

Tacit Collusion in Labor Markets: The Case of BigLaw

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Abstract

Many large firms across the U.S. offer the exact same associate salaries despite substantial heterogeneity on both sides of the labor market. I document empirical facts about the associate market and show that these facts are difficult to reconcile with competitive labor markets. I then provide evidence for an alternative explanation – tacit collusion. A few firms act as price leaders and set maximum salaries. They punish deviators by exceeding any competing offer. Some smaller firms are excluded from punishment to maintain cartel stability, and firms strategically communicate compensation decisions to prevent misunderstanding. Tacit collusion is facilitated by communication (near-perfect information on salary offers) and standardization (uniform salary scales). Many of these practices originated in historical explicit collusion, such as an annual luncheon where major firms set salaries that existed until 1968. This research highlights the potential for collusion in labor markets and the need for further scrutiny.

1 Introduction

In 2018, about 20% of new law school graduates received a starting salary of exactly \$190,000 (Figure 1). This fact is puzzling. Price dispersion has been recognized as the norm since at least Stigler (1961), who stated that “dispersion is ubiquitous even for homogeneous goods.” A large empirical literature has confirmed this observation (Baye et al., 2006). In the case of lawyers, there is significant heterogeneity on both sides of the market - lawyers are highly differentiated (e.g., quality, location, preferences, outside options) as are law firms (e.g., prestige, amenities, promotion rates, location).

This exact uniformity is even stranger because it is a recent phenomenon. Figure 2 shows the distribution of starting salaries in 1996 and 2000. In 1996 there is no clear mass point, but then it suddenly appears in 2000. Moreover, almost no lawyers receive salaries above the modal salary, so it is effectively the maximum salary as well. Jobs at the modal salary are typically in “BigLaw” firms. These firms are the largest law firms, which can have thousands of lawyers. The immediate question is what causes this phenomenon?¹ I propose a simple explanation – tacit collusion.

I begin by documenting key empirical facts about the market for BigLaw lawyers. Significantly more firms began paying the exact same salary in major cities starting in 2000. The frequency of salary adjustments has declined, but when they do occur they are larger. For example, between 1996-2000 the median (nominal) salary offer increased by over 70% but then did not change again until 2006. Salaries have grown much slower than profit per equity partner. Salary increases and associate employment are positively correlated, which suggests that the wage increases are not primarily due to labor supply shocks.

These key empirical facts seem inconsistent with competitive markets. For example, pre-tax salaries are equalized across major cities despite substantially different tax regimes, amenities, and local price indices. Major salary jumps are not accompanied by corresponding increases in productivity or decreases in markups.

I next present the case for tacit collusion. A few firms consistently lead compensation decisions, most prominently Cravath, Swaine & Moore (hereafter Cravath). Other firms wait for its decisions and will sometimes match its offers within an hour of the initial

¹Several commentators have noted this fact and informally proposed explanations. Kevin Drum, of *Mother Jones*, attributed it to “weird cultural collusion” (see motherjones.com/kevin-drum/2013/11/startng-salaries-attorneys-are-pretty-weird/), Peter Turchin, a professor at the University of Connecticut, attributed it to “extreme competition” (see peterturchin.com/cliodynamica/bimodal-lawyers-how-extreme-competition-breeds-extreme-inequality/), and Andrew Sorkin, of *The New York Times*, attributed it to a desire to secure “bragging rights” (see nytimes.com/2007/12/02/business/02deal.html).

announcement. These price leaders set a maximum salary for the market. They have established a reputation of immediately matching or exceeding any competing offers that exceed this salary cap. This policy severely limits the short-term payoffs to deviating from the collusive equilibrium.

Price leaders' strategies extend beyond a simple matching strategy. Some small firms are excluded from the strategic set and allowed to exceed the maximum salary to ensure cartel stability ([Bos and Harrington, 2010](#)). Firms strategically communicate about compensation to avoid miscommunication; for example, some firms might publicly communicate that their higher salary will be offset by lower bonuses so they are not exceeding the market maximum. Price leaders will also slightly exceed competing offers, both to increase punishment and to prevent cheating firms from obtaining reputational benefits.

Tacit collusion is facilitated by communication and standardization. Communication occurs through trade publications, trade groups, and private informal settings. It allows firms to monitor competitor choices and align on compensation expectations. Associate job ladders and pay scales are standardized. The standardization of associate job ladders and pay scales allows "apples to apples" comparisons of salaries across firms which facilitates monitoring. The standardization of salaries within job levels (i.e., no "discounting") also reduces the ability of firms to cheat. Some of these facilitating practices began due to explicit collusion.

Finally, I provide some suggestive evidence of efficiency costs. Large salary jumps are only possible if associates were previously paid significantly less than their marginal product. This distortion could lead to more productive firms being inefficiently small because it allows "fringe" firms to enter. There is anecdotal evidence that large salary increases occur at least in part to eliminate competition with less productive "fringe" firms. This distortion could also alter relative input usage. I measure how "constrained" firms are by calculating how much their ratio of associates to partners decreased in the years prior to large salary jumps. More "constrained" firms increase associate hiring by significantly more than other firms after the large salary jumps. This result suggests that these firms wanted to hire more associates at the market salary prior to the jump, but they were unable to.

The market for BigLaw associates has almost always involved collusion. Explicit collusion began soon after the origin of the modern BigLaw firm. Associate salaries were set at an annual luncheon of the major New York law firms from 1927-1968. In 1968, Cravath unilaterally broke with the "luncheon" cartel by raising salaries by 50%. At the same time, Cravath publicly invited other leading New York law firms to follow their pricing strategy. After 1968, regional legal markets were imperfectly competitive or tacitly collu-

sive. By the late 1990s, law firms had transformed from regional to national. At that time, a localized tech boom shock caused California firms to raise compensation. They also increased salaries in their New York satellite offices. These New York increases exceeded the local collusive maximum and temporarily broke down collusion. Leading New York firms responded by matching or exceeding any salary increases to establish a regime of national price leadership. This effort led to significant salary increases in 2000, 2006, and 2007. These increases are often referred to by commentators as “salary wars”.

This research shows that labor markets are not immune to collusion. In some ways, labor markets might be more susceptible to collusion than many product markets. For example, firms can easily monitor cheating in collusive no-poach agreements. The Department of Justice and Federal Trade Commission have recently increased their scrutiny of collusion in labor markets and issued guidance to Human Resources professionals.² There have been significant recent cases, for example against technology and animation companies for entering into no-poach agreements (Adobe, Apple, eBay, Google, Intel, Intuit, Lucasfilm, and Pixar). The DOJ also recently brought its first criminal cases for labor market collusion.³

This paper contributes to several strands of literature. First, it contributes to the large literature on detecting collusion. Detection approaches vary significantly across empirical settings. One approach is to look for behavior inconsistent with competition or for structural breaks in behavior. For example, [Kawai and Nakabayashi \(2020\)](#) show that Japanese procurement auction bids are inconsistent with competition. Alternatively, competitive markets can be used as direct benchmarks. [Porter and Zona \(1999\)](#) find that the bids of colluding firms in school milk auctions decrease with distance, unlike competitive firms. Finally, studies can directly test for whether structural models of collusion or competition best fit the data, like [Bresnahan \(1987\)](#), showing that the auto price war of 1955 is best explained by a breakdown of collusion. This paper is most closely related to papers that test whether behavior is inconsistent with competition; the most similar paper is [Knittel and Stango \(2003\)](#), which shows that the excess clustering of credit card rates at statutory ceilings is due to tacit collusion.

This paper also contributes to the separate literature on the operation of collusive cartels ([Asker, 2010](#)). Most closely related from this literature are [Byrne and de Roos \(2019\)](#) and [Genesove and Mullin \(2001\)](#). [Byrne and de Roos \(2019\)](#) use detailed retail gasoline

²U.S. Dep’t of Justice Antitrust Div. and Federal Trade Commission. 2016. “Antitrust Guidance for Human Resource Professionals.”

³Nina Beck. 2021. “DOJ brings First Criminal Antitrust Charges for No-Poach Agreement Between Employers.” *The National Law Review*, January 15. <https://natlawreview.com/article/doj-brings-first-criminal-antitrust-charges-no-poach-agreement-between-employers>.

pricing data to show how firms used dynamic pricing strategies to establish a mutual understanding to achieve a tacitly collusive equilibrium. [Genesove and Mullin \(2001\)](#) use extensive notes from cartel meetings to detail the operation of the Sugar Institute cartel. I combine elements of both approaches by using both time series data on compensation decisions and qualitative narrative evidence to more fully illustrate firm strategies.

This paper contributes to both of these literatures in several ways. Existing papers typically focus on output markets, especially settings involving bidding or commodities, such as retail gasoline markets. There are only a few papers looking at cartels in input commodity markets with a focus on agricultural inputs (e.g., [Huang, 2020](#)). There is limited research on collusion in service markets and to my knowledge there is no existing research looking at examples of collusion in labor markets. Further, I provide a new case study on the origin and maintenance of price leadership under tacit collusion.

In addition, this paper is related to a growing literature on monopsony power in labor markets ([Card et al., 2018](#)). Such research has demonstrated that labor markets are far from perfectly competitive with firms typically facing labor supply elasticities around 1.5-2 ([Sokolova and Sorensen, 2020](#)). There is also a separate literature on non-compete agreements (e.g., [Ashenfelter and Krueger, 2018](#)). Most existing papers have focused on unilateral monopsony power from concentration ([Arnold, 2020](#)) or search frictions ([Manning, 2003](#)) rather than monopsony power deriving from coordinated action. This paper provides evidence that concerted action can contribute to monopsony power, even when markets are unconcentrated according to conventional measures.

Section 2 provides some background on BigLaw firms and introduces the data. Section 3 begins by showing key empirical facts about the labor market for BigLaw associates. It then assesses whether these key empirical facts are consistent with collusion. Section 4 presents the case for collusion. Section 4.1 shows potential indicators of collusion. Section 4.2 identifies price leaders. Section 4.3 goes through the history of price leadership and how it originated. Section 4.4 outlines the strategy of colluding firms. Section 4.5 discusses practices that facilitate collusion. Section 4.6 ends with analysis suggesting potential efficiency costs. Section 5 concludes and presents topics for future research.

2 BigLaw

However influence and power are measured – whether in raw economic terms or in subtler, political ones – these firms remain the leaders of the bar.

- Anthony Kronman, Professor of Law at Yale University, on BigLaw firms (1993)⁴

BigLaw is a colloquial term referring to major law firms. There is no specific definition, but it generally means firms that feature on prominent industry lists, such as *The National Law Journal's* list of largest firms ("NLJ200"), *Vault's* list of most prestigious firms ("Vault 100"), or *The American Lawyer's* list of highest revenue firms ("AMLAW100"). These firms are typically large, with at least 100 attorneys; the largest, Baker McKenzie, had 4,720 attorneys in 2019. While these firms are large, the BigLaw market is significantly less concentrated than many other white-collar service markets; for example, there is no law firm equivalent to the "Big Four" accounting firms.

Firms are primarily composed of associates, partners, and support staff. They typically serve large corporate clients on their most complex legal matters, such as mergers. This allows them to charge premium rates, with many partners charging significantly in excess of \$1,000 per billable hour. Most firms charge by the billable hour, although a handful of firms use other billing practices, such as fixed fees.

The operation and structure of BigLaw firms are heavily indebted to Paul Cravath who developed the "Cravath system" at the firm Cravath in the early 20th century. Most major firms still follow a version of the Cravath system. The system emphasizes hiring associates straight from elite law schools, "lockstep" compensation, and "up or out" promotion to partner.

There is a strong emphasis on hiring the best candidates. For law firms, this means hiring the best students directly from elite law schools. Almost all new associate recruiting occurs directly from law school, rather than from already practicing lawyers in other industries. Historically, major firms did not poach associates from each other, but this norm has disappeared.

Lockstep compensation means that associates are paid a uniform salary based on their years of BigLaw experience. Most major firms use lockstep salaries for associates, although a handful of firms use this system only for the first few associate years. Many firms also pay associates lockstep bonuses, but there is a relatively greater use of individualized bonuses, the most important criteria typically being billable hour thresholds.

Historically, many top firms also used lockstep compensation for partners; however, this practice is becoming increasingly rare as most firms have switched to individualized partner compensation. Firms set partner compensation on a yearly basis. A major determinant of compensation levels is origination credits, which partners receive when they bring in new business. In recent years, a divide has grown between two types of

⁴ Anthony Kronman. 1993. *The Lost Lawyer: Failing Ideals of the Legal Profession*. Cambridge, MA: Harvard University Press.

partners – equity and non-equity. Non-equity partners receive compensation that is less dependent on firm profits and are typically paid significantly less.

Firms also rely on “up or out” systems. They accept large associate classes with the expectation that most associates will not make partner. According to *The Wall Street Journal*, “Most associates know their chances of making partner at the big firms is less than 5%.⁵ Some associates will transfer and become partners at smaller firms. Many others will end up working in other sectors, primarily in-house corporate law departments or governmental positions.

Associates are typically required to work long hours. According to the *National Association for Law Placement*, the average minimum billable hours requirement for large firms was 1,918 in 2015. Associates are typically expected to bill 2,000 to 2,100 hours, and associates who want to become partners can bill closer to 2,300 to 2,400 hours. Actual hours worked are significantly higher since typically less than 80% of hours worked are billable.⁶

Law firms have changed significantly over time. Prior to 1900, even the largest firms were small and even in 1933 the largest firms only had around 70 lawyers. These firms were local, with significant offices usually only in one city. In the early 1960s, less than forty firms had more than 50 lawyers nationwide. Lawyers were forbidden by The Canons of Professional Ethics to advertise or solicit clients until a 1977 Supreme Court ruling struck down these prohibitions. Around this same time, law firms began to grow significantly faster ([Galanter and Palay, 1991](#)). The largest firms have continued to grow and have increasingly become national or even international organizations ([Galanter and Henderson, 2010](#)).

BigLaw is relatively unique because of the large amount of publicly available data on private firms. Much of this data comes from various trade organizations that rank law firms, such as *The National Law Journal*, *Vault*, and *The American Lawyer*. These groups collect data in order to create their rankings. Several market intelligence firms or consulting groups also collect data. Examples include Legal Compass by ALM Intelligence and Citi Private Banking’s Law Firm Group. Finally, there are many trade publications that cover law firms, such as *Above the Law*’s coverage of firms’ compensation announcements. I use primarily three sources of data – *The National Law Journal* rankings for employment and associate salaries, *The American Lawyer* rankings for revenue and partner compensation, and *Above the Law* coverage for compensation announcement timing.

⁵Cameron Stracher. 2006. “Cut My Salary, Please!” *The Wall Street Journal*, April 1. <https://www.wsj.com/articles/SB114384471634713946>.

⁶Lateral Link. 2012. “Law Firm Hours - The Real Story.” *Above the Law*, July 24. <https://www.abovethelaw.com/career-files/law-firm-hours-the-real-story/>.

The National Law Journal (NLJ) focuses on ranking firms by the number of attorneys and extends back to 1978. The number of firms it covers has increased over time; in 1978 it covered the top 200 firms, whereas the most recent editions cover the top 500. I focus on the top 200 firms (“NLJ200”) throughout the paper.⁷

NLJ data also include the minimum and maximum offered starting associate salary. Salaries are almost always uniform within a given office since most firms use lockstep compensation. Many firms also use a uniform starting salary across offices – for example, 83% of firms reporting salaries in 2019 did not report separate minimum and maximum salaries.⁸ However, the share of firms that offer uniform salaries across offices does vary across years. Unless stated otherwise, I report the maximum salary because it is the salary likely to prevail in the firm’s main offices.⁹ For some firms and years (1989-2014), data on minimum and maximum billing rates is also available. The billing rate data is mainly used in supplementary analysis because the sample coverage varies.

