Office and Administrative Support", "Office Machine Operators", "Secretaries", and "Clerical Occupations". Employees who are not lawyers, paralegals, or " clerical" are categorized as " other." An anomaly in legal services employment in 1940 in "other" is discussed in Appendix A.2.1. For (b), Law firm partners are approximated by proprietors in legal services. Employment is in terms of full time equivalents. The share of lawyers in legal services is calculated based on the U.S. Censuses (interpolated between decades) and the American Community Surveys from 2000 and on. Source: BEA.

track the specialization of lawyers from 1972 to 1992 at the aggregate level and for 28 states.[24] Table 2 documents that over this period lawyers have become much more specialized. The share of generalist lawyers declined by more than half from 58.2% to 28.3%, while the share of lawyers that are specialized increased from 41.5% to 71.7%. The majority of the increase occurred in the 10 years between 1977 and 1987 and the increase in specialization is not driven by any one field. The shares of lawyers in Banking, Criminal, Domestic, Insurance, and Negligence all increased by at least 65% from 1972 to 1992, and the only fields to experience decreases were Taxation and Wills. Corporate and Real Estate lawyer shares experienced increases of 23%, and Patent Law a modest 10% increase.

As in Sections 2.1 and 2.2, we decompose the changes in field shares into compositional changes in state employment of lawyers, and within-state changes in employment shares of each field. With this decomposition we can speak to whether the observed increase in the share of lawyers specialized in Banking, for example, is driven by states with higher shares of lawyers in Banking in 1972 increasing their overall lawyer intensity, or whether states are increasing their share of banking

[24]See Appendix A for complete details on variables construction.

Table 2: Shares of lawyers by field, 1972-1992 (percent)

	1972	1977	1982	1987	1992	Change from 1972 to 1992	Rate of change 1972-1992
General	58.5	58.0	43.4	30.3	28.3	-30.2	-0.52
Specialized	41.5	42.0	56.6	69.7	71.7	30.2	0.73
Specialization:							
Banking	2.8	2.3	3.5	5.3	4.5	1.8	0.65
Corporate	6.5	5.8	7.1	9.1	8.0	1.5	0.24
Criminal	1.3	1.9	2.3	2.2	2.4	1.1	0.83
Domestic	1.1	1.7	2.2	2.7	2.6	1.5	1.31
Insurance	2.0	2.1	3.5	4.9	5.8	3.9	1.96
Negligence	7.1	7.0	9.9	12.7	13.4	6.2	0.87
Patent	1.7	1.6	1.7	1.7	1.9	0.2	0.10
Real Estate	4.8	4.6	5.3	7.3	5.9	1.1	0.23
Taxation	2.8	2.8	3.5	3.4	2.6	-0.2	-0.06
Wills	4.8	4.5	4.1	3.7	3.3	-1.5	-0.32
Other	6.6	7.7	13.6	16.9	21.2	14.6	2.22

Notes: These percent shares are calculated from using U.S. totals of lawyers by field from the Census of Service Industries. Shares in General and Specialized sum to 100, and the shares of fields of specialization sum to the share of Specialized.

lawyers in total lawyers. We compute the decomposition for each of the 11 specializations listed in Table 2, as well as for non-specialized, "general", lawyers.

Table A2 reports the results of the field of law decompositions. The change in field of law from 1972 and 1992, ΔF, is displayed for each field, as well as the between and within shares. The within share dominates in every field, contributing to over 90% of the total change in all but two fields (Patents and Taxation). Within-state changes matter much more than changes in state composition. Returning to the Banking example, this means that the share of lawyers in Banking is increasing in the average state, and not that states with high shares of Banking in 1972 are driving the change by increasing their overall lawyers intensity. Across the U.S., lawyers became increasingly specialized, and increases in any given field are not driven by compositional changes across states.

Finally, we examine the industry composition of lawyers' employment, between legal services, industry and government. Figure A1(c) illustrates that most lawyers are employed in legal services, and that the evolution of their employment shares is different from those of lawyers in industry and in government. This indicates that the forces that determine the evolutions in Figures 1 and

2 are related to the legal services industry in particular.[25]

2.4 Taking stock

Workers in legal services roughly doubled their employment shares between 1970 and 1990. At the same time their relative wages increased and remain high after 1990. Simple economic theory implies that demand outstripped supply during this period. While supply caught up with demand in terms of quantities, the new equilibrium exhibits higher relative wages of lawyers and law firm partners. We illustrate that the demand shift was pervasive, exhibited within states and occupations, and not driven by changes in composition thereof. We also document organizational and compositional changes within legal services that are associated with the demand shift. We now turn to explaining these facts.

3 Demand for legal services

What drives demand for legal services? Fundamentally, the need for legal intermediation arises from asymmetric information regarding how the law regulates life. Lawyers within legal services have this knowledge, while most others do not. As discussed in the introduction, demand also stems from the scope of law: as laws cover more dimensions of life, the greater the market for legal intermediation. In this section we discuss these forces and provide a demand framework to guide our discussion of the demand shift in legal services. Then, we introduce data on changes in the US legal and regulatory environment, and explore the relationship between these historical series and the growth of employment and wages for lawyers.

3.1 Demand Framework

First, an increase in scope of laws and regulations, and the number of laws and regulations, will enlarge the domain of human interactions that fall within the law. This increases demand for legal services and lawyers at an extensive margin. If there is a conflict between agents, then without a law they cannot resolve the conflict within the legal or judicial system. Once a law governs the domain of their conflict, then they can. It is not possible to litigate on issues that are not protected by law or by a constitution.

If entering conflict is an endogenous decision, then the intensity and incidence of conflict may

[25] We also have performed decompositions (1) of the change in the employment share of lawyers in private industry within and between industries. We find that the lion's share of the change in lawyer intensity within all private industries is driven by within-industry variation, not by changes in industry composition. These tabulations are available upon request.

change in response to bringing into the legal sphere a new domain of interactions. For example, if interrelations between neighbors in an apartment building become governed by some law, then neighbors may limit behavior that may lead to conflict, if the new law is clear enough and effectively enforced. But demand for legal services will increase nonetheless, because before this domain was not "covered" by the law.

Second, we consider how the nature of new laws, and effort (measured how much one is will to pay for legal services) affects outcomes, and, relatedly, how uncertainty over outcomes affects effort. Even when one gains an understanding of the law, greater uncertainty about the outcome of the legal process, especially in the U.S. courts system, will drive up demand for legal representation and possibly litigation—and remuneration for this—as in a tournament/winner-takes-all model.

In order to frame the discussion, we use Hirshleifer & Osborne (2001), who model the interaction between plaintiffs (p) defendants (d) in a legal battle. We follow this model in order to fix ideas on the relationship between costs, effort, and outcomes. In this legal battle, or lawsuit, the relative success depends on the true degree of fault and the effort of each player. Hirshleifer & Osborne (2001) define the "Litigation Success Function" (LSF), as follows:

$$\frac{\pi}{1-\pi} = \left(\frac{L_p}{L_d}\right)^{\alpha} \frac{Y}{1-Y}, \tag{5}$$

where π is the probability that the plaintiff (p) wins, L_p is the litigation effort of the plaintiff, L_d is the litigation effort of the defendant (d), α determines the sensitivity of the outcome to effort, and $Y \in (0,1)$ governs uncertainty about the merit of the plaintiff. If $Y = 1$ then the defendant is surely at fault, while if $Y = 0$, the defendant is surely not at fault.[26]

The model follows the so-called American rule, where each party is assumed responsible for its own legal costs regardless of the outcome (we discuss below "fee shifting" statutes). The cost of effort is specified as $C_i = \gamma L_i$. Lastly, the value of the lawsuit is a function of the probability of winning, the stakes, J, and costs:

$$V_i = \pi J_i - C_i\,,\ i \in (p,d) \tag{6}$$

where the stakes for the plaintiff are assumed to be positive, $J_p = J > 0$, while the stakes for the defendant are negative, $J_d = -J_p$.

If the two parties choose effort simultaneously, à la Nash-Cournot, the equilibrium level of effort

[26]This LSF has several desirable features, discussed in Hirshleifer & Osborne (2001).

will be symmetric:

$$L = \alpha \frac{J}{\gamma} Y(1 - Y). \tag{7}$$

Here, one can see that litigation effort increases with stakes J, sensitivity to effort α, and uncertainty about merit (as Y approaches 1/2). Costs will increase with any of these three changes, as $C = \gamma L$.

If instead there is asymmetry in the process, the plaintiff determines effort first, and the defendant responds. This is a more realistic setting, which takes into account the fact that there is no lawsuit unless the plaintiff introduces a claim. The solution to this Stackelberg game has some similarities to the Nash-Cournot game. For example, a higher sensitivity to effort, α, still increases effort and costs, and costs tend to be higher with greater uncertainty about merit. However, in contrast with the Nash-Cournot outcome, the solution is not symmetric, and the player with more merit will exert more effort than the other player. Because merit and effort are complements, the outcomes tilt in favor of the player with more merit. However, under certain conditions the Stackelberg game introduces a pro-plaintiff bias, because the plaintiff may be able to commit to a sufficiently high level of effort to induce a relatively blameless defendant to concede.

The model shows that increased uncertainty in the outcome increases the effort of lawyers, and therefore costs. It also shows that the sensitivity of outcomes to effort is an important parameter that guides the level of effort a lawyer exerts.[27] Next, we show how changes in the U.S. legal and regulatory environment, starting in the mid-1960s, not only increased the scope of the law, but led to both increased uncertainty about outcomes and increased sensitivity of outcomes to effort.

3.2 Changes in the legal and regulatory environment

Our main explanation for the evolution of demand for legal services are changes in the legal and regulatory environment. Starting in the mid-1960s and continuing through the 1970s and 1980s the U.S. passed a series of important acts that (1) eased entry into the judicial system, and at the same time (2) increased uncertainty about outcomes once the judicial process starts, while (3) increasing sensitivity of outcomes to effort.[28]

If this is true, we should find a tight correlation between litigation intensity and legal services intensity, measured here as the employment share. Since the important pieces of legislation that changed the legal environment are in the civil sphere, we focus on litigation of civil cases. We collected three historical series on litigation: civil cases filed, criminal cases files, and civil appeal

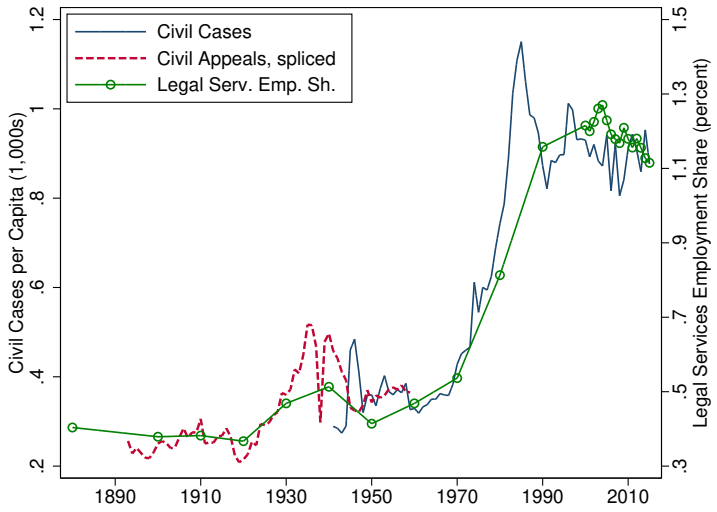
[27] The importance of complexity and uncertainty in determining lawyers' fees is also argued by Hadfield (2000).

[28] The complexity of the law is also an important outcome of these legislative acts and deregulation events, that we do not necessarily observe. An increase in the complexity of the law should also increase the demand for legal advice.

cases filed. Data on civil and criminal cases filed in U.S. district court are from the Historical Statistics of the United States (HSUS) (1941–1999) and from the Administrative Office of the U.S. Courts (2000–2015). Data on civil appeal cases (1893–1989) are also from HSUS.[29] We define litigation intensities as cases per 1,000 people.

In Figure 4 we plot both civil litigation intensity with legal services' employment share.[30] The match between the two series is striking. The message from Figure 4 is that whatever drives the increase in demand for legal services, the mechanism likely operates through litigation or in conjunction with it.[31] The timing and magnitude of the civil "litigation explosion" almost exactly fits the evolution of the employment share of legal services.[32] Scholars writing in the late 1980s and early 1990s have indeed described this as an "explosion" of litigation ((Sander & Williams, 1989; Olson, 1991). In hindsight, we see that this is more a shift in levels. As with our other candidate explanations described below, it is both the timing of when changes *start* and when they *end* that helps us identify their pivotal role in explaining the evolution in legal services.

Figure 4: Litigation and Legal Services Employment Share



Notes: Civil cases in 1941–1999 and Civil appeals from 1893–1994 are sourced from HSUS while cases 2000–2015 are from the Administrative Office of the U.S. Courts. Cases are normalized by total population in units of 1,000 people. The Civil Appeals series is proportionally spliced so that the average value in 1950–1959 fits the average value of Civil Cases in the same period. Legal services employment share is the same as in Figure 1.

[29]Historical Statistics of the United States: Carter et al. (2006). Data from the Administrative Office of the U.S. Courts downloaded from `http://www.uscourts.gov/`.

[30]We proportionally splice the Civil Appeals series so that its average value in 1950–1959 fits the average value of Civil Cases in the same period.

[31]Table 3 make the same point in regression form, showing that there is a close relationship between the civil cases per capita and the employment share and relative wage of lawyers in legal services.

[32]Appendix Figure A4 displays the historical evolution for civil cases, civil appeals, and criminal cases.

Our main hypothesis is, therefore, that commensurate changes in the legal environment indeed (1) eased entry into the judicial system, (2) increased uncertainty about outcomes once the judicial process starts, and, in some cases (3) increased the sensitivity of outcomes to effort—thus driving up demand for legal services and representation.

For the remainder of this section we will discuss the specific federal and state legislative acts that brought about changes in the legal environment in the United States.

3.2.1 Major Legislation: Social Regulation

Starting in the mid-1960s and continuing through the 1970s and 1980s the U.S. passed a series of important acts, some at the federal level and others at the state level, all of which changed the legal environment dramatically. This legislation has been called "social regulation," which will be helpful to differentiate it from the economic regulation we will discuss later in the section. The field of social regulation includes environmental laws, workplace and product safety rules, civil rights laws, and consumer protection laws.

