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

Ariell Reshef
CNRS, Paris 1, PSE and CESifo

Cailin Slattery
UC Berkeley, Haas School of Business

February 2025

Abstract

The employment share of legal services in the U.S. more than doubled during 1970–1990, in stark contrast to stability during 1850–1970 and after 1990. The relative wage of lawyers and law firm partners also doubled between 1970 and 1990. We argue that this demand shift was driven by important legislative and regulatory events, starting in the mid-1960s and lasting throughout the 1980s. These changes increased the scope of the law and uncertainty over legal outcomes. Consistent with this, we find that employment and compensation of lawyers are tightly correlated with federal regulation, fee-shifting statues and civil litigation, over a period of 100 years. These findings are supported by state-level and individual-level analysis. Other factors, e.g., changes in lawyers' quality, industrial composition and technology are not important determinants of the demand shift. We calculate that 40% of payments to legal services in 1990 are in excess of what they would have been had their *relative* income remained at 1970 levels. This represents an excess cost of 75 billion dollars in 2024 alone.

JEL classifications: J2, J3, N3, K00.

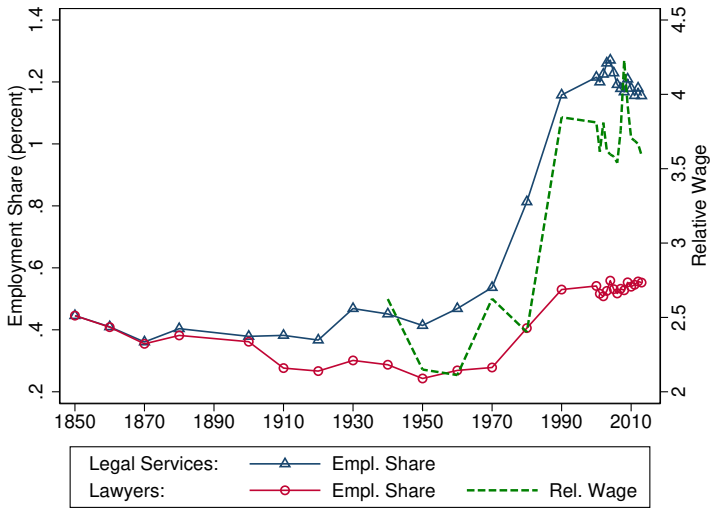
Keywords: legal services, lawyers, legislation, deregulation, litigation, labor demand.

*We wish to thank for useful comments Jess Benhabib, Boyan Jovanovic, Zvika Neeman, Gregory Verdugo and seminar participants at ETH Zurich, OFCE, Universite Paris-Sud, SKEMA Business School (Nice), the 11th Labex ReFi-NYU-SAFE/LawFin Law & Finance Conference, the NYU Law and Economics Workshop, the NBER's Economic Analysis of Regulation Spring 2024 meeting, Paris School of Economics, University of Bern, Cergy-ESSEC. Reshef acknowledges financial support from the Paris School of Economics (EUR PgSE) and CEPREMAP.

1 Introduction

Lawyers perform an indispensable role in modern democratic societies that are governed by the rule of law. They are considered the guardians of the justice system, they represent individuals, firms and the government, advise these entities about their rights and obligations, and perform the role of state verification in many aspects 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. We argue that the main contributors to these evolutions are changes in the legal environment via legislation and regulation.

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 of lawyers series includes lawyers and partners. Relative wages are imputed using BEA data on compensation of employees proprietors income, and full-time equivalent employment, and Census/ACS data on relative wages and employment shares of non-lawyers in legal services.

[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] Hadfield (2000) argues persuasively that the "price of law" far exceed the cost of providing it. 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.

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 is in stark contrast to the 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 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. In other words, employment in legal services grew in lockstep with total employment, apart from during those 20 years.

Figure 1 also shows that the increase in relative employment in legal services coincides almost exactly with an increase in the relative wage of lawyers in legal services. Within legal services, the relative wages of associate lawyers more than doubled in 1970–1990, while relative remuneration of all lawyers, including law firm partners, increased by 60% over the same period. Since these individuals 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. Evidence from micro level regressions corroborates these trends, including the timing of changes in the relative wages for lawyers and the flat relative wage of non-lawyers in legal services.

The increase in both the employment share and relative wages of lawyers implies a relative demand shift that outpaces supply of lawyers. We argue that the main contributors to the increase in demand for lawyers are changes in the legal environment. Other forces, such as increases in economic activity *per se*, patenting and firm density, do not contribute to this evolution, nor does relative ICT intensity of legal services. We do not observe a change in the quality of lawyers that could explain the increase in their compensation. Micro level analysis implies that changes in the demographic composition do not contribute to the evolution of lawyers' 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. More broadly, social regulation included environmental laws, workplace and product safety rules,

[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.

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 and litigation.[4] Olson (1991) has labeled this an expansion in the reach of the "invisible fist".

The second major source of change came in the form of economic regulation. Starting in the 1970s the U.S. embarked on a period of deregulation that persisted throughout the 1980s and early 1990s. The consensus at the time was that regulation of entry and prohibition of certain types of activities were keeping prices artificially high, benefiting regulated industries and not consumers. However, removal of such barriers and restrictions did 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).[5]

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 justice system and by increasing the effective intensity of regulation, these acts expanded the "market" for lawyers and demand for their services. This increase in market size is also associated with an increase in the ratio of lawyers to law firm partners, which we observe over time. 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. This mechanism works both through litigation as well as contractual relations. Moreover, most of the aforementioned acts were amended to include "fee-shifting" provisions that stipulate that if the plaintiff wins, the fees for the plaintiff's lawyer will be paid by the defendant. These fee-shifting provisions were enacted by the government in order to create an incentive for lawyers in the private sector to represent plaintiffs in "public interest" cases, which had an effect on the industry both through the quantity and price channels.

In principle, new legislation can avoid the need for legal intermediation and litigation, and even make existing legal activities unnecessary. This can happen when the dimension that new

[4]Miller (1978) discusses the origin of the 1966 revision of Rule 23 of the Federal Rules of Civil Procedure, which gave rise to the modern class action lawsuit in the U.S. Essentially, the rule changed the practice of requiring non-party class members to "opt-into" a damage class action—to the practice of giving those class members an opportunity to "opt-out" of a class action. This made it easier to mount large-scale litigation, involving many claimants. There is, however, controversy among legal scholars about the importance of this change in practice; see, for example, Miller (1979), Hensler (2001).

[5]Trade liberalization, which can be thought of as a form of deregulation, is also associated with greater legal and regulatory complexity, especially via the increase in behind-border provisions, or "depth", in preferential trade agreements (PTAs); see Mattoo et al. (2022). However, this is not an important source of the demand shift, since the rise in PTAs and in their "depth" starts in the mid 1990s. Moreover, only few lawyers specialize in international law and, specifically, in international trade.

legislation addresses is well-defined, easily verifiable and provisions are easy to enforce. But when there is difficulty in verification (either technical or pecuniary) and in enforcement, let alone in interpretation of the legal text, then new legislation may create scope for more legal activity. The acts discussed above are characterized by these features (Johnson, 2009).

Consistent with our hypotheses, we observe a very tight correlation between legal services intensities (employment, remuneration and the lawyer-to-partner ratio) and civil litigation intensity. 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 use case-level data to study federal litigation by the nature of suit, and we find sharp increases in case filings following the enactment of federal social regulations (e.g. the Civil Rights Act, the Clean Water Act, the Occupational Safety and Health Act). These data also allow us to demonstrate the importance of fee-shifting statutes. We observe litigation accelerating after the legislation is amended to allow fee-shifting, which can happen years after the passage of the original act.

We then 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 were more likely to be exposed to federal civil rights and environmental legislation saw larger increases in lawyers and larger increases in federal case filings related to these regulations. This pattern is also true for state-level deregulation in divorce and banking, as well as state-level legislation on employment protections.

Next, we assess the degree of "excess" cost of these reforms. We assume that the 1970–1990 increase in the employment share of legal services is efficient or socially desirable (e.g., due to increases in the scope of the law), whereas the increase in its *relative* price is not (e.g., due to inefficiently high costs associated with increased uncertainty in judicial outcomes, or, more generally, industry rents). We find that 40 percent of the increase in payments to legal services (including law firm partners, associate lawyers, and non-lawyers) are in excess of what they would have been had income per worker in legal services relative to the rest of the private sector stayed at its 1970 ratio (adjusting for increases in aggregate returns to college). To put things in context, this represents 75 billion dollars in 2024 alone.

Lastly, we investigate the incidence of these excess payments by estimating simple wage regressions. In line with the evolution of aggregate relative wages, we find that all the excess payments

that emerge from 1970 accrue only to lawyers, while non-lawyers working in legal services see no gains. 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 with incumbents. This pattern is difficult to reconcile with supply restrictions driving up wages for lawyers, and points to complex rent sharing arrangements within law firms.

Related literature. 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. With hindsight and longer time series, our paper shows that this cannot be the case. First, 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. Consistent with our paper, Rosen (1992) argues that demand drives the increase in quantity and wages in 1970–1980, and that supply of lawyers is elastic, at least in medium run. Rosen (1992) attributes part of the generally high wages of lawyers to the cost of their training (an argument that can be traced to Adam Smith's *The Wealth of Nations*). However, he does not consider whether or why this has changed over time. In fact, we do not detect any acceleration in law school fees in 1970–1990, and a calculation of the opportunity cost of law school exhibits a decline in the relevant sample period.[6]

The evolution in the number of lawyers and their remuneration is also documented by Sander & Williams (1989), which is the closest paper to our own. 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.[7] 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

[6] See appendix Figure E18.

[7] 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. We note that corporations may be sourcing 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). However, we do not find that industry has significantly increased its importance as a source of income for legal services, relative to households and the government; see Appendix D.

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.

The relationship between law firm internal organization and the market size is studied by Garicano & Hubbard (2007). Using the 1992 Census of Services Industries they find that 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 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 and regulatory environment affect relative demand for specific skilled or talented individuals and can be important factors behind the increase in their relative wages. These effects are more likely to be found in economic activities where asymmetric information and trust govern relationships in the market (credence goods). Philippon & Reshef (2012) and 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.[8] Trebbi et al. (2023) measure the cost of regulatory compliance

[8]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.

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-related task intensity.

Our finding that changes in the legislative environment increased the demand for, and remuneration of 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 lawyer-legislators are significantly more likely to support bills that benefit the legal profession, such as fee-shifting statutes. However, we do not find a significant change in the share of lawyers in Congress around 1970–1990.[9]

Lastly, our paper provides a different perspective on Ash et al. (2024), who find that increases in legal "provisions" (elements of statutes in legislation) cause greater growth across U.S. states. They interpret this finding as a reduction in the degree of contract incompleteness. Our paper suggests that such growth-enhancing legislation comes at a cost: employment and remuneration of lawyers.

The rest of the paper is organized as follows. The next section presents a set of empirical facts on the employment, renumeration and composition of legal services that we previewed in Figure 1. 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 to bolster the historical correlations and to identify specific channels through which changes in the legal system affect demand for legal intermediation. In the same section we also study the impact of state-specific regulatory events. In Section 5 we review other potential explanations for the increase in demand for lawyers. Lastly, in Section 6 we calculate an "excess cost" of legal services and investigate changes in the incidence of the lawyer wage premium in individual-level data. Section 7 offers concluding remarks.

2 Facts

We draw on several data sources in order to portray the evolution of legal services in the U.S.[10] 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 the Current Population Survey (CPS) in 1967–2015. These

[9] In fact, the share of lawyers in the House of Representative slightly declines during this period; see Figure E19 in the appendix.

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

data distinguish individuals within an industry by occupation and other demographics. 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. The main disadvantage of these sources 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.[11]

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 compensation.

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 by field of specialization in the aggregate and at the state level (for 28 states).[12]

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%; while for lawyers employed in legal services, the increase is from 0.28% to 0.53%.[13] 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.[14] These numbers change little when calculating employment

[11] 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.

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

[13] 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 E1(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.

[14] 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

shares out of total employment, including the public sector.[15] 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 series increase significantly in the 1970–1990 period.[16]

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 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 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 federal-level changes that affect state-specific intensities. In contrast, factors that affect relative state sizes (employment), while keeping the proportion

Depression. Below we investigate the relationship between legal services and banking deregulation.

[15] See Figure E1(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.

[16] See Figure E1(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.

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).

of lawyers fixed, are not 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 compensation among all employees in legal services to that in the other industries, $w_{nonlegal}$:

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

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

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 1.10 to 1.82, after which it remains approximately stable.[17,18]

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 make a simple top-coding adjustment. 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.[19]

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.[20] 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.[21,22]

[17] Relative wage data based on Censuses and the ACS broadly agree with this evolution; see Figure E3(a).

[18] This only includes wage income, not business income.

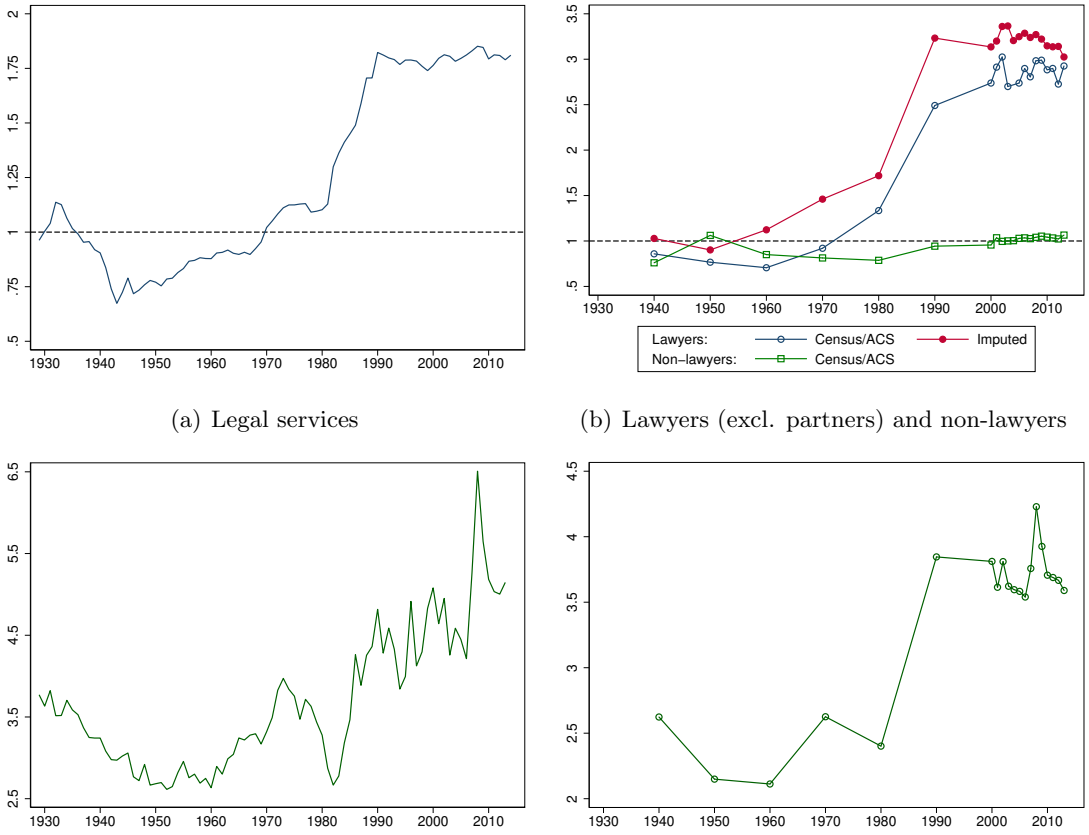
[19] We drop 2004 because it is an extreme outlier in terms of the number of top-coded wage observations. See Appendix A for more information on top coding in the censuses and ACS.

[20] 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.

[21] 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.

[22] One caveat with this approach is that the wage concept in the BEA data is labor compensation, while in the Census/ACS data several elements of compensation may not be represented. We have no way of correcting for this.

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. This 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 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, in order to infer the relative wage of lawyers in legal services. 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 of non-lawyers employed in legal services from the Census/ACS together with the employment and average income of all persons engaged in legal services using BEA data.

Figure 2(b) shows that 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 data, agree with each other so well.[23] 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 relative wage gains 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. These facts are corroborated in Section 6, which controls for demographics in individual-level wage regressions.

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 measures non-wage income. Figure 2(c) shows that $\omega_{partners|legal}$ drops from 1929 to 1950, remains flat until 1960, and then increases almost linearly, except for one big drop during 1978–1986. This is not driven by the number of proprietors, but by a drop in proprietors income, which a pattern that we see across industries, thus is not specific to partners in the legal services industry (see Appendix Figure E4).[24] In Figure 2(d) we incorporate proprietors' income into $\omega^{imputed}_{lawyer|legal}$: we add proprietors' income to the numerator of ω^{BEA}_{legal} in equation (4) and take into account all persons engaged in the denominator, rather than just employees. We find that this series mimics the lawyers' relative wage series in (b), but at a much higher level, reflecting the higher compensation of partners.[25]

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 a similar calculation to the one we used for the decomposition of

Therefore, the accuracy of Equation (4) relies on the assumption that the share of missing compensation items in the $w^{Cen/ACS}_{nonlawyer|legal}$ series is small.

[23] 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 $w^{BEA}_{nonlegal} > w^{cen/ACS}_{nonlegal}$.

[24] Using IRS data, both Sander & Williams (1989) and Rosen (1992) also find a drop in the proprietors' income in legal services around the same time that we do in the BEA data.

[25] 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.

employment shares (equation (1)), where $\Delta\omega$ is the outcome of interest instead of ΔS.[26] Appendix Table F1 reports the results for decomposing $\Delta\omega_{legal}$ across occupations (Panel A), across states (Panel B), and for $\Delta\omega_{lawyer|legal}$ across states (Panel C). The main message of Table F1 is that within-state and within-occupation changes in relative wages matter much more than changes in the composition of states' and occupations' relative sizes. This is despite large changes in the occupational composition of legal services over time (see Section 2.3 below). Evidence from micro-level regressions in Section 6 imply that changes in the demographic composition of lawyers do not contribute to the evolution of their wage premium, either. Moreover, the timing of changes in lawyers' wage premium that are implied by these regressions coincides with that seen in Figure 2.[27]

2.3 Composition of legal services

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

Figure 3(a) shows that 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. Inspection of the Census questionnaires makes clear that the virtual 100% lawyers' share in legal services in 1850 and the drop in their share later on are not mere artifacts; the high share of lawyers before 1900 does not capture secretaries and other legal assistants.

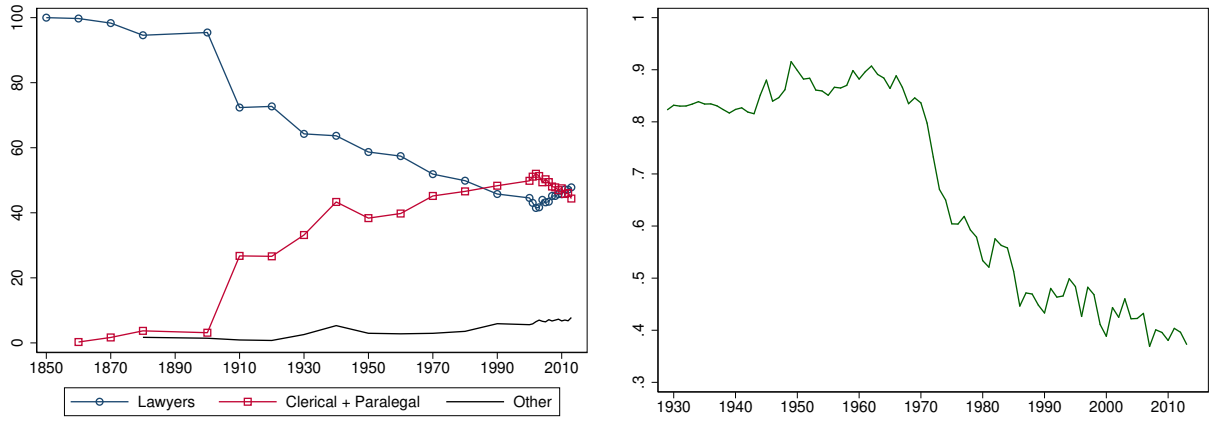
The sharp drop in lawyers' share within legal services and the commensurate rise of the share of clerical and paralegal staff in 1900–1910 coincides with the rapid diffusion of early information and communication technologies—telephones, typewriters, improved filing techniques, tabulation techniques, and sorting cards—as discussed in Yates (2000). These technologies were used intensively in legal services, raising the demand for (and use of) qualified clerical workers, 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.[28] However, ICT alone cannot

[26] See Appendix B for the formula.

[27] These regressions also confirm the flat relative wage of non-lawyers in legal services.

[28] 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.

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: In (a), 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, from the BEA. 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.

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 (see appendix Figure E14(a)).[29]

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 Figure 3(b). This ratio is stable around 0.85 until 1970, after which it drops sharply to 0.45 in 1990, and then continues to decline much more moderately. The implied increase in the ratio of associate 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

[29] 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.