The American Lawyer’s (AMLAW) rankings focus on firm financial data, so they collect more information on revenue, cost, and partner compensation. The first full year of available data I have is for 1986. Like the NLJ rankings, the list of firms expanded over time from 100 to 200 firms in terms of revenue. For some pieces of analysis, I restrict the sample to the top 100 firms (“AMLAW100”).

The final main source of data is the trade publication *Above the Law*. It was founded in 2006 and covers BigLaw firms from an associate’s perspective. Most importantly, it collects salary and bonus memos from major firms, allowing me to reconstruct the timing of compensation decisions.

A few supplementary data sources are used. The firm BigLaw Investor provides financial advice to associates and has helpfully compiled the “Cravath scale” salaries and bonuses by associate tenure and year starting in the early 2000s. Data on the salary of newly qualified solicitors (the UK equivalent of first year associates) at major UK firms comes from the trade publication *The Lawyer*. Finally, I use quotes and background information from a variety of publications covering the legal industry, such as *The New York*

⁷ This data is for fiscal years, which typically end in June. Generally the distinction between fiscal year and calendar year does not create confusion, so I simply refer to both by year. However, when discussing compensation announcements I also use calendar years, which creates some slight differences. For example, in June 2016 firms announced raises, but they were for the fiscal year 2017 which began in July 2016.

⁸ Firms often even apply these salaries to international offices using recent quarterly exchange rates, which can lead to large salary fluctuations from quarter to quarter.

⁹ For most years only 5-10% of observations are missing salary information; however, both the first few and last few sample years have higher rates of missing observations (20-30%). Both high and low salary firms have similar missing rates; for example, in 2019 I cannot reject the null hypothesis that missing and non-missing firms were equally likely to have paid the top salary of \$160,000 in 2006. However, to create growth rates I also use within firm growth rates to deal with any potential issues due to changing samples.

Times and the *ABA Journal*.

3 Dynamics in the Market for BigLaw Associates

3.1 Empirical facts

It's very odd.

- Brackett Denniston, former GE general counsel, on associate salaries (2016)¹⁰

First I document key empirical facts about the market for BigLaw associates. Next, I test whether these empirical facts are consistent with competitive labor markets.

Empirical Fact #1: Exact nominal salary uniformity across major firms and cities, especially after 2000.

As shown in the introduction, many law school graduates earn the exact same starting salary. This uniformity is due to BigLaw firms. Figure 3 shows the share of NLJ 200 firms that match the modal salary. The rate is roughly constant at 15-20% until 2000, when it jumps to 40-60%. Figure 4 plots the 10th, 25th, 50th, 75th, and 90th percentiles of the starting salary distribution across firms. Before 2000, the 50th, 75th, and 90th percentiles are distinct while after 2000 they are generally the same value.

This fact is true across major cities. Table 2 shows the matching rate by the firm's home office city and year.¹¹ Before 2000, almost all non-New York firms paid less than the national modal rate, which was also the New York modal rate. Matching rates increase significantly after 2000 from nearly zero for many major cities, especially Washington D.C., Chicago, Boston, Los Angeles, and San Francisco.¹² This evidence is consistent with anecdotal industry observations that these firms pay the same salary across all major legal markets and typically only vary salaries for smaller markets such as Charleston or Salt Lake City.

Empirical Fact #2: Large salary jumps (70% from 1996-2000, 28% from 2005-2007, 19% from 2017-2019) followed by periods of stagnant nominal salaries.

¹⁰Casey Sullivan. 2016. "Is Following Cravath's Lead the Best Way to Set Salaries?" *Bloomberg Law*, June 7. <https://www.news.bloomberglaw.com/business-and-practice/is-following-cravaths-lead-the-best-way-to-set-salaries>.

¹¹Home office is defined as the city with the most firm employees.

¹²These rates are for the maximum salary, so these firms could be matching salaries only in New York, but results are similar if the analysis is restricted to only firms that reported the same minimum and maximum salary.

Table 1 provides data on the mean, median, and modal salaries. It also shows the mean and median salary change from the previous year. There are several key takeaways. First, there are many years when the median and modal salaries do not change. This is also true for individual firms; there are long periods where the median salary change is zero dollars. Because these salaries are nominal, real salaries often decrease for several years in a row.

Second, these periods are followed by large salary jumps. Between 1991-1996, the median change was always zero dollars and the median salary increased only from \$66,000 in 1990 to \$73,000 in 1996. Then the median salary jumped from \$73,000 to \$125,000 (a 71% increase) between 1996 and 2000. Salaries stagnated again and the median salary did not increase from 2000 to 2005. Another jump occurred from \$125,000 to \$160,000 (28%) between 2005 to 2007. Then another period of stagnation followed, with the median change of zero dollars every year until 2017 to 2019 when median salaries jumped by 19%. Thus, there have been long periods of stagnant nominal (and declining real wages) followed by periods of rapid growth.

Empirical Fact #3: Real wages have not grown since 2000 despite large real growth in profits per partner and other metrics.

Figure 5 plots the growth in real associate salaries and profit per equity partner from 1986-2020 (values are indexed to 1986 levels). All previous salary figures have not been adjusted for inflation. Adjusting for inflation shows there has been little real growth in starting associate salaries.¹³ Almost all real salary growth since 1980 occurred between 1997 and 2000. Salary increases since 2000 have mainly been to reset real compensation to 2000 levels. On the other hand, profit per equity partner has increased substantially throughout the entire period.

Associate billing rates have also increased much more rapidly than associate salaries (see Panel A of Appendix Figure B.7). Potentially, profit per equity partner is due to the increasing use of non-equity partners, but average partner compensation, including non-equity partners, has also increased substantially faster than associate salaries (see Panel B of Appendix Figure B.7). Therefore, stagnant associate compensation does not seem to be due to a general negative shock to BigLaw firms.

Empirical Fact #4: Salary increases and associate employment are positively correlated.

¹³ Appendix Figure B.4 plots the real total compensation (including bonuses) for firms following the “going rate.” Inflation-adjusted bonuses were higher in 2000, which means real compensation has decreased.

Figure 6 plots the change in the log salary from $t - 2$ to t versus the change in the log number of associates from $t - 1$ to t . The two variables are strongly positively correlated. Therefore, short-run salary changes seem to be driven more by shifts in labor demand along the supply curve. The number of law school graduates also does not substantially change around salary increases. Instead, changes in the number of graduates lag behind salaries by three to four years (law school programs take three years; see Appendix Figure B.5).

These are the key empirical facts, but there are a few other trends to note. While the share of firms matching the national modal salary increased sharply in 2000, in many cities a large share of firms previously matched the local modal salary. Table 2 shows the share of firms headquartered in each city that pay the same salary. In Boston almost two-thirds of large firms paid the same starting salary prior to 2000. A separate trend is the general evolution of law firms into national, rather than local, firms. Firms began expanding across states in the late 1980s. On average, in 1978 each firm had 94% of associates in the same state, while this number had fallen to only 71% by 2000 (Table 3).

Additionally, I always focus on the starting salary for a new associate in the previous figures. A natural question is whether these trends apply to more experienced associates. Since at least 2000, the salaries for all associate levels have always changed at the same time (see Appendix Figure B.2). Moreover, salaries increase proportionately across associate experience levels. In 2000, eighth-year associates were paid 1.80 times first-year associates, while in 2019 the same ratio was 1.79. Bonuses also tend to increase at the same time across associate experience levels (see Appendix Figure B.3). Salary increases are not offset by decreases in bonuses.

3.2 Basic model

The laws of supply and demand dictate that thousands of entry-level associates now command the princely sum of \$160,000 per year.

- Galanter and Henderson (2010)

I begin with the most basic model of firm decision making. A law firm in labor market m at time t produces legal services, Q_t , using associates, N_t , and partners, K_t . The production function is given by $Q_t = A_t f(N_t, K_t)$. Output markets may be imperfectly competitive, so revenue is given by $P_t(Q_t)Q_t$. There are time-varying shocks to both firm productivity, A_t , and the pricing function $P_t(\cdot)$. The firm treats associate salary, w_{mt}^n , and partner compensation, w_{mt}^k , as exogenous. The firm's problem at time t is then:

$$\max_{N_t, K_t} P_t(Q_t(N_t, K_t))Q_t(N_t, K_t) - w_{mt}^n N_t - w_{mt}^k K_t$$

The firm's first order condition for associates is given by:

$$w_{mt}^n = P_t \frac{\partial Q_t}{\partial N_t} \frac{1}{\mu_t}$$

where $\mu_t = \frac{\varepsilon_t^{QP}}{1+\varepsilon_t^{QP}}$ is the markup of price over marginal cost. The right hand side is the marginal revenue product of associates. Taking the log of both sides gives:

$$\ln w_{mt}^n = \underbrace{\ln P_t \frac{\partial Q_t}{\partial N_t}}_{\text{Productivity}} - \underbrace{\ln \mu_t}_{\text{Markup}}$$

The first term on the right-hand side is the marginal physical productivity times the output price (for simplicity, I will refer to this as "productivity"), and the second term is the markup. Any differences between wages across markets or time should be related to differences in productivity or markups.

Now, there are many potential reasons why this equation might not perfectly hold for any given firm in the data. Let $\ln \psi_t$ be the wedge (i.e., residual gap) between marginal revenue productivity of associates and wages. Then we have

$$\ln w_{mt}^n = \underbrace{\ln P_t \frac{\partial Q_t}{\partial N_t}}_{\text{Productivity}} - \underbrace{\ln \mu_t}_{\text{Markup}} + \underbrace{\ln \psi_t}_{\text{Input Wedge}}$$

$\ln \psi_t$ might be non-zero for many different reasons. For example, in the static formulation there might be measurement error or shocks that are realized after making input decisions. Or there might also be dynamic considerations due to adjustment costs, deferred compensation, or firm-specific human capital. Appendix Section A discusses some stylized alternative dynamic models and show that the primary determinants of wages are the above factors plus future expected input wedges. Therefore, we should generally expect wage differences to be accompanied by changes in productivity or markups.

3.3 Consistency with competition

In our conversations with firm leaders, many express bafflement as to why so many firms adopted the increases when their productivity and profitability results couldn't support them.

- Gretta Rusanow, Head of Advisory Services at Citi Private Bank (2018)¹⁴

The goal is to determine whether the evolution of relevant market fundamentals is approximately consistent with competitive input markets. Because uncertainty about the true model of labor markets is a first order concern, I focus on market fundamentals rather than directly modeling and estimating labor market dynamics. The key empirical facts are:

1. Empirical Fact #1: Exact nominal salary uniformity across major firms and cities, especially after 2000.
2. Empirical Fact #2: Large salary jumps (70% from 1996-2000, 28% from 2005-2007, 19% from 2017-2019) followed by periods of stagnant nominal salaries.

1. *Exact nominal salary uniformity across major firms and cities, especially after 2000:* In a competitive labor market, observed salary equalization across regions i and j can be due either to labor supply or demand factors.¹⁵ Labor supply factors can equalize salaries if regions i and j are in a common market ($i, j \in m$) or if they share a common outside option. Labor demand factors can equalize salaries across regions if they share common production fundamentals (e.g., constant marginal productivity across regions or common output market).

There are several arguments against salary equalization due to labor supply factors. First, in a perfectly competitive market, utility offers (and not nominal salaries) should be equalized (Rosen, 1986). There is substantial variation in local tax rates, amenities, and local price indices (especially housing) across cities. Table 4 provides the after-tax earnings (on a salary of \$190,000) in 2019 as well as estimated amenities and local prices (as of 2000) relative to New York from Diamond (2016).

Tax rates can vary significantly across cities since some states do not have state income taxes. Columns (1) and (2) show after-tax earnings. For example, \$190,000 is

¹⁴Debra Weiss. 2017. "Some law firm leaders question associate pay hikes amid tepid year." *ABA Journal*, February 15. https://www.abajournal.com/news/article/some_law_firm_leaders_question_associate_pay_hikes_amid_tepid_year/.

¹⁵There can also be "knife's edge" cases where various differences across regions exactly cancel out, but given the lengthy time period involved this seems unlikely.

worth \$129,000 after tax in New York, whereas it is worth \$140,000 in Dallas or Houston. Columns (3) and (4) provide amenities and local prices values in log salary equivalent terms (relative to New York).¹⁶ Amenities and prices vary significantly across cities. For example, San Francisco is substantially more expensive than Los Angeles while also offering lower amenities.

Column (5) gives the total compensation relative to New York, and column (6) gives the equivalent New York salary. The uniform nominal salary of \$190,000 hides substantial variation in “real” salary across locations. Associates in Los Angeles earn the equivalent of \$264,000 in New York, while associates in Philadelphia earn the equivalent of \$141,000. The point of this exercise is not to definitively determine the real salary across locations; rather it is to highlight that reasonable estimates imply that the utility value of \$190,000 nominal salary varies widely across cities.

Second, even suppose that associates care only about nominal pre-tax income when comparing job offers. Compensation varied across major cities prior to 2000, which suggests they were separate markets. Potentially, there was a structural change around 2000 that increased competition and merged markets. For example, maybe the internet significantly reduced geographic search frictions. One way of testing this theory is to look at markets for lawyers in other countries. Figure 7 plots the distribution of starting salaries for newly qualified solicitors in London. There is substantial dispersion of salaries even within London. Therefore, any structural change would have to be powerful enough to equalize salaries across regions in the United States, but not significantly affect the United Kingdom.

Common production fundamentals are also an unlikely explanation. Figure 8 shows that billing rates vary widely across firms. Firms also differ significantly in relative input usage across regions. For example, New York firms have a significantly higher ratio of associates to partners when compared to other regions (see Appendix Figure B.10).

2. Large salary jumps (70% from 1996-2000, 28% from 2005-2007, 19% from 2017-2019) followed by periods of stagnant nominal salaries: Salaries increased by 70% from 1996-2000 from but then did not change significantly until 2006. They jumped again in both 2006 and 2007 for a total increase of 28% but then again stagnated until 2017. Then in 2017 and 2019 they rose again for a total increase of 19%. In a competitive market we should expect these salary jumps to be accompanied by large increases in associate productivity or declines in markups. Note that these salary increases are unlikely to have been driven by labor

¹⁶Local prices are primarily based on housing prices, with a scaling factor to adjust for the impact of housing prices on locally purchased goods. Amenity values are specific to college-educated workers. See Diamond (2016) for more detail.

supply shocks since they were accompanied by large increases in associate employment (see Empirical Fact #4)¹⁷

The key outcomes are associate salaries, productivity, and markups. I focus on the years immediately around major wage changes in 1997-2000, 2006-07, and 2017-19. For each outcome Y_{it} , I run the regression:

$$\ln Y_{it} = \gamma_i + \gamma_t + \epsilon_{it}$$

where γ_i and γ_t are firm and year fixed effects. I then plot the γ_t estimates to show how the mean outcome Y_{it} changes over time. Standard errors are clustered at the firm level and the regressions are weighted by the number of employed attorneys. The next question is how to measure productivity and markups.

For productivity: As an approximation, assume that $Q_{it} = A_{it}N_{it}^{\alpha_i}K_{it}^{\beta_i}$. Because the production function is Cobb-Douglas we have $\frac{\partial Q_{it}}{\partial N_{it}} = \alpha_i \frac{Q_{it}}{N_{it}}$. This gives us:

$$\begin{aligned}\ln \frac{P_{it}Q_{it}}{N_{it}} &= -\ln \alpha_i + \ln P_{it} \frac{\partial Q_{it}}{\partial N_{it}} \\ \ln \frac{P_{it}Q_{it}}{N_{it}} &= \gamma_i + \gamma_t + \epsilon_{it}\end{aligned}$$

where γ_t captures the average log of productivity. Intuitively, we can measure changes in average log of productivity by looking at changes in the revenue per associate.