Social regulation at the federal level includes the Civil Rights Act of 1964, the Voting Rights Act of 1965, the National Environmental Policy Act (NEPA) of 1969, the Occupational Health and Safety Act of 1970, the Clean Water Act of 1972, and the Consumer Safety Act of the same year. We argue that these acts and laws contributed to demand for legal services through the channels we describe above.

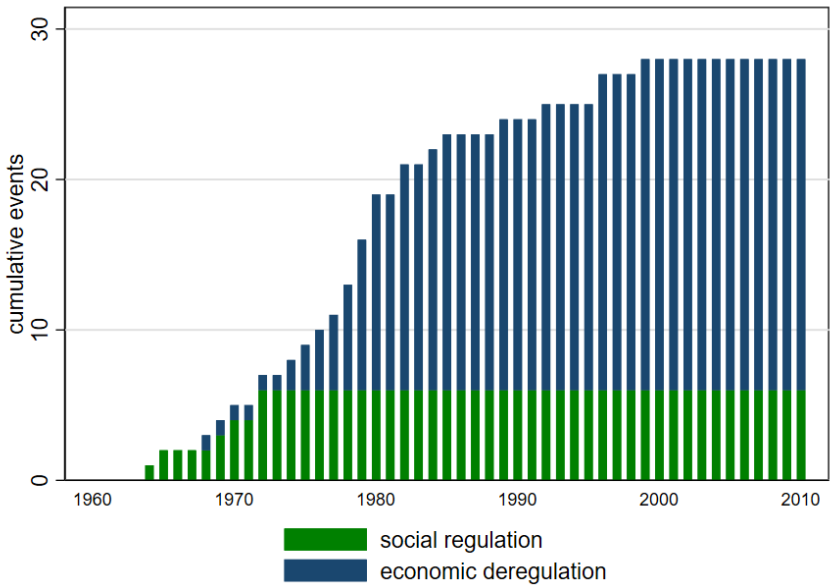
For example, the Civil Rights Act, as a by-product, created the basis for class action lawsuits.[33] Together with the Voting Rights Act of 1965, this provided unprecedented protection against discrimination, and the ability to sue violations of equal opportunities and disenfranchisement. In short, the Civil Rights and Voting Acts increased the scope of the law.

By the 1960s the U.S. already had a long history of environmental legislation, concerning preservation, multi-use management plans and public health. However, these were specific and never as strong and broad as the NEPA, which Liroff (1976) considered "the most sweeping environmental law ever enacted by a United States Congress" (chapter 3).[34] At the same time, the NEPA was written in broad language, leaving many open-ended issues to be clarified in courts. According to

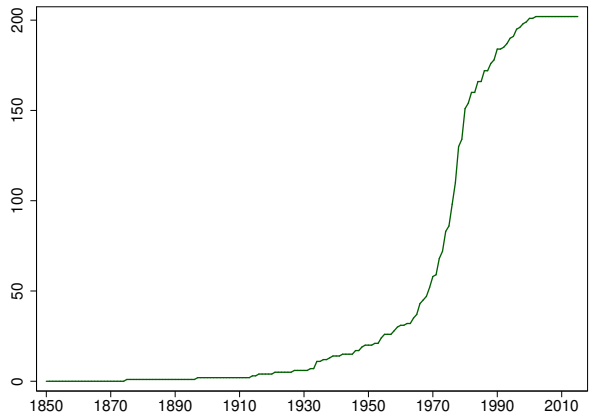
[33]See Miller (1978). Class action lawsuits are called this because they are about violation of rights of a class of people. This concept did not exist before the Civil Rights Act. See also Hensler (2001) and Miller (1979) on the so-called "class action problem".

[34]Shortly after passing the NEPA, the Environmental Protection Agency (EPA) was established, the tough and comprehensive Clean Water Act of 1972 was passed, followed by a burst of environmental legislation during the 1970s (Vig & Kraft (1990), appendix 1: "Major Federal Laws on the Environment, 1969–1989" and Vig & Kraft (2012)).

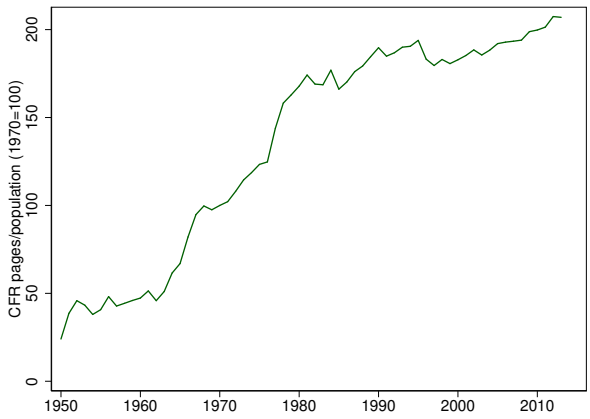
Figure 5: Social Regulation, Economic Deregulation, and Fee-Shifting



(a) Timing of Social Regulation and Deregulation Events



(b) Cumulative Fee-Shifting Statutes



(c) Pages of Federal Regulation

Notes: Figure (a) shows the cumulative number of legislative acts or events pertaining to social regulation and economic deregulation. Appendix Table A4 includes the dates and names of all of the events. Figure (b) shows the cumulative introduction of legislation with fee-shifting statutes. Source for Fee-Shifting Statutes is Derfner & Wolf (2012). Figure (c) shows the number of pages in the Code of Federal Regulations (CFR), divided by the U.S. population, where we set the value in 1970 to 100. Source for CFR pages: Federal Register Statistics.

Johnson (2009), the NEPA was written more like "*constitutional prose*" (page 369) than like detailed lawmaking. Therefore, NEPA, and the subsequent creation of the EPA, also increased the scope of the law. This is evident in the Code of Federal Regulations. Title 40, introduced with the formation of the EPA in 1970, is dedicated to the protection of the environment. Currently Title 40 consists of 37 volumes and more than 1900 parts, amounting to over 1,200 pages of federal regulations. Figure 5(c) shows the evolution of the Code of Federal Regulations over time. There is over an 160% increase in the length of regulatory code in the US between 1970 and 1990.

Fee-Shifting. When Congress enacted this major legislation, there was a concern about the government's capacity to enforce it. So, instead it enacted "fee-shifting" statutes, which allows lawyers to collect fees from the losing party if they prevail in court. This is in contrast to the status quo in the United States, the "American Rule," which dictates that lawyer fees are to be only paid by the party that hires the lawyer (Vargo, 1992).

One of the most notable examples of a fee-shifting statute comes from the "Civil Rights Attorney's Fees Award Act of 1976," which allows the federal court to award attorney fees from the losing party to the lawyer of the plaintiff in civil rights cases. The intention was to create an incentive for attorneys to bring civil rights cases on behalf of plaintiffs. Some in Congress were against the bill, calling it "a bonanza to the legal profession" (Diamond, 1983).

Derfner & Wolf (2012) index each fee-shifting statute passed at the federal level. The timing of these statutes is documented in Figure 5(b). Between 1970 and 1990 the number of fee-shifting statutes triples—from 58 statutes to 184. The majority of the increase during this time period is due to statutes relating to economic regulation, consumer protection, environmental protection, civil rights or employment—i.e. in "public interest litigation."

Not only did the fee-shifting statutes create an incentive for private sector lawyers to represent plaintiffs in litigation, it increased the sensitivity of lawyers' compensation to effort. The fee-shifting statutes stipulate that the lawyer will be paid by the defendant if they win the case. These defendants are usually large corporations with deep pockets, who are being sued by individuals who do not have the means to hire a lawyer of the same quality as the corporation, if at all. Therefore, the lawyers that represent the plaintiffs would only be paid if they win the case.

3.2.2 Major Legislation: Economic Deregulation

We have discussed how new legislation, in the field of social regulation, will increase the demand for legal services. It may be less straightforward to think about the relationship between economic

de-regulation and legal services. It has been argued that "deregulation" is a bit of a misnomer: deregulation does not imply that there is no public regulation of an industry, it instead introduces a different legal framework (Kearney & Merrill, 1998). When an industry is regulated, the regulator's role is to control entry, review prices, and control the type or amount of product or service offered. When the industry becomes deregulated the role of the regulator, if the agency still exists, is to maximize competition between providers. However, this does not mean that there are no regulations that dictate the permissible actions of these competitors. Furthermore, in the absence of the regulator, it may not be clear to the competitors how to comply with the new regulations.

In short, deregulation increases uncertainty over legal outcomes. When there is a regulator approving prices of each firm, there is no confusion over what price or terms may be allowed. Prior to the passage of the Airline Deregulation Act of 1978, the airlines had to file their tariffs with the regulator (the Civil Aeronautics Board). A few years after the deregulation act, the Civil Aeronautics Board was abolished and the airlines were able to charge whatever rates they would like. Though the deregulation of the airlines has been broadly celebrated as a success, it did not preclude further legal activity, as airlines transitioned to offering contracts and loyalty programs to consumers instead of tariff schedules. In one high profile example, *American Airlines v Wolens* (1995) disputed whether airline practices constituted a breach of contract.[35] The less widely praised Telecommunications Act of 1996 contained over 100 pages of new regulatory requirements in the act itself. As a result of the act, the Federal Communications Commission (FCC) was not abolished, but instead directed to commence several rule-making proceedings, and telecommunication firms entered arbitration in each state (Kearney & Merrill, 1998; Speta, 2004).

The deregulation regime in the U.S. began in the 1970s and persisted through the 1980s and early 1990s. The consensus at the time was that regulation of prices and entry was keeping prices artificially high, benefiting regulated industries and not consumers. After deregulation, many legal scholars decried the pattern of "regulation by litigation," arguing that the practical outcome of deregulation is often more regulation, by way of litigation. Friedman (1981) warned of this in the beginning of the deregulation regime: "It will not do to say simply that less regulation means less enforcement or less litigation; nor, on the other hand, is it necessarily the case that a lower level of enforcement means a transfer of enforcement responsibility to the private bar." With the benefit of hindsight, Freyer (2010) summarizes the issue: "The deregulation movement partially limited private actions. Yet the unintentional result was to increase reliance upon private actions for enforcement of regulatory goals in business sectors where administrative or political oversight

[35]There are 741 results when one searches 'airline' in the current version of the Code of Federal Regulations.

of business self-regulation was ineffective."

Economic deregulation events at the federal level affected transportation (air, rail, trucking), telecommunications (cable television, phone), financial services (banking, securities) and utilities (electric, gas, oil) industries. Figure 5(a) summarizes the timing of these events. While the social regulation legislation discussed in the last subsection was passed in the late 1960s through the mid-1970s, deregulation events followed through the 1970s and 1980s, slowing down in the 1990s with only the Telecommunications Act of 1996 and the Gramm-Leach-Bliley Act of 1999.[36]

3.2.3 Historical Regressions

Figure 5 suggests that the timing of major legislation and regulation that increased the scope of the law, while also increasing sensitivity of outcomes to effort, aligns with the structural change we observe in the legal services industry. We confirm this with a set of historical regressions.

First, we use lagged values of the regulation and litigation series, x, (federal regulation pages per capita, fee shifting statutes per capita, and civil cases per capita), to explain our outcomes of interest, y (legal services and lawyers employment shares, lawyers relative wages, and the ratio of lawyers to partners). The regression uses 5 year lags of the independent variables:

$$\Delta y_t = \alpha + \beta \Delta x_{(t-5)} + \varepsilon_t. \tag{8}$$

We compute Newey-West standard errors that allow for autocorrelation up to 5 lags and that are robust to heteroscedasticity.

Table 3(a) presents the results of estimating Equation (8). Each of the three historical series (federal regulation, fee shifting, and civil cases) are positively correlated with our outcomes of interest, and these correlations are statistically significant. Here, all of the series are normalized to have mean 0 and standard deviations of 1. Therefore, a 1 standard deviation increase in federal regulation in $t-5$ is associated with increases in legal services and lawyers employment shares in t by almost the same degree (0.87 and 0.95 standard deviations respectively). The effect on wages is smaller, but still large in magnitude—a 1 standard deviation increase in regulations in $t-5$ is correlated with increases in relative wages of lawyers and partners by about one half of a standard deviation, and of associate lawyers by over two-thirds of a standard deviation. The magnitudes are similar for increases in fee-shifting statutes and civil cases per capita.

[36] See Appendix Table A4 for a detailed timeline, with the act or event name, date, and affected industry.