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.

how the size of the market is associated with a higher ratio of associate lawyers to partners.[30] 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 track the specialization of lawyers from 1972 to 1992 at the aggregate level and for 28 states.[31] 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 increase in specialization coincides with an increase in the relative size of the legal services industry. The majority of the increase in specialization occurred in the 10 years between 1977 and 1987.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

[30]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.

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

decreases were Taxation and Wills. Corporate and Real Estate lawyer shares experienced increases of 23%, and Patent Law a modest 10% increase.[32]

As in Section 2.1, 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 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.

Appendix Table F2 reports the results of the field of law decompositions. The change in field of law from 1972 and 1992 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. Appendix Figure E1(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.[33]

[32]Using two surveys of lawyers in the city of Chicago alone, Heinz et al. (1998) show that the share of lawyers' time the corporate sector rose from 53% in 1975 to 61% in 1995, commensurate with a drop in the share devoted to personal law from 40% to 29%, respectively. Our data in Table 2 cannot speak to this split clearly due to the relatively large share of lawyers who work at non-specialized law firms. Interestingly, according to Heinz et al. (1998), the absolute number of lawyers in Chicago doubled between 1975 and 1995, about the same growth that we find in the aggregate employment data.

[33]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.

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 partially 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. Therefore, demand stems from the scope of law: as laws cover more dimensions of life, the market for legal intermediation grows. In addition, complexity and uncertainty about outcomes also increase the demand for and the cost of legal intermediation, as we illustrate in Section 3.1.

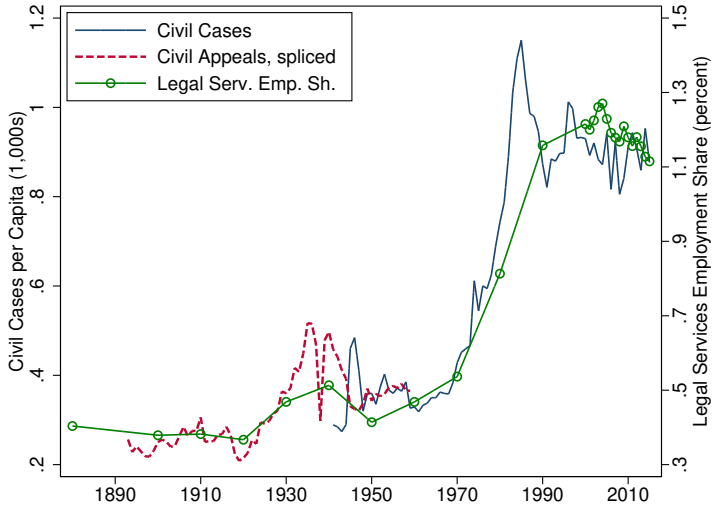
Our main explanation for the evolution of demand for legal services are changes in the legal and regulatory environment. Starting in the mid-1960s and continuing through the 1970s and 1980s the U.S. legislated a series of important acts, and added new regulations and fee-shifting statutes, which jointly (1) eased entry into the justice system, and at the same time (2) increased uncertainty about outcomes once the judicial process starts, while (3) increasing sensitivity of outcomes to effort.[34]

If the scope of the law increases, then we expect to see an increase in litigation in dimensions in which the scope has increased. We collected three historical series on litigation: civil cases filed, criminal cases files, and civil appeal cases filed. Data on civil and criminal cases filed in U.S. district courts 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 from HSUS.[35] We define litigation intensities as cases per 1,000 people. Since the important pieces of legislation that changed the legal environment are in the civil sphere, we expect to find an

[34] 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.

[35] 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/`.

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.

increase in litigation of civil cases. Indeed, criminal litigation intensity remains constant throughout the sample.[36]

In Figure 4 we plot the intensity of civil litigation alongside the share of employment of legal services.[37] The match between the two series is striking. In fact, we find a stable proportion of lawyers per case in the data.[38] Although these are only federal cases, it is consistent with a fixed litigation technology over the sample. 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.[39]

The discussion above suggests that an important driving force is the expansion of the scope of the law in the civil dimension. The timing and magnitude of the increase in civil litigation almost exactly fits the evolution of the employment share of legal services. Scholars writing in the late

[36] Appendix Figure E5 displays the historical evolution for civil cases, civil appeals, and criminal cases. Only civil litigation increases.

[37] 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.

[38] Appendix Figure E6 shows that the number of lawyers per case is relatively stable through the 1940-2010 period, on average 3.4 lawyers are employed for every federal case filed. While this ratio fluctuates a bit over time, it shows no discernible trend.

[39] Table 4 below makes 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.

1980s and early 1990s have described this as an "explosion" of litigation (Sander & Williams, 1989; Olson, 1991). In hindsight, we see that this is more a shift in intensity. 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 of legal services.

Next, we provide a theoretical framework to guide our discussion of the demand shift in legal services. We then introduce data on changes in the U.S. legal and regulatory environment, and explore the relationship between these historical series and the growth of employment and wages for lawyers, as well as with the composition, as measured by the ratio of associate lawyers to law firm partners.

3.1 Theoretical framework

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

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

We now consider how the nature of new laws and uncertainty affect outcomes and effort (measured how much one is willing to pay for legal services). Hadfield (2000) discusses how uncertainty about lawyer quality and about potential outcomes amplifies the wedge between the market price and the cost of legal intermediation. Fundamentally, due to the complexity and credence-good characteristics of the law, price will exceed cost when the legal work is not routine or standardized—and greater uncertainty amplifies this wedge. In addition, price will exceed cost because of the tournament characteristic of legal representation. When small differences in quality or effort lead to large differences in outcomes, the price is determined by the clients' willingness to pay, not the cost of delivering a service. Once again, uncertainty amplifies this wedge. Importantly, Hadfield (2000)

discusses how these features apply not only to litigation, but also to transactional legal work. For example, when negotiating a joint venture agreement, lawyers of each side try to outmaneuver each other by limiting the disclosure of negative information and use of vague language, while exploiting ambiguities in the law.

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 the relative success depends on the true degree of fault and the effort of each player. While they discuss their model in terms of litigation, we stress that the logic also extends to transactional legal work (Hadfield, 2000).[40] We describe the essentials of this model here, and in Section 3.3 we extend it to the case of fee-shifting.

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.[41]

Hirshleifer & Osborne (2001) solve the model under the so-called "American rule", where each party is assumed responsible for its own legal costs regardless of the outcome ("fee-shifting" statutes are deviations from the American rule; we solve the model in the presence of fee-shifting in Section 3.3). The cost of effort is specified as $C_i = \gamma L_i$. We think of C_i as payments to lawyers; this cost delivers C_i/γ units of effort in the legal battle. Lastly, the value of the lawsuit is a function of the probability of winning, the stakes J, and costs:

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

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

[40] We provide details on the model and how we extend it to address "fee-shifting" in Appendix C.

[41] This LSF has several desirable features, which are discussed in Hirshleifer & Osborne (2001). In (5) α governs the sensitivity of the outcome π to effort; a version that introduces a parameter that governs the sensitivity to merit delivers similar results to those we derive below.

If the two parties choose effort simultaneously to maximize their respective V_i, then the Nash equilibrium level of effort will be symmetric:

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

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 $C = \gamma L$. Since the solution implies $\pi = Y$, social waste is the total cost of litigation, $2\alpha JY(1-Y)$ (the stakes play only a role in inducing effort but are not a cost *per se*, because J is just a transfer from defendant to plaintiff).

Here we assume that lawyers' effort is observable (quantity and quality) and that the relationship to plaintiffs' and defendants' costs is linear (i.e., γ is a constant). Several features of the relationship between lawyers and clients imply that this is unrealistic.[42] While these features affect the nature of the relationship of costs to efforts, we do not have a theory on why these features may have changed over time in a way that can explain the facts in Section 2. As discussed above, the evidence is consistent with a constant ratio of lawyers per filled case over time. In contrast, we do have hypotheses about uncertainty and sensitivity to effort, so we maintain the linearity assumption for simplicity. In addition, Olson (1991) discusses the process of how, in some fields of the law, J has increased. All these increases in uncertainty, sensitivity, and stakes lead to an increase in demand for legal intermediation and costs spent on legal intermediation.

For simplicity, the model is solved simultaneously. One can solve the model sequentially, where the plaintiff determines effort first, and the defendant responds, taking into account the fact that there is no lawsuit unless the plaintiff introduces a claim. The solution to this Stackelberg game maintains the features that a higher sensitivity to effort and greater uncertainty about merit still increase effort and costs.[43]

The model demonstrates 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.[44] Next, we show how changes

[42]These include: complexity of the law and the legal procedure, the credence nature of the legal services, sunk costs and dynamics that lead to opportunistic behavior, the fixed-cost auction nature of the legal process that leads plaintiffs and defendants alike to continue investing even beyond the value the game, the sheer monopoly power of lawyers over their market, etc.

[43]In contrast with the Nash outcome, the solution to the Stackelberg game is not symmetric, and the player with more merit will exert more effort than the other player. Because merit and effort are complements, the outcome tilts in favor of the player with more merit. Furthermore, 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.

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

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. In what follows, we discuss the specific federal legislative acts that brought about changes in the legal environment in the United States. In Section 4 we discuss how some of these federal level changes affected U.S. states differentially.

3.2 Major legislation: Social Regulation

Starting in the mid-1960s and continuing through the 1970s and 1980s the U.S. federal government passed a series of important acts, all of which significantly changed the legal environment. This legislation has been called "social regulation", and includes environmental laws, workplace and product safety rules, civil rights laws, and consumer protection laws. This is different from economic regulation, which we will discuss separately below.

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 Safety and Health Act (OSHA) of 1970, the Clean Water Act of 1972, and the Consumer Safety Act of 1972. Their timing and cumulation are displayed in green in Figure 5(a). We argue that these acts and the resulting regulations contributed to demand for legal services through the channels we describe above. The Civil Rights Act, together with the Voting Rights Act of 1965, provided unprecedented protection against discrimination, and the ability to sue violations of equal opportunities and disenfranchisement.[45] In a nutshell, these acts increased the scope of the law and therefore—demand for legal services. In Section 3.3 immediately below we discuss how "fee-shifting" statutes reinforced the impact of social regulation on demand and remuneration for lawyers.

We analyze the composition of civil cases using case-level data, which is available from 1970 and on from the Federal Judicial Center's Integrated Database (IDB).[46] The case-level data include the name of the case, the date and district of filing, and the "nature of suit", which is the category used to classify civil cases filed in federal courts. Table 3 shows the composition of civil cases filed in 1970 and 1990, as well as the change between those two years. Civil Rights filings experience the largest increase, in terms of the share of total cases filed. The Civil Rights Act was passed in

[45] For example, the Civil Rights Act, as a by-product, created the basis for class action lawsuits; 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".

[46] The IDB data aggregate to exactly the level of the civil cases series used in Figure 4.

Table 3: Nature of Suit in Civil Cases: 1970-1990

	% of Civil Cases		
Category	1970	1990	Δ
Civil Rights	5.52	9.13	3.61
Prisoner Petitions	17.92	20.80	2.88
Labor	4.66	6.71	2.05
Social Security	1.86	3.18	1.33
Real Property	3.61	4.39	0.78
Property Rights	2.46	2.65	0.18
Contracts	20.16	20.13	-0.03
Other Statutes	15.66	14.02	-1.64
Torts	28.06	18.98	-9.08

Notes: The table shows the per-capita civil filings, by nature of suit, in 1970 and 1990. The source of the data is the Federal Judicial Center Integrated Database. The nature of suit are defined by the federal court, and the plaintiff is required to choose a nature of suit when they file. There are 12 primary categories, as well as an "Other Statutes" catch-all. We include categories with less than 2% of the share of cases with the "Other Statutes" category (this includes Bankruptcy, Federal Tax, Immigration, and Penalty/Forfeiture). Appendix Figure E11 shows the time series for the six largest nature of suit categories.

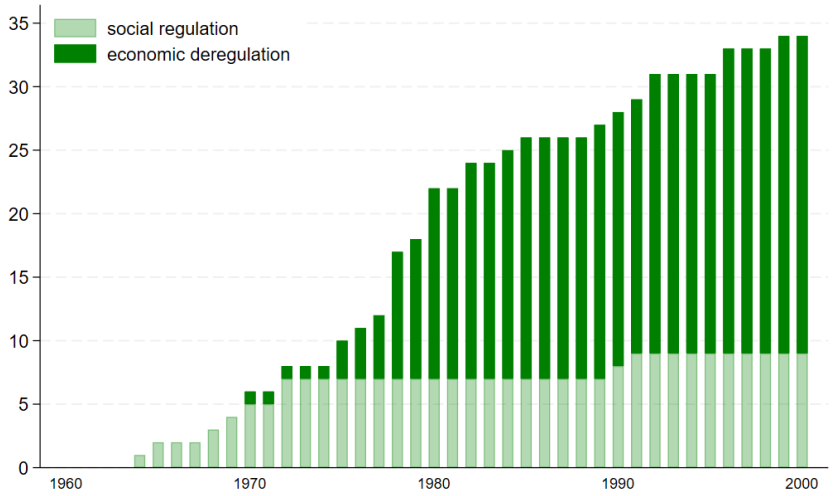
1964, and in the next year there were 1,123 cases related to Civil Rights filed in Federal Courts.[47] In 1970, 4,926 Civil rights related cases were filed and by 1990 there were 18,689 filings, an increase of over 1500% from 1965.

Another leading example of how social regulation increased demand for legal intermediation is in environmental protection. 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 of 1969, which Liroff (1976) considered "the most sweeping environmental law ever enacted by a United States Congress."[48] 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 1,200 pages of federal regulations. Figure 5(b) shows the overall 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.

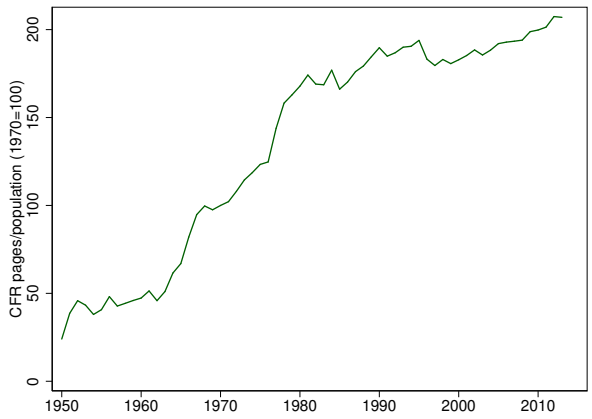
[47]This precedes the case-level data availability, we take this from an article on the effect of the Civil Rights Act on litigation from the US Courts website (`https://www.uscourts.gov/data-news/judiciary-news/2014/06/09/over-two-decades-civil-rights-cases-rise-27-percent`).

[48]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)).

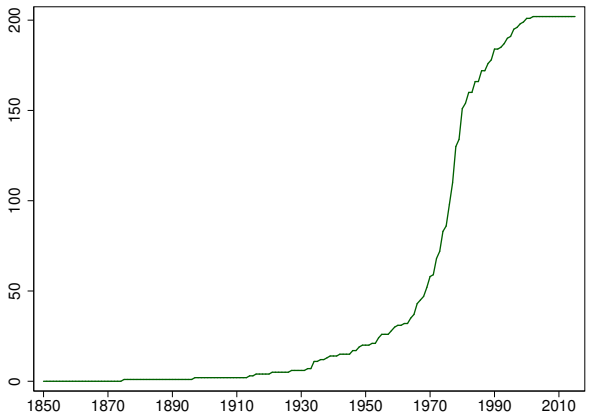
Figure 5: Social Regulation, Economic Deregulation, and Fee-Shifting



(a) Timing of Social Regulation and Deregulation Events



(b) Pages of Federal Regulation



(c) Cumulative Fee-Shifting Statutes

Notes: Figure (a) shows the cumulative number of legislative acts or events pertaining to social regulation and economic deregulation. Appendix Table F4 includes the dates and names of all of the events. Figure (b) 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. The source for CFR pages is the Federal Register Statistics. Figure (c) shows the cumulative introduction of legislation with fee-shifting statutes. The source for the timing of fee-shifting statutes is Derfner & Wolf (2012).

At the same time, the NEPA was written in broad language, leaving many open-ended issues to be clarified in courts. According to Johnson (2009), the NEPA was written more like "constitutional prose" (page 369) than like detailed lawmaking. Appendix Figure E12(a) shows that before the NEPA was passed there were no "Environmental Matters" cases. In 1972, soon after NEPA was passed (and the same year as the Clean Water Act), 126 federal civil cases were filed for "Environmental Matters." By 1992, 20 years later, that number had increased ten-fold to 1,252. We observe a similar pattern for cases filed for occupational health and safety matters in Appendix Figure E12(b). Before the OSHA was passed in 1970 this category of filings did not exist.

3.3 Fee-shifting

When Congress enacted major social regulation acts, there was a concern about the government's capacity to enforce them. In order to address this, Congress enacted "fee-shifting" statutes, which allow 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 so-called "American Rule," which dictates that lawyer fees are to be only paid by the party that hires the lawyer (Vargo, 1992). The typical fee-shifting statute stipulates that the plaintiff's lawyer will be paid by the defendant if they win the case. We defer to Appendix C for a discussion of the so-called "English rule," in which fee-shifting applies to both parties, where the losing side always pays for the legal fees of the winning side.

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). We extend the Hirshleifer & Osborne (2001) model to incorporate fee-shifting and find that these rules indeed increase payments to lawyers.

We characterize the Nash equilibrium for the case of fee-shifting in the Hirshleifer & Osborne (2001) model. The only change to the model discussed in Section 3.1 is that the values of the lawsuits for each side change. The plaintiff chooses L_p to maximize

$$V_p = \pi J - (1 - \pi)\,\gamma L_p, \tag{8}$$

where the plaintiff pays the costs only if she loses, with probability $1 - \pi$, and π is still given above

by equation (5). The defendant chooses L_d to maximize

$$V_d = \pi(-J) - \gamma L_d - \pi\gamma L_p, \tag{9}$$

where the defendant always pays her fees, as well as the fees of the plaintiff if the plaintiff wins, with probability π. The equilibrium is characterized by an implicit function which has no analytical solution.

We take a numerical approach, and assume α, the sensitivity of the outcome to effort, is 0.5. We find that fee-shifting leads to increases in total costs and greater payments to lawyers compared to the version of the model without fee-shifting. Figure 6 shows the results of this exercise for effort, as we vary the merit of the plaintiff, Y. The effort of the plaintiff is always greater than in the case without fee-shifting, by a large margin. The defendant's effort is also higher, unless the plaintiff's merit is very high (the non fee-shifting effort, which is the same for both defendant and plaintiff, is shown in green). Because fee-shifting increases the effort and costs of the plaintiff more than for the defendant, it therefore tilts the probability of winning towards the plaintiff (Appendix Figure C1).[49] As costs are a function of effort, total costs increase substantially, due to the increased effort of the plaintiff (Appendix Figure C5).

By increasing predicted payments to lawyers, not only did the fee-shifting statutes create an incentive for private sector lawyers to represent plaintiffs in litigation, they also increased total costs, including on lawyers of the defendants. In order to evaluate this claim we use data from Derfner & Wolf (2012), who index each fee-shifting statute passed at the federal level. The timing of these statutes is documented in Figure 5(c).[50] 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".[51]

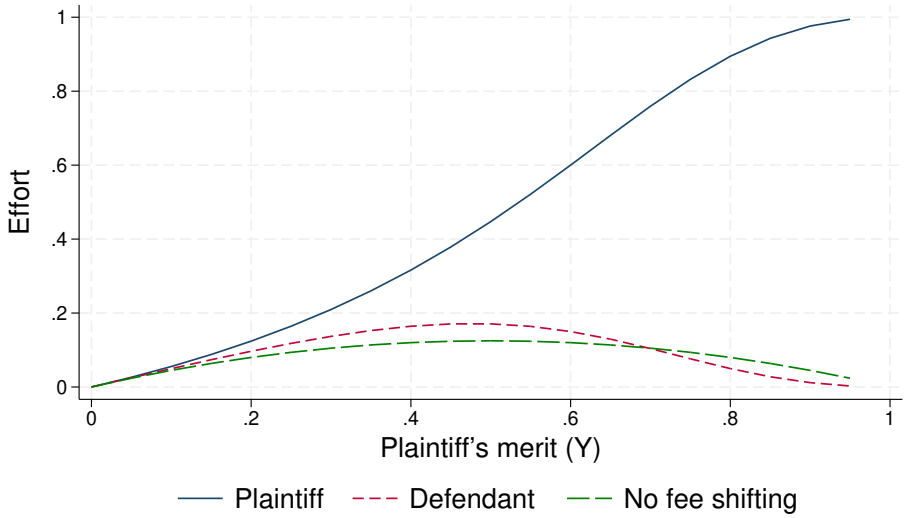
We document the relationship between fee-shifting and legal activity, by way of litigation. In order to do this, we leverage the differential timing of fee-shifting statutes and the legislation to which they are applied. Importantly, these do not coincide. We provide two examples. The first is

[49] On net, expected costs for the plaintiff ($(1-\pi)\gamma L_p$) are lower, while they are higher for the defendant, except when the plaintiff's merit is very high. Defendants in social regulation litigation with fee-shifting statutes are sometimes 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. We ignore this complication in our analysis of the model.