For markups: Let VC_t be total variable costs. Because the production function is homogeneous of degree $\alpha_i + \beta_i$ we have $MC_{it} = \frac{1}{\alpha_i + \beta_i} \frac{VC_{it}}{Q_{it}}$ from the firm's cost minimization problem.¹⁸ Since $\mu_{it} = \frac{P_{it}}{MC_{it}}$:

$$\begin{aligned}\ln \frac{P_{it}Q_{it}}{VC_{it}} &= -\ln(\alpha_i + \beta_i) + \ln \mu_{it} \\ \ln \frac{P_{it}Q_{it}}{VC_{it}} &= \gamma_i + \gamma_t + \epsilon_{it}\end{aligned}$$

where γ_t captures the average markup. We can measure changes in markups by looking at changes in the ratio of total revenue to total variable costs. I view these estimates for productivity and markups as approximations within an order of magnitude. In Appendix Section A, I discuss alternative approaches to measuring productivity and markups.

The estimated $\hat{\gamma}_t$ are plotted in Figure 10. For all three major discrete salary jumps,

¹⁷ There might be supply shocks that affect local markets; case studies will be discussed later.

¹⁸ Note that this means we can rely on a much weaker assumption than Cobb-Douglas production if we want to identify changes in markups and not the level.

there is little evidence of any accompanying discrete changes in productivity or markups. Additionally, the employment of associates (both in absolute terms and relative to partners) significantly increases (Appendix Figure B.12), which is inconsistent with large labor supply shocks. Therefore, there seems to be a sudden and large change in the input wedge, $\ln \psi_{it}$.

One major potential concern is that there might be a shock to the productivity of associates relative to partners (α_i). Law firms provide a straightforward way to test this concern since there are separate billing rates for associates and partners. While many inputs are used to produce a billable associate hour (e.g., human resources), associates are the most important input. If there is a large shock to the relative productivity of associates then it should be reflected in relative billing rates.¹⁹ Appendix Figure B.12 shows that there is almost no change in relative billing rates around the salary jumps.

These results are also inconsistent with many standard models of imperfect competition in input markets. Bertrand competition could explain uniform salaries. But it is not clear why pure Bertrand competition would occur given that firms face significant short-run capacity constraints. Firms are small relative to the market, it is difficult to recruit new partners, and most existing attorneys work very long hours, so firms have little excess capacity. Even if Bertrand competition does occur, it is not clear how it would explain the sudden changes in $\ln \psi_{it}$ followed by periods of stagnation. A basic Cournot model suffers from a similar issue. Models of differentiated firms (Card et al., 2018) imply firm-specific labor supply curves, which would result in differing salaries across firms. These empirical facts are also inconsistent with the large literature on the importance of firm-specific wage effects (Abowd et al., 1999).

Models of wage bargaining would also have trouble explaining exact salary uniformity across firms given substantial differences in firm productivity and profitability. They would also have difficulty explaining the large salary jumps without discrete changes in bargaining power. Finally, they have the additional issue that real salaries have not increased with profitability and prices (Empirical Fact #3).

A final issue is that there exist significant quality differences among associates. Uniform salaries are even more difficult to explain if associates vary in quality. The focus that firms place on recruiting top students from elite schools suggests that quality does matter. It seems reasonable that firms know the quality of experienced associates. Law firms

¹⁹ An alternative shock would be an increase in the number of hours worked relative to partners, but it seems unlikely that short-run changes in hours worked can explain the magnitude of the salary jumps. However, increased work intensity might be an important factor in any long-run salary growth. Real hourly wages for associates have likely declined by more than total salary since 2000 because total hours worked have generally increased for associates.

are highly sophisticated when it comes to setting individualized compensation; they typically adjust individual partner compensation on a year-to-year basis.

With sufficient degrees of freedom, there likely exists a model that could reconcile both salary uniformity across regions and large wage jumps with perfect input market competition (or with standard models of imperfect competition). For example, a model could incorporate internal fairness constraints, regime changes in the output market, nominal wage rigidity, and more. However, in the next section I will suggest a simpler alternative – tacit collusion – and provide significant supporting evidence.

4 Tacit collusion

4.1 Collusion indicators

Masters are always and everywhere in a sort of tacit, but constant and uniform combination, not to raise the wages of labour above their actual rate. To violate this combination is everywhere a most unpopular action, and a sort of reproach to a master among his neighbours and equals. We seldom, indeed, hear of this combination, because it is the usual, and one may say, the natural state of things which nobody ever hears of.

- Adam Smith

Collusion occurs when firms in a market coordinate to restrain competition. From an economic perspective, it is an equilibrium in a repeated game with profit above the static equilibrium outcome. Collusion can either be explicit, with mutual understanding through direct communication, or tacit, with mutual understanding through indirect means.²⁰ Collusion can lead to significant price distortions ([Connor and Bolotova, 2006](#)), so the detection of potential collusion is an important economic issue.

Section 3 provided evidence that market behavior is not consistent with competition, but this does not necessarily imply collusion. There are no universal markers of collusion, but [Harrington \(2005\)](#) does provide some common indicators.²¹ At least several of these

²⁰From a legal standpoint, tacit collusion can be further distinguished by how the mutual interpretation of indirect means is established. Indirect actions need to be mutually interpretable by participants in order to establish mutual understanding. In the case where participants are exogenously “endowed” with a mutual understanding, then their behavior is “conscious parallelism.” If a participant works to establish a mutual interpretation (e.g., through dynamic pricing strategies ([Byrne and de Roos, 2019](#)) or company statements ([Bourveau et al., 2020](#))), then there is potentially concerted action.

²¹Almost all the literature on collusion applies to output markets; for now I will assume that similar results hold for labor markets, but an interesting avenue of future research would be to extend these results

markers are present in the market for BigLaw associates. Under certain conditions, price variance is lower (prices are more stable) under collusion. As Empirical Fact #2 shows, there are limited salary adjustments. Under certain conditions, there is stronger positive correlation between firm prices. We observe exact matching of any salary changes for many firms (Empirical Fact #1). [Harrington \(2005\)](#) also discusses that high price levels or margins are not good indicators for collusion, but that sharp changes in these outcomes might be markers. For example, sharp changes in prices could indicate pricing wars due to punishment. Empirical fact #2 shows that there are sharp changes in salary levels for associates. In fact, many industry observers even refer to these sharp increases as “salary wars” (e.g., [Galanter and Henderson, 2010](#)). These markers suggest that potential collusion deserves further investigation.

Figure 9 plots starting associate salaries versus the log of the revenue per lawyer for fiscal year 2016.²² Initially, there is a strong positive relationship between revenue per lawyer and associate salaries. However, the relationship completely breaks down once salaries reach the maximum of \$160,000. It appears that firms could be tacitly colluding on a maximum salary. Colluding on a maximum salary is consistent with theory because there might not exist a symmetric price that raises profits for all firms if they are heterogeneous. [Harrington \(2016\)](#) proves that heterogeneous firms can always find a minimum output price that increases profits for all colluding firms.²³

Ideally, I would model the labor market with reasonable assumptions and directly test for collusion (e.g., [Miller et al., 2021](#)). However, there are two issues. First, the “Folk Theorem” asserts that nearly any set of payoffs in a repeated game is feasible for sufficiently low discount rates. Therefore, detailed empirical analysis is first needed to understand firm strategies. Second, labor markets are more complicated than many product markets since they are matching markets with unobserved quality and important dynamic considerations. Observations are limited because labor markets might be national and salaries are updated only yearly, which reduces my power to distinguish between models from quantitative data alone.²⁴ Therefore, I focus on combining quantitative data with qualitative evidence, such as direct quotes from industry participants, to build a case for tacit collusion.

First, I document evidence of price leadership. Certain firms, most notably Cravath,

to input markets and see how they differ. Additionally, the underlying models typically assume explicit collusion, but many of the same indicators were previously proposed for tacit collusion by [Posner \(1968\)](#).

²²This year was chosen since it was immediately before a salary increase to \$180,000 – i.e., the maximum salary would be most binding.

²³Setting minimum output prices is conceptually similar to setting maximum input prices (salaries).

²⁴In contrast, gasoline stations potentially update prices daily and have highly localized markets.

consistently announce salary scales and bonuses first. Next, I show how these firms developed price leadership. Initially, Cravath explicitly asked other top firms to follow its salary decisions. Cravath then built a reputation of matching or exceeding any compensation offer over decades of decisions. Firms employ a more complicated strategy than simply matching each other's offers. They exclude some smaller firms from the strategic set. They communicate about their expectations and to avoid misinterpretation. The salary leaders will also slightly exceed any deviating offers in order to maintain their reputation.

Next, I outline key facilitating practices. Firms have close to perfect information about the choices of other firms, and “products” are standardized without discounts, facilitating monitoring, which limits cheating. Finally, I show some suggestive evidence that there are efficiency costs. Lower productivity firms are able to compete for top talent, and relative input use is distorted.

The proposed simple narrative is as follows: prior to 1968, the market was explicitly collusive. Cravath replaced explicit with tacit collusion in 1968 by raising New York salaries. After this shock, local market equilibriums were often tacitly collusive. In the late 1990s, a localized tech boom shock to California firms led them to increase compensation. This increase included their satellite offices in New York, breaking down the local collusive equilibrium. Top New York firms then switched to national price leadership with significant 2000 and 2006 salary increases. These increases established their reputation of matching or exceeding any compensation increase. The market is currently tacitly collusive at the national level.

4.2 Price leadership

Cravath raises, we raise.

- Scott Edelman, chair of Milbank, Tweed, Hadley & McCloy (2016)²⁵

Even if firms have mutual beliefs that any price changes might be matched, they might not achieve collusive prices if there is not an agreement about who will lead and when ([Harrington, 2017](#)). Establishing price leadership has been recognized as an important step in establishing tacit collusion since at least [Stigler \(1947\)](#).

Industry observers believe that certain firms consistently lead compensation decisions.²⁶ Again, the most prominent firm is Cravath, with the typical BigLaw associate

²⁵Sullivan, Casey. 2016. “Is Following Cravath’s Lead the Best Way to Set Salaries?.” *Bloomberg Law*, June 7. <https://www.news.bloomberglaw.com/business-and-practice/is-following-cravaths-lead-the-best-way-to-set-salaries>.

²⁶See Appendix Figure B.8 for a satirical guide to a law firm partner’s compensation choices.

salary scale often informally referred to as the “Cravath scale.” Industry observers even know that Cravath’s announcements typically come on Monday after its weekly lunchtime partner meeting.

To show price leadership, I focus on the timing of compensation announcements. Table 5 catalogues major bonus announcements from 2007-2021.²⁷ The “First” firm is the initial firm to announce bonuses. The “Standard” firm is the firm whose bonus scale is most commonly matched (if it is a different firm than the “First” firm). Most notably, out of 17 listed bonuses, only three firms have set the standard bonus scale: Cravath (13 times), Davis Polk (3 times), and Milbank (1 time). Milbank’s leading scale even comes with caveats. It proposed the exact same bonus scale that Cravath had set the prior year, and no major firm matched it until Cravath did. Therefore, effectively only two firms, Cravath and Davis Polk, have set the prevailing bonus scales for at least the last 15 years.

This dynamic is not due to these firms systematically announcing bonuses at an earlier date. Cravath has announced bonuses as early as October 29th or as late as December 7th and other firms have still waited for them. Many firms wait for them even if another firm announces first. Some firms have matched within hours of Cravath’s initial announcement. Take the example of the 2015 bonus: Cravath internally circulated a memo with its bonus scale at 3:15 PM on December 7th. By 3:47 PM (on the same day), Milbank sent a memo to its employees matching Cravath.²⁸

When other firms have tried setting bonus scales, Davis Polk or Cravath have typically not just matched but instead exceeded them. Interestingly, Davis Polk has only topped the first movers other than Cravath, despite Cravath leading the majority of bonus announcements. In each of these cases, the first mover eventually ended up increasing their initial offer to match the higher bonus scale.

Similar dynamics exist for salary announcements. Figure 11 shows the timing of firm announcements for the 2016, 2018, and 2021 raises. In 2016, Cravath raised starting salaries to \$180,000 (from \$160,000) on June 6th (Panel A). A significant number of matching announcements quickly followed. In 2018, Milbank further raised starting salaries to \$190,000 on June 4th; however, significantly fewer firms initially matched their scale (Panel B). Instead, many firms waited until the next week when Cravath announced their salary scale. Cravath matched Milbank’s starting associate salaries but slightly exceeded Milbank’s salary scale for experienced associates. Significantly more firms matched Cravath within a week of its announcement than had matched Milbank. All of the firms that

²⁷The primary data source for announcement timings is the industry site *Above the Law*.

²⁸Lat, David. 2015. “Associate Bonus Watch: The First Cravath Match - Wow, That Was Fast!” *Above the Law*, December 7. <https://www.abovethelaw.com/2015/12/associate-bonus-watch-the-first-cravath-match-wow-that-was-fast/>.

had initially matched Milbank later increased their own offers to match Cravath (including Milbank). A similar pattern was repeated in 2021. Millbank initially raised salaries, and then Davis Polk issued higher raises. Most firms waited to match until Cravath issued its announcement that it was matching Davis Polk. It appears that most major firms wait for Cravath's announcement.

There seems to be a clear pattern of price leadership. A handful of firms in New York City typically set the prevailing maximum compensation scale for major firms nationwide. Cravath is the most prominent, but a few other firms participate; most notably Davis Polk and Simpson Thacher (lead role in 2006-07 salary increases).

4.3 Establishing price leadership

Has Cravath ever not been at the norm?

-Joshua Holt, of Biglaw Investor (2021)²⁹

The next question is why are these firms the price leaders? They are not the largest firms; in 2019 Cravath employed 519 attorneys (90th largest US firm), Davis Polk employed 982 attorneys (30th largest), and Simpson Thacher employed 964 attorneys (34th largest). Therefore, their employment decisions do not inherently have broad impacts on the industry and there is no reason to believe that they are especially well-informed about market fundamentals.³⁰ We need to look further back in history to understand why they are price leaders.

Pre-1968 explicit collusion: Prior to 1968 large law firms did not need a price leader. Instead, they simply explicitly colluded to set maximum salaries. As related in Smigel (1969),

Starting salaries at the largest New York firms were uniform; the “going rate” was fixed at a luncheon, attended by managing partners of prominent firms, held annually for this purpose. Salaries rose from \$4,000 in 1953 to \$7,500 in 1963.

²⁹Roy Strom. 2021. “Should We Still Say ‘Cravath Scale’ If Other Firms Pay More?” *Bloomberg Law*, April 8. <https://www.news.bloomberglaw.com/business-and-practice/should-we-still-say-cravath-scale-if-other-firms-pay-more>.

³⁰There are alternate justifications for price leadership that do not involve collusion, most prominently if there is a dominant firm (van Damme and Hurkens, 2004) or if some firms act as “barometers” due to being better informed about market conditions (Cooper, 1997). These firms are concentrated in New York City, so it is not clear why they would be especially well-informed about national markets.

This luncheon ran for over forty years. It originated when a partner at Root Clark, Emory Buckner, believed that associates had demonstrated poor judgement because they were too responsive to salary differences. As recounted in [Galanter and Palay \(1991\)](#), he wrote in a letter that he created “the ‘big employers’ trust... I called twenty firms to lunch – knowing someone in each – and we made an effort to stabilize the situation.” More informal collusion might have even pre-dated the luncheon.