Table 3: Historical Regressions of Employment Shares and Relative Wages for Lawyers in Legal Services

(a) 5 year lags

	Employment Share						Relative Wages						Composition		
	Legal Services			Lawyers			Lawyers (with partners)			Lawyers (no partners)			Lawyers per Law Firm Partner		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Federal Regulation	0.870***			0.945***			0.471***			0.696***			0.890***		
Pages Per Capita$_{t-5}$	(0.087)			(0.079)			(0.132)			(0.069)			(0.138)		
Fee Shifting Statutes		0.932***			0.939***			0.539***			0.704***			0.784***	
Per Capita$_{t-5}$		(0.040)			(0.042)			(0.104)			(0.072)			(0.055)	
Civil Cases			0.698***			0.698***			0.461***			0.510***			0.604***
Per Capita$_{t-5}$			(0.050)			(0.050)			(0.064)			(0.065)			(0.047)
Top Marg. Tax Rate$_{t-5}$	-0.174	-0.048	-0.136*	-0.201	-0.063	-0.154*	-0.858***	-0.444***	-0.503***	-0.309**	-0.168**	-0.344***	-0.019	0.030	-0.087**
	(0.142)	(0.035)	(0.072)	(0.123)	(0.047)	(0.085)	(0.176)	(0.098)	(0.080)	(0.118)	(0.079)	(0.074)	(0.184)	(0.042)	(0.043)
Top Corp. Tax Rate$_{t-5}$	-0.012	-0.013	0.171***	0.124	-0.114***	0.073	0.322*	-0.064	0.026	0.061	-0.036	0.090***	0.130	-0.093**	0.094**
	(0.128)	(0.022)	(0.059)	(0.102)	(0.026)	(0.069)	(0.183)	(0.045)	(0.033)	(0.128)	(0.024)	(0.025)	(0.163)	(0.036)	(0.043)
Firms Per Capita$_{t-5}$	0.105***	-0.022	-0.147***	0.132***	-0.036	-0.163***	0.198**	0.025	-0.020	0.167***	0.030	-0.022	0.045	-0.125**	-0.203***
	(0.039)	(0.022)	(0.032)	(0.042)	(0.032)	(0.040)	(0.098)	(0.074)	(0.064)	(0.041)	(0.027)	(0.026)	(0.049)	(0.047)	(0.058)
Patent Application	-0.039	0.080***	0.209***	-0.000	0.084***	0.215***	-0.016	-0.000	0.052	0.120**	0.188***	0.243***	0.268***	0.272***	0.349***
Intensity$_{t-5}$	(0.043)	(0.022)	(0.057)	(0.015)	(0.025)	(0.049)	(0.058)	(0.049)	(0.037)	(0.046)	(0.019)	(0.038)	(0.049)	(0.040)	(0.029)
Observations	59	96	96	59	96	96	59	74	74	59	74	74	59	85	85
R^2	0.98	0.99	0.96	0.99	0.99	0.96	0.93	0.94	0.95	0.98	0.99	0.98	0.95	0.96	0.95

(b) Predictions

	Δ Employment Share$_t$						Δ Relative Wages$_t$						Δ Composition$_t$		
	Legal Services			Lawyers			Lawyers (with partners)			Lawyers (no partners)			Lawyers per Law Firm Partner		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Δ Federal Regulation	0.156*			0.404***			0.039			0.118			0.377**		
Pages Per Capita$_{t-5}$	(0.087)			(0.113)			(0.239)			(0.098)			(0.153)		
Δ Fee Shifting Statutes		0.763***			0.712***			0.484**			0.674***			0.356**	
Per Capita$_{t-5}$		(0.105)			(0.113)			(0.191)			(0.101)			(0.141)	
Δ Civil Cases			0.595***			0.545***			0.467***			0.674***			0.485***
Per Capita$_{t-5}$			(0.106)			(0.126)			(0.143)			(0.113)			(0.088)
Δ Top Marg. Tax Rate$_{t-5}$	-0.201	-0.150	-0.058	-0.300	-0.141	-0.057	-0.604***	-0.487*	-0.292	-0.380**	-0.259	0.019	-0.109	-0.041	-0.014
	(0.141)	(0.130)	(0.164)	(0.185)	(0.123)	(0.156)	(0.153)	(0.249)	(0.186)	(0.150)	(0.289)	(0.143)	(0.259)	(0.164)	(0.121)
Δ Top Corp. Tax Rate$_{t-5}$	0.118	-0.079	-0.237*	0.321**	-0.109	-0.258**	0.386**	0.104	-0.201	0.274**	-0.059	-0.482***	0.379*	-0.045	-0.077
	(0.125)	(0.088)	(0.139)	(0.128)	(0.131)	(0.124)	(0.153)	(0.309)	(0.252)	(0.118)	(0.226)	(0.176)	(0.207)	(0.130)	(0.066)
Δ Firms Per Capita$_{t-5}$	0.470***	0.025	0.068	0.480***	-0.005	0.035	0.349**	-0.083	-0.090	0.654***	-0.032	-0.046	0.095	-0.113	-0.113
	(0.090)	(0.089)	(0.117)	(0.100)	(0.087)	(0.109)	(0.157)	(0.103)	(0.086)	(0.106)	(0.149)	(0.126)	(0.130)	(0.103)	(0.102)
Δ Patent Application	-0.684***	0.016	0.005	-0.360***	0.123	0.108	-0.292	0.102	-0.042	-0.437***	0.103	-0.088	0.112	0.193	0.283**
Intensity$_{t-5}$	(0.142)	(0.114)	(0.205)	(0.101)	(0.083)	(0.167)	(0.211)	(0.215)	(0.188)	(0.113)	(0.106)	(0.118)	(0.115)	(0.160)	(0.132)
Observations	54	91	91	54	91	91	54	69	69	54	69	69	54	80	80
R^2	0.73	0.67	0.47	0.64	0.59	0.41	0.39	0.43	0.46	0.63	0.58	0.67	0.17	0.14	0.22

Notes: This table reports the relationship between employment shares and relative wages of lawyers in legal services and variables that can potentially explain demand for lawyers in legal services, at the national level. The independent variables in panel (a) are lagged by 5 years. In panel (b) the dependent variable is the change in employment shares or relative wages from t to $t+5$, while the independent variables are changes from $t-5$ to t. The sample period spans from 1893 to 2015 for employment shares, and 1929 to 2015 for relative wages. All standard errors are computed using Newey-West with up to five lags and are robust to heteroskedasticity. The results are robust to using 4 or 6 year lags instead of 5 years.

The large effects on quantity of lawyers are consistent with our claim that changes in the legal environment made for a larger market for lawyers. The effects on wages are consistent with the model we presented in Section 3, especially for fee shifting and litigation, which are associated with greater sensitivity to effort and uncertainty. The fact that the effects on wages are generally smaller than for employment shares is consistent with a relatively flexible supply at the 5-year frequency.

Finally, we also estimate large effects on the ratio of associate lawyers to partners, between 0.6 and 0.9 standard deviations of the ratio for 1 standard deviation change in the forcing variables. This is consistent with our claim that the the changes in the legal environment increased the market for lawyers and, thus, incentivized specialization of law firm partners and sole proprietors in tougher problems, while shifting easier problems to associate lawyers (Garicano, 2000; Garicano & Hubbard, 2007).

We also control for other economic variables, lagged by 5 years: the top marginal income tax rate, the top corporate tax rate, the number of firms per capita, and the patent application intensity. Top marginal income tax rates are negatively correlated with the relative wages of lawyers, as expected, but the other series do not have a consistent correlation with the outcomes of interest.

Next, we fit prediction regressions, where we fit future changes in the outcomes of interest to past changes in the historical regulation, fee-shifting, and litigation series:

$$\Delta y_t = \alpha + \beta \Delta x_{t-5} + \varepsilon_t. \tag{9}$$

Here Δy_t are changes from $t-5$ to t and Δx_{t-5} are changes from $t-10$ to $t-5$. As above, we compute Newey-West standard errors that allow for autocorrelation up to 5 lags and that are robust to heteroscedasticity.

Table 3(b) presents the results of estimating Equation (9). Here, we see that changes in the historical series on regulation, fee-shifting, and litigation are predictive of changes in legal services and lawyers employment shares, relative wages, and composition. The magnitudes are slightly smaller than the lagged level results, with a 1 standard deviation change in the explanatory variable correlating with about a half of a standard deviation change in the legal outcomes of interest. The relationship of federal regulation pages per capita with the outcome variables is not as strong as in the lagged level regression, especially relative wages. In contrast, changes in the fee-shifting statutes and civil cases per capita are strongly predictive of future changes in employment shares, relative wages, and composition of lawyers. This is consistent with the idea that regulation affects demand

in the presence of relatively flexible supply, whereas fee shifting and greater scope for litigation also create a "wedge", increasing wages as well, as suggested by the model we presented in Section 3.

Our measure of litigation intensity, civil cases per capita (Figure 4), is arguably also an outcome of changes in the legal and regulatory environment. In Appendix Table A5 we replicate the analysis in Table 3, but use our measure of litigation as the dependent variable. We find that both pages federal code of regulations and fee-shifting statutes are strongly correlated with future litigation intensity.

Of course, these are long run correlations, rather than causal estimates. However, the robust relationship between these series provide strong suggestive evidence that changes in the legal and regulatory environment from the mid-1960s through the 1980s led to a major demand shift for legal services. In the next section, we exploit variation across states to provide further evidence of this relationship.

3.2.4 Other Explanations

Other factors may have contributed to the rise in demand for legal services. We explore the role of technology, economic activity, supply restrictions, quality, and changes in industry standards.

Technology. Legal services is an information-intensive industry, thus the information and communications technology (ICT) revolution may have contributed to its expansion. Using Fixed Assets tables from the BEA, we compute the relative ICT intensity in legal services versus the rest of the private sector.[37] Appendix Figure A5(a) displays this measure, where we see that legal services have increased their relative ICT intensity staring only in 1995, whereas beforehand there is no trend. This implies that ICT cannot be an important factor driving demand for legal services.[38]

Economic Activity. We also consider the number of firms as a potential explanation for demand for legal services. Given the overall size of the economy, as the number of firms increases, the more the need for legal services because more activity occurs between firms, rather than within them.[39] We use data from U.S. Census Business Dynamics Statistics (BDS) (1977–2014) and from the HSUS (1857–1983) on the number of firms and normalize this by total population. Appendix Figure A5(b)

[37] See appendix on details for this computation.

[38] In fact, according to this measure, legal services before 1995 are roughly as ICT intensive as the rest of the private sector until 1995.

[39] Economic activity that occurs within the boundary of firms does not require legal intermediation; this is part of the Coasian rationale for the existence of firms, which can economize on such transaction costs.

displays the number of firms per capita.[40] Overall, after the secular increase the number of firms per capita in 1857–1880, we do not document a pattern that could help explain the rise in demand for legal services. We also do not find evidence of a persistent correlation between firms per capita and the legal services outcomes of interest in Table 3.

Innovation. Innovation, as captured by patenting activity, can potentially contribute to demand for legal services through demand for intellectual property protection (IPR). However, this is not a major source of the demand shift. Table 2 row "Patent" shows that the share of IPR lawyers is quite small, rising only modestly from 1.7 percent in 1972 to 1.9 percent in 1992. Moreover, as shown in Appendix Figure A5(c), patent applications show no trend from 1930 to 1990, increasing sharply afterwards—which does not correlate well with employment and remuneration of lawyers overall (we do not have separate wage data by field of specialization). Finally, the regressions reported in Table 3 do not support a robust correlation with our outcome variables.

Supply. Restriction of supply by the ABA bar exams is widely recognized as a barrier to entry. However, this in itself does not suggest that this barrier became stricter around 1970. During our period of study the number of ABA-approved law schools and enrollment increased in lockstep. The average enrollment per law school doubles from 125 in 1954 to 250 in 1972, after which it remains at the same level. This implies that the extensive margin of number of schools accounts for the bulk of the increase in supply. The number of ABA approved schools increased from 41 in 1923 to 148 in 1970 and continued to grow steadily, and at a similar pace throughout our sample. As Hadfield (2000) argues, there are few barriers to establishing new law schools in the U.S., in particular, compared to other Common Law countries like Canada and the U.K.[41]

Quality. One potential explanation for the pattern in relative wages of lawyers is changes in quality. Law School Admission Test (LSAT) scores may seem to be a natural measure of quality. However, due to changes in the scale of grades, grading systems and changes in the contents of the LSAT, it is not possible to build meaningful time series that span our sample. Despite this, we use data from Solomon (1983) and find that the average LSAT score rose steadily from 483 in 1961 to 541 in 1981 (on a scale of 200 to 800). However, there is no difference in the rate of increase in the

[40] The number of firms in the HSUS are originally collected by the firm Dun and Bradstreet, which reports 20% fewer firms relative to the BDS in the overlapping years. However, the number of firms per capita is roughly the same level in both sources in 1880–1955 (HSUS) and from 1977 (BDS).

[41] Conrod (1994) documents the the high unemployment and under-employment of new lawyers. Since this coexists with the rise in their employment share and average wages, it implies that supply is not quite restrained.

decade after 1970 compared to the decade before. The average test score does not change much from 1993 to 2015, and hovers around 150.5 (on a scale of 120 to 180).[42]

Another way to gauge variation in quality is to examine the ratio of LSAT takers to enrolled students in law schools. Unless the difference between LSAT takers and enrollment is due solely to residual low quality candidates, then when this ratio is high we expect selectivity to be higher too. We use data from several sources to build the number of LSAT takers by year, and data from the American Bar Association (ABA) on enrollment to build the ratio of LSAT takers to enrollment.[43] This ratio increases from 0.32 in 1948 to 3 in 1970, after which it fluctuates around that value for the rest of the sample (see Appendix Figure A8(a)). A similar pattern emerges if we look at the ratio of law degrees awarded to the cohort enrolled three years before (a J.D. law degree typically takes three years). We expect this ratio to be higher when degrees are more competitive.[44] Since these ratios are stable after 1970, we conclude that quality—thus measured—is not a major source of the rise in relative wages for lawyers.

Finally, we argue that changes in degree requirements for taking the bar exam and becoming a practicing lawyer are not an important factor in explaining the evolution of the relative wage of lawyers. Starting in the beginning of the 20th century, U.S. law schools gradually stopped offering undergraduate LL.B. law degrees, and instead offered a post-graduate degree, typically a J.D. degree (or LL.M., especially for foreign lawyers).[45] In 1964 the ABA recommended that American law schools offer a single unified professional degree, the J.D. By 1971 no American law school offered an LL.B. (the last one being Yale). From a simple human capital model perspective, more highly educated lawyers would command greater compensation, so that the increase in their share in the lawyer population over time could theoretically contribute to the increase in $\omega_{lawyer|legal}$ observed in Figure 2(b). In addition, by delaying admissibility to the bar exam, the movement from LL.B to J.D. could have created temporary excess demand. However, the process of the J.D. becoming the official requirement to taking the bar exam was gradual, starting long before 1970, and did not accelerate at that moment in time. The increase in $\omega_{lawyer|legal}$ over time is a long-run equilibrium phenomenon, accelerating precisely when supply increases.[46]

[42] We use several reports by the Law School Admission Council.

[43] We combine data on the number of LSAT takers from the following sources: White (1984) for 1947–1982, the Manhattan Review (LSAT Prep Courses & Tutoring) for 1950, 1961, 1970, 1980 and 1985, and the Law School Admission Council (LSAC, which administers the LSAT from 1982) for for 1987 and on.

[44] Using data from the ABA we find that this ratio increases from 0.5 for the 1948 enrollment cohort to a bit less than 0.9 for the 1972 cohort, after which it fluctuates around that value for the rest of the sample (see Appendix Figure A8(b)).

[45] This change followed the movement for the "scientific study of law" at Harvard, during the 19th century.

[46] In addition, given roughly 40 years of work, a 3-year delay in starting to practice law can not explain the

Industry Standards. State bar associations uphold strict guidelines dictating the acceptable behavior of lawyers. Until 1977, these guidelines included a prohibition on advertising—advertising of legal services of any kind would be in violation of the Bar association regulations, and could result in disbarment. This changed with the Supreme Court Ruling in *Bates vs the State Bar of Arizona* (1977). The Court ruled that advertising was a form of free speech and therefore protected by the First Amendment. (Olson, 1991) argues that this deregulation of legal advertising had a role in explaining the "litigation explosion." We collect data on advertising post-*Bates* to probe this hypothesis.