[50] In a sense this is also a (lagged) measure of legislation, given that the fee-shifting statute accompanies legislation, though sometimes years later.

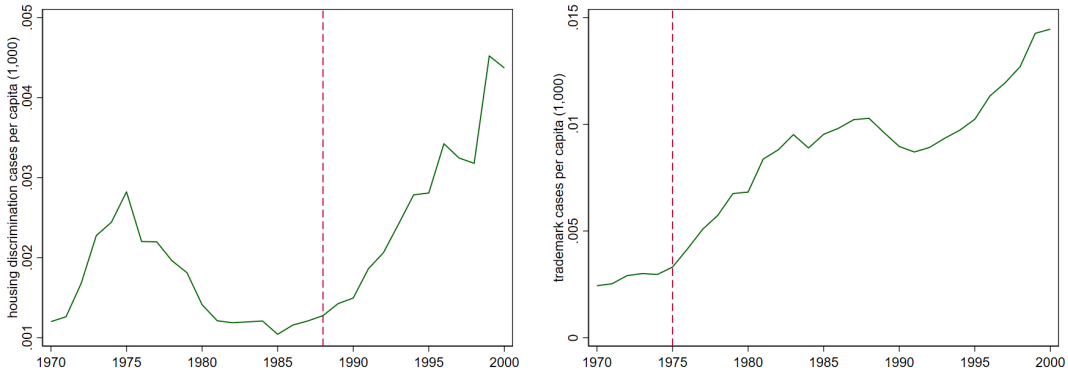
[51] We report more statistics on fee-shifting statues by type in Appendix Table F7 and Figure E7.

Figure 6: Lawyer Effort with and without Fee-Shifting



Notes: This figure shows the equilibrium effort of plaintiff (blue solid line) and defendants (red dashed line) in the Hirshleifer & Osborne (2001) model that we extended to add fee-shifting. The equilibrium effort without fee-shifting is symmetric, so the effort for both the plaintiff and defendant is shown with the green dashed line. The figure shows the effort of the plaintiff increasing substantially in merit. Effort is normalized to the stakes divided by the cost of effort (J/γ). The sensitivity of the outcome to effort, α is assumed at 0.5. More details on the model and further results of the numerical exercise are in Appendix C.

Figure 7: Civil Case Filings and Fee-Shifting Provisions



(a) Civil Rights: Housing

(b) Property Rights: Trademark

Notes: The figure shows the per capita civil filings for two specific nature of suits that we can link to federal legislation and fee-shifting: "Civil Rights: Housing" and "Property Rights: Trademark", which are associated with the Fair Housing Act and Lanham Act, respectively. The year is the year the case was filed. The dashed line denotes the year the fee-shifting amendment was introduced. Both of the acts were passed before 1970, which is the first year of the data. The source of the data is the Federal Judicial Center Integrated Database.

housing discrimination. The Fair Housing Act was passed in 1968 (a part of the Civil Rights Act of 1968) in order to protect people from housing discrimination. However, the fee-shifting statute for the Act was not introduced until the amendment in 1988. Figure 7(a) shows that the number of cases filed under the applicable nature of suit ("Civil Rights: Housing") increase markedly post 1988. The same pattern holds for trademark law in Figure 7(b), which is governed under the Lanham Act of 1946. Trademark cases increase post 1974, when the fee-shifting provision was first introduced (further amendments to this fee-shifting provision occurred in 1984 and 1996).

3.4 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 demand for legal services. It has been argued that "deregulation" is a misnomer: deregulation does not imply that there is no public regulation of an industry; instead, it introduces a different legal framework (Kearney & Merrill, 1998), i.e., deregulation is a change in the regulatory environment. When an industry is regulated, the regulator's role is simple: 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 changes to maximizing competition between providers. However, deregulation does not imply *laissez faire*. Rather, deregulation involves a change from clear limits on actions to a regime with a new set of rules that dictate and characterize the permissible actions of competitors.

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, sometimes 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 of business self-regulation was ineffective."

Economic deregulation events at the federal level affected transportation (air, rail, trucking),

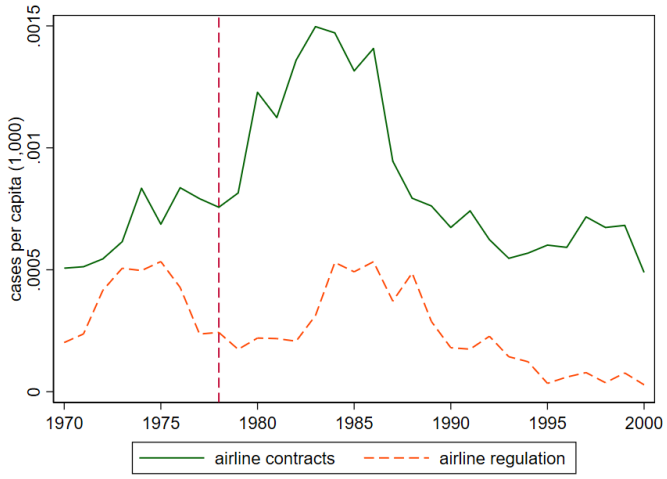
telecommunications (cable television, phone), financial services (banking, securities) and utilities (electric, gas, oil) industries. Figure 5(a) summarizes the timing of these events. While the social regulation legislation discussed in the last subsection was passed in the late 1960s through the mid-1970s, economic deregulation events followed through the 1970s and 1980s, after which they became much less frequent, with only the Telecommunications Act of 1996 and the Gramm-Leach-Bliley Act of 1999 taking place in the 1990s.[52] We note that the federal regulatory regime, as measured by pages of regulations per-capita, only increases during this period of deregulation (Figure 5(b)).

In short, deregulation can increase both the number of regulations that need to be taken into account and the complexity of the regulatory environment, therefore increasing uncertainty over legal outcomes. In contrast, when there was a regulator approving prices of each firm, there was little confusion over what price or terms may be allowed. Take as an example the regulation of the airline industry. 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. Although the deregulation of the airlines has been broadly celebrated as a success, it did not preclude an increase in 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.[53]

Figure 8 shows the evolution of civil cases related to the airline industry. First, consider the "Airline Regulation" cases. These are cases that are directly related to the regulation of the airlines, with the U.S. government as the plaintiff bringing cases against parties in violation of those regulations. This series is dwarfed by the number of contract cases that involve airlines. These are not cases brought by the government; instead they are cases involving two private parties in a contract dispute. The figure shows that there is a prolonged period of high litigation activity in the industry during the 5-10 years following deregulation, perhaps due to the increased uncertainty brought about by the new regime. Deregulation did not bring an end to litigation in the industry, in fact it lead to a significant increase. 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).

[52] See Appendix Table F4 for a detailed timeline, with the act or event name, date, and affected industry.
[53] There are 741 results when one searches 'airline' in the current version of the Code of Federal Regulations.

Figure 8: Civil Cases Filings and Airline Deregulation



Notes: The figure shows the per-capita civil filings related to the airline industry. The source of the data is the Federal Judicial Center Integrated Database (IDB). There are two series plotted: airline regulation cases, in the dashed orange line, and airline contracts cases, in the solid green line. "Airline Regulation" is a nature of suit in the IDB, while "Airline Contracts" cases are defined as any case under the nature of suit "Other Contract" involving an airline. The deregulation of the industry occurred in 1978, marked by the dashed vertical line.

In the next section we relate our series on litigation, federal regulation and fee-shifting to the historical data on employment and wages of lawyers.

3.5 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.

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

$$\Delta y_t = \alpha + \beta \Delta x_{t-5} + \varepsilon_t, \tag{10}$$

where Δy_t are changes from t to $t+5$ and Δx_{t-5} are changes from $t-5$ to t. We compute Newey-West standard errors that allow for autocorrelation up to 5 lags and are robust to heteroscedasticity.[54]

Table 4 presents the results of estimating Equation (10). Each of the three historical series (federal regulation, fee-shifting, and civil cases) are positively correlated with our outcomes of

[54]The results are robust to using 4 or 6 year lags instead of 5 years (for both variables construction and standard error calculation).

interest, and these correlations are almost always statistically significant. In contrast, other control variables (measures of taxes, innovation, and economic activity) are not consistently associated with these outcomes. All of the series are normalized to have mean 0 and standard deviations of 1. For example, a 1 standard deviation greater increase in federal regulation predicts a 0.4 standard deviation increase in lawyers' employment shares over the next five 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. We also find strong effects on the ratio of associate lawyers to law firm partners, consistent with an increase in the market size for lawyers and the information hierarchies mechanism in Garicano & Hubbard (2007).

Changes in the number of fee-shifting statutes and civil cases per capita are strongly predictive of future changes in employment shares, relative wages, and composition of lawyers. Federal regulation per capita is also strongly predictive of changes in the employment share of lawyers, at a slightly lower level than litigation and fee-shifting. However the regulation series does not exhibit the same relationship with relative wages. Weaker results for regulation may be simply due the shorter sample, or the fact that pages per capita do not measure the complexity (or uncertainty) in the underlying regulatory text. The strong result for wages and fee-shifting is consistent with 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 Figure E13 and associated table we report the estimates of a version of equation (10), with our measure of litigation as the dependent variable. The sample coincides with the one in Column (2) of Table 4. We find that fee-shifting statutes are strongly correlated with future litigation intensity: a one standard deviation increase in fee-shifting satutes is followed by a 0.6 standard deviation increase in litigation intensity over the next five years. None of the other potential explanatory variables are correlated with changes in litigation per capita, over the period of 1913 to 2013.

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. Below we exploit variation across states to provide further evidence of this relationship.

Table 4: Employment Shares, Relative Wages, and Associate Lawyer Intensity

	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)
R-squared	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
Observations	54	91	91	54	91	91	54	69	69	54	69	69	54	80	80

Notes: This table reports the relationship between changes in outcomes for lawyers and for legal services and changes in variables that can potentially explain demand for lawyers in legal services, at the national level. The dependent variables are changes in employment shares, in relative wages, or in the ratio of associate lawyers to law firm partners from t to $t+5$. The predictive variables are in changes from $t-5$ to t. The sample period spans from 1893 to 2015 for employment, 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4 State-level variation

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 state-level variation in predicted effects (potential exposure) due to federal regulation, and then exploit cross-section and time-series variation in state-level regulations.

4.1 Exposure to federal legislation: The case of Washington, D.C.

If federal legislation and deregulation acts were important drivers of the increase in the demand for legal services, then we would expect to see a differential effect in locations with more exposure to the federal government. This naturally leads us to compare the change in legal services and in lawyers' employment shares in Washington, D.C. to those shares' evolution in other states. All states experienced an increase in legal services' employment share between 1970 and 1990: the mean increase was 0.57 percentage points with a standard deviation of 0.42. In Washington, D.C. the increase of legal services' employment share between 1970 and 1990 was 3.33 percentage points, over five times the average increase (Appendix Figure E8(a)). In the aggregate, the employment share of legal services increased from 0.53% to 1.15% from 1970 to 1990. In Washington, D.C. the legal employment share increased from 0.82% to 4.15%, while the share of lawyers increased from 0.57% to 2.44% (Appendix Figure E8(b)). In this period of major federal social regulation and deregulation, lawyers were attracted to the federal capital in greater intensity than to any other state, by a wide margin.

The significant increase in lawyers and legal employment in Washington D.C. does not include lawyers in government. In 1970, there were roughly equal numbers of lawyers in government and the private sector in Washington.[55] By 1990, there were 2.3 lawyers in the private sector for every lawyer in government (Figure E8(c)).[56] Of course, employment in Washington, D.C. makes up a tiny fraction of total U.S. employment, so this does not account for much of the aggregate increase in the shares of legal services and of lawyers. However, the differential effect in D.C. is suggestive of the role of federal legislation in driving demand for lawyers. Moreover, fee-shifting statutes that accompanied the federal legislation had, by design, the effect of increasing the demand for private sector lawyers, instead of expanding the employment of lawyers in government.

[55] Per the 1970 Census, there were 4,800 lawyers employed in government and 4,500 lawyers employed in the private sector, of which 3,900 were in legal services and 600 in industry.

[56] Per the 1990 Census, there were 3,941 lawyers in government in D.C., 7,604 in legal services, and 1,412 in industry.

4.2 Effects of federal legislation at the state-level

As discussed in the previous section, a series of major acts were introduced at the federal level in the late 1960s and early 1970s. These were important and complicated regulatory initiatives, which spanned the environment, worker safety, and discrimination. Here we focus on federal regulation concerning discrimination and 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 Civil Rights Act of 1968 was meant to expand the Civil Rights Act of 1964, to prohibit housing discrimination and enable the enforcement of housing rights. 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 fit prediction regressions, in which we measure a state's propensity to respond to new federal legislation due to the enforcement of civil rights protections with the change in the share of state employment that is black. The data on state employment and demographics are from the U.S. Censuses. The dependent variable is the change in the share of lawyers in legal services in total state employment. We consider changes over 10 and 20 years, corresponding to time lags between decennial Censuses. The regression takes the following form:

$$\Delta\left(\frac{\text{lawyers in legal services}}{\text{employment}}\right)_{s,t+d} = \alpha_s + \beta\Delta(\text{black employment share})_{s,t} \times \text{Jim Crow}_s + \varepsilon_{s,t}, \quad (11)$$

where $\Delta X_{s,t+d}$ is the change in X_s from t to $t+d$, and $d = 10$ or 20 years. We interact the change in black employment share with a dummy for whether the state is a "Jim Crow" state (as defined by states that segregated schools by law prior to Brown v. Board of Education).[57] We include this interaction in order to control for the entrenched racism and history of segregation in these states that leads to differential trends in black employment and differential response to civil rights legislation (Johnson & Robbins, 2001; Hornbeck & Naidu, 2014). This regression is run for $t \geq 1960$, and we include state fixed effects, α_s, to absorb state-specific trends. Because the civil

[57] Historically, all states had some "Jim Crow" laws. This definition aims to capture states with more entrenched segregation that may be differentially treated by the Civil Rights Act. The list of states that fall under this definition are AL, AR, DC, DE, FL, GA, KY, LA, MD, MO, MS, NC, OK, SC, TN, TX, VA and WV.

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 5 display the results. When state black employment share increases by 1 percentage point, the change in lawyers employment share increases by 0.032 percentage points in the next 10 years, and by 0.030 percentage points in the next 20 years. 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.

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, the establishment of the EPA in 1970 and the Clean Water Act in 1972. 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: 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.[58]

We fit prediction regressions similar to Equation 11, 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:

$$\Delta \left(\frac{\text{lawyers in legal services}}{\text{employment}} \right)_{s,t-d} = \alpha_s + \beta \Delta (\text{dirty industry GDP share})_{s,t} + \varepsilon_{s,t}. \tag{12}$$

Our sample starts in 1970, due to data limitations on state-industry level GDP before 1963. We include state fixed effects α_s to absorb state-specific trends.

Columns 3 and 4 in Table 5 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 0.008 percentage point increase in the change in lawyers' employment share in the next 10 years. The effect is more than double (0.023 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 0.063 or 0.061, respectively.

[58] 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.

Table 5: State-level Demand for Lawyers in Legal Services

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	10 years
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Federal legislation:									
Δ Black employment share$_{t-d}$	0.032**	0.030***							
	(0.014)	(0.010)							
Δ Black Emp$_{t-d}$ × Jim Crow$_s$	-.024	-.016							
	(0.018)	(0.014)							
Δ Dirty industry GDP share$_{t-d}$			0.008***	0.023***					
			(0.003)	(0.004)					
State legislation:									
Δ Unilateral Divorce with Separation$_{t-d}$					0.102***				0.086***
					(0.017)				(0.016)
Δ No-Fault Unilateral Divorce$_{t-d}$						0.101***			0.037
						(0.025)			(0.024)
Δ Wrongful Discharge$_{t-d}$							0.028*		0.002
							(0.014)		(0.014)
Δ Unrestricted Intrastate Branching$_{t-d}$								0.050*	0.053**
								(0.027)	(0.027)
R-squared	0.04	0.12	0.08	0.24	0.06	0.04	0.01	0.02	0.08
Observations	253	200	204	102	353	353	353	353	353
State fixed effects	×	×	×	×	×	×	×	×	×
Years (t)	1960-2000	1960-1990	1970-2000	1980-1990	1940-2000	1940-2000	1940-2000	1940-2000	1940-2000
Mean Dependent Variable	0.052	0.126	0.063	0.061	0.033	0.033	0.033	0.033	0.033

Notes: This table presents the results of bilateral regression of pre-period differences on next period differences. The sample for each regression is noted in the row labeled "Years". 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. Within R-squared are reported. * p< 0.1, ** p<0.05, *** p<0.01.

Table 6 provides some evidence for the mechanism by which federal legislation increases state-level employment in legal services. Here, we fit the same regressions as Columns (1)-(4) in Table 5, but use changes in federal case filings as the dependent variable. Each federal civil case is filed in a district court, which corresponds to a state (or a region within a state). Therefore, we can track federal civil litigation filed by state, for both "Civil Rights" and "Environmental Matters". Table 6 shows there is a strong relationship between federal legislation "exposure" and federal litigation, at the state level. Changes in black employment share are followed by substantial increases in civil rights litigation, and changes in dirty industry GDP shares are followed by substantial increases in environmental litigation. This is an additional piece of evidence for the link between legislation, litigation, and the demand for lawyers; states that are more exposed to federal regulations experience increases in the litigation related to this legislation and increases in the employment share of lawyers.

Table 6: Federal Litigation in the States

	Δ Civil Rights Litigation$_{t+d}$			Δ Environmental Litigation$_{t+d}$	
	$d = 10$	$d = 20$	$d = 10$	$d = 10$	$d = 20$
Δ Black employment share$_{t-d}$	1.860	1.081**	2.187**		
	(1.230)	(0.540)	(0.939)		
Δ Black emp.$_{t-d}$ $\times$ Jim Crow$_s$			-0.338		
			(1.586)		
Δ Dirty industry GDP share$_{t-d}$				0.389	1.877*
				(0.237)	(1.047)
Within R-squared	0.15	0.30	0.15	0.25	0.50
Observations	204	151	204	255	102
Mean Dependent Variable	2.003	5.515	2.003	0.041	-0.518

Notes: This table presents the results of bilateral regression of pre-period differences on next period differences. The outcome variable is the change in per-capita (100,000) civil rights litigation (Columns (1)-(3)) and per-capita (100,000) environmental litigation (columns (4) and (5). Cases are assigned to the state of the district court where they are filed. Source for case data is the Federal Judicial Center Integrated Database.

4.3 State-level legislation and regulation

We now turn to 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 5.

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 remove barriers to getting a divorce, relative to the state's previous policy.

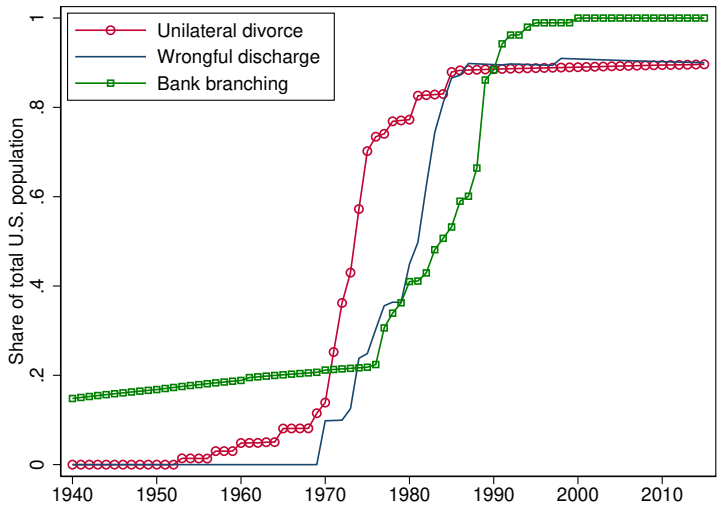
Next, we consider state-level employment protections. Wrongful discharge laws limit the ability of an employer to fire an employee. We use data on state enactment of wrongful discharge legislation from Autor et al. (2006) to study whether giving employees more rights, which often come in the form of legal recourse, had an effect on legal activity in the state.[59] Figure 9 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.[60]

States also played a role in bank deregulation. This can be seen in Figure 9, where we add the dates of bank branching deregulation, which took place from the mid-1970s and throughout the 1980s, ending in the early 1990s. 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

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

[60]Figure E9 display the proliferation across U.S. states over time of types of no-fault divorce "deregulation", wrongful-discharge laws, and bank branching deregulation, respectively.