1968 raise: Cravath established price leadership by breaking with the “luncheon” cartel in 1968. Evidently, Cravath was unhappy with the scheduled ‘going rate’ increase to \$10,500. Instead, Cravath unilaterally raised starting salaries by almost 50% to \$15,000. Cravath’s short-term payoff to deviation would be maximized if other firms stuck to the “going-rate.” Instead, Cravath took the long view. The issue was not collusion, but rather that the agreed-upon rate was too low. The managing director of Cravath, George Gillespie, publicly issued an invitation to other firms: “We are very hopeful that similar New York law firms will adopt a similar salary policy.”³¹ The largest and most profitable New York firms ended up matching the increase.

This increase affected legal markets nationwide. Prior to 1968, firms in other markets benchmarked their salaries to the “New York rate.” In 1968, prior to Cravath’s increase, over 100 firms had sent their standard letters to the Placement Office of Harvard with some version of “starting salaries will, of course, be competitive with those paid by major New York Law firms.”³² After Cravath’s unexpected raise, firms were left to scramble and most markets ended up only partially matching the raise.³³ This also highlights the rationale for Cravath’s deviation – they wanted to increase New York salaries relative to other regions because they were losing associates to firms in other cities. A member of the *Harvard Law Review* stated, “New York law firms are suffering in their ability to attract the talent they want. The living conditions in New York are worse than those in Washington and San Francisco.” Cravath called the salary increase a “subsidy for New York costs.”³⁴

1986 raise: New York maintained a salary premium, and years of stable increases to keep pace with inflation followed. In 1985, top New York salaries were around \$50,000. This salary figure is equivalent to about \$16,000 in 1968 dollars, so associates had seen

³¹Jack Tate. 1968. “Law Firm Offers \$15,000”. *Harvard Law Record*, February 15. [https://www.iiif.lib.harvard.edu/manifests/view/drs:45687744\\$4i](https://www.iiif.lib.harvard.edu/manifests/view/drs:45687744$4i)

³²Jack Tate. 1968. “Law Firm Offers \$15,000”. *Harvard Law Record*, February 15. [https://www.iiif.lib.harvard.edu/manifests/view/drs:45687744\\$4i](https://www.iiif.lib.harvard.edu/manifests/view/drs:45687744$4i)

³³See Appendix Figure [B.17](#) for the resulting salary differential by region. Even the federal government had to significantly adjust salaries – it changed policy to allow new lawyers with outstanding academic records to begin at level GS-12, which paid \$12,174, instead of GS-11, which only paid \$10,203.

³⁴Jack Tate. 1968. “Law Firm Offers \$15,000”. *Harvard Law Record*, February 15. [https://www.iiif.lib.harvard.edu/manifests/view/drs:45687744\\$4i](https://www.iiif.lib.harvard.edu/manifests/view/drs:45687744$4i)

little real wage growth since 1968. In the mid-1980s, major New York law firms faced increasing losses of associates to investment houses and consulting firms. Cravath responded in 1986 by raising salaries to \$65,000.³⁵ Large New York firms again exactly matched this raise. In general, about 40% of New York firms matched the modal salary each year during the 1980s and 1990s (see Appendix Figure B.1).

In 1980, most firms had large offices in only one state (Table 3). Therefore many cities had local price leaders that determined the salary differential with New York. Table 2 shows the average share of firm-year observations that match the local modal salary across years. The rates vary across cities, but some are very high. About 50-60% of Boston firms offered the same salary in any given year prior to 2000.³⁶ The existence of local price leaders was well-known. For example, reporters covering Seattle's salary increases wrote: "Many in the field here are watching for moves by Seattle's largest firms, particularly Preston Gates & Ellis LLP and Perkins Coie LLP. The two firms tend to set the standard for salaries."³⁷ However, during the 1980s and 1990s, firms increasingly began to expand across markets. These conditions led to the breakdown of local markets and a salary war during 1998-2000.

2000 raise: The New York salary differential eroded during the 1990s, especially compared to California. California firms were dealing with local associate supply shocks as technology companies began poaching associates. Between 1989 and 1997, average salaries at San Francisco firms increased from \$60,000 to \$79,000 (\$19,000 increase). In comparison, the average salary of New York firms increased only from \$78,000 to \$84,000 (\$6,000 increase) in the same period (see Appendix Figure B.15). In response, New York firms began raising salaries in 1998. This led to a breakdown of the local equilibrium – the share of New York firms exactly matching the modal salary dropped sharply in the late 1990s (see Appendix Figure B.1).

This process culminated in 2000, when the small Silicon Valley firm, Gunderson Dettmer Stough Villeneuve Franklin & Hachigian raised starting salaries to \$125,000. Soon after, three other small Silicon Valley firms matched. All of these firms were small; none were in the largest 250 US firms in 1999. That changed when San Francisco's Brobeck, Phleger & Harrison (27th largest firm) announced that all new associates would receive \$125,000 because, "We want to make it harder for people to leave us for clients." Importantly, this firm had a New York office with about 50 attorneys, so their salary substantially exceeded

³⁵Tamar Lewin. 1986. "At Cravath, \$65,000 to start." *The New York Times*, April 18. <https://www.nytimes.com/1986/04/18/business/at-cravath-65000-to-start.html>.

³⁶The modal salary is also often the local maximum.

³⁷George Erb. 2000. "Dot-Coms bid up pay at law firms." *Puget Sound Business Journal*, February 13. <https://www.bizjournals.com/seattle/stories/2000/02/14/story3.html>.

the previous New York maximum. A partner at a New York firm said, “You now have California setting a trend, this has never happened before.”³⁸

Soon after, Davis Polk made the dramatic decision to raise salaries by \$25,000 to \$125,000 demonstrating a willingness to match any salary raise. The size of the increase generated significant media coverage and publicized the new salary point.³⁹ The other major New York firms soon followed. Notably, many other large firms outside of New York also matched the new salary, especially those in California, Chicago, Boston, and Washington D.C..⁴⁰

2006 raise: The collapse of the Dot-Com bubble in 2000 significantly reduced the incentive for California firms to raise salaries. The maximum salary remained at \$125,000 until 2005 before some California firms again tried to exceed it. In 2005, the local Los Angeles firm Irell & Manella raised salaries to \$135,000. Another local firm, Quinn Emanuel Urquhart & Sullivan, matched.

First, Gibson, Dunn & Crutcher matched the raise. They are a national firm but were headquartered in Los Angeles. Simpson Thacher then decided to exceed the California raises and increased starting salaries to \$145,000. Davis Polk soon matched them and Cravath followed. After these firms matched, most other large firms followed suit. Prior to this increase, it was not clear to the Los Angeles firms that they would trigger a response from the larger New York firms. William Urquhart, head of Quinn Emanuel Urquhart & Sullivan, specifically stated that his firm “hoped bigger firms wouldn’t follow so we could separate ourselves, but they did.”⁴¹ This episode helped solidify the belief that larger firms would match or exceed most increases.

As shown previously, Cravath and Davis Polk continued enforcing price leadership in the 2016, 2018, and 2021 raises. Therefore, these firms, especially Cravath, have established a long reputation of being salary leaders. This reputation of leading New York increases has its origin in Cravath’s break from the “luncheon” cartel in 1968. The reputation was solidified through leading years of New York raises. These firms then extended this reputation nationwide by showing a commitment to match or exceed any raise through the 2000, 2006-07, 2016, 2018, and 2021 raises.

³⁸David Leonhardt. 2000. “Law Firms’ Pay Soars to Stem Dot-Com Defections.” *The New York Times*, February 20. <https://www.nytimes.com/2000/02/02/business/law-firms-pay-soars-to-stem-dot-com-defections.html>.

³⁹For example, there were several articles covering the raise in the New York Times and the Wall Street Journal. The rise of associate message board groups also helped publicize salary announcements – see Taras and Gesser (2003) for a discussion of this phenomenon.

⁴⁰David Leonhardt. 2000. “Law Firms See a Bill Come Due.” *The New York Times*, May 22. <https://www.archive.nytimes.com/nytimes.com/library/tech/00/05/biztech/articles/22neco.html>.

⁴¹Ellen Rosen. 2006. “For New Lawyers, the Going Rate Has Gone Up.” *The New York Times*, September 1. <https://www.nytimes.com/2006/09/01/business/01legal.html>.

4.4 Strategic Behavior

Like our bigger competitors, we've paid our first-year lawyers \$160,000 until now. But we're growing and doing more exciting work, and we want to attract even more top-level talent.

- John Zavitsanos, founding partner of AZA (2013) after raising salaries to \$170,000⁴²

A closer examination of firms' strategic behavior confirms that their strategy extends beyond simple matching. Price leaders exclude some smaller firms from the strategic set. Firms communicate about their plans to align expectations and reduce miscommunication. Price leaders slightly exceed competing offers to maintain their reputation.

Strategic set: Firms form beliefs about what firms are in the relevant strategic set. If large firms committed to matching all salary raises, then any small firm could force large salary increases. Therefore, certain smaller firms are allowed to offer above-market compensation. Table 6 shows some firms that offered above-market compensation in 2012.⁴³ These are typically smaller or boutique firms that are focused on litigation. While they are smaller, it is worth remembering that Cravath is not particularly large. For example, Boies, Schiller & Flexner and Williams & Connolly together are larger than Cravath. Some of these firms offer significantly higher compensation. Famously, Wachtell Lipton sometimes offers bonuses equal to associate salaries, implying a doubling of the "going rate" compensation.

For example, when Cravath raised salaries to \$65,000 in 1986, the small firm Reboul MacMurray re-raised to \$70,000. Large New York firms did not match this rate, instead "The larger firms, by and large, have tended to dismiss the Reboul MacMurray action as an aberration by a non competitor. Cravath's pay offer is viewed as the new standard."⁴⁴ In these cases, a simple matching strategy would have pushed salaries significantly higher and reduced the gains to tacit collusion. Instead, firms were more strategic about who to match. The exclusion of some smaller firms from a stable cartel is consistent with theoretical predictions for heterogeneous firms in [Bos and Harrington \(2010\)](#).⁴⁵

An interesting case is the 2008 year-end bonus after the onset of the Great Recession. The firm Skadden initially announced that bonuses would remain at \$35,000, the same

⁴²David Lat. 2013. "The \$160K-Plus Club Welcomes A New Member" *Above the Law*, January 11. <https://www.abovethelaw.com/2013/01/the-160k-plus-club-welcomes-a-new-member/>.

⁴³Compiled from *Above the Law* references. There might be additional small firms with unavailable data.

⁴⁴Gary Hengstler. 1986. "If I Can Make It There..." *ABA Journal*, August 1.

⁴⁵The fact that some of these firms have salaries slightly above the collusive maximum is also consistent with [Bos and Harrington \(2010\)](#).

as 2007 (less a one-time special bonus). The next day Cravath issued its bonus memo, which instead offered \$17,500. This bonus memo was not issued as typical after Monday meeting. Potentially, Cravath wanted to intervene before other firms began matching Skadden. If other firms matched Skadden and Cravath made a below-market offer then it might lose credibility. Instead, Cravath could portray Skadden as an outlier, and, in fact, other firms ended up matching Cravath.⁴⁶ Again, a simple policy of matching the highest firm would predict that at least some firms match Skadden.

Firms have also tried to unsuccessfully exclude firms that increase salaries from the strategic set. For example, during Cravath's 1986 increase, Milbank said it would refuse to follow Cravath and hoped it would deter other firms from "going over the cliff." A few other firms tried making similar announcements, but ultimately they had to renege on their promises. As Roseman Colin said, "It was our hope that a substantial number of other large firms would also choose this course for themselves. This failed to occur and accordingly, we have determined to adjust our associate salaries so as to remain competitive."⁴⁷

Communicating compensation: Firms strategically communicate about their compensation to set expectations and avoid misinterpretation. Cravath's large raise in 1986 was implemented as a new \$12,000 "housing allowance" due to high New York costs. The goal might have been to discourage firms outside of New York from matching the raise. Other New York firms structured their compensation in slightly different ways but, as Alexander Forger of Milbank put it, "no matter how you slice it, we'll all be in the same ballpark."⁴⁸

The "going rate" in 2000 was \$125,000, but Skadden offered salaries of \$140,000. Again, a simple matching strategy would mean other firms should raise their salary to match. Instead, *The New York Times* reported that Skadden's leader, Robert C. Sheehan, believed that "because Skadden will pay relatively small bonuses, its partners do not consider the raise to be an attempt to top the other firms' salaries."⁴⁹ Therefore, other firms did not feel the need to match Skadden's salary offer. There is little justification for this statement in a competitive market. Imagine the lowest priced retail firm publicly stating "that if you consider all-in costs then we are not a better value than our competitors." Skadden's

⁴⁶ Also, Cravath offered significantly more explanation in the bonus memo than usual. This might be due to having to explain a bonus reduction to employees, but Cravath also included forward guidance, such as "they may receive significantly reduced or no year-end bonuses next year." Bonuses were in fact reduced again the following year.

⁴⁷ Gary Hengstler. 1986. "If I Can Make It There..." *ABA Journal*, August 1.

⁴⁸ Gary Hengstler. 1986. "If I Can Make It There..." *ABA Journal*, August 1.

⁴⁹ David Leonhardt. 2000. "And Let the Lawyers Sing: 'Glory to the Salary King'." *The New York Times*, February 4. <https://www.archive.nytimes.com/nytimes.com/library/financial/020400law-salaries.html>.

bonuses were in fact \$15,000 lower to exactly offset the \$15,000 higher salary.

Similar events occurred during the 2006 raise. Before Simpson Thacher raised salaries to \$145,000, another major firm, Sullivan & Cromwell, had raised them to \$145,000. However, firms did not feel the need to match. Why? The head of Sullivan & Cromwell's associates committee, Benjamin Stapleton III, said in an interview, "Total compensation this year could be more, less, or the same as last year." Confirming, the actual memo said that the "increase represents a shift of that amount from the 2006 year-end bonus which you would otherwise receive."⁵⁰ A participant described Cravath's next partner meeting as, "Everybody looked around the room ... nobody seemed to care very much about it because it was clear that Sullivan was just moving money around." That changed when Simpson Thacher released its raise to \$145,000 and stated, "The bonus portion of your compensation will be announced at year-end as in prior years." This was interpreted to mean Simpson Thacher's increase (unlike Sullivan & Cromwell's) would not be offset by decreased bonuses. Soon the major firms matched Simpson Thacher's raise.⁵¹

Firms have also tried to strategically communicate about compensation to allow them to exceed the market. An example is the structure of Cahill Gordon's 2010 year-end bonus. *Above the Law* reported in 2010, "A tipster believes that Cahill Gordon intends to double the Cravath bonus. But not all at once. Cahill doesn't want to look like it's breaking the market ... Partners said the associates would be paid one bonus in December and another in January (assuming to make it look like they're just matching the market)."⁵² Despite the effort, the major firms ended up issuing special "Spring bonuses" with a similar value.

Punishment: What is the payoff to firms that deviate? With a higher salary, they can increase both the number and quality of associates. If firms deviate, then the maximum salary will be raised to either match or exceed their offer. Therefore, deviating does not improve the salary offer relative to other major firms. Firms might still have limited payoff to deviating since not all firms or competing industries will match. Competing industries act as a competitive fringe that disciplines the rents that can be extracted from collusion. Most significant raises have been triggered at least partially by competition from other industries, especially finance firms in New York or technology firms in California.

⁵⁰The stated concern was that some associates were living paycheck to paycheck, so shifting compensation from bonuses to salary would reduce cash flow issues.