Appendix Figure A6 shows a muted response to this change in policy, as measured by the average number of lawyers' advertisements in 4 major newspapers across the United States. Our hand-collected sample of newspaper advertisements covers the immediate post-period to the policy change, from 1977-1982. The newspapers in the sample went from containing no advertisements for legal services, to about 5-15 ads per issue. The timing suggests that the muted advertising response in the immediate wake of *Bates* could not explain the increase in employment share and relative wages we observe in 1980, however it is possible that advertising continued to increase demand for legal services, inducing entry. The role of advertising on compensation is less straightforward. Examples in Appendix Figure A7 show that lawyers advertised the fees for their services, allowing them to more easily compete on price, which would suggest a wage effect in the opposite direction.

4 State level regressions

The aggregate trends and co-movements described above in Section 3 are very suggestive of the timing and nature of changes in the legal and regulatory environment that would affect demand for legal services and for lawyers. In this section we try to identify the effects of these changes at the state level. To do this, we exploit cross-section and time-series variation in state-level regulations, and state-level variation in predicted effects (potential exposure) due to federal regulation.

4.1 Effects of federal legislation at the state level

As discussed in the previous section, a series of major legislations were introduced at the federal level in the late 1960s and early 1970s. These were important and complicated regulatory initiatives, which spanned the environment, healthcare, safety, immigration, pensions and discrimination. In this state level analysis we focus on federal regulation concerning discrimination and

magnitude of the increase in the relative wage.

the environment, because of their legislative significance and because we can measure variation in state propensities to respond.

The Civil Rights Act of 1964 outlawed discrimination based on race, color, religion, sex, or national origin. The Equal Employment Opportunity Commission was formed in 1965 to administer and enforce the discrimination laws put forth in the Civil Rights Act, as well as the Equal Pay Act of 1963 and the Age Discrimination in Employment Act of 1967. The Equal Employment Opportunity Act of 1972 served to improve the effectiveness of the Civil Rights Act, and the Rehabilitation Act of 1973 extended equal rights to people with disabilities.

We measure a state's propensity to respond to new federal legislation due to the enforcement of civil rights protections with the share of state employment that is black.[47] The dependent variable is the change in the level of lawyers in legal services in the state, as a share of total state employment. Changes are over 10 and 20 years, corresponding to time lags between decennial Censuses. The regression takes the following form:

$$\Delta \left(\frac{\text{lawyers in legal services}}{\text{employment}} \right)_{s,t+d} = \alpha + \beta (\text{black employment share})_{s,t} + \varepsilon_{s,t} \ , \qquad (10)$$

where $\Delta X_{s,t+d} = X_{s,t+d} - X_{s,t}$ is the change in X from t to $t+d$, and $d = 10$ or 20 years. This regression is run for $t = 1970$. Because the civil rights legislation was passed in the late 1960s and early 1970s we do not expect levels or changes in black employment shares to predict changes in legal activity before the early 1970s.

Columns 1 and 2 in Table 4 display the results. When the share of black employment in 1970 is 1 percentage point higher, the change in lawyers employment share increases by 0.007 percentage points in the next 10 years (from 1970 to 1980), and by 0.012 percentage points in the next 20 years (from 1970 to 1990). These results suggest a strong association between the potential impact of federal legislation to limit race-based discrimination and the growth of legal activity in that state. In Appendix Table A6 we repeat the analysis for $t = 1960$ and $t = 1950$, as a placebo test. If our hypothesis is true, we do not expect the share of blacks to predict changes in legal employment before passing the Civil Rights Act of 1964. Indeed, the association estimated in 1970 is much weaker and not statistically significant in 1960 and 1950. Only in column 5, when $t = 1960$ and $d = 20$, we find a weak correlation. Given the long interval d and the persistence of black workers' employment shares, this is not surprising. This association vanishes in column 4, when $t = 1950$ and $d = 20$.

[47] The data on state employment and demographics are from the U.S. Censuses.

Table 4: Demand for lawyers in legal services across states

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable:	Δ lawyers in legal services share of state employment, t to $t+d$							
Unit for difference d:	10 years	20 years	10 years	20 years	10 years	10 years	10 years	10 years
Federal legislation								
Black employment share in t	0.007***	0.012***						
	(0.002)	(0.003)						
Δ dirty industry GDP share, $t-d$ to t			0.009***	0.024***				
			(0.003)	(0.006)				
State legislation								
Δ Unilateral Divorce with Separation, $t-d$ to t					0.108***			
					(0.025)			
Δ No-Fault Unilateral Divorce, $t-d$ to t						0.105***		
						(0.039)		
Δ Wrongful Discharge, $t-d$ to t							0.037**	
							(0.017)	
Δ Unrestricted Intrastate Branching, $t-d$ to t								0.056*
								(0.033)
R-squared	0.193	0.244	0.064	0.267	0.068	0.015	0.004	0.015
No. of observations	51	51	204	102	347	347	347	347
State fixed effects			×	×	×	×	×	×
State Employment Weights	×	×						
Years	1970	1970	1970-2000	1980-1990	1940-2000	1940-2000	1940-2000	1940-2000
Mean Dependent Variable	0.149	0.261	0.054	0.057	0.037	0.037	0.037	0.037

Notes: This table presents the results of bilateral regression of levels and pre-period differences on next period differences. The sample for each regression is noted in the row labeled "Years". Columns (1) and (2) report regressions of the change in the share of lawyers employment on the share of black employment, only using t = 1970. All other regressions span multiple decades. Difference on difference regressions take the following form: $\Delta(\text{lawyers in legal services/total employment})_{s,t} = \alpha + \beta \Delta x_{s,t-d} + \epsilon_{s,t}$, where s is a state, t is a year and the unit for the difference d is 10 or 20 years, depending on the row's specification (labeled "unit for difference"). For example, when $d = 10$, $\Delta(\text{lawyers in legal services/total employment})_{s,t} = (\text{lawyers in legal services/total employment})_{s,t+10} - (\text{lawyers in legal services/total employment})_{s,t}$. The right hand side variable is the difference in the previous 10 years, which, in the case of state legislation, is equal to 1 in the decades in which the legislation was enacted, and 0 in all other decades. Source of state employment data is the U.S. Censuses, GDP data is from the Bureau of Economic Analysis, and state level legislation dates from Mengle (1990), Black & Strahan (2001), Friedberg (1998), Vlosky & Monroe (2002), and Autor et al. (2006). Shares are in percents.

The next federal legislation of interest concerns the environment. Environmental regulation spanned the same period as Civil Rights, with amendments to the Clean Air Act in 1966 and 1970, the National Environmental Policy Act of 1969 and the establishment of the EPA in 1970. We measure a state's propensity to respond to tougher federal protection of the environment and pollution regulation by the share of the state's GDP in "dirty industries". These industries are pollution-intensive, including Metal Mining, Coal Mining, Oil and Gas Extraction, Paper and Allied Products, Chemicals and Allied Products, Petroleum Refining and Related Industries, and Primary Metal Industries.[48]

We fit prediction regressions, where we fit changes in the state employment share of lawyers in legal services to pre-period changes in the state GDP share of "dirty industries". The regression is specified as follows:

$$\Delta \left(\frac{\text{lawyers in legal services}}{\text{employment}} \right)_{s,t+d} = \alpha_s + \beta \Delta (\text{dirty industry GDP share})_{s,t} + \varepsilon_{s,t} \ , \qquad (11)$$

where $\Delta X_{s,t+d} = X_{s,t+d} - X_{s,t}$ is the change in X from t to $t+d$, $\Delta X_{s,t} = X_{s,t} - X_{s,t-d}$ is the change in X from $t-d$ to t, and $d = 10$ or 20 years. We include state fixed effect α_s to absorb any state-specific trends. Our sample covers $t = 1970$, 1980, 1990 and 2000.

Columns 3 and 4 in Table 4 present the results. The estimates imply that a one percentage point increase in the change in dirty industry GDP share of state s in the previous 10 years predicts a 0.009 percentage point increase in the change in lawyers' employment share in the next 10 years. The effect is more than double (0.024 percent points) for the 20 year difference. These are large effects, when compared to the average change in lawyers' employment change in this sample, of 0.054 or 0.057, respectively.

4.2 State level legislation and regulation

We study legislation that lowered the barriers for unilateral divorce, legislation to improve protection of employees, and deregulations in the banking industry. Mirroring our discussion of legislation at the federal level, all of these changes are expected to increase demand for legal intermediation and can lead to litigation. Since the timing of these changes varies across U.S. states, we can study their effects in a panel regression. We first discuss the three types of legislation, and then present the results in Table 4.

[48] This includes SIC Codes 10, 12, 13, 26, 28, 29, 33. Data on industry GDP in each state is from the BEA. The BEA state GDP series for industries, defined by SIC code, are available from 1963 to 1997. We use 1963 and 1997 data for 1960 and 2000 respectively, in order to allow for more observations on a decennial basis.

Unilateral divorce became easier over time differentially across states starting in the late 1960s, and throughout the 1970s and early 1980s. There is evidence that the divorce rate increased as a result, at least immediately following this legislation (Friedberg, 1998; Wolfers, 2006). This would increase demand for lawyers due to the nature of the divorce procedure. We use data on the timing of the adoption of unilateral divorce laws, from Friedberg (1998) and Vlosky & Monroe (2002), to test whether lowering the barriers to divorce is associated with an increase in legal activity, as more couples elected to divorce. We look at two types of unilateral divorce, unilateral divorce conditional on separation, and no-fault unilateral divorce. No-fault unilateral divorce is the most lenient type of divorce law. Unilateral divorce with separation requires a couple to be legally separated for some period of time (that varies across states) before they are able to obtain a divorce. We do not take a stand on whether one type is legally more intensive than another, as we look at the short-run effect of the change in these divorce regimes, which both barriers to getting a divorce, relative to the state's previous policy.

Next, we consider state level employment protections. Wrongful discharge laws limit the ability of an employer to fire an employee. We use data on state enactment of wrongful discharge legislation from Autor et al. (2006) to study whether giving employees more rights, which often come in the form of legal recourse, had an effect on legal activity in the state.[49] Figure 6 displays the proliferation of no-fault divorce and wrongful discharge laws. All of these important legislative waves occurred mostly in the 1970s and ended by 1990.[50]

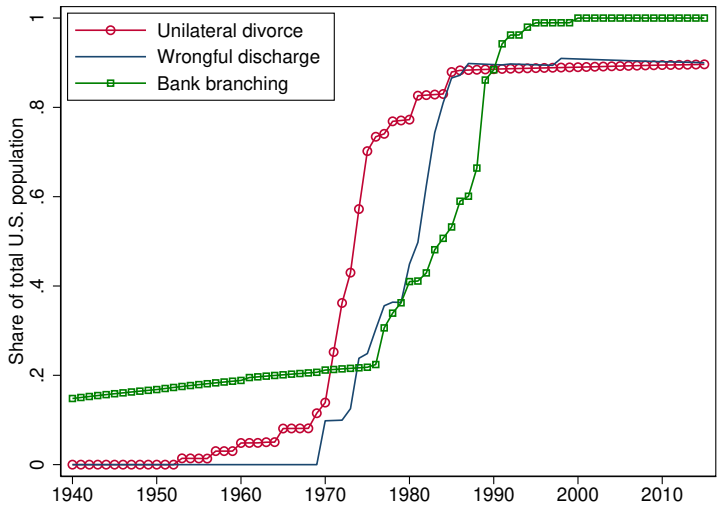
States also played a role in the deregulation regime. This can be seen in Figure 6, where we add the dates of bank branching deregulation, which took place in the mid-1970s and throughout the 1980s. Before the mid-1970s banks in most states were restricted in which markets they could operate, both within and across states. Banking deregulation allowed banks to expand within, and, eventually, across states. This deregulation could be associated with more legal activity, at least in the short-run, as banks began to merge, and competition increased. We use data on state level bank deregulation from Mengle (1990) and Black & Strahan (2001) to study the relationship between legal activity and bank branching deregulation. We estimate how state changes to allow unrestricted intrastate branching—which means that a bank can open branches anywhere within a state—on relative demand for lawyers.[51]

[49]Similarly, wrongful-discharge laws created scope for litigation. Autor et al. (2006) argue that wrongful-discharge laws modestly reduced employment.

[50]Figure A9 display the proliferation across U.S. states over time of types of no-fault divorce "deregulation", wrongful-discharge laws, and bank branching deregulation, respectively.

[51]Bank branching may have added demand for legal services due to the permission to create multibank holding companies, interstate banking, and in particular intrastate branching via mergers and acquisitions. As discussed,

Figure 6: State Level Legislation and Regulation



Notes: This figure displays the share of U.S. population living in states that deregulated divorce, passed wrongful discharge laws, and deregulated bank branching. Deregulation of divorce is given by unilateral divorce conditional on separation. Wrongful discharge captures any such law. Bank branching deregulation is given by allowing intrastate bank branching by mergers and acquisitions. Dates of no-fault divorce "deregulation" by state are from Friedberg (1998) and Vlosky & Monroe (2002). Dates of wrongful-discharge laws by state are from Autor et al. (2006). Dates of bank branching deregulation are from Mengle (1990) and Black & Strahan (2001).

Similar to equations (10) and (11), the state legislation change regressions take the following form:

$$\Delta \left(\frac{\text{lawyers in legal services}}{\text{employment}} \right)_{s,t+10} = \alpha_s + \beta \Delta(\text{legislation})_{s,t} + \varepsilon_{s,t} \ , \tag{12}$$

where $\Delta X_{s,t+d}$ and $\Delta X_{s,t}$ are defined above and state fixed effect α_s absorb any state-specific trends. Here $\Delta(\text{legislation})_{s,t}$ takes the value 1 if a state legislation was passed (or " turned on") in the previous decade, and zero if there was no change (there are no repeals of existing legislation, so there are no incidences of -1).