Figure 9: 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).

changes to allow unrestricted intrastate branching—a bank can open branches anywhere within a state—on relative demand for lawyers.[61]

As in the previous section, the state legislation change regressions take the following form:

$$\Delta \left(\frac{\text{lawyers in legal services}}{\text{employment}} \right)_{s,t} = \alpha_s + \beta \Delta(\text{legislation})_{s,t-d} + \varepsilon_{s,t} \ , \tag{13}$$

where $\Delta X_{s,t}$ and $\Delta X_{s,t-d}$ are defined above and state fixed effect α_s absorb 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 legislation, so there are no incidences of -1).[62]

[61] 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, 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.

[62] Figure E10 in the appendix reports the years of deregulation events. This demonstrates that the timing of divorce deregulation, wrongful discharge regulation and bank branching deregulation took place in three distinct waves: the 1970s, early 1980s and late 1980s/early 1990s, respectively. This motivates studying these types of legislation separately. On the other hand, the timing makes identification difficult, as legislation events for a specific type often take place in several states at the same time.

Columns (5) through (9) in Table 5 present the results. States that pass legislation to allow unilateral divorce with separation in the past decade experience a 0.102 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 0.101 percentage points.[63] The passage of wrongful discharge legislation at the state-level is associated with a 0.028 percentage point increase in the change of lawyers' employment share in the next decade. The switch to allow unrestricted intrastate banking in the past decade predicts a 0.050 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 0.033, these correlations are economically significant, the divorce change predicts an effect 3 times above the mean change over the 1940-2000 sample, and 0.80 of the mean using the change in 1970-1990.[64,65] Later in this section we show that state-level deregulation of divorce is associated with an increase in lawyers practicing domestic law in the state.

It is difficult to jointly estimate effects of all state-level legislative events due to the overlap in timing (see Figure 9). When we include all of the state-level events, in column (9), changes in unilateral divorce regulation and unrestricted bank branching deregulation remain statistically significant, but the changes in wrongful discharge coincide with the changes in these other two events. Event studies (using two-way fixed effects) are also difficult to justify, since we cannot claim that any of the deregulation events are the only thing happening, i.e., the parallel trends assumption is almost certainly violated in this setting.

However, we are able to provide more evidence by evaluating whether specific types of state-level legislation affect corresponding fields of law. To do this, we exploit the same legislation events, but change the dependent variable using the underlying data for Table 2. We have data on 11 unique fields of practice of the law, as defined by the Census of Services, but only a few match to our deregulation events of interest. Specifically, we can study the relationship between

[63] 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 (13) when $d = 20$. Untabulated regressions confirm this conjuncture.

[64] 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)–(9) consider other decennial changes, where there are not large increases in the dependent variable.

[65] The mean of the dependent variable from 1940-2000 is a little deceptive, as it masks the large change in the middle of the sample. The average change for the 1970 and 1980 decades is 0.125. This would imply a divorce "effect" that is 80% of the mean.

divorce deregulation and lawyers' specialization in domestic law, wrongful discharge legislation and specialization in "other" law (as employment law does not have it's own category), and banking deregulation and with specialization in banking law. Appendix Table F8 shows that there is a strong correlation between the state deregulation events and lawyers' specialization in that field of law, suggesting the relationship between these state-level regulations and the total state employment share of lawyers are not spurious.[66]

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 review other potential explanations—which we do not find evidence for—that could explain a rise in demand for legal services, before quantifying the social cost to the increase in lawyers' compensation.

5 Alternative 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 and internal organization. Using Fixed Assets tables from the BEA, we compute the relative ICT intensity in legal services versus the rest of the private sector.[67] Appendix Figure E14(a) displays this measure, where we see that legal services 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.[68]

Industry composition. We ask whether changes in the composition of industries or in their legal services intensity can help explain the increase in the observed share of legal services. In order to assess this, we use a simple accounting model that attributes industry output to demand for final goods (including net exports) coming from households, the government and investment via input-output linkages (Leontief, 1936). We fix the input structure and value-added intensities of

[66] We do not see a relationship for the more demanding specification in differences (Appendix Table F9).

[67] See appendix on details for this computation.

[68] According to this measure, legal services before 1995 are roughly as ICT intensive as the rest of the private sector until 1995.

the economy in 1970 and apply this to final goods demand in 1990. This gives us counterfactual shares in GDP that are driven by changes in industrial composition.[69]

We apply this exercise to data from the Bureau of Economic Analysis' Industry Accounts. The GDP share of legal services increases by 0.7 percent points from 1970 (0.7 percent) to 1990 (1.4 percent). We find that change in industry composition account for only 23% of increase in legal services share in GDP. The remainder is driven by within-industry increases in intensity of legal intermediation.

Using the same data and methodology we study changes in the composition of direct "destinations" of legal services output as share of total. We find that overall, industries increase their share of legal services output by only 1.3 percent points from 1970 (56.4%) to 1990, while the share of legal services paid directly by households and the government drops by 1.3 percent points.[70] The increase in industry versus households and government as buyers of legal services explains little of the rise in legal services value added share (in contrast to claims by Sander & Williams, 1989; Hadfield, 2000).

Firm density. We consider the number of firms as a potential explanation for demand for legal services. Given the overall size of the economy, when the number of firms increases so may demand for legal services, because more activity occurs between firms, rather than within them.[71] 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 E14(b) displays the number of firms per capita.[72] Overall, after the secular increase in 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 4. Even if the number of firms does not correspond to our indicators of legal services, a reduction in concentration may increase demand if less economic activity is concentrated within the boundaries of only a few firms. However, recent figures from Kwon et al. (2024) imply that corporate concentration has steadily increased over the last 100 years, with no change in trend starting around 1970.

[69] See Appendix D for more details.

[70] Industries that increased most include retail, finance, insurance, real estate, health, food services, computers and electronics, chemicals.

[71] 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.

[72] 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).

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 shows that the share of IPR ("Patent") 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 E14(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 4 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 doubled 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. 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 (Hadfield, 2000).[73]

We plot law school tuition, and law school "relative cost" in Appendix Figure E18. We do not see any differential trend in law school tuition in 1970-1990, or post 1990. The "relative cost" of law school takes tuition and the average wage of college graduates, divided by the expected wage of lawyers, as measured by the average wage in that year. We see that the relative cost of law school decreases steadily from 1960 to 1990, and has stabilized fom 1990 to 2015.

Quality. One potential explanation for the pattern in relative wages of lawyers is changes in quality. In general, Law School Admission Test (LSAT) scores are considered a good measure of academic quality of law school applicants (Wightman, 2000). 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, data from Solomon (1983) show 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 decade after 1970 compared to the decade before. Using both undergraduate grades and LSAT scores, Vernon & Zimmer (1987) show

[73] 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.

a significant decline in the quality of law school applicants from 1982 to 1986.[74] The average test score does not change much from 1993 to 2015, and hovers around 150.5 (on a scale of 120 to 180).[75]

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.[76] 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 E17(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 smaller when schools screen graduates more intensively. 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 E17(b)). 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 do not find that changes in degree requirements for taking the bar exam and becoming a practicing lawyer are 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).[77] 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 human capital 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. Moreover, in a competitive setting, deferral of entry into the practice of law would imply a greater cost of entry and, therefore, higher wages to compensate for

[74] They also show that this decline in quality was felt not only in lower quality law schools, but also in top quality schools.

[75] Here we use several reports by the Law School Admission Council, which are available on their website https://www.lsac.org/.

[76] 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 1987 and on.

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

this (Rosen, 1992). 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.[78]

It is worthwhile to keep in mind that these measures of quality pertain to the flow of lawyers when they enter the profession. Even if quality was trending upwards from 1960, it would have taken many years for this trend to materialize in the stock of lawyers. Taking into account cohorts over time, our micro-level regressions reported in Section 6 rule out a simple story of quality upgrading.

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 v. 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 E15 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 E16 show that lawyers advertised the fees for their services. While a first-mover advantage could make advertising lucrative—as it apparently did for the Legal Clinic of Bates & O'Steen—the proliferation of advertising would lead to tougher price competition, which would suggest a wage effect in the opposite direction.[79]

[78] In addition, given roughly 40 years of work, a 3-year delay in starting to practice law can not explain the magnitude of the increase in the relative wage.

[79] Testimony from Bates himself indicates how lucrative this business was; *What's up with all the ads for law firms?*, Planet Money, October 4, 2024, https://www.npr.org/2024/10/04/1203595460/lawyers-ads-law-groups-commercials-banned.

Another dimension in which industry standards have evolved is in the prevalence of contingent fee arrangements. These are arrangements used by lawyers to attract business, and imply that the lawyer that represents the plaintiff receives a share of the stakes if the case prevails, but nothing if it does not. Contingent fees can increase access to justice, while at the same time increase lawyers' incomes, thereby giving incentives for entry (Painter, 1995; Helland & Klerman, 2024). Some research has modeled how contingent fees affect lawyers' effort (Danzon, 1983; Kritzer et al., 1985). Another strand of literature debates the potential ethical aspects of contingent fees, such as conflicts of interest between lawyer and client and litigation stirring ("client-getting" or "ambulance chasing") (Moliterno, 2002). Since such contingent fee arrangements are private contracts, no representative statistics exist on their prevalence, let alone consistent time series. Therefore, it is difficult to asses whether the prevalence of contingent fees increased particularly in 1970–1990. What can be said is that contingent fees are more prevalent in some fields of the law in the United States, such as insurance and negligence, which have increased their shares of litigation activity in 1972–1992 (Table 2), as well as in class action lawsuits.[80]

Political influence. A final hypothesis that we test is that a change in the political influence of lawyers led to the demand shift for their services. Here, we can measure the share of lawyers in Congress, and we do not find any change between 1970-1990. In fact, the number of lawyers in Congress decreased over this period (Appendix Figure E19). That is not to say that lawyers in congress can not be influential in shaping the legislation that we study—Bonica (2017) shows that lawyer-legislators are significantly more likely to support fee-shifting statutes and other bills that support the profession. However, we do not find an *increase* in influence, as measured by the share of legislators that are also lawyers, during this period.

6 Excess payments and 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 could be provided with the same incentives.

Consider the difference between the wage bill share of legal services in 1990 and what it would

[80] A more recent, and related phenomenon is litigation finance. However, this started increasing its prevalence in the United States only after 2000, long after our period of interest ("A Brief History of Litigation Finance", in *The Practice*, September/October 2019, The Center on the Legal Profession, Harvard Law School).

have been with the same growth in the employment share as in the data, had the *relative* wage remained as it was in 1970. That is, we assume that wage growth in legal services since 1970 was at the same rate as in the rest of the private sector, with only an adjustment for the rise in the aggregate college premium that accounts for the need to keep lawyers' incentives in line with other highly skilled workers:

$$excess_{WBsh^{1990}_{legal}} = WBsh^{1990}_{legal} - Nsh^{1990}_{legal} \cdot rw^{1970+}_{legal} = 0.007,$$

where WB denotes wage bill, Nsh denotes employment share, rw denotes relative wage, and rw^{1970+}_{legal} accounts for the rise in the aggregate college premium.[81] The calculation implies that legal services' wage bill was 0.7 percent points in excess of 1970. Comparing this to the actual $WBsh^{1990}_{legal}$, which was 1.74 percent, we have an excess payment of 41% to legal services employees (lawyers and non-lawyers together).

We perform a similar calculation for proprietors' income, as an approximation for law firm partners' incomes:

$$excess_{INCsh^{1990}_{legal}} = INCsh^{1990}_{legal} - SELFsh^{1990}_{legal} \cdot z^{1970}_{legal} = 0.04,$$

where $INCsh$ is proprietors' income share in total proprietors' income in the private sector, $SELFsh$ 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. The calculation implies that proprietors' income in legal services was 4 percent points in excess of 1970. Comparing this to the actual $INCsh^{1990}_{legal}$, which was 10.3 percent, we have an excess payment of 39% to proprietors in legal (all of which we assume are lawyers).

The weighted average of the two excess payment concepts is 40%, using the total wage bill WB^{1990} and total proprietors' income INC^{1990} in the private sector as weights for $WBsh^{1990}_{legal}$ and $excess_{INCsh^{1990}_{legal}}$, respectively. In order to quantify this, we compute,

$$EXCESS^{1990}_{legal} = excess_{WBsh^{1990}_{legal}} \cdot WB^{1990} + excess_{INCsh^{1990}_{legal}} \cdot INC^{1990} = \$31.13\text{bn},$$

in 1990 alone, which is equivalent to $75bn per year in 2024 prices (using the U.S. CPI).

We now turn to micro-econometric analysis of wage premia for lawyers in legal services, by

[81] In order to compute rw^{1970+}_{legal} start by writing the average wage in legal services as in equation (3), a weighted average of lawyers' and non-lawyers' wages, and adjust the wage of lawyers for the aggregate growth rate in college wages from 1970 to 1990 (about 6 percent in the data), denoted g. Then $rw^{1970+}_{legal} = \frac{\lambda w^{1970}_{lawyer|legal}(1+g) + (1-\lambda) w^{1970}_{nonlawyer|legal}}{w^{1970}_{total}} = \left[g\lambda^{law}_{legal} \left(w^{law,1970}_{legal} / w^{1970}_{legal} \right) + 1 \right] rw^{1970}_{legal}$.

estimating simple wage regressions. We use individual level wage data from the CPS to calculate the wage premia for lawyers. The CPS reports rich demographic information that allows us to control for several possible determinants of 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 in the same way as before, multiplying top coded wages until 2002 by 1.5, and not correcting top coded wages from 2003 and on. We restrict the sample to full-time workers who worked at least 40 weeks within the year, of ages 18 to 65. We also drop observations with wages below Federal minimum wage.

We estimate cross-sectional regressions using the CPS March Annual Supplement in 1968–2017. In order to attain better precision we pool data for consecutive three-year periods and estimate the following regression, separately for each three year period:

$$\ln w_{it} = \alpha_t \cdot 1_{it}^{\text{lawyer|legal}} + \beta_t \cdot 1_{it}^{\text{non-lawyer|legal}} + x_{it}'\gamma_t + \varepsilon_{it}, \tag{14}$$

where w is the annual wage; $1_{it}^{\text{lawyer|legal}}$ is a dummy variable for individuals employed as lawyers in legal services; $1_{it}^{\text{non-lawyer|legal}}$ is a dummy for non-lawyers employed in legal services.[82] The vector x_{it} includes dummies for education levels, race, urban, gender, marital status, MSA, industry, and continuous experience and experience squared.[83] Importantly, the coefficients to these demographics can vary over time (γ_t), which captures, e.g., changes in returns to eduction.

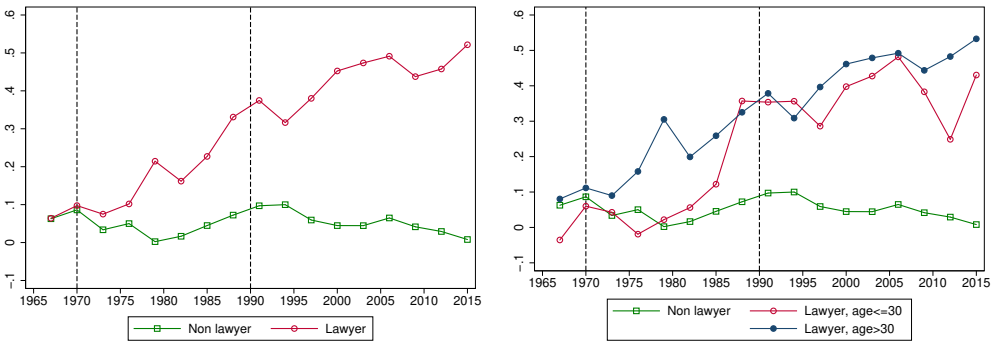
Figure 10(a) shows the wage premia for lawyers (α_t) and non-lawyers (β_t), for each three year period starting in t. The wage premium for lawyers increases from 0.1 to 0.4 over the period of 1970 to 1990. Neither changes in observable demographic characteristics of lawyers, nor changes in the overall skill premium explain the large increase in the relative wage of lawyers over the same period which we document in Figure 2. We note also that there is no trend for non-lawyers in legal services, consistent with the aggregate series which uses a different data source.

Next, we investigate whether the trend in the lawyers' wage premium is consistent with barriers to entry, by separately estimating the wage premia for entrants and incumbents. We repeat the analysis using equation (14), but split the lawyer indicator into two separate indicators for lawyers by age: $1_{it}^{\text{lawyer|legal,age}\leq 30}$ and $1_{it}^{\text{lawyer|legal,age}>30}$. Figure 10(b) shows the wage premia for these two groups, and for the non-lawyers in legal services. In doing so, we drop lawyers that are "too young",

[82] Results using weekly or hourly wages are similar.

[83] 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.

Figure 10: 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 (14) for each three year period, t. The dependent variable is log(annual wages). Source: CPS March Annual Supplement, 1968–2017.

who report being lawyers at age 24 and below (although this does not change the results). The larger wage premium for older lawyers is consistent with the existence of industry rents, as well as with unobserved changes in fields of specialization from less lucrative to more lucrative fields.

Figure 10(b) shows that younger lawyers (entrants) do not see an increase in their wage premium until 1985, after which the wage premium for younger lawyers catches up with that of the older lawyers.[84] This pattern is not consistent with a simple story of entry barriers restricting supply and thus causing higher wages for lawyers. If that were the case, then we would have observed a *higher* wage premium for young lawyers, as incumbents compete for their talent. We offer two possible explanations for this. If undergraduate students observe the rise in the industry premium, then this should incentivize additional entry into the profession (with some delay). If the increase in entry is sufficiently large, then this can depress the wage of younger lawyers. An alternative explanation is that younger lawyers are willing to accept a low initial wage in return for a high wage later in their career, consistent with complex rent sharing arrangements within legal services.

7 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. In contrast,

[84]This is consistent with findings in Sander & Williams (1989) (Table 14, panel B), who do not find increases in starting salaries for lawyers in large and elite New York law firms before 1984–86, which is the end of their sample.

the historical period preceding 1970 (starting as early as 1850 for the employment share) and the period post 1990 both exhibit remarkable stability. In this paper we document this and other changes using multiple data sources and then investigate their cause(s).

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 new laws, regulations and deregulations *per se* may have a positive effect on social welfare, they do 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.

Although our findings suggest social costs, we do not measure the social benefit of changes in the legal environment starting in the mid 1960s. We also cannot speak to a counterfactual in which the government expands capacity in order to enforce the new social regulation, instead of providing incentives to the private sector (i.e., fee-shifting). And while our analysis suggests information rents, we do not identify the precise mechanisms that underlie them. Addressing these important issues is beyond the scope of this paper, but are interesting topics for future research.

References

Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *The American Economic Review*, 91(5), 1369–1401.

Ash, E., Morelli, M., & Vannoni, M. (2024). More Laws, More Growth? Evidence from U.S. States. *Forthcoming, Journal of Political Economy*.

Autor, D. H., Donohue III, J. J., & Schwab, S. J. (2006). The costs of wrongful-discharge laws. *The Review of Economics and Statistics*, 88(2), 211–231.

Bakija, J., Cole, A., & Heim, B. T. (2012). Jobs and Income Growth of Top Earners and the Causes of Changing Income Inequality: Evidence from U.S. Tax Return Data. working paper, Williams College.

Barton, B. (2010). *The Lawyer-Judge Bias in the American Legal System*. Cambridge University Press.

Baumol, W. J. (1990). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Political Economy*, 98, 893–921.

Black, S. E. & Strahan, P. E. (2001). The division of spoils: Rent-sharing and discrimination in a regulated industry. *American Economic Review*, 91(4), 814–831.

Bonica, A. (2017). Why are there so many lawyers in congress? Available at SSRN: `https://ssrn.com/abstract=2898140`.

Boustanifar, H., Grant, E., & Reshef, A. (2017). Wages and human capital in finance: International evidence, 1970–2011. *Review of Finance*, 22(2), 699–745.

Brooks, L. & Liscow, Z. (2020). Infrastructure costs. Working Paper, George Washington University.

Campos, P. (2012). The crisis of the american law school. *U. mich. Jl reForm*, 46, 177.

Carter, S., Gartner, S., Haines, M., Olmstead, A., Sutch, R., & Wright, G., Eds. (2006). *Historical Statistics of the United States Millennial Edition Online.* , Cambridge University Press.

Cass, R. A. & Garvey, J. H. (2003). Law school leviathan-explaining administrative growth. *U. Tol. L. Rev.*, 35, 37.

Conrod, M. (1994). Unemployment and under-employment: The harsh reality facing new lawyers. *Law Weekly*, Sept.

Danzon, P. M. (1983). Contingent fees for personal injury litigation. *The Bell Journal of Economics*, (pp. 213–224).

Derfner, M. F. & Wolf, A. (2012). *Court Awarded Attorney Fees*. Matthew Bender & Company. Updated Annually.

Diamond, R. A. (1983). The firestorm over attorney fee awards. *American Bar Association Journal*, 69(10), 1420–1425.

Easterly, W. & Levine, R. (2003). Tropics, germs, and crops: how endowments influence economic development. *Journal of monetary economics*, 50(1), 3–39.

Flood, S., King, M., Ruggles, S., & Warren, J. R. (2017). Integrated public use microdata series, current population survey: Version 5.0. [dataset]. minneapolis: University of minnesota, 2017. https://doi.org/10.18128/D030.V5.0.