⁵¹Anna Schneider-Mayerson. 2006. "Sullivan Bonus Babies Get Lift in Salaries As White Shoes Tap." *Observer*, February 20. <https://www.observer.com/2006/02/sullivan-bonus-babies-get-lift-in-salaries-as-white-shoes-tap/>

⁵²Elie Mystal. 2010. "Associate Bonus Speculation: Will Cahill Double the Market In Secret?". *Above the Law*, 2010. <https://www.abovethelaw.com/2010/12/associate-bonus-speculation-will-cahill-double-the-market-in-secret/>.

The fact that the price leaders typically exceed any deviations is important for two reasons. First, it increases the punishment. Second, firms receive a reputation benefit from being the “salary leader,” which they use when recruiting. Price leaders prevent deviators from getting this benefit by exceeding their offer. For example, Simpson Thacher raised bonuses in 2014, but the bonus is called the “Davis Polk bonus” since Davis Polk exceeded Simpson Thacher’s offer.⁵³ Since 2009, every major firm, other than Cravath and Davis Polk, has been exceeded any time they try to raise compensation.

The next question is why do so many firms exactly match the maximum when they could offer lower salaries? There is the standard incentive that firms want to increase the quantity and quality of associates, but it appears that both potential associates and potential clients view salary as a strong signal of unobserved quality. This creates a strong incentive for firms to match the leading compensation exactly since there is a discrete change in perceived quality. Many commentators have issued similar statements to this one from a law firm consultant: “For years, Cravath has set the bar for what it pays its associates, and other law firms follow them like lemmings to avoid any negative inference about their financial strength; and they need to reassure their associates that they’re a top-tier firm.”⁵⁴

4.5 Facilitating practices

It's a funny phenomenon that it's all very public.

-Steven J. Steinman, a partner at Fried, Frank, Harris, Shriver & Jacobson. (2006)⁵⁵

There are a variety of practices that facilitate tacit collusion in this setting. First, trade publications, private associations, and informal forums allow significant communication. Communication allows firms to monitor each other’s choices and set expectations. Experimental evidence shows that communication significantly eases collusion ([Cooper and Kuhn, 2014](#)). Antitrust authorities also emphasize the important role of monitoring in sustaining collusion: “A market typically is more vulnerable to coordinated conduct if each competitively important firm’s significant competitive initiatives can be promptly and confidently observed by that firm’s rivals.” ([DOJ and FTC, 2010](#)) Second, associate

⁵³Lat, David. 2015. “Where Are The Biglaw Bonuses? Associate Bonus Watch, Day 3.” December 2. <https://www.abovethelaw.com/2015/12/where-are-the-biglaw-bonuses-associate-bonus-watch-day-3/>.

⁵⁴Peter Lattman. 2012. “Cravath Sets the Tone for Law Firm Bonuses.” *The New York Times*, November 26. <https://www.dealbook.nytimes.com/2012/11/26/cravath-announces-bonuses-for-its-associates/>.

⁵⁵Ellen Rosen. 2006. “For New Lawyers, the Going Rate Has Gone Up.” *The New York Times*, September 1. <https://www.nytimes.com/2006/09/01/business/01legal.html>.

positions and compensation are standardized since most major firms use lockstep structures. Product standardization in output markets has been shown to facilitate collusion ([Harrington, 2018](#)).

Communication: There are a significant number of publications that cover BigLaw firms. These organization disseminate information on compensation and also allow public communication between firms. For example, the site *Above the Law* publishes bonus and salary announcements, often within hours of the initial internal memo (the site relies on associates to anonymously share memos). This allows firms to match or exceed compensation decisions, sometimes issuing memos within an hour of the initial announcement. Firms can even retroactively increase salaries or bonuses if necessary. Therefore, firms can perfectly monitor each other's actions with a very limited delay.^{[56](#)} Punishment has to be simple and monitoring has to be near perfect and rapid because of the large number of law firms.^{[57](#)}

Firms also publicly communicate to align on expectations for increases. After major raises in 1986 and 1987, large New York firms did not want further increases. Early in 1988, a Sullivan & Cromwell partner stated that he had “no reason to think there will be an increase.” A Davis Polk partner commented that he did not anticipate any increases beyond \$72,000. Of course, these announcements come with a caveat. A Skadden partner said he did “not expect any increase in the new people’s salaries there unless another firm raises its level.” A senior partner at Weil, Gotshal & Manges similarly opined, “Unless someone else makes a startling announcement, then we don’t expect our increases will be anything more than modest. And the rumor and gossip on the Street is that no one will be making a major increase.”^{[58](#)}

There are many private associations where law firm leaders come together that allow private discussion, for example at Citigroup Private Bank meetings.^{[59](#)} Because of the

⁵⁶ There is near perfect monitoring of choices, but not necessarily of firm fundamentals, which means the decisions of price leaders could violate participation constraints and trigger price wars.

⁵⁷ There are other cases of tacit collusion with a large number of firms. NASDAQ market makers specify “bid” and “ask” prices in terms of eighths of dollars. [Christie and Schultz \(1994\)](#) noticed that market makers almost never specified odd eighths which guaranteed a minimum spread of \$0.25. Economists hired by NASDAQ argued that collusion was inconceivable due to the high number of market makers (over 400) and low barriers to entry. However, the DOJ investigated and reached a \$1 billion settlement because the regularity disappeared after the paper and there was evidence of intimidating phone calls and refusal to deal with violators. Collusion was sustainable because the market maker reaction time was measured in minutes, meaning there is limited payoff to cheating ([Harrington, 2018](#)).

⁵⁸ Stephen Labaton. 1988. “Business and the Law; Young Lawyers’ Salaries Stabilize”. *The New York Times*, June 13. <https://www.nytimes.com/1988/06/13/business/business-and-the-law-young-lawyers-salaries-stabilize.html>.

⁵⁹ Citi offers “law firm advisory services” and has ongoing relationships with “over 700 prominent law firms.”

private nature of these meetings, it is unclear to what extent discussion occurs. However, there is suggestive evidence that it does happen. According to the *ABA Journal*, one firm leader “believes year-end bonuses will remain unchanged, although special bonuses will be eliminated. He adopted that view based on the discussion during a meeting of law firm managing partners hosted by Citigroup Private Bank in August.”⁶⁰ Interestingly, these are exactly the bonus levels adopted by Skadden in 2008 before being undercut by Cravath. After the 2016 salary increase, the head of advisory services at Citi Private Bank wrote, “In our conversations with firm leaders, many express bafflement as to why so many firms adopted the increases when their productivity and profitability results couldn’t support them.”⁶¹ These quotes suggest that firms do privately discuss these matters.

Firms might also discuss compensation in more informal private forums. An anonymous associate allegedly overhead a private conversation between a Cravath partner and a partner at another law firm: “Susan Webster of Cravath [while attending] a meeting introduces herself to another BigLaw partner. [The o]ther partner says, ‘Oh thanks for the bonus, [it] really was great.’ Susan smiles and says, ‘Yeah I know.’ Then she complains about people wanting spring bonuses.”⁶²

Standardization: Standardization can facilitate collusion by simplifying monitoring and communication. For example, [Genesove and Mullin \(2001\)](#) show that the Sugar Institute cartel explicitly colluded on standard business practices to facilitate implicit price collusion. Among BigLaw firms, associate positions and compensation are standardized. Most BigLaw firms use a lockstep system, which means associates advance based on years of experience. Therefore, a fourth-year associate who transitions between firms remains a fourth-year associate. Firms use posted prices and do not offer “discounts,” i.e., they typically do not offer individualized compensation or signing bonuses.⁶³ It is especially interesting that firms do not rely on signing bonuses, since they are common in many

⁶⁰Debra Weiss. 2008. “Will Bonuses Be Cut? Cravath and S&C Key to the Answer.” *ABA Journal*, November 18. https://www.abajournal.com/news/article/will_bonuses_be_cut_cravath_and_sc_key_to_the_answer.

⁶¹Debra Weiss. 2017. “Some law firm leaders question associate pay hikes amid tepid year.” *ABA Journal*, February 15. https://www.abajournal.com/news/article/some_law_firm_leaders_question_associate_pay_hikes_amid_tepid_year/

⁶²Elie Mystal. 2011. “What Do Cravath Partners Say About The Bonuses To Other Biglaw Partners When They Think Nobody Is Listening?” *Above the Law*, December 2011. <https://www.abovethelaw.com/2011/12/what-do-cravath-partners-say-about-the-bonuses-to-other-biglaw-partners-when-they-think-nobody-is-listening/>. When asked by Above the Law about the overheard conversation, Susan Webster did reply “The characterization of your report is inaccurate.”

⁶³The absence of signing bonuses might be due to historical norms against poaching workers. While these norms have broken down at most firms, they used to be widespread. For example, in the 1950s and 1960s, “The firms will not pirate an employee from another law office, and they maintain a gentleman’s agreement to pay the same beginning salary.” ([Smigel, 1969](#))

other industries.⁶⁴

The practice of standardized compensation actually has its origin in explicit collusion. Robert Swaine (1947) wrote in the official history of Cravath, Swaine, & Moore:

Adoption by other city offices of many of the same principles on which the “Cravath system” is based led, about 1910, to competitive bidding for the highest-ranking men of the leading law schools. This gave a few men inordinately high beginning salaries, sometimes double those of the generally applicable scale. The discrimination among the men just coming out of law school became unfair and made the initial salary offered too important a criterion in the choice of offices. Within a few years the evils of the practice were admitted by the offices and strongly objected to by the faculties of the law schools; on their suggestion it was abandoned after World War 1, following a conference among the managing partners of the larger offices. Beginning salaries thereafter tended to become uniform...

Therefore, the practice of offering uniform salaries was reached by agreement. For output markets, there are non-collusive rationales for posted pricing without discounts if they significantly reduce search costs or the cost of selling (in this case “buying” labor). However, if these costs are not significant, then posted pricing without discounts is inimical to competition (Harrington, 2011).

4.6 Efficiency costs

No doubt we will be raising as will other firms; this market is very efficient in that way.

-John Quinn, co-founder of Quinn Emanuel Urquhart & Sullivan (2016)⁶⁵

There are substantial reasons to believe that these behaviors meaningfully distort associate compensation (“markdown”). First, there have been significant jumps in compensation that are only feasible if associates were previously earning substantially less than their marginal product.

⁶⁴ There are some signs that this standard is currently changing with increasing reports of signing bonuses in 2021. See Casey Sullivan and Jack Newsham. 2021. “Kirkland & Ellis has offered up to \$250,000 signing bonuses to young lawyers amid nonstop M&A and capital-markets work.” *Insider*, May 19. <https://www.businessinsider.com/kirkland-ellis-offered-junior-lawyers-signing-bonuses-250k-big-law-2021-5>.

⁶⁵ “Law Firm Cravath Raising Starting Salaries to \$180,000.” 2016. <https://www.consultzg.com/ideas-and-insights/news-mentions/law-firm-cravath-raising-starting-salaries-to-180000/> (accessed on 6/21/2021)

Second, partners react as if the decisions of salary leaders are meaningful. I have already discussed a few examples previously, but there are many others. For example, after Cravath kept 2010 bonuses at the low 2009 rates an anonymous partner succinctly responded, “Oh, thank God.”⁶⁶ After the 1986 increase, Joseph Bainton, a partner at Reboul MacMurray, said “I hope we don’t get into a wage spiral. After all, it’s coming out of my salary and my partners.”⁶⁷

Even BigLaw clients react as if these decisions matter.⁶⁸ For example, Bank of America’s top lawyer sent an email to law firms after Cravath’s 2016 salary raise saying that the pay raises were “unjustified” and that the bank would not help firms absorb increased costs.⁶⁹ After Cravath cut bonuses in 2008, the firm’s head, Evan Chessler, stated “I’ve got to tell you, and I don’t want to name any names, but I have gotten calls from a half dozen clients this morning thanking me.”⁷⁰

Countering this view, some believe that new associates are paid more than their marginal product. Many of these objections are normative statements about what associates should make. For example, news articles will cite the fact that associates are paid more than Supreme Court Justices. Or when referring to pay increases they use language such as “princely sum” or “exorbitant.” However, as discussed in [Harrington \(2005\)](#), price levels are poor measures of collusion.

A different critique focuses on the fact that clients often complain that new associates do not provide sufficient value to justify their billing rate. However, the value to the law firm is based on the gap between the billing rate and hourly compensation. Billing rates and hourly compensation are not necessarily the same. For example, Figure 13 shows that associate billing rates (relative to partners) increased even while associate compensation (relative to partners) decreased. In 2014, a new associate in a major law firm might have a salary of \$160,000, bonus of \$10,000, and work 2000 billable hours; then the associate earns \$85 for every billable hour.⁷¹ In comparison, the average minimum associate billing

⁶⁶2009. “Cravath Bonuses Hold at 2009 Rates.” *New York Law Journal*, November 23. <https://www.law.com/newyorklawjournal/almID/1202475234897/>.

⁶⁷Gary Hengstler. 1986. “If I Can Make It There...” *ABA Journal*, August 1.

⁶⁸It is a recurring practice for industry new publications to produce articles about unhappy clients after any major salary or bonus increase.

⁶⁹Sara Randazzo. 2016. “Corporate Clients Push Back After Law Firms Hike Starting Salaries”. *The Wall Street Journal*, June 15. <https://www.wsj.com/articles/companies-push-back-at-law-firms-starting-salary-hikes-1466029554>.

⁷⁰Aric Press. 2008. “Cravath Cuts Bonuses, Hints at 2008 Financials.” *The AmLaw Daily*, November 21. <https://www.amlawdaily.typepad.com/amlawdaily/2008/11/cravath-cuts-bo.html>.

⁷¹The hourly pay of associates is actually significantly lower, since only 70-80% of hours worked are billable. These estimates are also conservative; many associates at top firms work for significantly more than 2,000 billable hours.

rate was \$300 for firms paying the “going rate.”⁷²

Quantifying the markdown (which differs by firm) and the total efficiency costs of collusion is beyond the scope of this paper. However, I do provide some suggestive evidence that efficiency costs exist. The two likeliest sources of efficiency losses are if productive firms are inefficiently small or if relative input usage is distorted.

Collusion can lead to some firms being inefficiently small. The OPEC cartel raises oil prices, allowing marginal producers, with higher marginal costs, to produce ([Asker et al., 2019](#)). Productive firms are unable to raise compensation to expand without losing some of the rents in the collusive equilibrium. Some of the workers end up at less productive “fringe” firms that are able to compete due to the artificially depressed input costs. There is anecdotal evidence that large price jumps occur partly to remove these firms. [Flood \(1989\)](#) said the goals of the 1986 Cravath increase were “to persuade associates to stay longer on average than they had been doing hitherto and to exterminate a stratum of law firms that would find it difficult to compete for the most highly qualified law school graduates.” Commentators will sometimes use the fact that some firms will be put out of business as an argument that associate salaries cannot be raised. However, the continued existence of too many unproductive “fringe” firms is potentially a symptom of an unhealthy market.

[Galanter and Palay \(1991\)](#) find a structural break in firm growth rates around when Cravath broke with the “luncheon” cartel in 1968. Potentially, these higher salaries allowed more productive firms to expand. Table 7 looks at which firms hired more associates after the salary increase in 2006-07 (conditional on paying the previous maximum salary of \$125,000). More productive (profitable) firms expanded more after the increase. Continued collusion might be one reason (among many) that the legal market is significantly less concentrated than many other white-collar service markets, such as accounting or management consulting.

A second potential inefficiency is if the salary distortions alter input usage. For example, firms might want to hire more associates but are unable to. Firms typically target specific ratios of associates to partners. If this ratio declines for firms, then it might signify that firms are unable to recruit sufficient associates. Table 7 shows that firms that saw the larger declines in the ratio of associates to partners from 2002-05 (when salaries were frozen) hired relatively more associates after the salary increases in 2006-07. Therefore, it seems these firms were unable to maintain their desired number of associates at the lower salary levels and they hired more associates once they could.