Columns 5 through 8 in Table 4 present the results. States that pass legislation to allow unilateral divorce with separation in the past decade experience a 0.108 percentage point increase in the change in the employment share of lawyers in the state in the next decade. The effect for no-fault unilateral divorce is similar, at 0.105 percentage points.[52] The passage of wrongful discharge legislation at the state level is associated with a 0.037 percentage point increase in the change of

overall financial deregulation at the federal level and associated rise in lobbying by banks may have also contributed to this trend. See Philippon & Reshef (2012) on the effect of financial deregulation on financial services in the U.S.

[52]Evidence in Wolfers (2006) suggests that the effect on divorce deregulation on divorce rates is short run, so we do not expect to find strong effects in regressions like (12) when $d = 20$. Untabulated regressions confirm this conjuncture.

lawyers' employment share in the next decade. The switch to allow unrestricted intrastate banking in the past decade predicts a 0.056 increase in the change in the employment share of lawyers in the state in the next decade. Note that unrestricted intrastate banking includes intrastate mergers and acquisitions across banks, which we conjecture had a large effect on demand for legal intermediation. With the average of the dependent variable in these regressions being 0.037, these correlations are economically significant, the divorce change predicts an effect almost 3 times above the mean.[53]

This state level regression analysis provides further evidence of a relationship between changes in the legal and regulatory environment in the 1970s and 1980s and the sharp increase in legal activity over the same period. Next, we turn to quantifying the social cost to the increase in lawyers' compensation.

5 Excess Payments and the Wage Premia

We wish to assess to which degree the increase in remuneration in legal services in 1970–1990 is in excess of what would be needed to motivate workers in that sector to provide the required output. Underlying this calculation is the idea that lawyers and other legal practitioners were already efficiently incentivized in 1970 to provide optimal effort, and that to the extent that the desired quantity of legal intermediation increased, it can be provided with the same incentives.

Consider the difference between the wage bill share of legal services in 1990 and what it would have been if employment growth would have been as in the data, but the relative wage remained as it was in 1970, i.e., wage growth in legal services since 1970 was at the same rate as in the rest of the private sector:

$$excess_{WBsh^{1990}_{legal}} = WBsh^{1990}_{legal} - Nsh^{1990}_{legal} \cdot rw^{1970}_{legal},$$

where WB denotes wage bill, Nsh denotes employment share, and rw denotes relative wage. Then we multiply $excess_{WBsh^{1990}_{legal}}$ by WB^{1990}_{total} to convert the share into dollars:

$$excess_{WB^{1990}_{legal}} = excess_{WBsh^{1990}_{legal}} \cdot WB^{1990}_{total}.$$

[53]The average of the dependent variable in columns 1 and 2 is much larger than in the other columns because the sample only considers the 1970–1980 and 1970–1990 changes, respectively. These are the decades of the large increases in employment shares of lawyers. Columns 3–8 consider other decade changes, where there are no large increases in the dependent variable.

We can use this method for proprietors' income, as a proxy for law firm partners' incomes:

$$excess_{INCsh^{1990}_{legal}} = INCsh^{1990}_{legal} - SELFsh^{1990}_{legal} \cdot z^{1970}_{legal}, \tag{13}$$

where $INCsh$ is proprietors' income share, $SELFsh$ is self employment, and z is the ratio of average income of self employed in legal services relative to the average income of self employed in the private sector. Then we multiply $excess_{INCsh^{1990}_{legal}}$ by INC^{1990}_{total} to convert the share into dollars:

$$excess_{INC^{1990}_{legal}} = excess_{INCsh^{1990}_{legal}} \cdot INC^{1990}_{total} \ . \tag{14}$$

Adding the excess wage bill and proprietor's income excess compensation, $excess_{WB^{1990}_{legal}} + excess_{INC^{1990}_{legal}}$, gives the total excess payments to legal services, and can be compared to the actual 1990 values of compensation, $WB^{1990}_{legal} + INC^{1990}_{legal}$. Doing this yields an excess payment of 44 percent for the wage bill in legal services, 39 percent for law firm partners, and an overall 42 percent excess payment to employees and proprietors in legal services. Evaluated in dollar amounts using values in 2015, these numbers imply excess payments of 59 billion dollars in wages and 45 billion in law firm partners' income, giving a total of 104 billion dollars overall in that year alone.

Next, we investigate the incidence of these excess payments by estimating simple wage regressions.

5.1 Micro-econometric analysis: Wage premia for lawyers in legal services

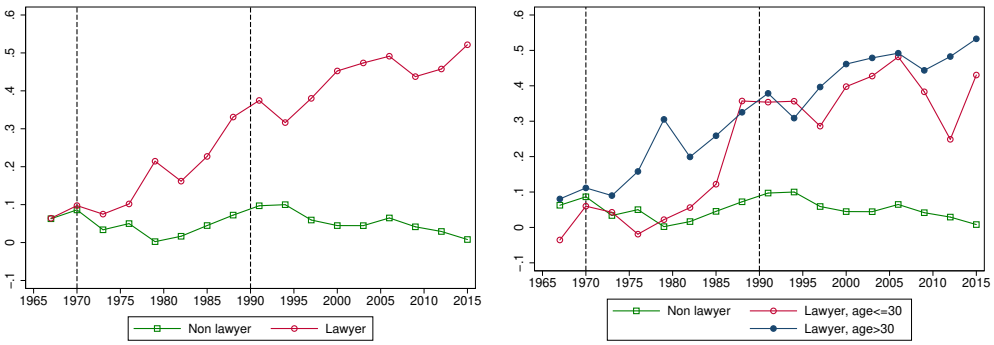
We use individual level wage data from the CPS to calculate the wage premia for lawyers. The CPS includes rich demographic information that allows us to control for education, race, sex, and other variables that may affect wages. The main limitation in using the CPS is that the wages are top-coded. This will lead us to underestimate the lawyers wage premium, given that lawyers wages are more likely to be top-coded than most other occupations. We treat top coding as above, multiplying top coded wages until 2002 by 1.5, and not correcting top coded wages from 2003 and on.

We estimate cross-sectional regressions using the CPS March Annual Supplement 1968–2014. We pool the data for better precision, estimating the following regression separately for each three year period:

$$\ln w_{it} = \alpha_t \cdot 1^{\text{lawyer|legal}}_{it} + \beta_t \cdot 1^{\text{non-lawyer|legal}}_{it} + \gamma_t' x_{it} + \varepsilon_{it}, \tag{15}$$

where w is the annual wage last year; $1^{\text{lawyer|legal}}_{it}$ is a dummy variable for individuals employed as lawyers in legal services; $1^{\text{non-lawyer|legal}}_{it}$ is a dummy for non-lawyers employed in legal services; and

Figure 7: The Wage Premium for Lawyers



(a) Lawyers and Non-Lawyers (b) Lawyers: Incumbents and New Entrants

Notes: The figure displays the estimates of the wage premia for lawyers and non-lawyers in legal services (in (a)), and the wage premia for lawyers above and under 30 years old (in (b)). Theses two figures show the coefficients, α_t and β_t, from estimating equation (15) for each three year period, t. The dependent variable is log(annual wages). Source: CPS March Annual Supplement 1968–2014.

x_{it} includes dummies for education levels, race, urban, gender, marital status, MSA, industry, and continuous experience and experience squared.[54]

Figure 7(a) shows the wage premia for lawyers (α_t) and non-lawyers (β_t), for each three year period starting in t. The wage premium for lawyers increases from 0.1 to 0.4 over the period of 1970 to 1990. Therefore changes in the observable characteristics of lawyers, i.e. lawyer's education and experience, do not explain the large increase in the relative wage of lawyers over the same period which we document in Figure 2.

Next, we investigate whether the trends in wage premium are consistent with industry rents or barriers to entry, by separately estimating the wage premia for entrants and incumbents. We replicate the analysis using equation (15), but split the lawyer indicator, $1_{it}^{\text{lawyer|legal}}$, into two separate dummy variables by age: $1_{it}^{\text{lawyer|legal,age}\leq 30}$ and $1_{it}^{\text{lawyer|legal,age}>30}$. Figure 7(b) shows the wage premia for these two groups, and for the non-lawyers in legal services.

The larger wage premium for the older lawyers is consistent with industry rents. The younger lawyers observe the industry premium, which increases entry. These younger lawyers are willing to accept a low initial wage, in return for a high wage later in their career. It is not until later in the sample, after 1985, that the wage premium for younger lawyers meets that of the older lawyers.

[54] As in much of the literature, we use the age minus the implied number of years of education minus 6 to gauge potential labor market experience.

This pattern does not seem consistent with a simple story of demand outstripping supply in the long run. Instead, it points to complex rent sharing arrangements within legal services.

6 Conclusion

The legal services industry experienced a remarkable change between 1970 and 1990: both the employment share of legal services and the relative wage of lawyers more than doubled. However, the period preceding 1970 (starting, when we have data, in 1850), and post 1990, exhibit remarkable stability. In this paper we document this change using multiple data sources, and then investigate the cause.

We argue that the secular expansion of legal services in 1970–1990 is the result of an increase in demand for legal intermediation that was caused by "man made" changes in the legal and regulatory environment right before and during this period. Aggregate analysis and state-level regressions support this claim. While supply caught up with demand in terms of quantities, the new equilibrium exhibits higher relative wages of lawyers and law firm partners.

The rise of the employment share of workers that provide legal services, and the associated rise in expenditure on these services represents a large cost for society. While these new laws, regulations and deregulations *per se* may have a positive effect on social welfare, it does not come without costs. Part of these costs is the change in the allocation of talent, as greater numbers of talented individuals are absorbed in legal intermediation, litigation, and the prevention of litigation. In addition, since lawyers and law firm partners were well to do to begin with, the increase in their relative incomes contributes significantly to U.S. inequality.

Although our findings imply social costs, we do not measure the social benefit of changes in the legal environment starting in the mid 1960s. In addition, it remains unclear whether higher income for lawyers and law firm partners after 1990 represent information rents, and whether these are also socially inefficient. Answering these important questions is well beyond the scope of this paper, but should attract attention and efforts in future research.

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Appendix

A Data

A.1 BEA

The BEA reports statistics on legal services in SIC 8111 in 1929–2000; from 1998 and on it uses NAICS 5411. This leaves three years of overlap, that can be used to gauge any differences between the two systems of industry classification. Comparing SIC 8111 and NAICS 5411 legal services indicates that the SIC 8111 is a proper subset of NAICS 5411, and that industries were added to the latter. These additional industries (in NAICS 5411 and not in SIC 8111) include more lower paid jobs, e.g. paralegal services, notaries, title agents. The following crosswalk table illustrates this.[55]

SIC	Title (and note)	NAICS	Title
8111	Legal Services	5411	Legal Services
8111	Legal Services	541110	Offices of Lawyers
	-Null Set for U.S.-	541120	Offices of Notaries
6541	Title Abstract Offices	541191	Title Abstract and Settlement Offices
7389	Business Services, NEC (process services, patent agents, notaries public, paralegal services)	541199	All Other Legal Services

The relevant BEA series come from the National Income and Product Accounts (NIPA) tables and the Industry Economic Accounts. The NIPA tables, which cover the years 1929 to 2015, have series of employment and income by industry. These data, which are aggregated to the industry level, are sourced from administrative data from state unemployment insurance (UI) programs. We use the following series from the NIPA tables:

1. (Table 6.2) Compensation of Employees by Industry (NW): Compensation measures the total income both wages and salaries and supplements to wages and salaries earned by employees in return for contributing to production during an accounting period.

2. (Table 6.5) Full-Time Equivalent Employees by Industry (FTE): Full-time equivalent employees equals the number of employees on full-time schedules plus the number of employees on part-time schedules converted to a full-time basis. The number of full-time equivalent employees in each industry is the product of the total number of employees and the ratio of average weekly hours per employee for all employees to the average weekly hours per employee on full-time schedules.

[55] Crosswalk table based on `https://www.census.gov/eos/www/naics/concordances/concordances.html`.

3. (Table 6.8) Persons Engaged in Production by Industry ($FTE2$): Equals the number of full-time equivalent (FTE) employees plus the number of self-employed persons. Unpaid family workers are not included. The number of self-employed persons in a given industry is calculated by subtracting the FTE number from FTE2.

4. (Table 6.12) Nonfarm Proprietors' Income by Industry (NW_{prop}): Nonfarm proprietors' income measures the income before deducting income taxes, of sole proprietorships, partnerships, and other private nonfarm businesses that are organized for profit but that are not classified as corporations. Sole proprietorships are businesses owned by a single individual. Partnerships include most associations of two or more of: individuals, corporations, noncorporate organizations that are organized for profit, or of other private businesses. Other private businesses are made up of tax-exempt cooperatives, including credit unions, mutual insurance companies, and rural utilities providing utility services and farm marketing and purchasing services.

The BEA Industry Economic Accounts is the source of the Value Added data series. This series starts in 1947, but the value added of legal services is not reported separately until 1963. The value added of an industry, also referred to as gross domestic product (GDP)-by-industry, is the contribution of a private industry or government sector to overall GDP. The components of value added consist of compensation of employees, taxes on production and imports less subsidies, and gross operating surplus. Value added equals the difference between an industry's gross output (consisting of sales or receipts and other operating income, commodity taxes, and inventory change) and the cost of its intermediate inputs (including energy, raw materials, semi-finished goods, and services that are purchased from all sources).

A.2 Census

The Census microdata is extracted from IPUMS USA. The sample starts in 1850 and ends in 2000, after which we rely on data from the American Community Survey (ACS, see description below). A 5% sample of the decennial census is used in 1900, 1930, 1980, 1990 and 2000. A 1% sample is used in all other years. There is no 1890 observation because a 1921 fire destroyed most of the 1890 records.

We limit the sample to employed individuals. This is used to create three series by industry, occupation and education level: employment, hours worked per week, and income from wages. The employment series starts in the first year of our data, but income and hours worked is not recorded until 1940.

We need to identify lawyers and the legal services industry, in order to track the evolution or their wages and employment with respect to the rest of the economy. Lawyers can be classified in three types: Lawyers in legal services, Lawyers in government, and Lawyers in other private industries. Non-lawyers in legal services are categorized as "clerical", "paralegal", and "other". Paralegals were not listed as an occupation before 1980, so they would be included in our "clerical" group pre-1980. This includes all occupations classified as: "Clerical and Kindred", "Office and Administrative Support", "Office Machine Operators", "Secretaries", and "Clerical Occupations".