Freyer, T. (2010). Deregulation theories in a litigous society. In E. Balleisen & D. Moss (Eds.), *Government and Markets: Toward a New Theory of Regulation* (pp. 482–511). Cambridge University Press.

Friedberg, L. (1998). Did unilateral divorce raise divorce rates? evidence from panel data. *The American Economic Review*, 88(3), 608–627.

Friedman, S. J. (1981). Deregulation and litigation. *Litigation*, 8(1), 8–50.

Garicano, L. (2000). Hierarchies and the organization of knowledge in production. *Journal of political economy*, 108(5), 874–904.

Garicano, L. & Hubbard, T. N. (2007). Managerial leverage is limited by the extent of the market: Hierarchies, specialization, and the utilization of lawyers' human capital. *Journal of Law and Economics*, 50(1), 1–43.

Gottlieb, J. D., Polyakova, M., Rinz, K., Shiplett, H., & Udalova, V. (2023). Who values human capitalists' human capital? healthcare spending and physician earnings. NBER Working Paper No. 31469.

Hadfield, G. K. (2000). The price of law: How the market for lawyers distorts the justice system. *Michigan Law Review*, 98(4), 953–1006.

Heinz, J. P., Nelson, R. L., Laumann, E. O., & Michelson, E. (1998). The changing character of lawyers' work: Chicago in 1975 and 1995. *Law & Society Review*, 32(4), 751–776.

Helland, E. & Klerman, D. (2024). Contingent fees and access to justice. *Washington University Law Review*, 102, 1–22.

Hensler, D. R. (2001). Revisiting the monster: New myths and realities of class action and other large scale litigation. *Duke Journal of Comparative & International Law*, 11, 179–213.

Hirshleifer, J. & Osborne, E. (2001). Truth, effort, and the legal battle. *Public Choice*, 108(1), 169–195.

Hornbeck, R. & Naidu, S. (2014). When the levee breaks: Black migration and economic development in the american south. *American Economic Review*, 104(3), 963–90.

Johnson, C. & Robbins, R. (2001). *Patterns of Negro Segregation*. The African American Intellectual Heritage Series. University of Notre Dame Press.

Johnson, D. W. (2009). *The Laws that Shaped America*. Routledge.

Kearney, J. D. & Merrill, T. W. (1998). The great transformation of regulated industries law. *Columbia Law Review*, 98, 1323–1409.

Kritzer, H. M., Felstiner, W. L., Sarat, A., & Trubek, D. M. (1985). The impact of fee arrangement on lawyer effort. *Law & Society Review*, 19, 251.

Kwon, S. Y., Ma, Y., & Zimmermann, K. (2024). 100 years of rising corporate concentration. *The American Economic Review*, 114(7), 2111–40.

Leontief, W. W. (1936). Quantitative input and output relations in the economic systems of the united states. *The Review of Economics and Statistics*, 18(3), 105–125.

Liroff, R. A. (1976). *National policy for the environment*. Indiana University Press, Bloomington.

Magee, S. P., Brock, W. A., & Young, L. (1989). *Black hole tariffs and endogenous policy theory: Political economy in general equilibrium*. Cambridge University Press.

Mattoo, A., Mulabdic, A., & Ruta, M. (2022). Trade creation and trade diversion in deep agreements. *Canadian Journal of Economics/Revue canadienne d'économique*, 55(3), 1598–1637.

Mengle, D. (1990). The case for interstate branch banking. *FRB Richmond Economic Review*, 76(6), 3–17.

Michaels, G. (2007). The division of labor, coordination, and the demand for information processing. CEPR Discussion Paper 6358.

Miller, A. R. (1978). An overview of federal class actions: past, present and future. *The Justice System Journal*, (pp. 197–222).

Miller, A. R. (1979). Of frankenstein monsters and shining knights: Myth, reality, and the "class action problem". *Harvard Law Review*, (pp. 664–694).

Moliterno, J. E. (2002). Broad prohibition, thin rationale: The acquisition of an interest and financial assistance in litigation rules. *Georgetown Journal of Legal Ethics*, 16, 223.

Murphy, K. M., Shleifer, A., & Vishny, R. W. (1991). The allocation of talent: Implications for growth. *The Quarterly Journal of Economics*, 106, 503–530.

Olson, W. K. (1991). *The Litigation Explosion.* Truman Talley Books–Dutton.

Painter, R. W. (1995). Litigating on a contingency: A monopoly of champions or a market for champerty. *Chicago-Kent Law Review*, 71, 625.

Pashigian, B. P. (1977). The market for lawyers: The determinants of the demand for the supply of lawyers. *Journal of Law and Economics*, 20(1), 53–85.

Philippon, T. & Reshef, A. (2012). Human capital in the u.s. financial sector: 1909–2006. *The Quarterly Journal of Economics*, 127(4), 1551–1609.

Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: The primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9(2), 131–165.

Rosen, S. (1992). The market for lawyers. *Journal of Law and Economics*, 35(2), 215–246.

Sander, R. H. & Williams, E. D. (1989). Why are there so many lawyers? perspectives on a turbulent market. *Law & Social Inquiry*, 14(3), 431–479.

Solomon, R. J. (1983). Information concerning mean test scores. Report prepared for the U.S. Department of Education, National Commission on Excellence in Education, by the Educational Testing Service, Princeton, NJ.

Speta, J. (2004). Deregulating telecommunications in internet time. *Washington and Lee Law Review*, 61, 1063–1158.

Trebbi, F., Zhang, M. B., & Simkovic, M. (2023). The cost of regulatory compliance in the united states. NBER Working Paper No. 30691.

Vargo, J. F. (1992). The american rule on attorney fee allocation: The injured person's access to justice. *Am. UL Rev.*, 42, 1567.

Vernon, D. H. & Zimmer, B. I. (1987). The size and quality of the law school applicant pool: 1982-1986 and beyond. *Duke LJ*, (pp. 204).

Vig, N. J. & Kraft, M. E. (1990). *Environmental policy in the 1990s: toward a new agenda*. CQ Press, Washington D.C.

Vig, N. J. & Kraft, M. E. (2012). Environmental policy over four decades: achievements and new directions. In N. J. Vig & M. E. Kraft (Eds.), *Environmental policy: New directions for the twenty-first century*: CQ Press, Washington D.C.

Vlosky, D. A. & Monroe, P. A. (2002). The effective dates of no-fault divorce laws in the 50 states. *Family Relations*, 51(4), 317–324.

White, T. O. (1984). LSAC/LSAS: A Brief History. *Journal of Legal Education*, 34(3), 369–373.

Wightman, L. F. (2000). Beyond fya: Analysis of the utility of lsat scores and ugpa for predicting academic success in law school. LSAC Research Report Series No. LSAC-RR-99-05.

Winston, C. (1998). U.s. industry adjustment to economic deregulation. *Journal of Economic Perspectives*, 12(3), 89–110.

Wolfers, J. (2006). Did unilateral divorce laws raise divorce rates? a reconciliation and new results. *American Economic Review*, 96(5), 1802–1820.

Yates, J. (2000). Business use of information and technology during the industrial age. In A. D. Chandler Jr. & J. W. Cortada (Eds.), *A Nation Transformed by Information*: Oxford University Press.

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.[85]

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.

[85] 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.[86]

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

[86] 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 F5 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 F6 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 E1(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:

$$\omega_{lawyer|legal} = \frac{w_{lawyer|legal}}{w_{nonlegal}} \ . \tag{15}$$

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:

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

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:

$$\Delta\omega = \underbrace{\sum_i \Delta n_i \overline{\omega}_i}_{\text{Between}} + \underbrace{\sum_i \overline{n}_i \Delta\omega_i}_{\text{Within}} \ , \tag{17}$$

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 (17) for ω_{legal} where i denotes occupations Proprietors' income is not reported at the state-level, so we cannot perform the decomposition (17) for $\omega_{partners|legal}$. Despite similar appearance, the components of (17) 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:

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

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 Litigation model and fee-shifting

In this appendix we solve for the Nash equilibrium of the Hirshleifer & Osborne (2001) model under three assumptions. The first is the basic case, as in their paper, where each side is responsible for paying its legal fees. We then solve for two versions of fee-shifting that are not in their paper: asymmetric in favor of the plaintiff, and symmetric. In general, fee-shifting is asymmetric, in favor of the plaintiff, but it depends on the fee-shifting statute. For example, according to the civil rights fee-shifting statue the plaintiff pays for the legal fees of the defendant "if the litigation is unreasonable, frivolous, or meritless". This is in the spirit of the motivation of the fee-shifting statutes, which were enacted to help plaintiffs mount a case. For completeness, we solve the model under the so-called "English rule", where fee-shifting applies to both parties, symmetrically, i.e., the losing side pays for the legal fees of the winning side.

C.1 Basic case: the "American rule"

Here we repeat the analysis of Hirshleifer & Osborne (2001). There are a Plaintiff (p) and a Defendant (d), who have common knowledge of all the underlying functions and parameters: the actual level of fault (or merit of the case), the stakes, the costs of trial, and the structural relationships set forth in the model itself. Both are risk-neutral, and maximize own expected income. Ignoring agency issues, the respective litigation efforts are L_p and L_d. The cost of litigation is $C_i = \gamma \cdot L_i$ for $i \in \{p, d\}$. Alternatively, each dollar of expenditure buys $1/\gamma$ units of lawyer effort. Each party is assumed responsible for its own legal costs regardless of the outcome—the so-called "American rule".

The value of the lawsuit is

$$V_i = \pi J_i - C_i, \tag{19}$$

where the stakes for the plaintiff are $J_p > 0$, while, for simplicity, the stakes for the defendant are $J_d = -J_p < 0$, and $\pi = \pi_p = 1 - \pi_d$ is the probability that the plaintiff wins. An alternative interpretation of pi is the"comparative fault" interpretation, where the outcome is a proportionate division of the stakes. Note that the defendant can only lose. There are no fixed costs. Define fault $Y \in (0, 1)$: $Y = 1$ means that the defendant is totally in the wrong, while $Y = 0$ means that the plaintiff's case is entirely without merit. We interpret Y as *uncertainty about merit* of the plaintiff.

Define the Litigation Success Function (LSF)

$$\frac{\pi}{1-\pi} = \left(\frac{L_p}{L_d}\right)^{\alpha} \frac{Y}{1-Y}, \tag{20}$$

which is equivalent to

$$\pi = \frac{L_p^\alpha Y}{L_p^\alpha Y + L_d^\alpha (1-Y)}. \tag{21}$$

An extension of the LSF to include sensitivity of outcome to fault (i.e., replacing $[Y/(1-Y)]$ by $[Y/(1-Y)]^\beta$) yields qualitatively similar results. To ease notation, define

$$y = \frac{Y}{1-Y}$$

and rename $L_p = p$, $L_d = d$. Then (21) becomes

$$\pi = \frac{p^\alpha Y/(1-Y)}{p^\alpha Y/(1-Y) + d^\alpha} = \frac{p^\alpha y}{p^\alpha y + d^\alpha}. \tag{22}$$

It is useful to note that

$$1 - \pi = \frac{d^\alpha}{p^\alpha y + d^\alpha}.$$

The plaintiff's problem. The plaintiff chooses p to maximize

$$V_p = \pi J - \gamma p.$$

This yields FONC

$$\frac{\alpha p^{\alpha-1} y \left(p^\alpha y + d^\alpha\right) - p^\alpha y \alpha p^{\alpha-1} y}{\left(p^\alpha y + d^\alpha\right)^2} J - \gamma = 0,$$

which yields

$$p = \alpha \left(\frac{J}{\gamma}\right) \pi (1-\pi).$$

The defendant's problem. The defendant chooses d to maximize

$$V_d = -\pi J - \gamma d.$$

This yields FONC

$$\frac{p^\alpha y \alpha d^{\alpha-1}}{\left(p^\alpha y + d^\alpha\right)^2} J - \gamma = 0,$$

which yields

$$d = \alpha \left(\frac{J}{\gamma}\right) \pi (1-\pi).$$

The optimal solution for p and d is the same, say $p = d = L$. Plug this in (21) to get $\pi = Y$

and thus

$$L = \alpha \frac{J}{\gamma} Y (1 - Y),$$

which verifies the result in Hirshleifer & Osborne (2001). Total cost for society is the sum of efforts times the unit cost of effort γ, since J is just a transfer. Therefore,

$$\text{Total cost} = 2 \times \alpha J Y (1 - Y).$$

Finally, the value of the lawsuit is

$$\begin{aligned} V_p &= JY [1 - \alpha (1 - Y)] \\ V_d &= -JY [1 + \alpha (1 - Y)]. \end{aligned}$$

The value of the lawsuit is always positive for the plaintiff for $Y > 0$. The value of the lawsuit is always negative for the defendant for $Y > 0$, but not as negative as the stakes, J, unless $Y = 1$, where $V_d = -J$.

C.2 Asymmetric fee-shifting in favor of the plaintiff

The parameters of the problem are the same, only the objective functions of the plaintiff and defendant change in order to reflect the asymmetric fee-shifting statue. This gives rise to asymmetry in optimal behavior.

The plaintiff's problem. The plaintiff chooses p to maximize

$$V_p = \pi J - (1 - \pi) \gamma p,$$

The FONC for the plaintiff is

$$\frac{\partial}{\partial p} [\pi J - (1 - \pi) \gamma p] = \frac{\partial}{\partial p} \left[J \frac{p^\alpha y}{p^\alpha y + d^\alpha} - \gamma \frac{d^\alpha p}{p^\alpha y + d^\alpha} \right] = 0,$$

which yields

$$p = \frac{J}{\gamma} \frac{\alpha \pi}{1 - \alpha \pi}. \tag{23}$$

The defendant's problem. The defendant chooses d to maximize

$$V_d = -\pi J - \gamma d - \pi \gamma p.$$

The FONC for the defendant is

$$\frac{\partial}{\partial d}\left[-\pi J-\gamma d-\pi\gamma p\right]=\frac{\partial}{\partial d}\left[-J\frac{p^{\alpha}y}{p^{\alpha}y+d^{\alpha}}-\gamma d-\gamma\frac{p^{\alpha}y}{p^{\alpha}y+d^{\alpha}}p\right]=0,$$

which yields

$$d=\left(\frac{J}{\gamma}+p\right)\alpha\pi\left(1-\pi\right) \tag{24}$$

Using (23) in (24) gives

$$d=\frac{J}{\gamma}\frac{\alpha\pi}{1-\alpha\pi}\left(1-\pi\right).$$

A few results emerge:

1. The plaintiff applies more effort than the defendant, by a factor of $1/\left(1-\pi\right)>1$. This makes sense, given the objective functions above: the plaintiff takes into account directly only $(1-\pi)$ of the cost of p, while the defendant takes into account all of d and $(1-\pi)$ of the cost of p.

2. The probability that the plaintiff wins is greater than in the case with no fee-shifting. Using $d=p\left(1-\pi\right)$ in (20) gives

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

   which implies that $\pi>Y$ because $(1/(1-\pi))^{\alpha}>1$ for any $\pi\in(0,1)$. Plugging $d=p\left(1-\pi\right)$ into (21) gives

   $$\pi=\frac{p^{\alpha}Y}{p^{\alpha}Y+p^{\alpha}\left(1-\pi\right)^{\alpha}\left(1-Y\right)}=\frac{Y}{Y+\left(1-\pi\right)^{\alpha}\left(1-Y\right)},$$

   which again shows that $\pi>Y$ because the denominator is less than one for any $\pi\in(0,1)$ and any $Y\in(0,1)$.

3. The plaintiff makes more effort compared to the case with no fee-shifting. To see this, suppose—incorrectly—that $\pi=Y$, like in the symmetric case. Then

   $$p=\alpha\frac{J}{\gamma}\frac{Y}{1-\alpha Y},$$

   which is already greater than in the symmetric case (where we had $p=\alpha\left(J/\gamma\right)Y\left(1-Y\right)$) as long as $\alpha\leq1$, which is a reasonable assumption. But since $\pi>Y$, this only reinforces the inequality because

   $$\frac{\pi}{1-\alpha\pi}>\frac{Y}{1-\alpha Y}.$$

4. The defendant makes more effort compared to the case with no fee-shifting, except when merit is very high. See Figure C2 below.

5. Total cost for society is higher than in the case with no fee-shifting (unless $Y = 0$). See Figure C5 below. Total cost for society is the sum of efforts time the unit cost of effort γ, since J is just a transfer. Therefore,

$$\text{Total cost} = J\frac{\alpha\pi}{1-\alpha\pi}(2-\pi).$$

6. The plaintiff's effort p increases with her claim's merit Y. To see this first note that $\pi > Y$ and that π increases in Y. From

$$\frac{\pi}{1-\pi} = \left(\frac{1}{1-\pi}\right)^{\alpha}\frac{Y}{1-Y}$$

we obtain

$$\Phi(\pi, Y) = \frac{Y}{1-Y} - \frac{\pi(1-\pi)^{\alpha}}{1-\pi} = 0,$$

which is an implicit function in π and Y. Now

$$\Phi_Y = \frac{1-Y-Y(-1)}{(1-Y)^2} = \frac{1}{(1-Y)^2} > 0$$

and

$$\begin{aligned}
\Phi_\pi &= -\frac{\left[(1-\pi)^{\alpha} + \pi\alpha(1-\pi)^{\alpha-1}\right](1-\pi) - \pi(1-\pi)^{\alpha}(-1)}{(1-\pi)^2} \\
&= -\frac{(1-\pi)^{\alpha+1} + \pi\alpha(1-\pi)^{\alpha} + \pi(1-\pi)^{\alpha}}{(1-\pi)^2} \\
&= -\frac{(1-\pi)^{\alpha}(1+\alpha\pi)}{(1-\pi)^2} \\
&= -(1-\pi)^{\alpha-2}(1+\alpha\pi) \\
&< 0.
\end{aligned}$$

Thus

$$\frac{d\pi}{dY} = -\frac{\Phi_Y}{\Phi_\pi} > 0.$$

Now it suffices to show that $dp/d\pi > 0$

$$\begin{aligned}
\frac{dp}{d\pi} &= \frac{d}{d\pi}\alpha\frac{J}{\gamma}\frac{\pi}{1-\alpha\pi} \\
&= \alpha\frac{J}{\gamma}\frac{1-\alpha\pi-\pi\left(-\alpha\right)}{\left(1-\alpha\pi\right)^2} \\
&= \alpha\frac{J}{\gamma}\frac{1}{\left(1-\alpha\pi\right)^2} \\
&> 0.
\end{aligned}$$

7. Effort for the defendant L_d is hump-shaped with the plaintiff's merit Y. Given that $d\pi/dY > 0$ from above, we need to study $dL_d/d\pi$:

$$\begin{aligned}
\frac{dL_d}{d\pi} &= \frac{d}{d\pi}\frac{J}{\gamma}\frac{\alpha\pi}{1-\alpha\pi}\left(1-\pi\right) \\
&= \frac{d}{d\pi}\alpha\frac{J}{\gamma}\frac{\pi-\pi^2}{1-\alpha\pi} \\
&= \alpha\frac{J}{\gamma}\frac{\left(1-2\pi\right)\left(1-\alpha\pi\right)-\left(\pi-\pi^2\right)\left(-\alpha\right)}{\left(1-\alpha\pi\right)^2} \\
&= \alpha\frac{J}{\gamma}\frac{1-\alpha\pi-2\pi+2\alpha\pi^2+\alpha\pi-\alpha\pi^2}{\left(1-\alpha\pi\right)^2} \\
&= \alpha\frac{J}{\gamma}\frac{1-2\pi+\alpha\pi^2}{\left(1-\alpha\pi\right)^2},
\end{aligned}$$

which can be greater or smaller than zero. For $\alpha \in (0,1)$ the derivative is positive for small π and negative for large π. The maximum is when the derivative is zero, i.e., when

$$\alpha\pi^2 - 2\pi + 1 = 0.$$

Solving for the root gives

$$\pi = \frac{2 \pm \sqrt{4-4\alpha}}{2\alpha} = \frac{2 \pm 2\sqrt{1-\alpha}}{2\alpha} = \frac{1 \pm \sqrt{1-\alpha}}{\alpha}$$

and the economic root is

$$\pi = \frac{1-\sqrt{1-\alpha}}{\alpha}.$$

This maximum is equal to 1 when $\alpha = 1$ and is equal to 0.5 when $\alpha \to 0$:

$$\begin{aligned}
\lim_{\alpha \to 0} \frac{1 - \sqrt{1-\alpha}}{\alpha} &= \text{„}\frac{0}{0}\text{„} \\
&\overset{L}{=} \lim_{\alpha \to 0} \frac{-0.5\left(1-\alpha\right)^{-0.5}\left(-1\right)}{1} \\
&= \lim_{\alpha \to 0} 0.5\left(1-\alpha\right)^{-0.5} \\
&= 0.5.
\end{aligned}$$

We now show that the π that characterizes the maximum plaintiff's effort L_d is increasing in α:

$$\begin{aligned}
\frac{d}{d\alpha}\frac{1-\left(1-\alpha\right)^{0.5}}{\alpha} &= \frac{-0.5\left(1-\alpha\right)^{-0.5}\left(-1\right)\alpha - \left[1-\left(1-\alpha\right)^{0.5}\right]}{\alpha^2} \\
&= \frac{0.5\alpha\left(1-\alpha\right)^{-0.5} - 1 + \left(1-\alpha\right)^{0.5}}{\alpha^2} \\
&= \frac{0.5\alpha - \left(1-\alpha\right)^{0.5} + 1 - \alpha}{\alpha^2\left(1-\alpha\right)^{0.5}} \\
&= \frac{1 - 0.5\alpha - \left(1-\alpha\right)^{0.5}}{\alpha^2\left(1-\alpha\right)^{0.5}}
\end{aligned}$$

This isn't obvious, but numerical solutions with $\alpha \in (0,1)$ show that the last derivative is positive. Thus, the maximum effort for the defendant is at a π that is higher the larger is α. Interestingly, this occurs a levels of merit that do not deviate much from 0.5, as numerical results demonstrate. In order to understand the last result, use the implicit function approach again, writing

$$\Phi\left(\pi, \alpha\right) = \frac{Y}{1-Y} - \frac{\pi\left(1-\pi\right)^{\alpha}}{1-\pi} = 0,$$

treating Y as a parameter. We already know from above that $\Phi_\pi < 0$. Then

$$\begin{aligned}
\Phi_\alpha &= \frac{\partial}{\partial\alpha}\left[\frac{Y}{1-Y} - \frac{\pi\left(1-\pi\right)^{\alpha}}{1-\pi}\right] \\
&= \frac{\partial}{\partial\alpha}\left[\frac{Y}{1-Y} - \frac{\pi}{1-\pi}e^{\alpha\ln(1-\pi)}\right] \\
&= -\frac{\pi}{1-\pi}e^{\alpha\ln(1-\pi)}\ln\left(1-\pi\right) \\
&= -\frac{\pi\left(1-\pi\right)^{\alpha}}{1-\pi}\ln\left(1-\pi\right) \\
&> 0,
\end{aligned}$$

because $1 - \pi < 0$ and the log of a number between zero and one is negative. Thus

$$\frac{d\pi}{d\alpha} = -\frac{\Phi_\alpha}{\Phi_\pi} > 0.$$

Thus, for any level of Y, π is larger when α is larger. This explains why the maximum effort for the defendant, L_d, occurs at greater π when α increases, but Y at which this maximum effort takes place remains about 0.5.