⁷²Other inputs are used to produce an associate billable hour (e.g., support staff), but it is clear law firms would earn profit on each associate billable hour even with significant additional costs.

Lower associate salaries also means that firms want to have higher rates of associates to partners, since they earn additional rents. This dynamic could force firms to use stricter “up or out” policies to maintain their high associate to partner ratio. New York firms, which might have the largest gap between productivity and compensation, also have the highest ratios of associates to partners and strictest “up or out” policies.

There could be other efficiency losses. If law firms cannot adjust salaries to compete for associates, then they might adjust on other margins such as recruiting earlier.⁷³ Earlier recruitment might have real efficiency costs since law firms have noisier signals of potential ability, reducing match quality. Artificially low associate salaries might also reduce the incentive to invest in alternative production technologies. For example, firms might experiment less with the use of alternatives to elite law school graduates, such as paralegals or graduates from lower-ranked institutions. It could also decrease the long-run supply of lawyers or partners. The loss of high-quality associates to other industries due to low salaries also reduces the long-run supply of high quality partners.

5 Conclusion

The market for BigLaw associates has a long history of collusion. Explicit collusion began shortly after the introduction of the “Cravath system” in the early 20th century with the “luncheon” cartel and other agreements between major law firms and lasted for at least forty years. Explicit collusion was replaced with tacit collusion by Cravath in 1968 when it explicitly invited other leading New York City firms to match its salary rates. Collusion even might be considered the natural state of the market. It also might have existed long enough that many market participants do not even realize that their behavior has its roots in both explicit and tacit collusion.

Price leaders’ strategy extends beyond the simplest matching strategy. They make strategic decisions about which firms to exclude from the strategic set. They communicate about total compensation to reduce misinterpretations and set expectations. They preserve price leadership by slightly exceeding initial competing offers to reduce reputational gains to cheating. These strategies are enabled by a variety of facilitating practices. Communication, in trade publications, industry organizations, and private settings, allows firms to set expectations and perfectly monitor each other. Associates levels and compensation are standardized and firms do not offer “discounts” (individualized salaries), reducing the ability of firms to cheat and simplifying monitoring. Some of these

⁷³ Recruitment now begins as early as the winter of the first year, when firms have only one semester of grades to observe.

facilitating practices, such as standardized salaries, have their origin in explicit collusion.

The objective of this paper is to answer a straightforward question: what explains uniform salaries in the market for BigLaw associates? The answer is also straightforward: tacit collusion. An interesting question for future research is to model and quantify the effect of this collusion. The large salary jumps suggest that collusive markdowns could be significant in some years, and there is suggestive evidence that collusion does have efficiency costs. Quantifying the effect of collusion requires a model that accounts for quality differences, effects on the supply of lawyers, firm entry and exit, and many additional dynamics. Given the long-run nature of collusion, there might even be important effects on the structure of production and the development of production technology. It is also interesting to consider how the rents from collusion are divided between other input providers (e.g., partners) and the consumers of legal services.

Economic collusion is not necessarily illegal from a legal perspective since it could fall into the category of “conscious parallelism.” However, detailed legal analysis is beyond the scope of this paper and the qualifications of the author. A separate interesting question is whether there are potential remedies, but it is difficult to identify clear remedies for tacit collusion that does not rely on direct communication (Turner, 1962). I also do not take a stance on firm motivation. For example, Cravath partners could seek price leadership for reputational benefits (e.g., they derive utility from being seen as the “best” firm) without explicitly desiring tacit collusion.

Another interesting strand of future research would be to examine other labor markets for potential collusion. The absence of uniform salaries in a market does not mean tacit collusion does not occur; law firms have to rely on relatively simple techniques, such as exact salary uniformity, due to the large number of firms. In 2005 the accounting firm KPMG had to pay significant penalties for creating fraudulent tax shelters. While KPMG was litigating this case, the other three “Big Four” accounting firms unofficially agreed to not poach workers from KPMG.⁷⁴ Other professional service industries, such as consulting or finance, could face similar issues. Medical professions are also a good focus for research, since they have been a frequent target of the initial labor market antitrust cases. Meatpacking companies also have a history of collusion (Huang, 2020) and poultry processors currently face an active wage-fixing suit that alleges firms depressed pay through illegal data exchanges and secret meetings at industry conventions.⁷⁵ Universities are also a potential target of investigation. The heads of top economics departments

⁷⁴ Bill Carlino. 2005. “The Big 4: A Growing Concern.” *Accounting Today*, October 9.

⁷⁵ Mike Leonard. 2021. “Tyson, Pilgrim’s, Hormel to Face Poultry Worker Wage-Fixing Suit.” *Bloomberg Law*, March 21. <https://www.news.bloomberglaw.com/antitrust/tyson-pilgrims-hormel-to-face-poultry-worker-wage-fixing-suit>.

used to agree on pay and teaching requirements at the Annual Meeting of the American Economic Association ([Krueger, 2017](#)); potentially similar practices still occur in other fields.

Finally, there might be many localized cases where collusion can even span across industries. While there are few current detailed case studies of local labor markets in economics, some historical studies find that informal no-poach agreements are pervasive. For example, [Myers and MacLaurin \(1943\)](#) followed 1500 workers at thirty-seven companies in one city over six years. They found that “gentleman’s agreements” not to “pirate” each other’s employees were a significant barrier to worker mobility, and [Reynolds \(1951\)](#) found a similar result for another city. This evidence aligns with the widespread use of non-compete agreements, including notably for Jimmy John’s sandwich makers ([Ashenfelter and Krueger, 2018](#)).

We currently do not understand how widespread these problems are because meaningful regulatory enforcement is a recent phenomenon. But it is clear there are important policy implications; if collusion is common, then mergers should not be scrutinized for coordinated effects just in output markets ([Asker and Nocke, 2021](#)), but also in input markets. For example, many animation studios had collusive no-poach agreements. Several participants in this scheme, including Pixar and Lucasfilm by Disney, have since been acquired, potentially facilitating future collusion. The former head of the Antitrust Division, Makan Delrahim, recently said (in regard to no-poach agreements), “In the coming couple of months you will see some announcements, and to be honest with you, I’ve been shocked about how many of these there are, but they’re real.”⁷⁶ These examples all suggest that collusion in labor markets deserves increased attention from researchers and regulatory authorities.

⁷⁶Matthew Perlman. 2018. “Delrahim Says Criminal No-Poach Cases Are in the Works.” *Law360*, January 19, <https://www.law360.com/articles/1003788/delrahim-says-criminal-no-poach-cases-are-in-the-works>.

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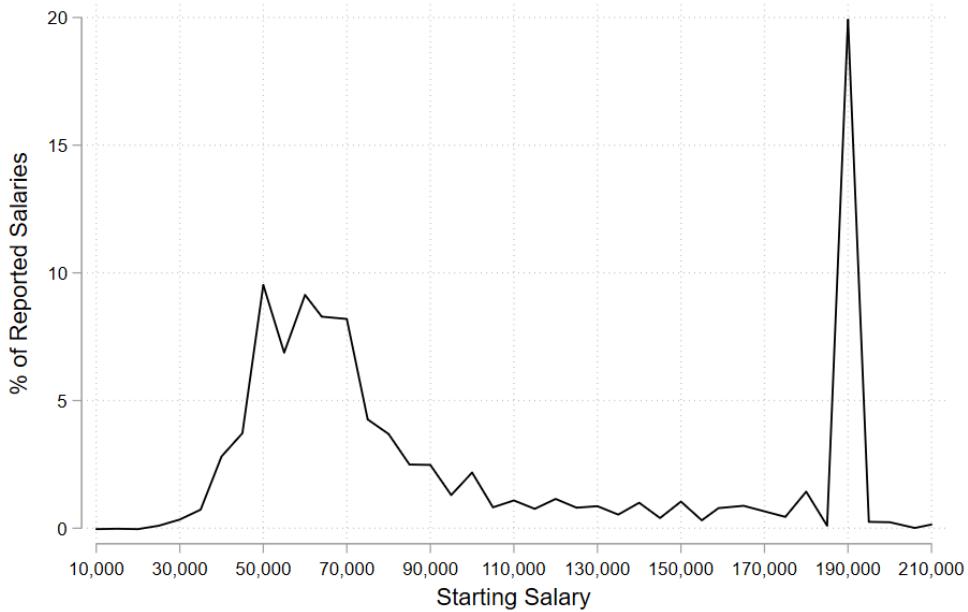
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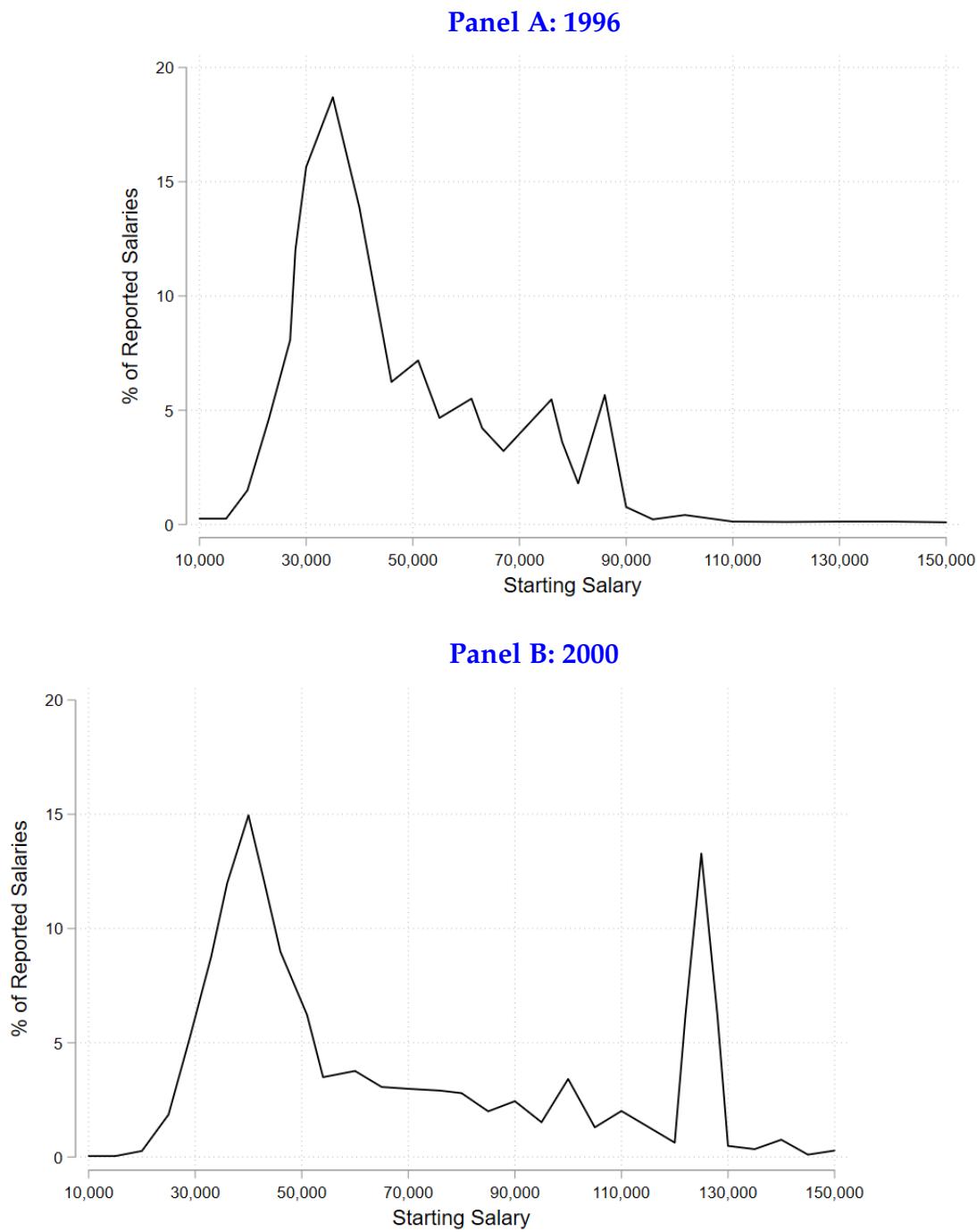
6 Tables and Figures

Figure 1: Distribution of starting salaries for new law school graduates (2019)



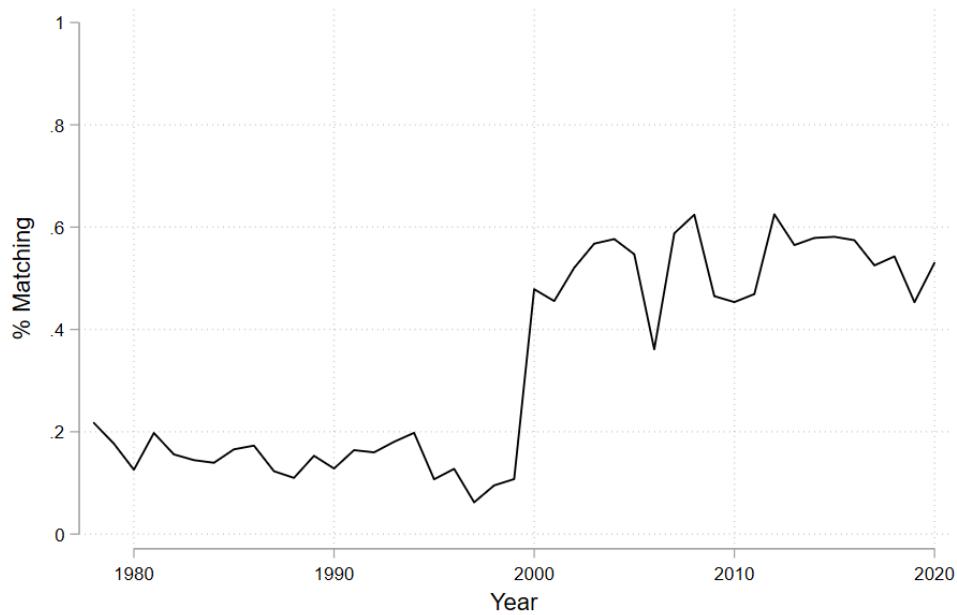
Note: Conditional on finding a job. From published National Association for Law Placement figures (2019 dollars)

Figure 2: Distribution of starting salaries for new law school graduates (1996 and 2000)



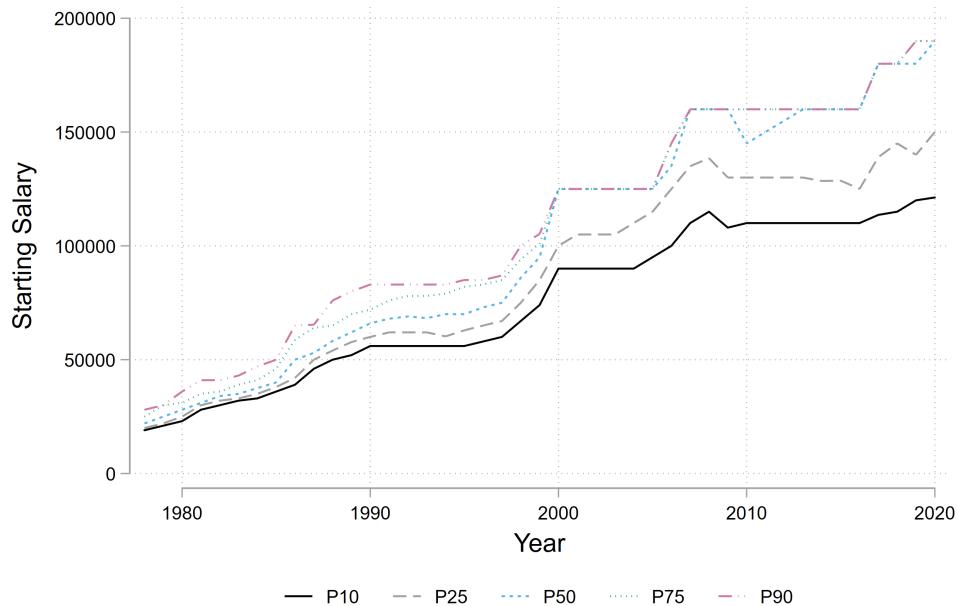
Note: Conditional on finding a job. From published National Association for Law Placement figures (nominal dollars)