A.2.1 Legal services in 1940

We notice an anomaly in legal services employment in 1940. There is a significant increase in the share of legal services employment from 1930 to 1940 and an even greater decrease from 1940 to 1950. There was no corresponding increase or decrease in the number of lawyers in legal services. We attribute the peak in legal services employment in 1940 to a classification error, specifically an error in how some occupations were classified. For example, in 1940 there are 169 "Artists and Art Teachers" in legal services. There were 3 "Artists and Art Teachers" in the legal services industry in 1930 and 1950 combined.

As a first step in correcting this error, we re-classify occupations that clearly should not be in legal services. This includes "Artists and Art Teachers" and "Dancers". After re-classifying occupations that don't belong to legal services there is still a spike in the 1940 employment share, albeit smaller than before. In the second step we identify the particular occupations that are driving this increase in employment share. We follow the following steps to do this:

1. Calculate each occupation's share of legal service employment, by year.
2. Calculate the percent increase in that share between 1930 and 1940, and between 1940 and 1950.
3. Identify an "outlier" as an occupation whose share both:
   (a) increases by more than 100% between 1930 and 1940, and
   (b) decreases by more than 50% between 1940 and 1950.
4. Calculate the fraction of each occupation that will remain in legal services, based on the average of their 1930 and 1950 values.
5. Take weighted totals for hours, employment, and wage bill, for 1940 and the identified "outliers" in legal services.

6. Use the fraction calculated in step 4 to split hours, employment and wage bill between legal and non-legal (and within legal between clerical and other) from step 5.

A.3 American Community Survey (ACS)

The American Community Survey (ACS) microdata is extracted from IPUMS USA. The sample starts in 2001 and ends in 2015. The ACS is a 1-in-100 national random sample of the population. Just as with the decennial census data, we limit the sample to employed individuals. This is used to create three series by industry, occupation and education level: employment, hours worked per week, and income from wages.[56]

A.4 Census/ACS series

We create one series for analysis with the decennial censuses (until 2000) and the ACS (from 2001), calling it "Census/ACS". It should be noted that there is one major difference between the Census and the ACS. This difference arises because the decennial census uses "point of time" estimates while the ACS uses "period" estimates. This means that data collection for the decennial census targets a specific point in time whereas ACS data are collected continuously.

While decennial census enumeration lasts from around mid-March to late August, most of the data is collected around the April 1st time period and, for all practical purposes, represents the characteristics of the population as of April 1st in the decennial census year. The 2005 ACS, for example, contains data collected from January to December 2005. Certain questions, of course, refer to previous years data. For example, the Census captures income from the previous calendar year while the ACS captures income from the previous 12 months. That means that the 2005 ACS income data reflect income received between January 2004 and November 2005, depending on when the individual was surveyed.

A.4.1 Hours worked

There are three different "hours worked" questions recorded in the IPUMS microdata, depending on the year of the survey. We use all three to create the hours worked series. "Hours worked last week" is recorded, as a continuous variable, in 1940, 1950, 1980, and 1990. "Hours worked last week" is recorded in intervals in 1940, 1950, 1960, 1970, 1980 and 1990. "Usual hours worked per week" is recorded, as a continuous variable, from 1980 to 2015. In the years in which we only have

[56] For more details on the ACS see `https://ofm.wa.gov/sites/default/files/public/legacy/pop/acs/ofm_acs_user_guide.pdf` and `https://ofm.wa.gov/washington-data-research/population-demographics/american-community-survey`.

weekly hours worked as an intervalled variable (1960, 1970) we assign the midpoint of the recorded interval to each individual.

A.4.2 Business income

The Censuses and the ACS report business income, which, in principle, would include the income of law firm partners in legal services. These data are top codded in a similar fashion as wage data (see below), but with different thresholds. We experimented with building income series for lawyers and for law firm partners using these data. Unfortunately, the business income data are not very informative. This is because the incidence of top coding is high, especially in early years, and because we suspect that business income beyond the top coding threshold is much more skewed than labor income. One useful piece of information that we do get from the business income data is that it corroborates the V-shape evolution of proprietors' income in legal services from the BEA (a drop from 1973 to 1982 and then a sharp increase until 1990), shown in Figure 2(c).

A.4.3 Top coding for wage income data

Table A7 reports top code thresholds and top coded wages for wage income data in the Census (1940–2000) and in the ACS (2001 and onwards). In 1940–1980 respondents' wages above these thresholds are reported at the threshold. In later years wages above the top code thresholds are reported as state median of wages above threshold (1990) or state mean of wages above threshold (2000 and on). From 2000 there is state-level variation in top code reporting, and from 2003 the top code threshold itself varies by state (99.5^{th} percentile within the state).

Table A8 reports the percent of employees that are top coded and their corresponding unadjusted wage bill share in the Censuses (1940-2000) and in the ACS (2001 and onwards). The unadjusted top coded wage bill share sums all top coded wages, and then divides by the total wage bill.

A.5 Current Population Survey (CPS)

We use the Annual Social and Economic supplement to the Current Population Survey (March), which reports annual income and work variables for the previous year. Here, 1967–2015 correspond to surveys carried out in 1968–2016. For complete details on the CPS see Flood et al. (2017), or web page `https://cps.ipums.org/cps/`. From these data we use only the employment data in Figure A1(a).

A.6 Census of services, states-fields sample

We created a "states-fields" sample of lawyers by state and fields of specialization using the Census of Services. The Census of Services is conducted every five years starting in 1967, but legal services firms are asked about lawyers fields of specialization only in 1972–1992. We combine this with employment data from the Censuses. The 1970 and 1990 Census data are used for 1972 and 1992 employment numbers, respectively. Here we provide details on how we constructed the "states-fields" sample.

- The Census of Services reports the number of lawyers in the USA, and their numbers in the USA by field. The Census of Services also reports numbers of lawyers (total and by field) for MSAs with enough respondents. Not all MSAs are reported. This implies that the total lawyer counts for all MSAs is less than the total for the United States from the same source.

  - We take into account a small number of changes in definitions of MSA over time in CO, NY and WI. In order to use as much information as possible, we split MSAs when necessary. For example, in NY we have "Buffalo" in 1972–1987, but "Buffalo-Niagra Falls" in 1987 and 1992. We use the Buffalo share of lawyers in "Buffalo-Niagra" in each field in 1987 to extrapolate the Buffalo numbers from the "Buffalo-Niagra Falls" total in 1992. The same is done for Denver/Denver-Boulder in CO, and Milwaukee/Miluwakee-Racine in WI.

- We aggregate MSA level data up to the state level. For example, lawyers in New York = Lawyers in Buffalo + Lawyers in New York City + Lawyers in Albany. Some states have only one MSA. The total number of states is 28 plus the district of Columbia (DC), and are listed here: AL, AZ, CA, CO, CT, DC, FL, GA, IL, IN, KY, LA, MA, MD, MI, MO, NC, NJ, NY, OH, OK, OR, PA, TN, TX, UT, VA, WI. Overall, the state-fields sample contains 51% of the total number of lawyers in the United States. See Table A3 in the appendix for the list of MSAs and their mapping to states.

- Here is the list of fields, with the share of each field across states in the total for the field in the USA (pooling across 1972 and 1992) in the resulting sample: banking and commercial (55%), corporate (69%), criminal (48%), domestic relations (40%), insurance (49%), patent/trademark/copyright (77%), real estate (52%), tax (67%), wills/estate planning/probate (46%), negligence (50%). We aggregate a handful of tiny fields into a category called "other" (63%). Finally, there are lawyers that are classified as "general practice" (40%).

- We merge into the state-fields sample state-level employment the Census. In doing so, we use only the employment of the specific MSAs underlie the state-fields sample from the Census of Services. Using the New York example, Employment in NY = Employment in Buffalo + Employment in New York City + Employment in Albany.

B Calculation of Series of Interest

In this appendix we provide additional details on the calculation of each of the series we reference in Section 2.

Relative wages of Lawyers in Legal Services:

$$\omega_{lawyer|legal} = \frac{w_{lawyer|legal}}{w_{nonlegal}} \ . \tag{16}$$

We define the relative wage of lawyers within legal services, $\omega_{lawyer|legal}$, as the ratio of the average labor income among all lawyers within legal services to $w_{nonlegal}$, mirroring Equation 2. Here, we use Census and ACS data for both the numerator and denominator, denoted When doing so, we multiply top-coded wages by 1.5 in 1940–2002. From 2003 we do not adjust top coded wages in the ACS, which reports all wages up to the 99.5th percentile by state of residence; above this threshold wages are coded as the state mean of wages above the state-specific 99.5th percentile.

Relative income for Partners (Proprietors) within Legal Services:

$$\omega_{partners|legal} = \frac{w_{partners|legal}}{w_{nonlegal}} \ . \tag{17}$$

The numerator of $w_{partners|legal}$ is proprietors income within legal services. Its denominator is the difference between full time equivalent employment of "persons engaged" and "employees". The definition of $w_{nonlegal}$ is the same as both Equation 2. Here, we use BEA data on wages and proprietor's income.

Decomposition of wages: We perform the following decomposition of relative wages:

$$\Delta\omega = \underbrace{\sum_i \Delta n_i \overline{\omega}_i}_{\text{Between}} + \underbrace{\sum_i \overline{n}_i \Delta\omega_i}_{\text{Within}} \ , \tag{18}$$

where $\Delta\omega$ is the aggregate relative wage change of either legal services ω_{legal} or lawyers $\omega_{lawyer|legal}$ over some period. The first sum, Between, captures the importance of compositional changes in

state sizes, whereas the second sum, Within, captures the importance of within-state changes in employment share. We also apply the decomposition (18) for ω_{legal} where i denotes occupations Proprietors' income is not reported at the state level, so we cannot perform the decomposition (18) for $\omega_{partners|legal}$. Despite similar appearance, the components of (18) are different from those in (1), and we list them for the case of state-decomposition of ω_{legal}. Here Δn_i is the change in state i's share of total legal services employment, $\overline{\omega}_i$ is the average relative wage of legal services within state i relative to the aggregate $w_{nonlegal}$, $\overline{n}_i$ is state i's average share of total legal services employment, and $\Delta\omega_i$ is the change in the relative wage of legal services within state i relative to the aggregate $w_{nonlegal}$.

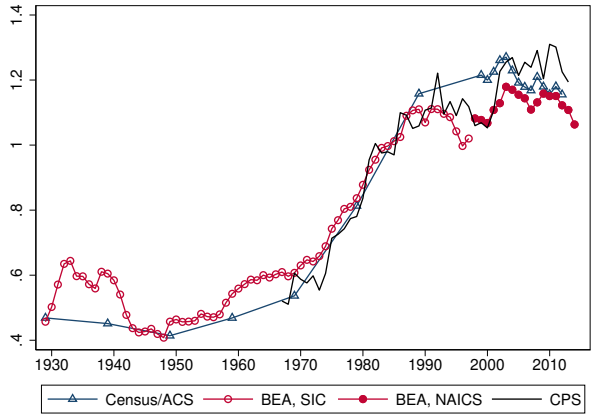
Decomposition of fields: We perform the following decomposition of Lawyers' fields:

$$\Delta F = \underbrace{\sum_i \Delta n_i \overline{f}_i}_{\text{Between}} + \underbrace{\sum_i \overline{n}_i \Delta f_i}_{\text{Within}} , \tag{19}$$

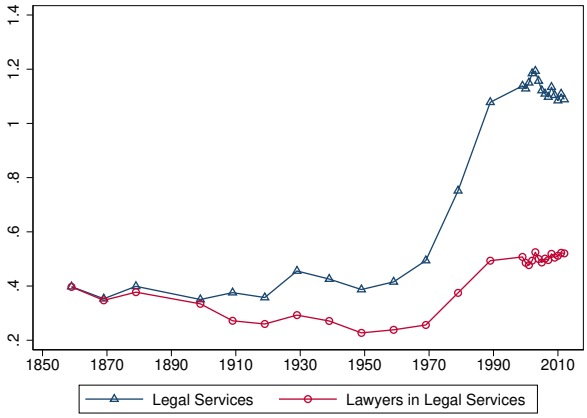
where ΔF is the aggregate change in the share of lawyers in a given field in the U.S. from 1972 to 1992, i denotes a state, Δn_i is the change in the employment share of lawyers (regardless of field) in that state, $\overline{f}_i$ is the average field share of lawyers within state i during the period, $\overline{n}_i$ is the average lawyer share of state i, and Δf_i is the change in the field of law share within state i. The first sum captures the contribution of changes in the share of total lawyers in a state (the "between" share), whereas the second sum captures the importance of within-state changes in field of law share ("within").

C Supplemental Figures

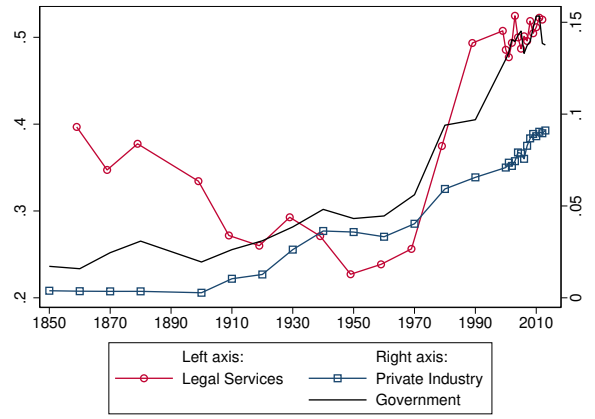
Figure A1: Employment Shares of Legal Services, Additional Series



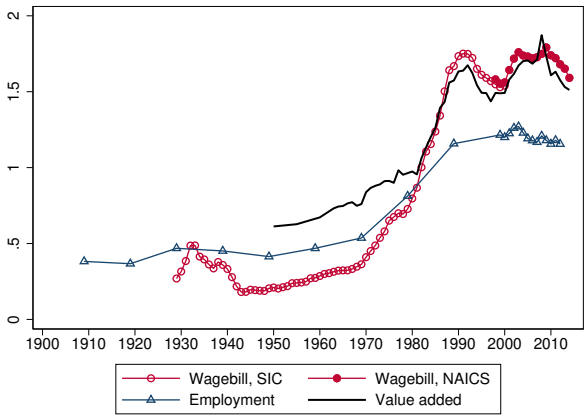
(a) Employment Shares Across 3 Data Sources



(b) Legal Services Emp. as Share of Total Economy



(c) Lawyers in Legal Services, Industry, and Govt (%)



(d) Employment Shares, Value Added, and Wage Bill

Notes: In (a) we compare employment shares using Census, BEA, and CPS data. BEA series are employment shares in terms of full-time equivalents, using the *persons engaged* labor concept, which includes proprietors 1929–2015. The CPS series is in terms of hours shares, 1967–2013 In (b) we show employment measured in hours, and shares are within the entire economy (in Figure 1 these are shares in the private sector). Employment is sourced from the decennial Census from 1850–2000, and the American Community Survey from 2001–2015. The legal services series is the total employment in the legal services industry, as a share of the total employment in the economy, including the public sector. The lawyers in legal services series is the total employment of lawyers in the legal services industry, as a share of the total employment in the economy, including the public sector. In (d) we show the employment share in legal services against the wage bill and value added shares in the industry, from the BEA.