Numerical example. Assuming $\alpha = 0.5$, we have the following outcomes.

- In the Figure C1 we see that the probability that the plaintiff wins is greater than in the case with no fee-shifting.
- In the Figure C2 we see that effort (normalized by J/γ) is higher for the plaintiff than for the defendant. Effort for the plaintiff is always higher than her effort in the case with no fee-shifting, but when merit is high, the defendant makes less effort than in the case with no fee-shifting.
- Figure C3 reports the expected costs of the lawsuit for each side (normalized by J/γ). For the plaintiff this is $(1 - \pi)\gamma p$, i.e., the cost of effort times the probability that she loses the case. For the defendant expected costs are $\gamma d + \pi\gamma p$, i.e., the cost of her effort, which she bears with certainty, plus the cost of the defendant times the probability that the defendant wins. We see that the expected cost for the plaintiff is lower than in the case with no fee-shifting. In contrast, the expected cost for the defendant is higher than in the case with no fee-shifting, except when the merit of the plaintiff is very high.
- Figure C4 reports the value of the lawsuit for each side. We see that the value for the plaintiff is always positive, and for the defendant it is negative. Moreover, the value of the lawsuit for the defendant can be more negative than the stakes (shown by the horizontal line at -1) above some level of merit of the plaintiff. In this case the defendant prefers to concede without the legal battle.
- Finally, in Figure C5 we see that with fee-shifting the total cost of the lawsuit is greater than when there is no fee-shifting.

Figure C1: Fee-shifting: probability plaintiff wins (π)

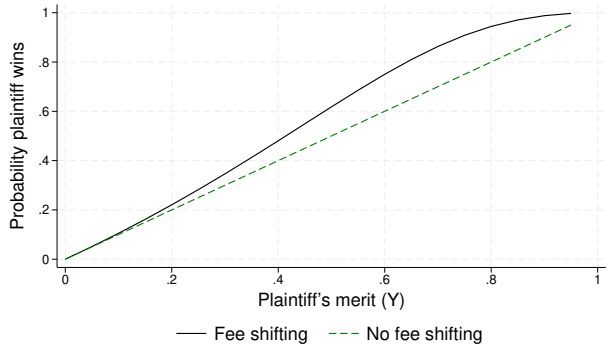


Figure C2: Fee-shifting: effort (L_p, L_d)

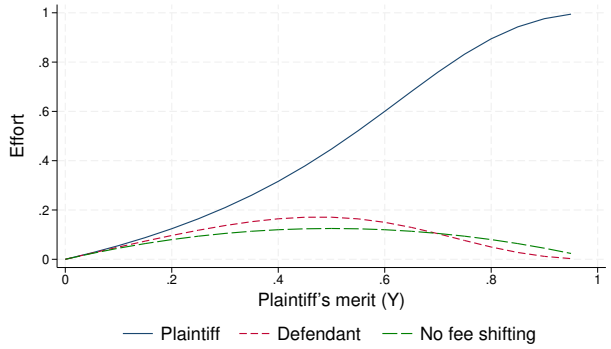


Figure C3: Fee-shifting: expected cost ($(1-\pi)\gamma p, \gamma d + \pi\gamma p$)

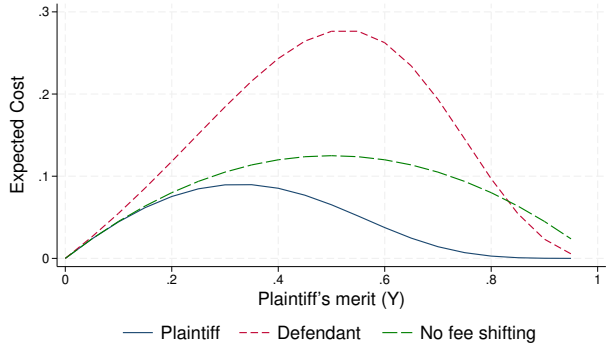


Figure C4: Fee-shifting: expected value of the lawsuit (V_p, V_d)

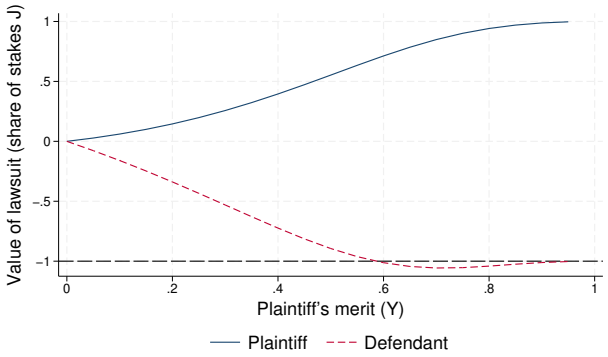
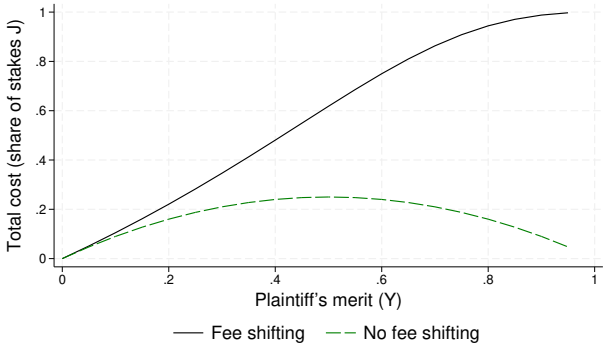


Figure C5: Fee-shifting: Total costs $(C_p + C_d)$



C.3 Symmetric fee-shifting: the "English rule"

The parameters of the problem are the same, only the objective functions of the plaintiff and defendant change in order to reflect the symmetric fee-shifting statue. Surprisingly, despite this symmetry in treatment, optimal behavior is asymmetric.

The plaintiff's problem. The plaintiff chooses p to maximize

$$V_p = \pi J - (1-\pi)(\gamma p + \gamma d).$$

The FONC for the plaintiff is

$$\frac{\partial}{\partial p}\left[\pi J - (1-\pi)(\gamma p + \gamma d)\right] = \frac{\partial}{\partial p}\left[J\frac{p^\alpha y}{p^\alpha y + d^\alpha} - \gamma\frac{d^\alpha p}{p^\alpha y + d^\alpha} - \gamma\frac{d^\alpha}{p^\alpha y + d^\alpha}d\right] = 0,$$

which yields

$$p = \left(\frac{J}{\gamma} + d\right)\frac{\alpha\pi}{1-\alpha\pi}.$$

The defendant's problem. The defendant chooses d to maximize

$$V_d = -\pi J - \pi(\gamma p + \gamma d).$$

The FONC for the defendant is

$$\frac{\partial}{\partial d}\left[-\pi J - \pi(\gamma p + \gamma d)\right] = \frac{\partial}{\partial d}\left[-\frac{p^\alpha y}{p^\alpha y + d^\alpha}(J + \gamma p + \gamma d)\right] = 0,$$

which yields

$$d = \left(\frac{J}{\gamma} + p\right)\frac{\alpha(1-\pi)}{1-\alpha(1-\pi)}$$

Using the result for p in d and after simplification we get

$$d = \frac{J}{\gamma}\frac{\alpha}{1-\alpha}(1-\pi).$$

Using this last expression in the expression for p gives

$$p = \frac{J}{\gamma}\frac{\alpha}{1-\alpha}\pi.$$

This is somewhat surprising; unless $\pi = 0.5$, optimal behavior is not symmetric, despite the symmetric treatment of the statute. The reason is that each agent sees different marginal return to effort.

A few results emerge:

1. The ratio of plaintiff effort to defendant effort may be greater or smaller than one. Using the last two results yields

$$\frac{p}{d} = \frac{\pi}{1-\pi},$$

Using (20) this implies gives

$$\frac{p}{d} = \frac{\pi}{1-\pi} = \left(\frac{p}{d}\right)^{\alpha} \frac{Y}{1-Y} = \left(\frac{Y}{1-Y}\right)^{1/(1-\alpha)}.$$

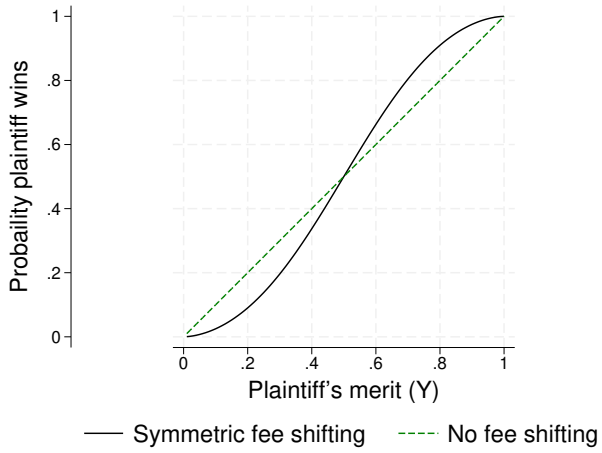
If $\alpha \in (0,1)$, then this implies that relative merit results in an amplified probability to win.

2. The relationship between plaintiff's merit Y and the probability that the plaintiff wins π is S-shaped. Solving for π gives

$$\pi = (1-\pi)\left(\frac{Y}{1-Y}\right)^{1/(1-\alpha)} = \frac{\left(\frac{Y}{1-Y}\right)^{1/(1-\alpha)}}{1+\left(\frac{Y}{1-Y}\right)^{1/(1-\alpha)}} = \frac{Y^{1/(1-\alpha)}}{(1-Y)^{1/(1-\alpha)} + Y^{1/(1-\alpha)}}.$$

This implies that π is below Y for $0 < Y < 0.5$ and π is above Y for $0.5 < Y < 1$. In Figure C6 we set $\alpha = 0.4$ and plot π for the case of symmetric fee shifting and for no fee shifting.

Figure C6: Symmetric fee-shifting: probability plaintiff wins, π

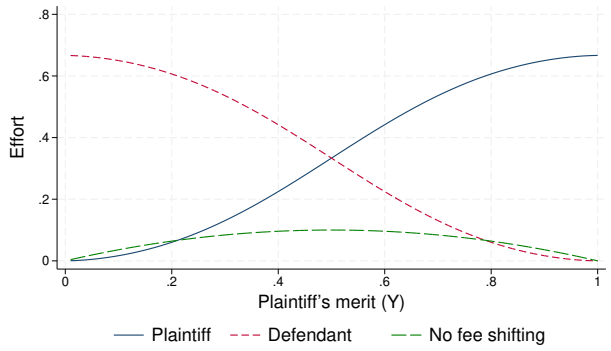


3. Effort can be above or below the level in the symmetric case without fee-shifting. Figure C7 illustrates this, where we set $\alpha = 0.4$ and plot effort, normalized by J/γ.

4. Total cost is greater than total cost in the case with no fee-shifting. Total cost is given by

$$\text{Total cost} = \gamma p + \gamma d = J\frac{\alpha(1-\pi)}{1-\alpha} + J\frac{\alpha\pi}{1-\alpha} = J\frac{\alpha}{1-\alpha}.$$

Figure C7: Fee-shifting: effort



We saw above that with no fee-shifting Total cost $= 2 \times \alpha JY(1-Y)$. So we need to prove that

$$2 \times Y(1-Y) < \frac{1}{1-\alpha}.$$

The maximum value for the LHS is when $Y = 0.5$, which gives 0.5. This is less than $1/(1-\alpha) > 1$ whenever $\alpha \in (0,1)$. Therefore, total cost is more than double compared to the case without fee-shifting.

D Changes in Industry Composition

We build on the Leontief (1936) accounting model. The vector of value added by industry can be expressed as

$$v = V \cdot X = V(Ax + f) = v \cdot L \cdot f,$$

where V is a diagonal matrix of value-added intensities in gross output, x the vector of gross output by industry, A is the square matrix of input intensities, f is the vector of final good production (demanded by households, the government, gross investment, changes in inventories, and net exports), and $L = (I - A)^{-1}$ is the Leontief inverse matrix. We compute a counterfactual value added vector as

$$\widehat{v}^{1990} = V^{1970} \cdot L^{1970} \cdot f^{1990}$$

and compare the GDP shares arising from $\widehat{v}^{1990}$ to those in the 1990 data. $\widehat{v}^{1990}$ combines the structure of production in 1970 (input-output relationships and value added intensities) with demand for final goods in 1990. This generates a counterfactual vector of value added per industry that is consistent with the observed changes in demand, had the structure of production remained as in 1970. For example, the sum of the elements in $\widehat{v}^{1990}$ (as well as in the true v^{1990}) is equal to the sum of the elements in f^{1990}; the former is equal to GDP from the production approach, while the latter—from the expenditure approach.

We use the Input-Output "use" tables from the Bureau of Economic Analysis' (BEA) Industry Accounts. Consistent with other tabulations from the BEA, the GDP share of legal services was 0.7 percent in 1970 and 1.4 percent in 1990. Using $\widehat{v}^{1990}$ we find that the counterfactual GDP share of legal services in 1990 is 0.86 percent. Thus, changes in industry composition account for 23 percent ($= (0.86 - 0.7)/0.7$) of the rise of legal services' GDP share.

We use the same data to analyze changes in which industries absorb the (gross) output of legal services, including households and other final uses. The Input-Output tables report for each industry, and for legal services in particular,

$$x_{legal} = \sum_j Z^j_{legal} + f_{legal},$$

where x_{legal} is (gross) output of legal services, Z^j_{legal} is the output of legal services that is used by industry j (including legal services), and f_{legal} is the output of legal services that is purchased by final users, including households, the government, etc. (Dividing Z^j_i by x_j gives the elements in

the i row in A above.) Dividing through by x_{legal} we have

$$\sum_j \frac{Z^j_{legal}}{x_{legal}} + \frac{f_{legal}}{x_{legal}} = \sum_j b^j_{legal} + b^{final}_{legal} = 1,$$

where b^j_{legal} is the share of legal services output that is purchased by industry j, and b^{final}_{legal} is the share legal services output that is purchased by households, the government, etc.

Comparing these share over time reveals that overall, industries have only modestly increased their importance as clients of legal services: $\sum_j b^j_{legal}$ increased by only 1.3 percent points, from 56.4 in 1970 to 57.7 in 1990. The industries that increased their share in legal services output the most (in percent points) are:

Table D1: Top 10 industries increasing their share of legal services output

Industry	$b^j_{legal,1970}$	$b^j_{legal,1990}$	Δ
Retail trade	1.2	6.9	5.8
Real estate	3.1	5.6	2.5
Hospitals and nursing and residential care facilities	0.6	2.5	1.9
Insurance carriers and related activities	1.0	2.7	1.7
Ambulatory health care services	1.3	2.8	1.5
Food services and drinking places	0.4	1.5	1.1
Securities, commodity contracts, and investments	0.4	1.5	1.1
Computer and electronic products	0.4	1.4	1.0
Other transportation and support activities	0.2	1.1	0.9
Chemical products	0.7	1.5	0.8

We can use again the same data to investigate which industries increased their legal services input intensity the most. This is captured by the elements in the legal services row in the A matrix for each industry j:

$$a_{legal,j} = Z^j_{legal}/x_j.$$

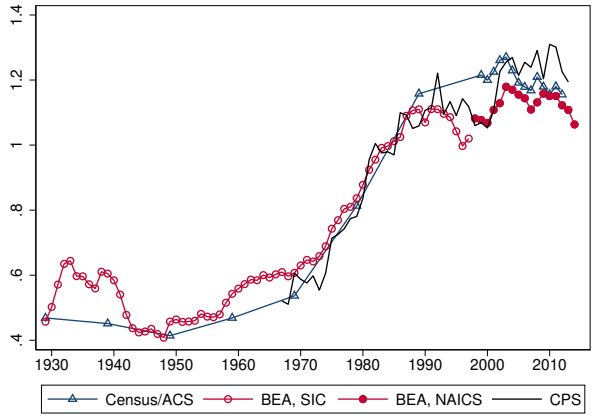
Comparing these $a_{legal,j}$ over time reveals that almost all industries increased their intensity of legal services inputs. The industries that increased their intensity of legal services input the most (in percent points) are:

Table D2: Top 10 industries increasing their intensity of use of legal services input

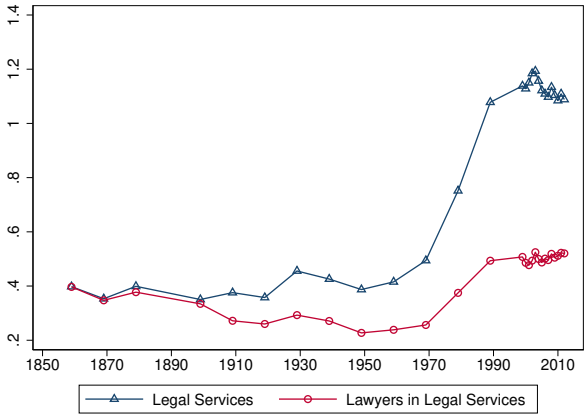
Industry	$a^j_{legal,1970}$	$a^j_{legal,1990}$	Δ
Other transportation and support activities	0.20	2.11	1.91
Waste management and remediation services	0.32	2.04	1.72
Data processing, internet publishing, and other information services	0.00	1.44	1.44
Securities, commodity contracts, and investments	1.02	2.33	1.31
Retail trade	0.13	1.31	1.18
Insurance carriers and related activities	0.40	1.18	0.78
Hospitals and nursing and residential care facilities	0.36	1.10	0.74
Publishing industries, except internet (includes software)	0.37	1.09	0.72
Air transportation	0.09	0.81	0.72
Food services and drinking places	0.12	0.72	0.60

E Supplemental Figures

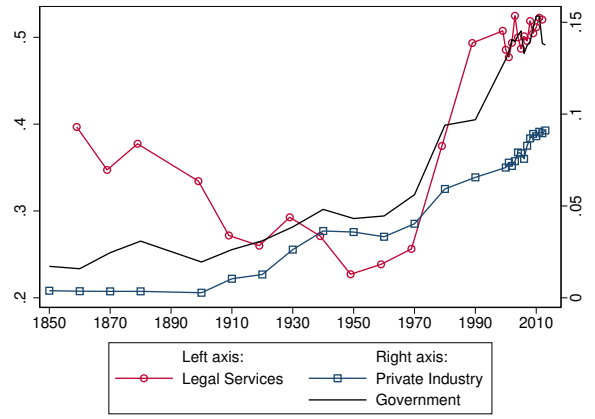
Figure E1: Employment Shares of Legal Services, Additional Series



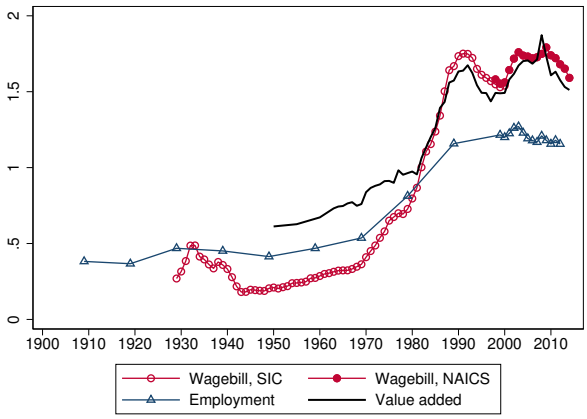
(a) Employment Shares Across 3 Data Sources



(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 E2: Employment Shares of Lawyers in Private Industry

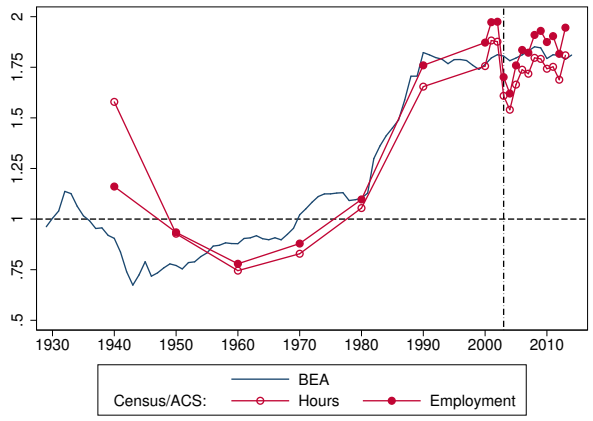


(a) Lawyers in Industry, as % of All Lawyers

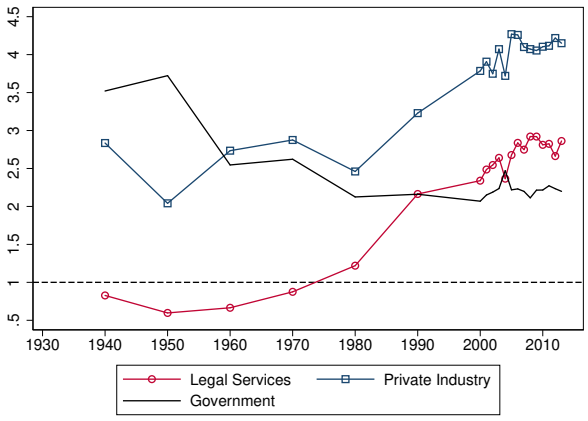
(b) Lawyers in Industry, as % of Private Sector

Notes: Employment is sourced from the decennial Census from 1850–2000, and the American Community Survey from 2001–2015.