Figure 3: Share of firms matching modal starting salary (NLJ 200)



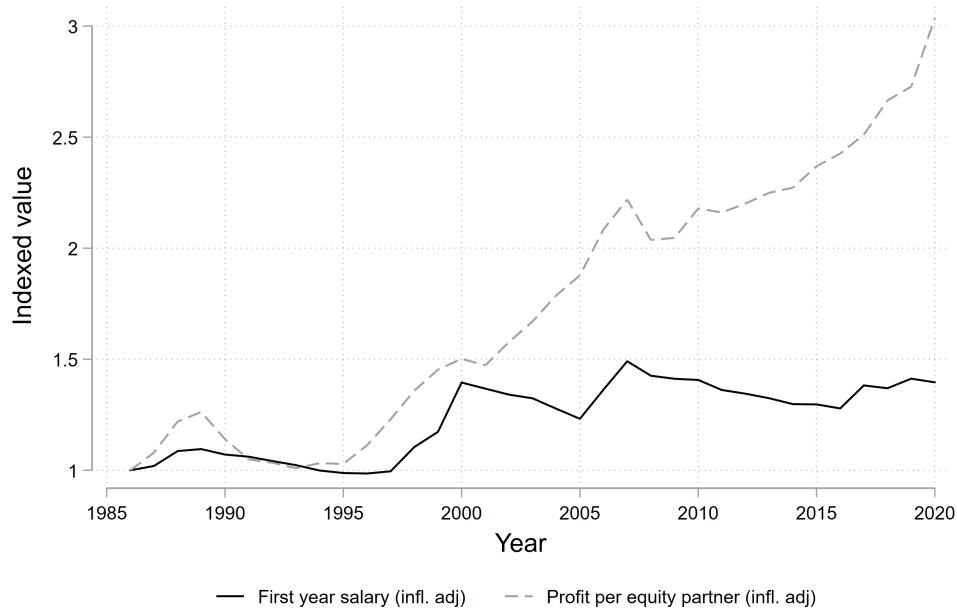
Note: Figures are conditional on firm's reporting starting salaries in NLJ surveys. Starting salaries represent the highest reported starting salary for each firm.

Figure 4: Distribution of starting salaries by year (NLJ 200)



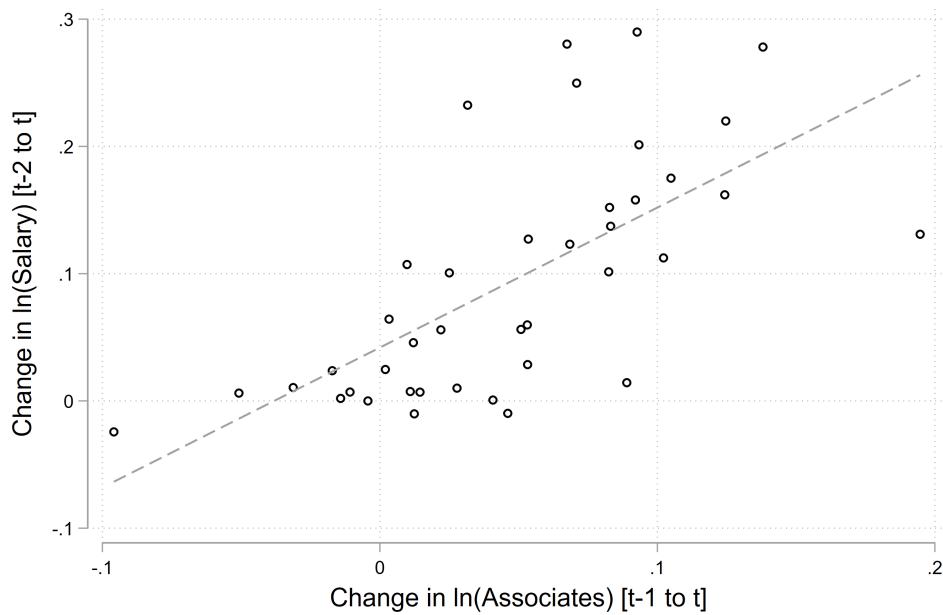
Note: Figures are conditional on firm's reporting starting salaries in NLJ surveys. Starting salaries represent the highest reported starting salary for each firm.

Figure 5: Growth in real starting salaries and profit per equity partner (NLJ 200)



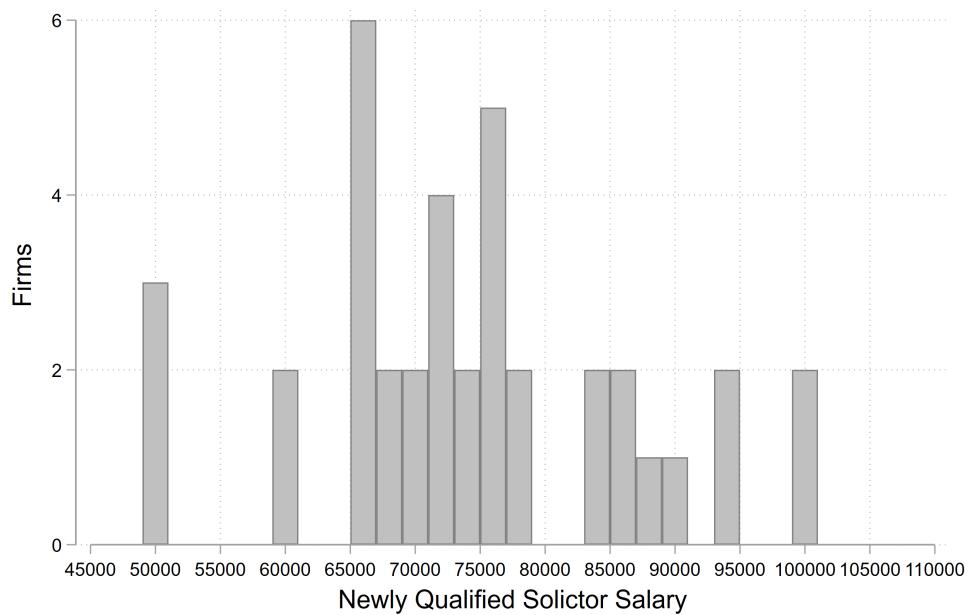
Note: Figures are conditional on firm's reporting starting salaries in NLJ surveys and featuring in the AM-LAW100. Starting salaries represent the highest reported starting salary for each firm. Values are weighted by the total number of employed attorneys. All values are adjusted to 2020 dollars using the CPI and indexed to 1986 levels.

Figure 6: Growth by year in log of starting salaries versus log of associate employment (NLJ 200)



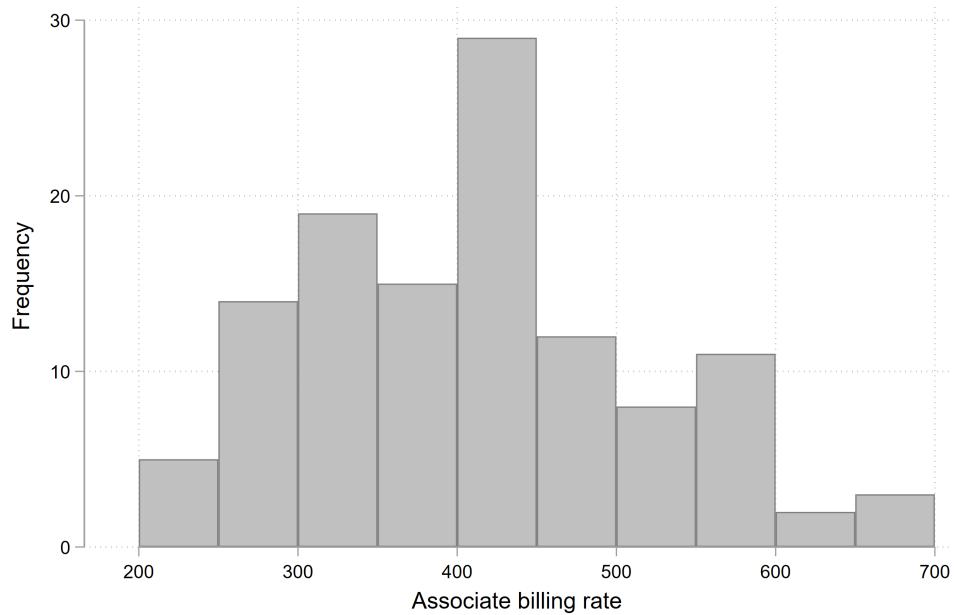
Note: Each point represents average growth for one year, created by weighting firm-level growth by lagged associate employment. For years 1980-2020.

Figure 7: Distribution of newly qualified solicitor salaries in London (2020)



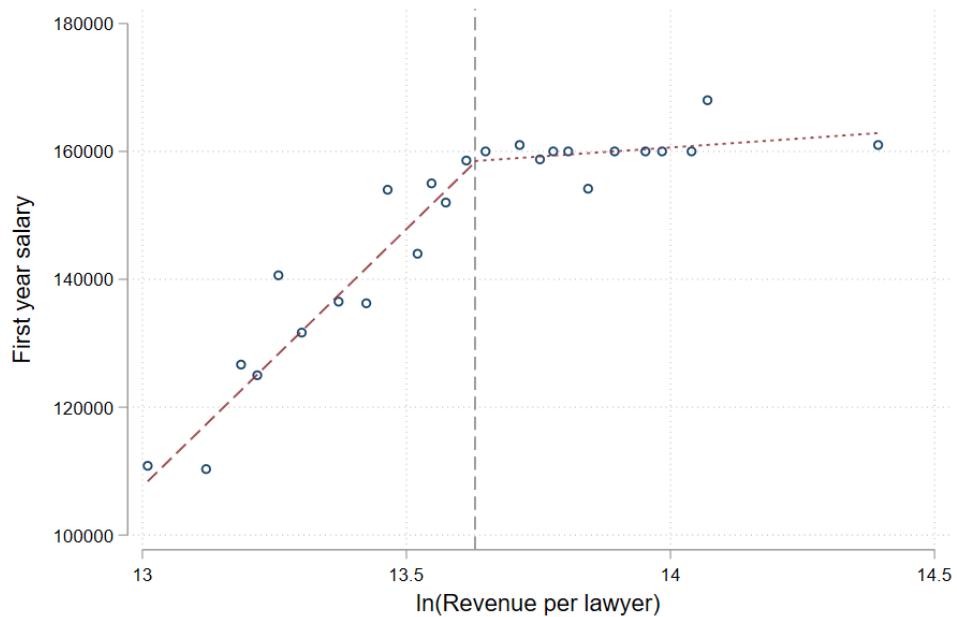
Note: For the Top 75 UK firms by revenue with available salary data. Observations are binned in 2000 increments. Salaries are in nominal British Pounds.

Figure 8: Distribution of minimum associate billing rates (2014)



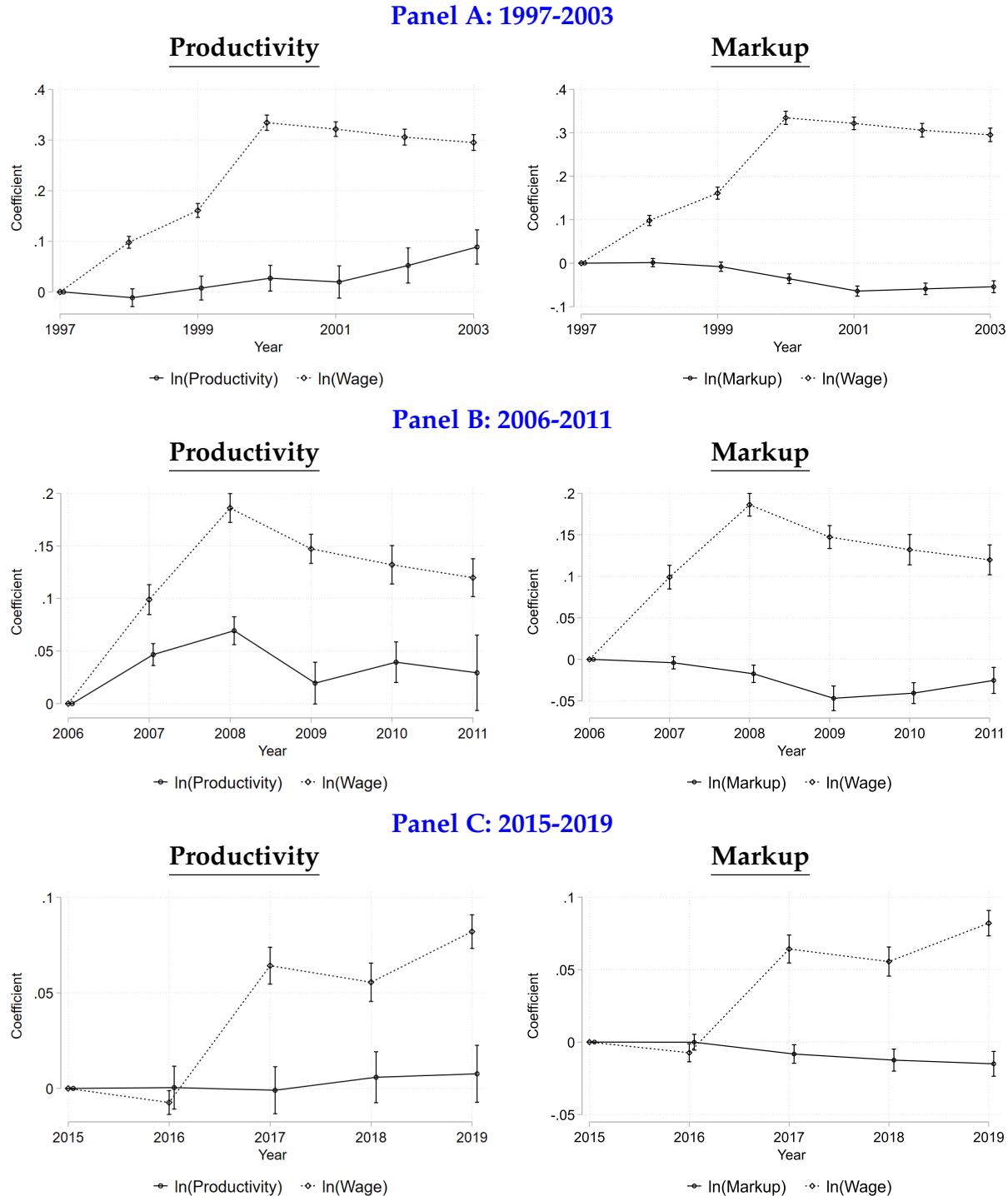
Note: For NLJ200 firms with billing rate data.

Figure 9: Binned scatterplot of starting salaries versus log of revenue per lawyer (NLJ 200, 2016)



Note: For NLJ 200 firms with reported starting salaries and AMLAW revenue data. 2016 data is used since it is a year prior to 2017 salary increases. Salaries are in nominal dollars.