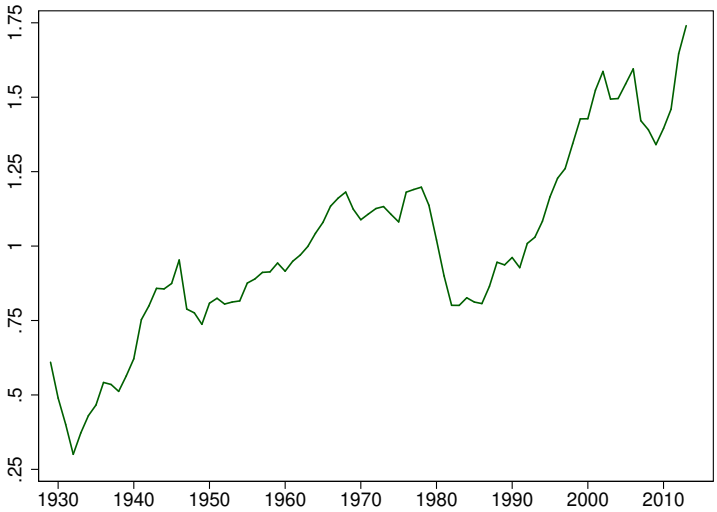
Figure A2: Relative Wages of Legal Services, Additional Series



(a) Relative Wages Across 3 Data Sources (b) Lawyers in Legal Services, Industry, and Govt (%)

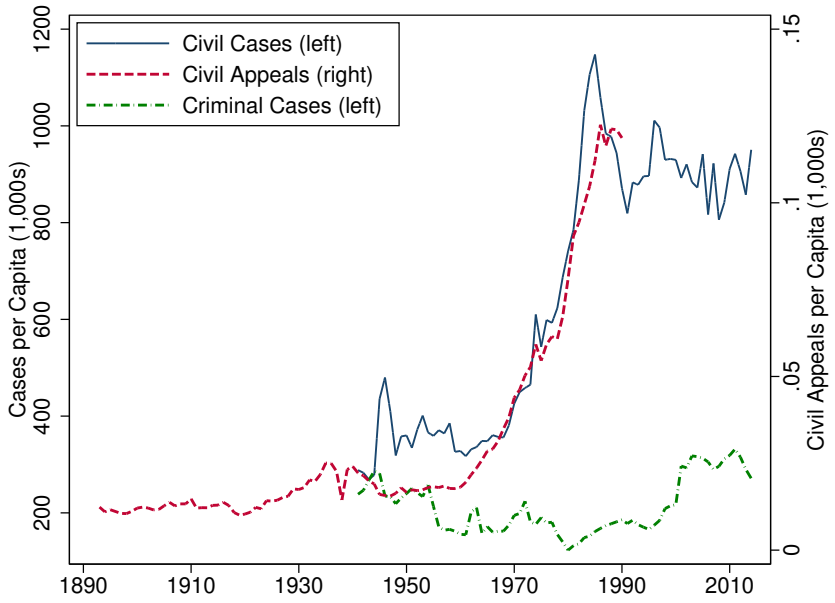
Notes: In (a), all series are relative to non-legal services private sector. BEA relative wage series uses data on compensation of employees and full-time equivalent employment. Until 1997 data based on SIC; from 1998 data based on NAICS. Census/ACS series use data on wage bills and either hours worked (hourly relative wage, comparable to using FTE), or employment for observations that report non-missing wage bill information. Top coded wages are multiplied by 2 until 2002, inclusive; no adjustment is made from 2003 and on. The vertical dot-dashed line indicates the year 2003. See data appendix for methodology on top coding and corrections for it. In (b), wages of lawyers across sectors are relative to total non-lawyer wages. Source: U.S. Censuses and the American Community Surveys from 2000 and on.

Figure A3: Relative income of proprietors in the private sector



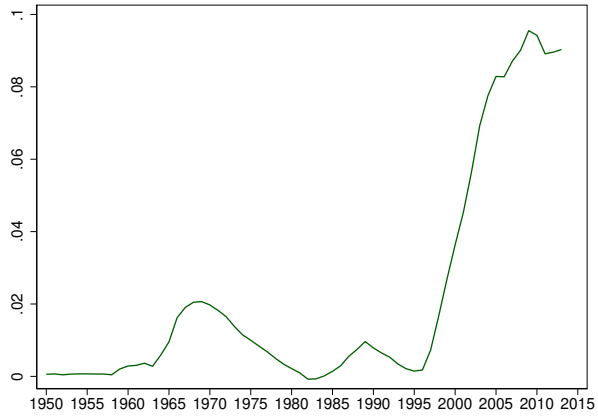
Notes: Total proprietors' income in the private sector is divided by their full time equivalent employment (FTE) to obtain their income per FTE. This is divided by the average wage in the private sector, which is equal to labor compensation divided labors' FTE. Source: BEA. Series splits in 1997 as industry classification changes from SIC to NAICS. In this case, the splicing changes virtually nothing, as the SIC and NAICS series are almost equal in the years in which they overlap.

Figure A4: Litigation Intensity

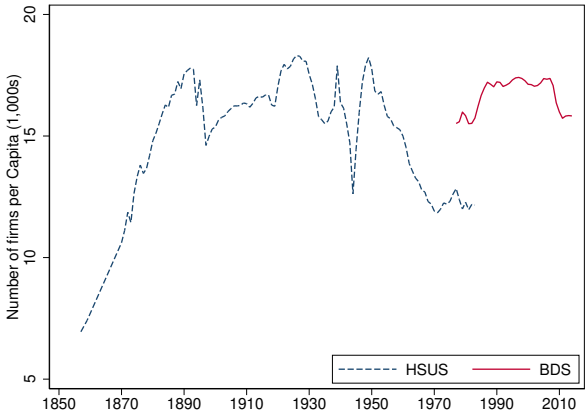


Notes: Civil cases and Criminal cases in 1941–1999 are sourced from the Historical Statistics of the United States. Civil and Criminal cases in 2000–2015 are from the Administrative Office of the U.S. Courts. Civil cases in the Court of Appeals covers 1893 to 1994, and is sourced from the Historical Statistics of the United States. Cases are normalized by total population in units of 1,000 people.

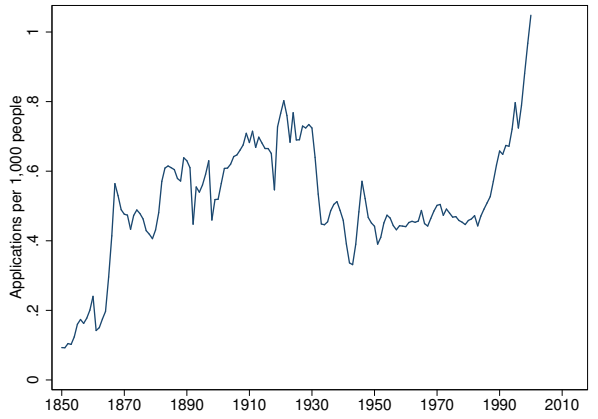
Figure A5: Alternative Explanations



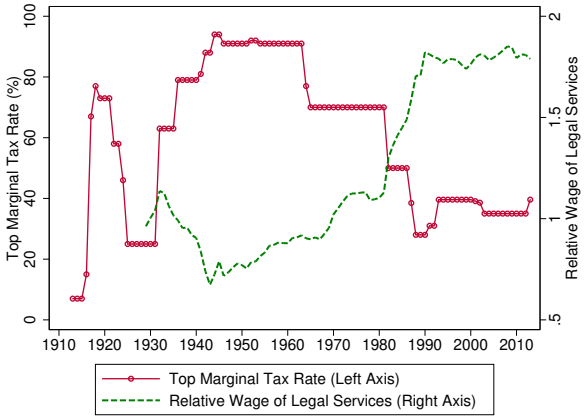
(a) Relative ICT intensity in Legal Services



(b) Number of Firms per Capita



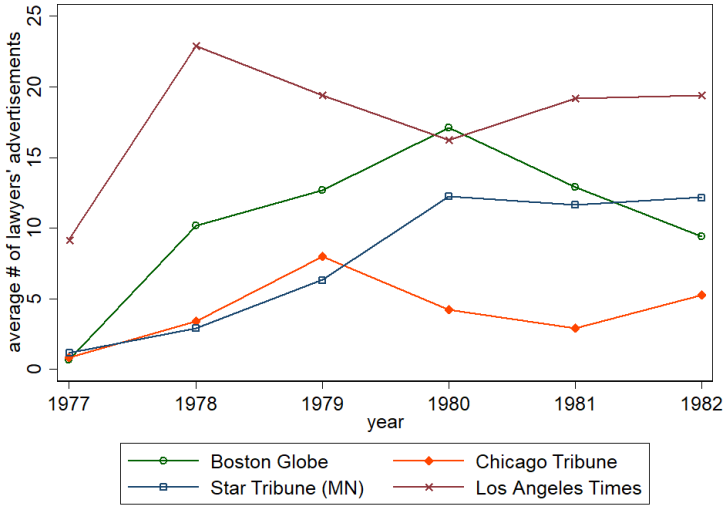
(c) Patent Application Intensity



(d) Top Marginal Tax Rates

Notes: Information and Communications Technology (ICT) intensity is calculated using data from the Bureau of Economic Analysis fixed assets tables. ICT intensity is measured as a share in the total capital stock. Relative ICT intensity of legal services is the ICT intensity of legal services, divided by the ICT intensity in total. All measured in constant 2009 prices. Number of firms in 1857–1983 is from the Historical Statistics of the United States (HSUS), and in 1977–2014 is from the U.S. Census' Business Dynamics Statistics (BDS). The number of firms in the HSUS are originally collected by the firm Dun & Bradstreet. Both firm counts are normalized by total U.S. population. Patent application intensity reports number of utility and design patent applications (source: U.S. Patent Office) divided by U.S. population in thousands. The top marginal tax rate series is the top marginal rate that applies to married couples filing jointly (source: U.S. Internal Revenue Service, IRS). The relative wage in legal services is the same as in Figure 1 and Figure 2(a)).

Figure A6: The Evolution of Legal Advertising Post-Bates



Notes: This figure shows the average number of legal advertisements in 4 newspapers, over a span of 6 years. We collect the data manually. For each newspaper, we sample the third week of January, April, July, and November. We take two days from that week, Wednesday and Saturday. Then we record the number of advertisements for lawyers that day. Figure A7 shows examples of these advertisements. Source: `Newspapers.com`.

Figure A7: Examples of Legal Advertisements



(a) Boston Globe (b) Chicago Tribune (c) Star Tribune (MN) (d) Los Angeles Times

Notes: This figure shows examples of legal advertisements in the 1977-1982 period (immediately after the ABA changed their policy on legal advertising. Source: `Newspapers.com`.

Figure A8: LSAT Takers, Enrollment and Law Degrees Awarded

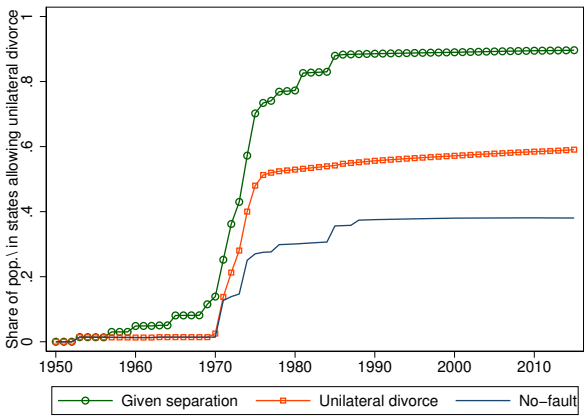


(a) LSAT Takers to Enrollment Ratio

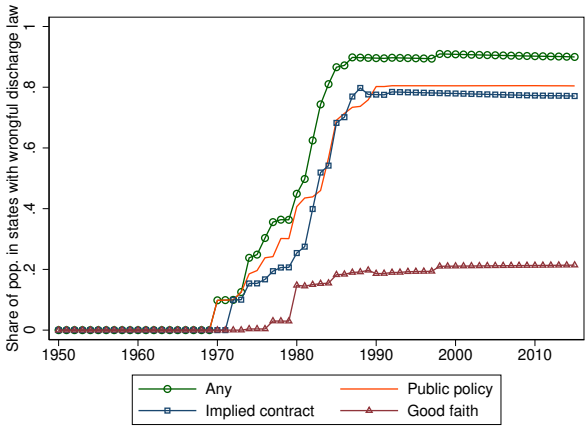
(b) Law Degrees Awarded to Enrollment Ratio

Notes: Panel (a) reports the ratio of Law School Admission Test (LSAT) takers to enrolled students in law schools. Panel (b) reports the ratio of law school degrees awarded to the cohort enrolled three years before (years denote year of enrollment). Data on the number of LSAT takers are from the following sources: White (1984) for 1947–1982, the Manhattan Review (LSAT Prep Courses & Tutoring) for 1950, 1961, 1970, 1980 and 1985, and the Law School Admission Council (LSAC, which administers the LSAT from 1982) for for 1987 and on. Data on enrollment and degrees awarded are from the American Bar Association (ABA).