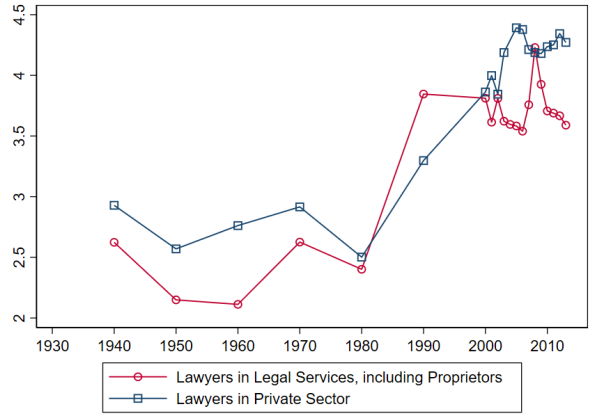
Figure E3: Relative Wages of Legal Services, Additional Series



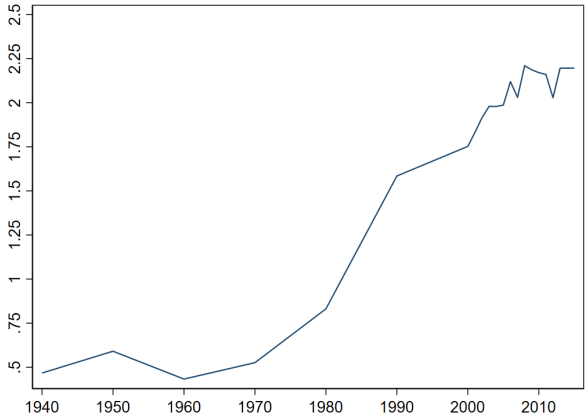
(a) Relative Wages Across 3 Data Sources



(b) Lawyers in Legal Services, Industry, and Govt



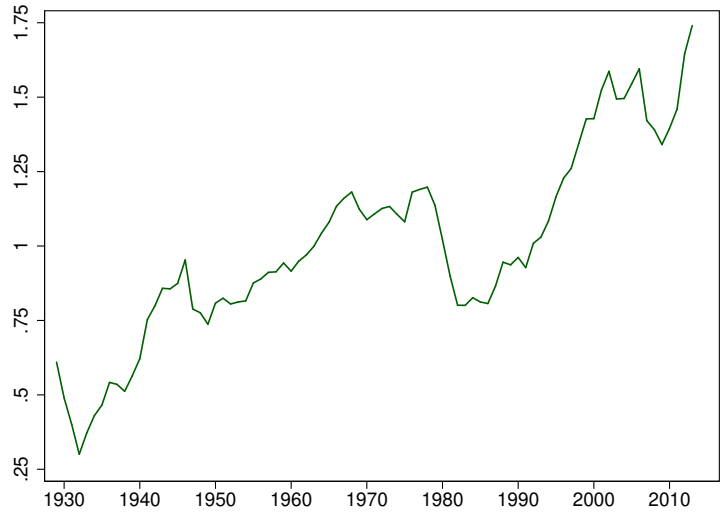
(c) Lawyers and Proprietors in Legal Services vs Industry



(d) Lawyers Wages Relative to College Graduates

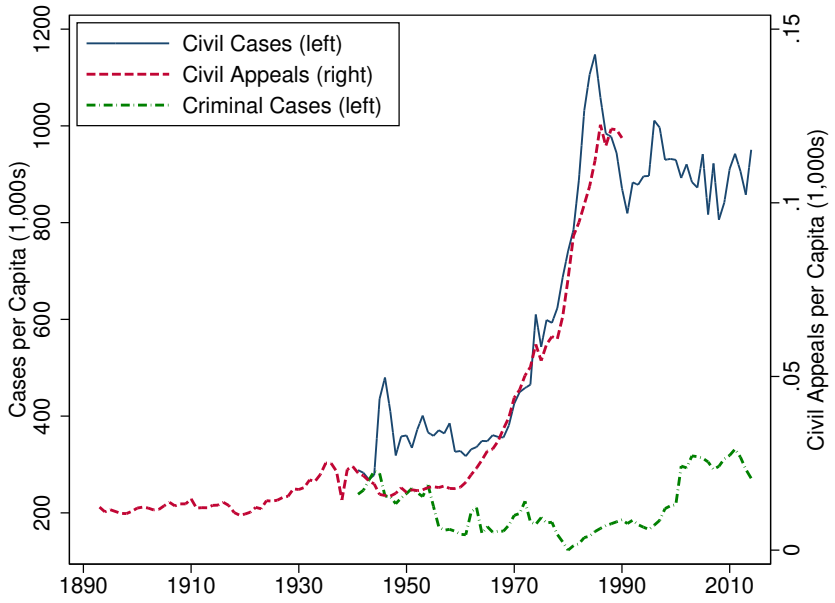
Notes: In (a), all series are relative to non-legal services private sector. BEA relative wage series uses data on compensation of employees and full-time equivalent employment. Until 1997 data based on SIC; from 1998 data based on NAICS. Census/ACS series use data on wage bills and either hours worked (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. In (c), wages of lawyers are relative to college-graduate wages. Source: U.S. Censuses and the American Community Surveys from 2000 and on.

Figure E4: Relative income of proprietors in the private sector



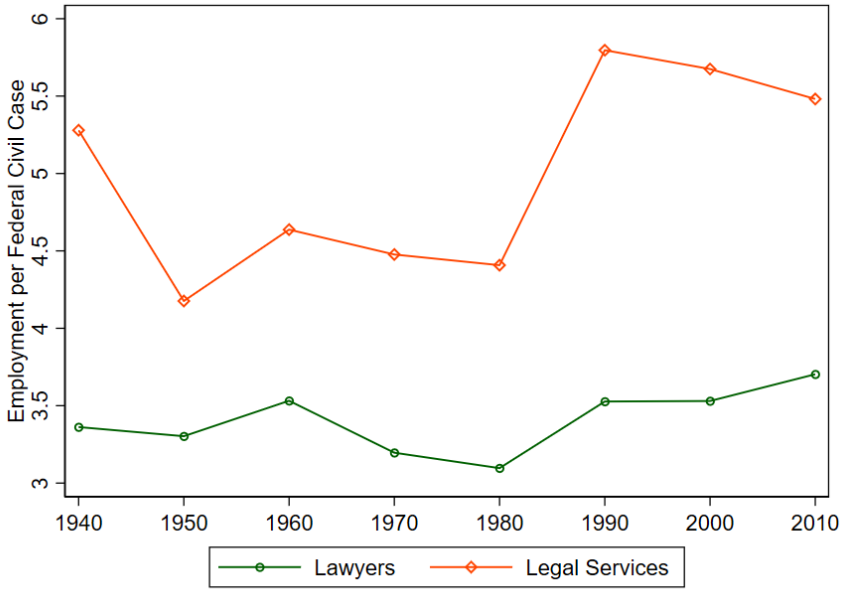
Notes: Total proprietors' income in the private sector is divided by their full time equivalent employment (FTE) to obtain their income per FTE. This is divided by the average wage in the private sector, which is equal to labor compensation divided labors' FTE. Source: BEA. Series splits in 1997 as industry 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 E5: Litigation Intensity



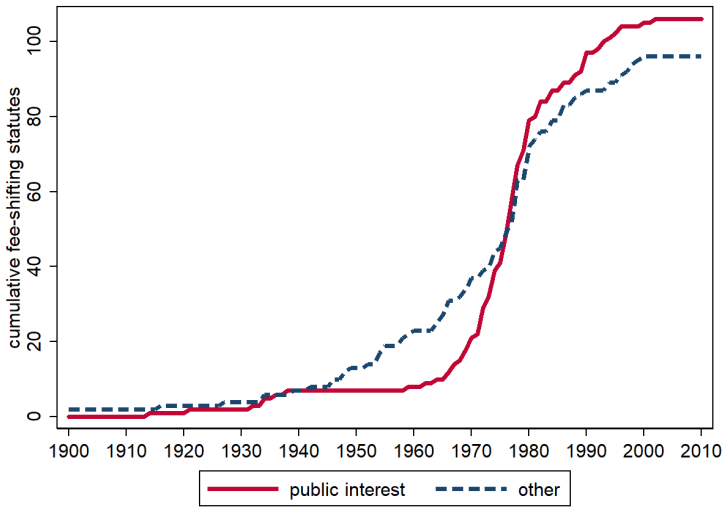
Notes: Civil cases and Criminal cases in 1941–1999 are sourced from the Historical Statistics of the United States. Civil and Criminal cases in 2000–2015 are from the Administrative Office of the U.S. Courts. Civil cases in the Court of Appeals covers 1893 to 1994, and is sourced from the Historical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

Figure E6: Lawyers per Federal Case Filing



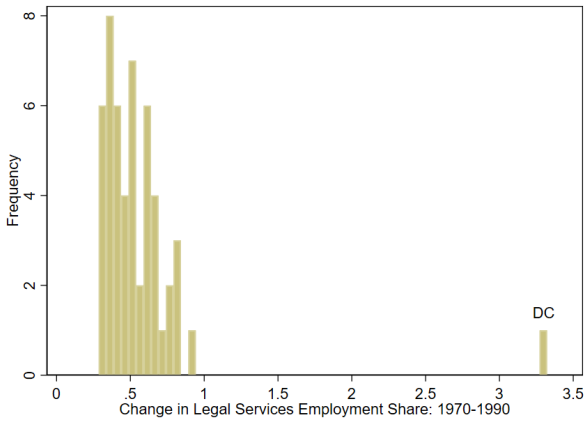
Notes: Civil cases in 1941–1999 are sourced from the Historical Statistics of the United States. We use the case filings in 1941 for 1940. Civil cases in 2000–2015 are from the Administrative Office of the U.S. Courts. The Lawyers series is total employment of Lawyers, per the decennial census. This includes Lawyers in legal services, private industry, and government.

Figure E7: Fee-shifting statues by type

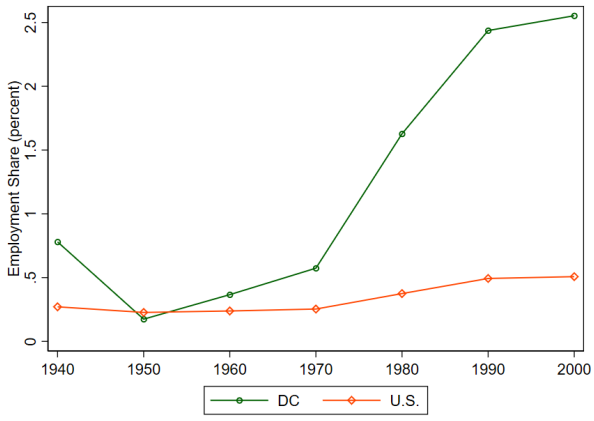


Notes: This figure displays the cumulative number of fee-shifting statutes in the United States, per Derfner & Wolf (2012). We separate out the statutes that apply to "public interest" litigation: economic regulation, consumer protection, consumer safety, environmental protection, civil rights, and employment.

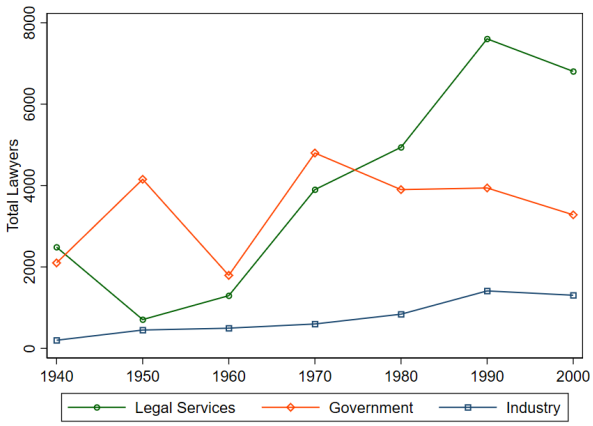
Figure E8: Lawyers in Washington, D.C.



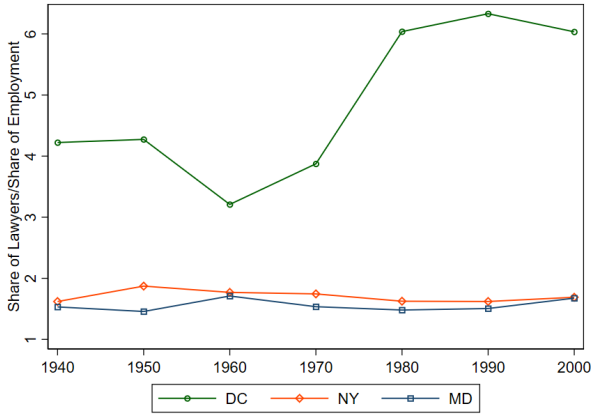
(a) State-Level Changes in Emp. Share



(b) Employment Share of Lawyers in Legal Services



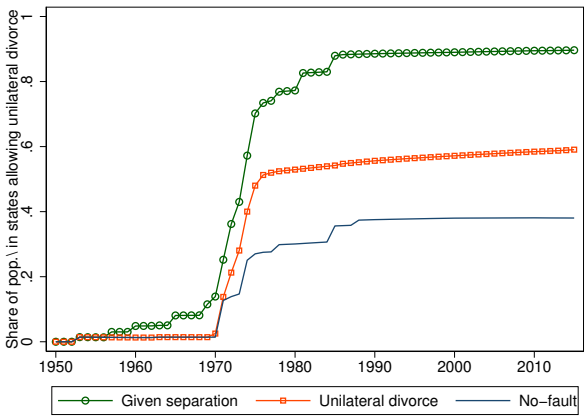
(c) Number of Lawyers, by Type



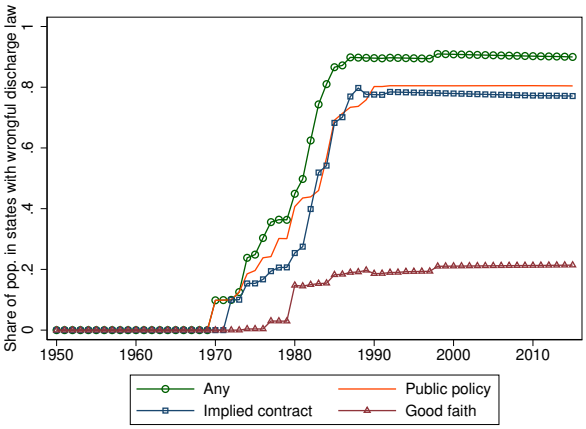
(d) Lawyer Share by Employment Share in DC, NY, MD

Notes: Figure (a) presents the change in the share of legal services employment in each state, from 1970 to 1990. While all of the states experienced increases in the legal services employment share, DC is a clear outlier. Figure (b) presents the share of employment in DC that is employed as lawyers in legal services, As a reference, the employment share of lawyers in legal services in the entire U.S. is also included. Figure (c) compares the total employment of lawyers in DC by "type" (legal services, government, and industry). Finally, Figure (d) shows the comparative advantage of lawyers in DC: the share of lawyers in DC over the share of lawyers in the United States. The next two top states, by this measure, are NY and MD.

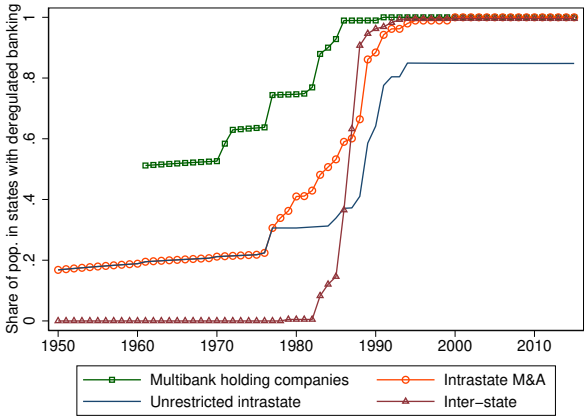
Figure E9: State-Level Deregulation



(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).