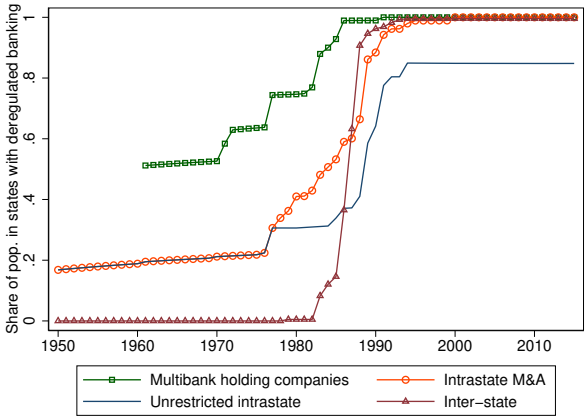
Figure A9: State-Level Deregulation Series



(a) No-Fault Divorce



(b) Wrongful Discharge Laws



(c) Bank Branching

Notes: Figure (a) presents the share of total U.S. population in states allowing unilateral divorce.Dates of no-fault divorce "deregulation" by state are from Friedberg (1998) and Vlosky & Monroe (2002). Figure (b) presents the share of total U.S. population in states with wrongful discharge laws. Dates of wrongful-discharge laws by state are from Autor et al. (2006). Figure (c) presents the share of total U.S. population in states with banking deregulation, by type of deregulation. Dates of bank branching deregulation are from Mengle (1990) and Black & Strahan (2001).

D Supplemental Tables

Table A1: Decompositions of changes in relative wages

A. Legal Services: Occupations

Period	Difference	Between,	%	Within,	%
1940-1950	-0.140	-0.013	10	-0.127	90
1950-1960	-0.141	0.004	-3	-0.145	103
1960-1970	0.102	0.000	0	0.101	100
1970-1980	0.189	-0.023	-12	0.212	112
1980-1990	0.586	-0.029	-5	0.615	105
1990-2000	0.094	-0.012	-13	0.107	113
2000-2010	0.140	0.038	27	0.103	73

B. Legal Services: Geography, across states

Period	Difference	Between,	%	Within,	%
1940-1950	-0.141	0.025	-18	-0.167	118
1950-1960	-0.140	-0.008	6	-0.131	94
1960-1970	0.102	0.002	2	0.100	98
1970-1980	0.189	0.003	2	0.186	98
1980-1990	0.586	0.008	1	0.577	99
1990-2000	0.094	-0.008	-8	0.102	108
2000-2010	0.140	-0.001	-1	0.141	101

C. Lawyers: Geography, across states

Period	Difference	Between,	%	Within,	%
1940-1950	-0.087	0.028	-33	-0.115	133
1950-1960	-0.065	0.013	-20	-0.079	120
1960-1970	0.214	-0.001	-1	0.216	101
1970-1980	0.415	0.014	3	0.401	97
1980-1990	1.156	0.014	1	1.142	99
1990-2000	0.247	0.005	2	0.242	98
2000-2010	0.131	0.009	7	0.122	93

Notes: The table reports decompositions of the Change in relative wages of legal services (panel A and B) or relative wages of lawyers in legal services (panel C), using equation (2). We use top-coded wages, using the 1.5 top coding adjustment in all years pre-2003. Relative wages are relative to non-legal wages in the private sector. Panel A decomposes relative wage in legal services over legal services employment shares of occupations. There are four occupations we consider: Lawyers, Clerical Workers, Paralegals, and Other. Other encompasses everyone not in the first 3 classifications. Panels B and C decompose relative wages over states. Change = Between + Within. The % are the percent of Between or Within in Change. Sources: authors' calculations based on data from U.S. Censuses (1940-2000) and American Community Surveys (2010).

Table A2: Decomposition of changes in fields of law across states, 1972-1992

Field	Difference	Between, %		Within, %	
Banking	0.019	0.000	2.1	0.018	97.9
Corporate	0.016	-0.006	-38.2	0.023	138.2
Criminal	0.011	0.000	2.5	0.011	97.5
Domestic	0.007	0.000	1.7	0.007	98.3
Insurance	0.035	0.002	5.0	0.033	95.0
Negligence	0.049	0.000	-0.9	0.049	100.9
Patent	0.000	0.000	53.0	0.000	47.0
Real Estate	0.007	0.000	4.5	0.007	95.5
Taxation	-0.003	-0.001	16.0	-0.003	84.0
Wills	-0.023	-0.002	7.1	-0.021	92.9
Other	0.130	0.002	1.6	0.128	98.4
General	-0.249	0.004	-1.5	-0.253	101.5

Notes: These are calculating using MSA totals of lawyers by field from the Census of Service Industries. The MSA level data are aggregated to the state level. The sample is limited to include only MSAs which were included in the Census publication in 1972 and 1992. We end up with 42 MSAs over 28 states (see Appendix Table A3 for a list of the MSAs and states). This means that the differences in 1972 and 1992 shares (ΔF) will not exactly match the changes we would calculated if we used the U.S. total data (Table 3). More details on the data source and construction of the sample are included in Appendix A.

Table A3: Sample for Field Decompositions

State No.	State	MSA
1	AL	Birmingham
2	AZ	Phoenix
3	CA	Los Angeles-Long Beach
	CA	Sacramento
	CA	San Francisco-Oakland
4	CO	Denver-Boulder
5	CT	Hartford
6	DC	Washington
7	FL	Jacksonville
	FL	Orlando
8	GA	Atlanta
9	IL	Chicago
10	IN	Indianapolis
11	KY	Louisville
12	LA	New Orleans
13	MA	Boston
14	MD	Baltimore
15	MI	Detroit
16	MO	Kansas City
	MO	St. Louis
17	NC	Charlotte-Gastonia
18	NJ	Newark
19	NY	Albany-Schenectady-Troy
	NY	Buffalo
	NY	New York
	NY	Rochester
	NY	Syracuse
20	OH	Cincinnati
	OH	Cleveland
	OH	Columbus
21	OK	Oklahoma City
	OK	Tulsa
22	OR	Portland
23	PA	Philadelphia
	PA	Pittsburgh
24	TN	Memphis
25	TX	Dallas-Fort Worth
	TX	Houston
	TX	San Antonio
26	UT	Salt Lake City-Ogden
27	VA	Norfolk-Virginia Beach-Portsmouth
28	WI	Milwaukee

Notes: This is the set of MSAs for which we have data on field of law in both 1972 and 1992. There are 42 MSAs and 27 states plus the District of Columbia. These states make up the sample for the decomposition in Table A2.

Table A4: Timeline of Legislative Acts and Deregulation Events

Event	Date	Industry
Civil Rights Act	1964	Social Regulation
Voting Rights Act	1965	Social Regulation
National Environmental Policy Act	1969	Social Regulation
Federal Communications Commission (FCC) Court Decisions	late 1960s-mid 1970s	Telecommunications
Occupational Health and Safety Act	1970	Social Regulation
Clean Water Act	1972	Social Regulation
Consumer Safety Act	1972	Social Regulation
CAB Liberalization of Entry and Discount Fare Experiments	mid 1970s	Airlines
Securities Acts Amendments	1975	Brokerage
Hart-Scott-Rodino Antitrust Improvements Act	1976	Antitrust
Execunet Decision	1977	Telecommunications
Airline Deregulation Act	1978	Airlines
Natural Gas Policy Act	1978	Natural Gas
ICC Liberalization of Truck Rates	late 1970s	Trucking
ICC Liberalization of Rail Rates and Contracting	late 1970s	Railroads
FCC Rulemakings and other Regulatory Proceedings	late 1970s	Cable Television
Decontrol of crude oil and refined products	starts in 1979	Petroleum
Motor Carrier Reform Act	1980	Trucking
Staggers Rail Act	1980	Railroads
Depository Institution Deregulation and Monetary Control Act	1980	Banking
Regulatory Flexibility Act	1980	Small Business
AT&T Settlement	1982	Telecommunications
Garn-St. Germain Depository Institutions Act	1982	Banking
Cable Television Deregulation Act	1984	Cable Television
FERC Order 1985	1985	Electric
Bus Regulatory Reform Act	1989	Bus
FERC Order 1992	1992	Electric
Energy Policy Act	1992	Electric/Natural Gas
Telecommunications Act	1996	Telecommunications
FERC Order 1996	1996	Electric
Cramm-Leach-Bliley Act	1999	Banking

Notes: This is a timeline for the legislative acts and deregulation events discussed in Section 3 and visualized in Figure 5(a). The sources for the deregulatory events are Kearney & Merrill (1998) and Winston (1998).

Table A5: Historical Regressions of Civil Litigation Intensity

	Outcome: Civil Cases Per Capita					
	5 year lags			Predictions		
	(1)	(2)	(3)	(4)	(5)	(6)
Federal Regulation Pages Per Capita	1.568***			0.793***		
	(0.118)			(0.098)		
Fee Shifting Statutes Per Capita		1.009***	1.306***		0.631***	0.960***
		(0.123)	(0.134)		(0.138)	(0.124)
Top Marginal Tax Rate	0.733***	0.006	0.669***	0.596***	0.055	0.520***
	(0.160)	(0.112)	(0.239)	(0.096)	(0.158)	(0.179)
Top Corporate Tax Rate	-0.270**	-0.150	-0.291*	-0.367***	-0.104	-0.432***
	(0.132)	(0.091)	(0.170)	(0.067)	(0.096)	(0.141)
Firms Per Capita	0.034	-0.070	-0.200***	-0.000	-0.061	-0.377**
	(0.024)	(0.057)	(0.060)	(0.102)	(0.101)	(0.153)
Patent Application Intensity	-0.236***	-0.101	-0.053	-0.073	0.114	0.229**
	(0.050)	(0.071)	(0.072)	(0.060)	(0.109)	(0.103)
Observations	59	96	59	54	91	54
R^2	0.96	0.91	0.95	0.78	0.40	0.69

Notes: This table reports the relationship between civil cases per capita and the other historical litigation and regulation series—fee shifting statutes per capita and pages of federal regulation per capita. In specifications (1) - (3) the independent variables are all lagged by 5 years. In specifications (4) - (6) the independent variables are changes from $t-5$ to t.

Table A6: Civil Rights Placebo Test

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ lawyers in legal services share of state emp., t to $t+d$					
	10 year difference ($d=10$)			20 year difference ($d=20$)		
Black employment share in t	0.000	0.001	0.007***	0.001	0.005**	0.012***
	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
R-squared	0.002	0.028	0.193	0.011	0.107	0.244
No. of observations	46	51	51	46	51	51
State Employment Weights	×	×	×	×	×	×
Year	1950	1960	1970	1950	1960	1970
Mean Dependent Var:	0.045	0.013	0.149	0.052	0.162	0.261

Notes: This table extends the analysis of the effect of the civil rights act and subsequent legislation on legal activity. This table contains regressions of the change in the share of lawyers employment in the state in the following 10 or 20 years on the share of black employment in the beginning of the period. Columns (3) and (6) correspond to columns (1) and (2) in Table 4. In this table we change the year of analysis, noted in the row labeled "Year."

Table A7: Top code thresholds and values in U.S. Censuses and ACS

Year	Top code wage threshold	Top code wage value
1940	$5,001	$5,001
1950	$10,000	$10,000
1960	$25,000	$25,000
1970	$50,000	$50,000
1980	$75,000	$75,000
1990	$140,000	State median of wages above threshold*
2000	$175,000	State mean of wages above threshold*
2001-2002	$200,000	State mean of wages above threshold*
2003-	99.5th Percentile in State	State mean of wages above threshold*

Notes: 1940-2000 are U.S. Census years, 2001 and on are American Community Survey (ACS) years. *Top coded wage value is the state median or mean of values strictly greater than the corresponding top code wage threshold. For example, in 1990 an individual's wage that was originally reported as being greater than $140,000 was coded as the median over values strictly greater than $140,000 within that individual's state of residence.

Table A8: Top coded employees and share of wage bill that is top coded

	Percent of top-coded workers					Percent of wage bill that is top coded, before adjustment				
	Private Sector	Legal Services	Non-lawyers in Legal Services	Lawyers in Legal Services	Lawyers in Private Sector	Private Sector	Legal Services	Non-lawyers in Legal Services	Lawyers in Legal Services	Lawyers in Private Sector
1940	0.05	0.11	0.07	0.15	1.15	0.34	0.81	0.50	1.18	2.56
1950	0.68	2.04	0.15	3.72	15.99	3.64	12.72	0.73	29.23	33.29
1960	0.27	0.65	0	1.14	4.99	2.02	6.40	0	12.40	13.27
1970	0.18	0.49	0	0.94	3.76	1.55	4.96	0	9.18	11.22
1980	0.44	1.80	0.04	3.56	4.81	2.91	11.70	0.36	18.94	12.68
1990	0.62	3.64	0.15	7.79	8.37	5.80	22.65	1.45	33.41	23.98
2000	1.06	4.68	0.45	9.93	16.43	10.86	30.68	4.94	43.56	44.51
2001	0.84	4.33	0.43	9.49	13.02	9.04	28.13	4.29	41.03	36.53
2002	0.86	4.62	0.33	10.67	14.72	9.03	29.73	3.52	43.91	41.21
2003	0.90	4.91	0.45	11.14	15.30	8.39	28.27	4.19	40.76	37.66
2004	3.32	13.06	1.71	27.51	45.11	18.47	46.87	9.58	66.54	71.90
2005	0.92	4.93	0.44	10.84	16.23	9.06	28.50	4.59	40.30	39.80
2006	0.90	5.56	0.49	12.16	14.99	8.99	31.41	5.06	43.68	35.77
2007	0.91	5.09	0.37	10.81	15.21	9.27	29.27	3.72	40.61	38.81
2008	0.88	5.67	0.39	12.07	14.56	9.05	32.03	4.11	43.85	38.58
2009	0.95	6.00	0.46	12.57	16.20	9.24	31.68	4.42	43.07	40.15
2010	1.19	7.26	0.68	15.08	20.15	10.31	35.37	6.06	47.96	45.67
2011	1.17	6.99	0.44	14.31	20.87	10.35	33.94	4.04	45.88	47.82
2012	1.18	6.27	0.45	12.81	21.75	10.42	31.67	3.72	43.43	47.35
2013	1.19	7.02	0.65	13.96	19.21	11.09	35.11	5.86	46.73	45.47

Notes: The table reports the percent of employees that are top coded and their corresponding unadjusted wage bill share in the Censuses (1940-2000) and in the ACS (2001 and onwards). The unadjusted top coded wage bill share sums all top coded wages, and then divides by the total wage bill.