Figure E10: State-Level Deregulation: Distribution of Event Years

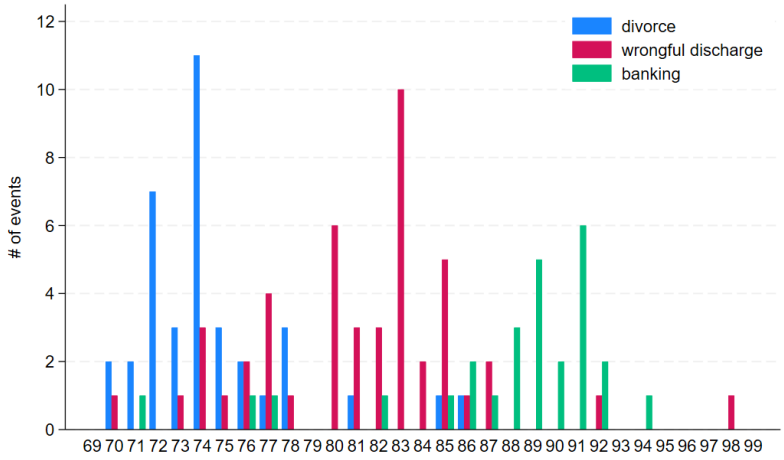
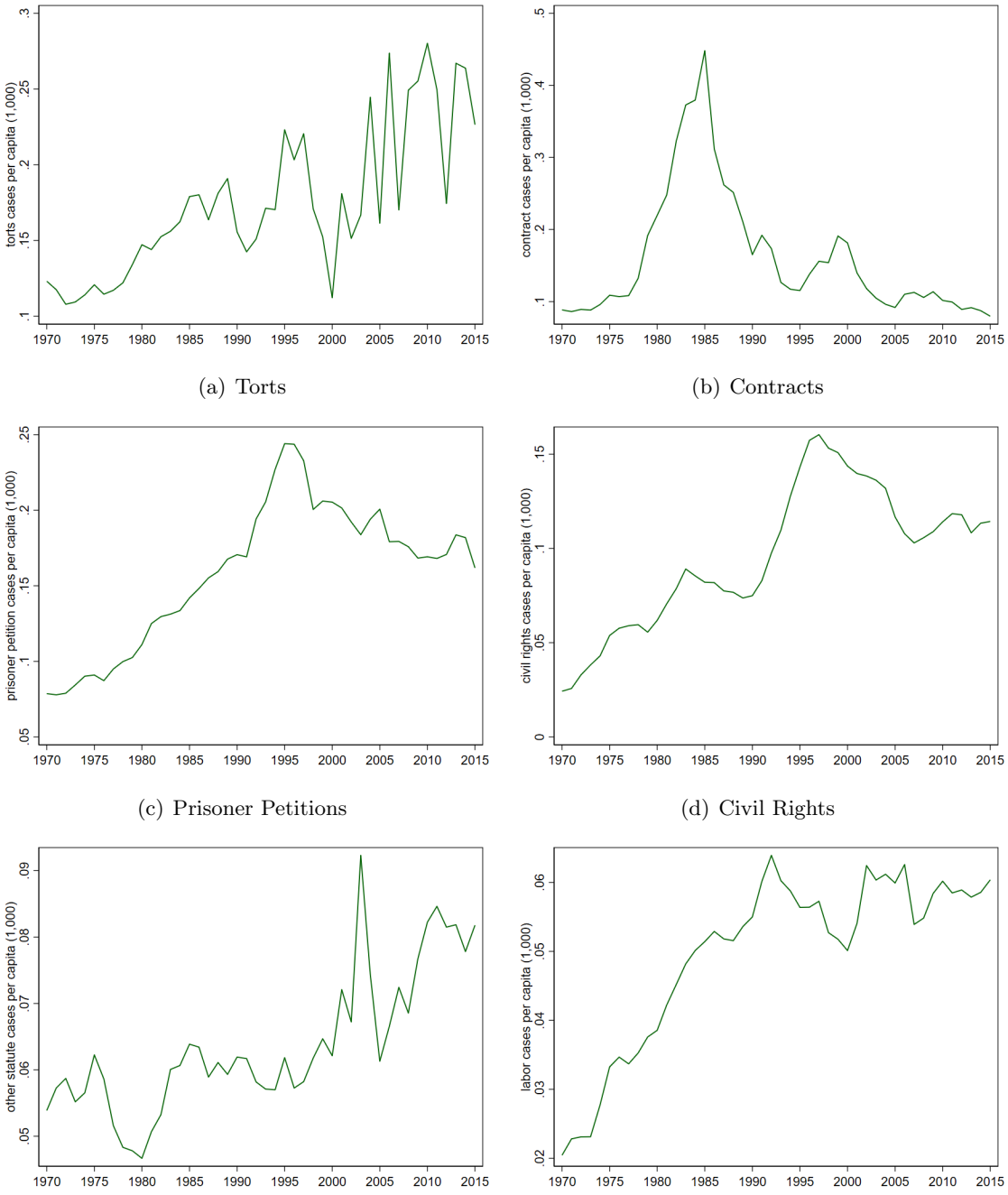


Figure E11: Civil Cases by Nature of Suit, over Time



(a) Torts

(b) Contracts

(c) Prisoner Petitions

(d) Civil Rights

(e) Other Statutes

(f) Labor

Notes: This figure shows the civil cases per capita, by nature of suit, for the six largest categories over the sample period. "Social Security", "Real Property", "Property Rights", "Bankruptcy", "Forfeiture/Penalty", "Federal Tax Suits" and "Immigration" are not shown, In sum these 7 categories contribute 7.3% of federal civil cases. Source: Federal Judicial Center Integrated Database.

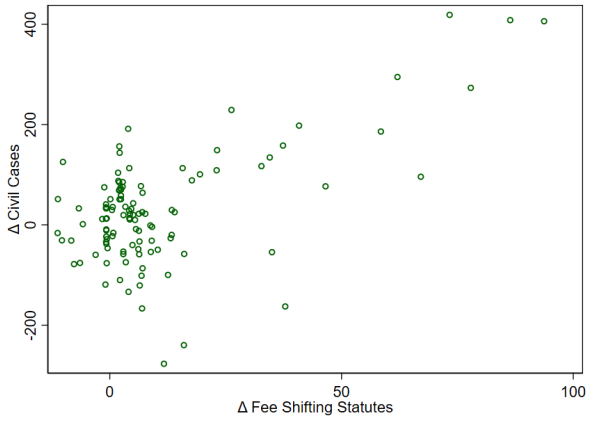
Figure E12: Civil Case Filings and Social Regulation



(a) Environmental Matters (b) Occupational Health and Safety

Notes: The figure shows the per-capita civil filings for two specific nature of suits that we can link to federal legislation: "Environmental Matters" and "Occupational Health and Safety." The year is the year the case was filed. The source of the data is the Federal Judicial Center Integrated Database.

Figure E13: Historical Regressions of Civil Litigation Intensity



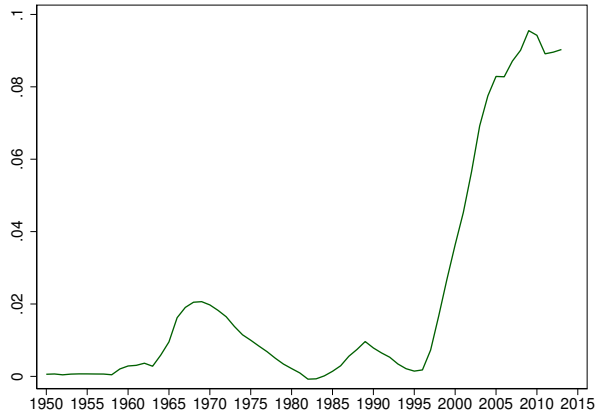
(a) Raw Data

	Δ Civil Cases Per Capita$_t$ (1)
Δ Fee Shifting Statutes Per Capita$_{t-5}$	0.631***
	(0.138)
Δ Top Marginal Tax Rate$_{t-5}$	0.055
	(0.158)
Δ Top Corporate Tax Rate$_{t-5}$	-0.104
	(0.096)
Δ Firms Per Capita$_{t-5}$	-0.061
	(0.101)
Δ Patent Application Intensity$_{t-5}$	0.114
	(0.109)
Observations	91
R^2	0.40
Sample	1913-2013

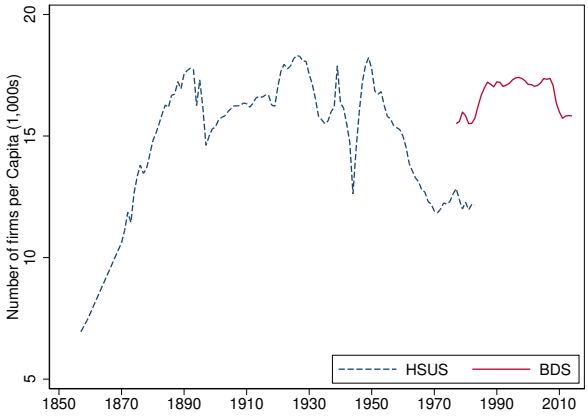
(b) Regression

Notes: This figure and table report the relationship between civil cases per capita and fee-shifting statutes per capita. The dependent variable is measured as the change from t to $t+5$ while the independent variables are changes from $t-5$ to t. We compute Newey-West standard errors that allow for autocorrelation up to 5 lags and that are robust to heteroscedasticity

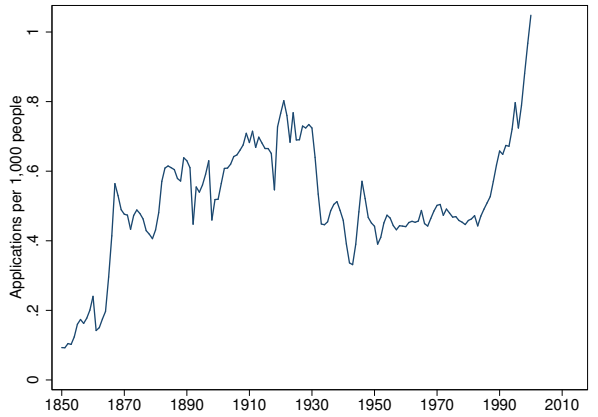
Figure E14: Alternative Explanations



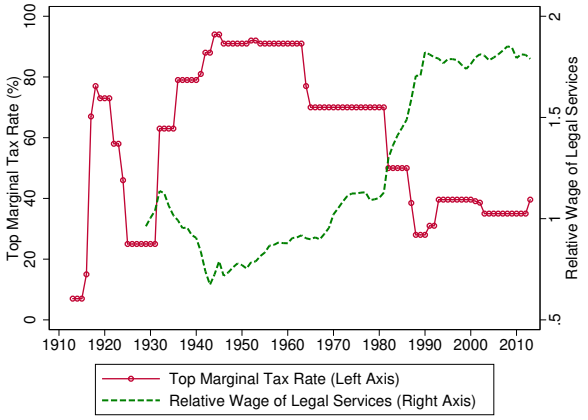
(a) Relative ICT intensity in Legal Services



(b) Number of Firms per Capita



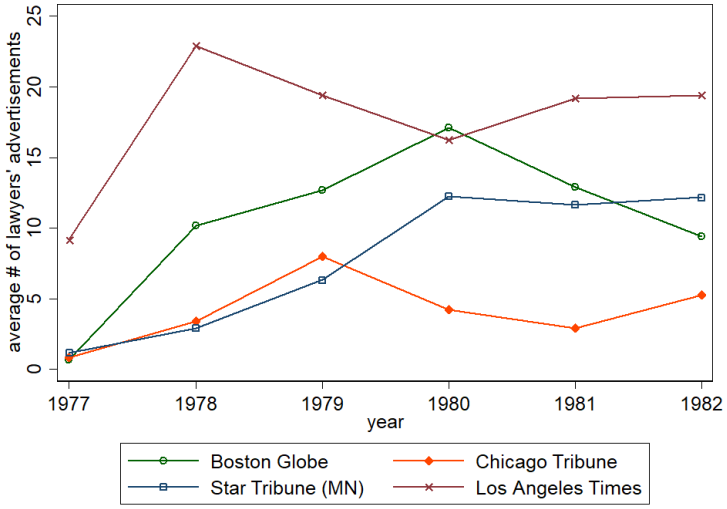
(c) Patent Application Intensity



(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 E15: 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 E16 shows examples of these advertisements. Source: `Newspapers.com`.

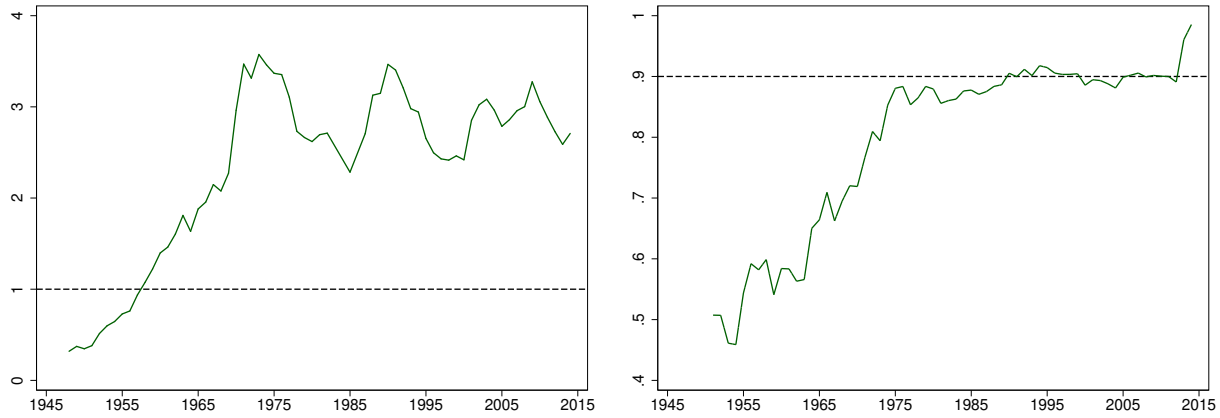
Figure E16: Examples of Legal Advertisements



(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 E17: LSAT Takers, Enrollment and Law Degrees Awarded

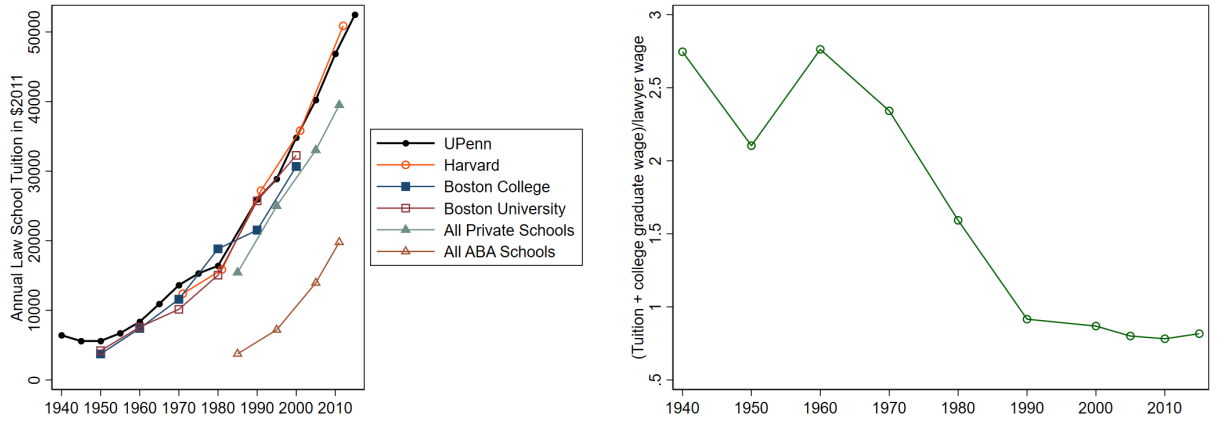


(a) LSAT Takers to Enrollment Ratio

(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 E18: Law School Tuition and Relative Cost

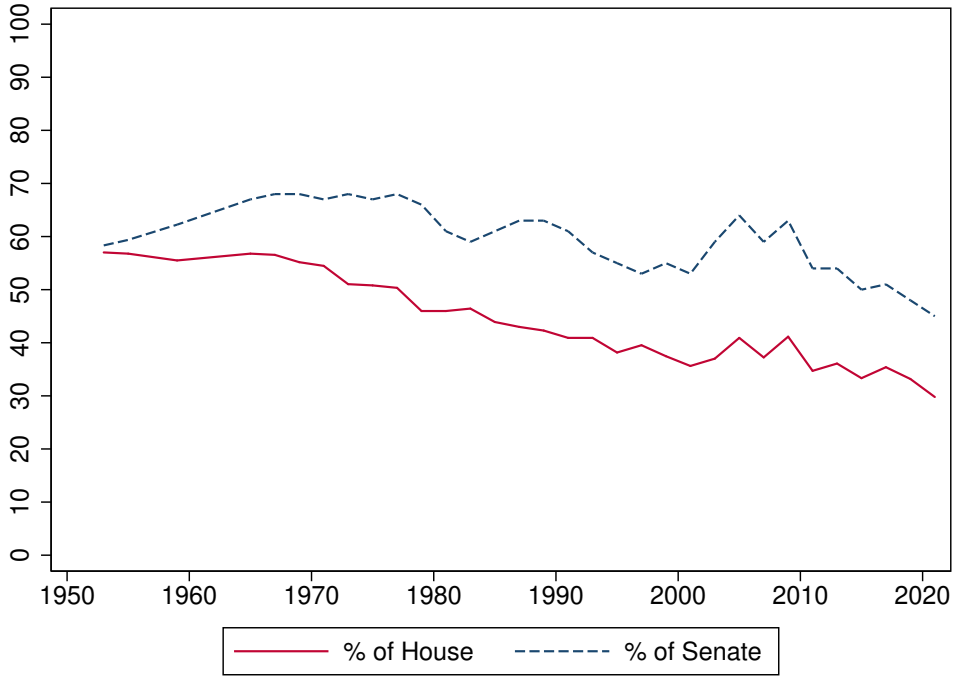


(a) Law School Tuition

(b) Opportunity Cost to Expected Wages Ratio

Notes: Panel (a) shows the annual law school tuition across a set of law schools that we can find data. Tuition is normalized to 2011 dollars. Panel (b) shows the "relative cost" of law school. We calculate the opportunity cost of one year of law school as Tuition + the average wage for a college graduate in year t. Then, we divided it by expected wages, as approximated by the average wage for a lawyer in year t. We use UPenn law school tuition rates, because this is the longest coverage we have on tuition. UPenn tuition rates come directly from the school archive (`https://archives.upenn.edu/exhibits/penn-history/tuition/`). The other tuition series come from academic papers (Cass & Garvey, 2003; Campos, 2012). Wages of lawyers and college graduates from the Census and ACS.

Figure E19: Lawyers in Congress



Notes: This figure shows the percentage of members of the U.S. congress—house representatives and senators—that are trained as lawyers. Source: Brookings Institution's *Vital Statistics on Congress*.

F Supplemental Tables

Table F1: 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 F2: 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 F3 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 F3: 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 F2.

Table F4: Timeline of Legislative Acts and Deregulation Events

Event	Date	Industry
Civil Rights Act	1964	Social Regulation
Voting Rights Act	1965	Social Regulation
Fair Housing Act	1968	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
Americans with Disabilities Act	1990	Social Regulation
Civil Rights Act	1991	Social Regulation
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 F5: 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 F6: 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.

Table F7: Fee-shifting by category, statutes passed during 1970–1990

Category	Number	Percent
Economic Regulation	12	9.1
Consumer Protection	10	7.6
Consumer Safety	6	4.6
Environmental Protection	24	18.2
Civil Rights	9	6.8
Employment	18	13.6
Sunshine and Privacy	7	5.3
Abuse of Process	3	2.3
Federal Liability for Fees	11	8.3
Intellectual Property	4	3.0
Debtors' Estates	1	0.8
Supervisory and Monetary Limitations	7	5.3
Common Fund/Substantial Benefit	4	3.0
Indemnification	11	8.3
Federal Agency Participation	5	3.8
All	132	100.0

Notes: The table reports the number of fee-shifting statutes, by category, passed between 1970 and 1990. The first 6 categories are what we classify as "public interest litigation", and this makes up just over 60% of the total number of statutes passed in this period. The classification and timing of the passage of these statutes are collected from Derfner & Wolf (2012).

Table F8: State Regressions by Field of Law, Lags

Field of Law:	Domestic Law			"Other" Law			Banking Law		
	Log(Emp)$_t$	Sh. Law$_t$	Sh. Tot$_t$	Log(Emp)$_t$	Sh. Law$_t$	Sh. Tot$_t$	Log(Emp)$_t$	Sh. Law$_t$	Sh. Tot$_t$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Divorce Dereg.$_{t-5}$	1.068***	0.797***	0.005***						
	(0.117)	(0.204)	(0.001)						
Wrongful Discharge$_{t-5}$				1.016***	11.078***	0.041***			
				(0.069)	(1.247)	(0.004)			
Banking Dereg.$_{t-5}$							0.840***	1.692*	0.009***
							(0.229)	(0.971)	(0.003)
Within R-squared	0.41	0.10	0.14	0.44	0.37	0.01	0.04	0.02	0.01
Observations	140	140	140	140	140	140	140	140	140
Mean Dependent Var.	4.147	2.071	0.005	6.784	26.188	0.097	4.985	4.563	0.013

Notes: This table presents the results of a set of state-year level regressions of employment in a certain field of law on lagged state legislation and regulation status. State fixed effects are included in all specifications. The outcomes are the log of employment or share of lawyers in a given field in state s, between t and $t+5$. The shares are out of total lawyers in the state ("Sh. Law") or total employment in the state ("Sh. Emp"). The data on fields of law come from teh Census of Services, which is available in 1972, 1977, 1982, 1987, and 1992. Therefore, the sample consists of 28 states over 5 years. State-level legislation dates from Mengle (1990), Black & Strahan (2001), Friedberg (1998), Vlosky & Monroe (2002), and Autor et al. (2006). Shares are in percents. * p< 0.1, ** p<0.05, *** p<0.01.

Table F9: State Regressions by Field of Law, Differences

Field of Law:	Domestic Law		"Other" Law		Banking Law	
	Δ Sh. Law$_t$	Δ Sh. Emp$_t$	Δ Sh. Law$_t$	Δ Sh. Emp$_t$	Δ Sh. Law$_t$	Δ Sh. Emp$_t$
	(1)	(2)	(3)	(4)	(5)	(6)
Δ Divorce Dereg.$_{t-5}$	0.016	0.001				
	(0.251)	(0.001)				
Δ Wrongful Discharge$_{t-5}$			0.375	-0.002		
			(1.395)	(0.003)		
Δ Banking Dereg.$_{t-5}$					1.099	0.003
					(0.897)	(0.002)
Within R-squared	0.00	0.03	0.00	0.00	0.01	0.00
Observations	112	112	112	112	112	112
Mean Dependent Variable	0.327	0.002	4.307	0.038	0.660	0.005

Notes: This table presents the results of a regression of pre-period differences on next period differences. State fixed effects are included in all specifications. The outcomes are the differences in shares for lawyers in a given field in state s, between t and $t+5$. The shares are out of total lawyers in the state ("Sh. Law") or total employment in the state ("Sh. Emp"). The data on fields of law come from the Census of Services, which is available in 1972, 1977, 1982, 1987, and 1992. Therefore, the sample consists of 28 states over 4 time periods of differences. State-level legislation dates from Mengle (1990), Black & Strahan (2001), Friedberg (1998), Vlosky & Monroe (2002), and Autor et al. (2006). Shares are in percents. * p< 0.1, ** p<0.05, *** p<0.01.