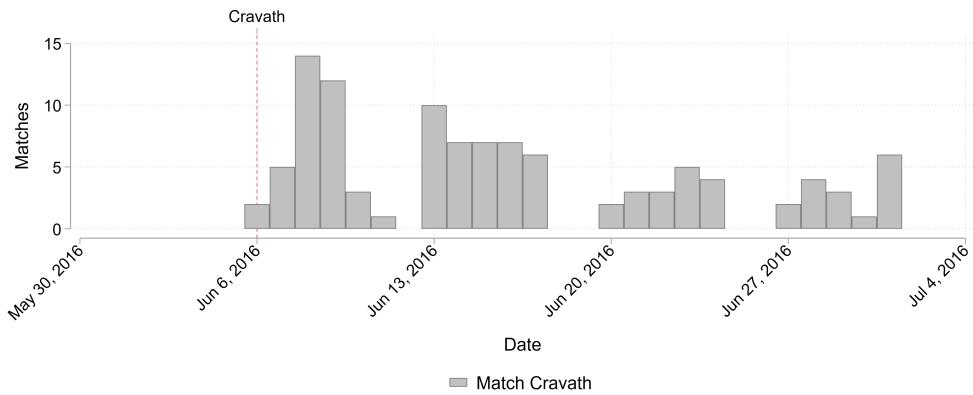
Figure 10: Salaries, productivity, and markups around major salary increases (NLJ 200)



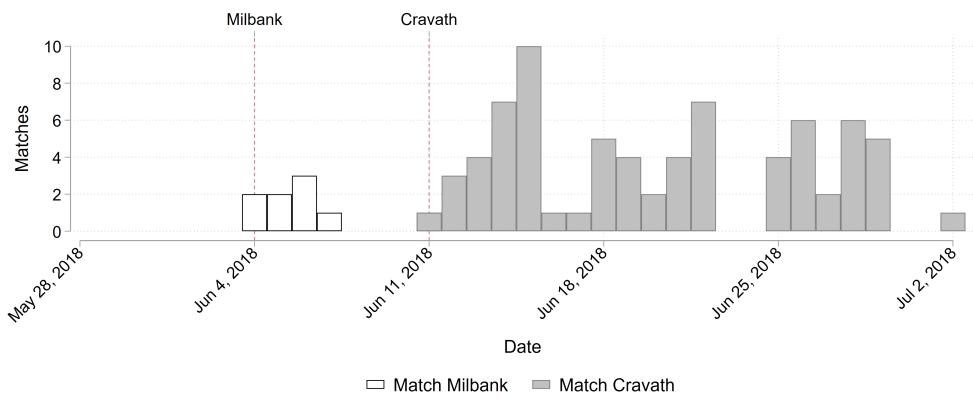
Note: For NLJ 200 firms with reported starting salaries and AMLAW data. Coefficients are for year fixed effects; the regression includes firm fixed effects. Regressions are weighted by initial attorney employment. Standard errors are clustered at the firm level. Bands represent 95% confidence intervals.

Figure 11: Salary increase matching announcement timings

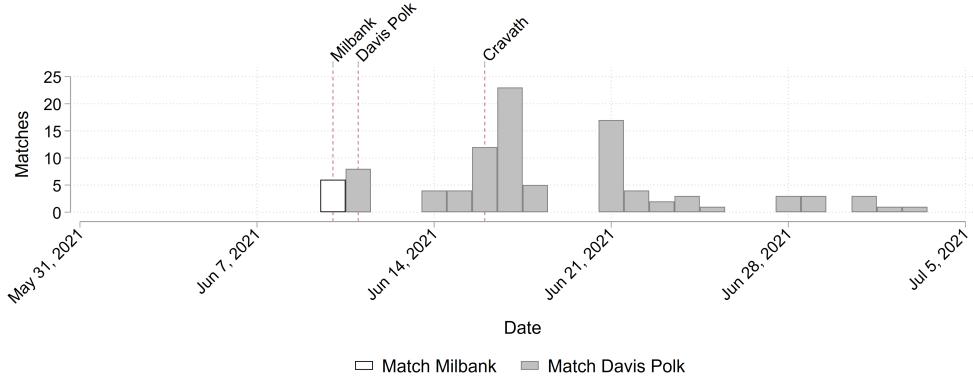
Panel A: 2016



Panel B: 2018

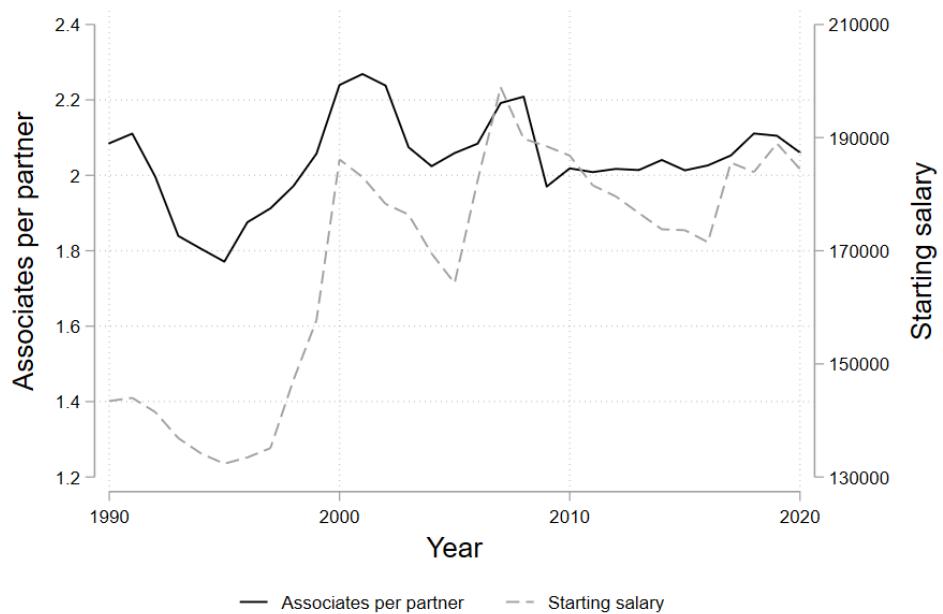


Panel C: 2021



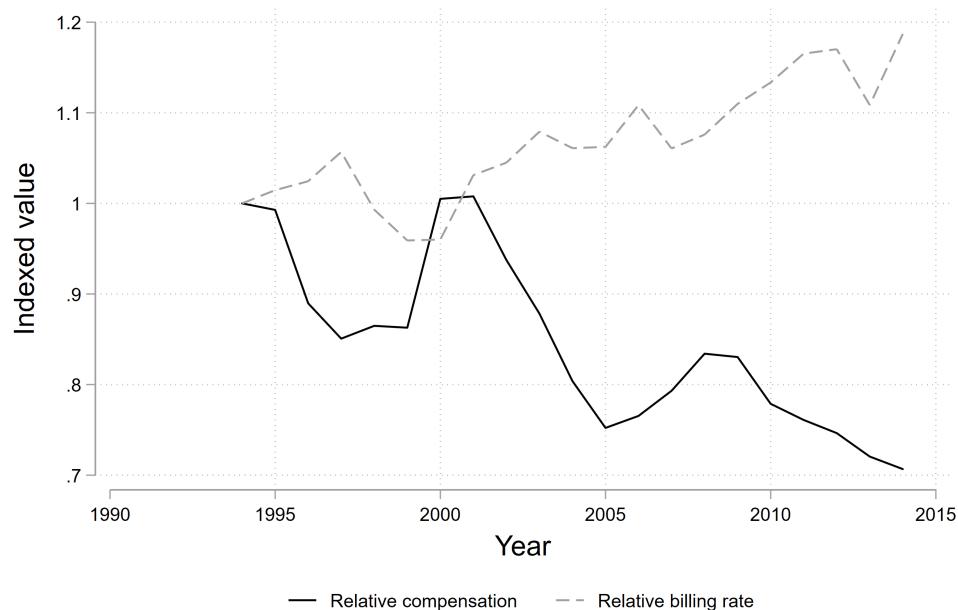
Note: For firms with reported matches on AboveTheLaw.com. In 2018, all firms that initially matched Milbank later matched Cravath's higher salary figures. In 2021, all firms that initially matched Milbank later matched Davis Polk's higher salary figures.

Figure 12: Ratio of associates to partners and starting salaries (NLJ 50)



Note: Salaries are in 2020 dollars

Figure 13: Ratio of associate to partner compensation and billing rates (NLJ 200)



Note: For firms reporting billing rates. Rates are indexed to 1994. Billing rates are based on minimum billing rates for associates and partners.

Table 1: Salary increases by year (NLJ200, \$1000s)

	Mean Salary	Median Salary	Modal Salary	Mean Change	Median Change	Share Increasing	Reported Salaries
1979	25	25	30	2.6	2.0	92.2	130
1980	28	28	28	3.4	3.0	89.9	137
1981	32	31	30	3.7	4.0	92.7	162
1982	34	34	33	2.7	3.0	86.1	133
1983	37	35	35	1.5	1.0	67.8	165
1984	39	38	37	2.2	2.0	89.6	155
1985	42	40	40	2.7	2.5	87.8	159
1986	50	50	50	8.0	8.0	89.5	183
1987	55	53	65	4.9	4.3	73.1	167
1988	60	58	50	6.0	6.0	89.9	168
1989	64	62	60	3.4	4.0	78.7	196
1990	67	66	70	3.0	3.0	72.5	195
1991	69	68	70	1.5	0.0	36.1	195
1992	69	69	70	0.4	0.0	14.4	191
1993	69	68	83	0.3	0.0	22.6	194
1994	69	70	83	0.6	0.0	23.3	197
1995	71	70	70	1.2	0.0	41.8	196
1996	72	73	85	1.5	0.0	43.7	186
1997	75	75	87	2.6	2.0	67.0	187
1998	84	86	90	8.4	8.0	91.0	185
1999	92	95	90	8.0	7.0	86.8	180
2000	113	125	125	21.2	22.0	96.6	185
2001	114	125	125	1.9	0.0	24.7	188
2002	115	125	125	-0.6	0.0	9.8	192
2003	116	125	125	1.8	0.0	19.7	192
2004	116	125	125	0.6	0.0	15.2	187
2005	117	125	125	1.4	0.0	24.1	172
2006	130	135	145	13.9	12.0	91.3	175
2007	146	160	160	15.8	15.0	92.2	177
2008	148	160	160	2.2	0.0	19.0	180
2009	144	160	160	-4.6	0.0	2.6	155
2010	143	145	160	0.0	0.0	10.1	172
2011	144	150	160	0.1	0.0	6.9	162
2012	-	-	-	-	-	-	-
2013	144	160	160	-	-	-	154
2014	145	160	160	0.5	0.0	12.2	152
2015	145	160	160	1.3	0.0	12.4	148
2016	146	160	160	1.2	0.0	17.8	138
2017	159	180	180	13.7	20.0	76.9	139
2018	161	180	180	2.4	0.0	20.1	139
2019	166	180	190	6.3	10.0	63.6	139
2020	170	190	190	2.6	0.0	21.9	132

Note: Sample is NLJ200 firms with reported salaries. Salaries are the highest reported salaries for new associates. Salaries are in nominal dollars (\$1000s). NLJ salary data for 2012 is not available. Reported salaries is the number of NLJ200 firms with non-missing salary data.

Table 2: Local and NY modal starting salary matching rates by headquarters city (NLJ200, \$1000s)

City		1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19
NYC	Match city mode	0.35	0.41	0.58	0.25	0.82	0.83	0.80	0.81
	Match NY mode	0.35	0.41	0.58	0.25	0.82	0.83	0.80	0.81
	Firm-year obs	168	207	216	208	195	181	169	144
D.C.	Match city mode	0.36	0.34	0.30	0.28	0.76	0.78	0.67	0.82
	Match NY mode	0.00	0.00	0.01	0.03	0.76	0.75	0.67	0.82
	Firm-year obs	53	67	98	104	113	99	85	65
Chicago	Match city mode	0.34	0.42	0.56	0.41	0.78	0.75	0.68	0.70
	Match NY mode	0.01	0.02	0.11	0.07	0.78	0.72	0.68	0.70
	Firm-year obs	96	96	117	97	86	75	69	71
Philadelphia	Match city mode	0.35	0.64	0.28	0.29	0.32	0.40	0.38	0.39
	Match NY mode	0.00	0.00	0.06	0.04	0.26	0.28	0.29	0.33
	Firm-year obs	26	42	54	56	57	50	48	49
Boston	Match city mode	0.60	0.56	0.49	0.60	0.67	0.81	0.79	0.91
	Match NY mode	0.00	0.06	0.06	0.00	0.65	0.81	0.79	0.91
	Firm-year obs	43	34	49	43	46	37	38	34
Los Angeles	Match city mode	0.57	0.33	0.26	0.32	0.83	0.84	0.71	0.73
	Match NY mode	0.00	0.00	0.12	0.06	0.83	0.84	0.71	0.73
	Firm-year obs	49	51	42	34	41	44	38	37
San Francisco	Match city mode	0.44	0.52	0.25	0.38	0.72	0.60	0.75	0.88
	Match NY mode	0.00	0.00	0.02	0.06	0.72	0.60	0.75	0.88
	Firm-year obs	27	50	65	53	54	42	28	26
Dallas	Match city mode	0.39	0.26	0.26	0.29	0.29	0.57	0.65	0.70
	Match NY mode	0.00	0.00	0.00	0.00	0.13	0.35	0.65	0.70
	Firm-year obs	18	35	42	35	38	23	23	23
Houston	Match city mode	0.57	0.32	0.22	0.35	0.40	0.80	0.96	0.92
	Match NY mode	0.00	0.00	0.09	0.16	0.33	0.80	0.96	0.83
	Firm-year obs	28	38	32	31	30	30	28	24
Atlanta	Match city mode	0.81	0.72	0.65	0.50	0.42	0.54	0.44	0.39
	Match NY mode	0.00	0.00	0.00	0.00	0.42	0.54	0.40	0.39
	Firm-year obs	26	29	26	30	31	28	25	28

Note: Sample is NLJ200 firms with reported starting salaries. Firms are classified based on the city of their largest office. Matching rates are the share of firm-year observations (within a five-year band) that match the modal salary within the city-year.

Table 3: Firm expansion by year (NLJ200)

Year	Avg. # of Attorneys	Share in Home State	Avg. # of Branches	Avg. # of Large Branches	Avg. Branch Size	Any Large NY Office	Any Intl. Branch
1978	102	0.94	1.5	0.1	7.4	0.26	0.19
1980	119	0.92	2.0	0.1	7.4	0.26	0.23
1982	144	0.89	2.6	0.3	9.4	0.26	0.25
1984	178	0.89	2.9	0.4	10.2	0.25	0.25
1986	216	0.86	3.3	0.7	14.3	0.28	0.27
1988	260	0.84	4.0	1.0	17.6	0.29	0.28
1990	302	0.81	4.6	1.4	20.9	0.32	0.32
1992	299	0.79	5.1	1.5	19.8	0.31	0.43
1994	299	0.78	5.7	1.6	19.4	0.34	0.43
1996	322	0.77	6.0	1.7	20.7	0.37	0.48
1998	365	0.74	6.6	2.2	23.9	0.37	0.48
2000	438	0.71	7.2	2.8	28.8	0.42	0.48
2002	497	0.68	8.0	3.3	31.9	0.46	0.50
2004	514	0.66	8.6	3.5	31.3	0.48	0.51
2006	560	0.64	9.3	4.0	32.7	0.54	0.48
2008	625	0.60	10.6	4.7	33.1	0.58	0.54
2010	586	0.59	11.3	4.6	29.7	0.57	0.51
2012	587	0.57	12.0	4.7	28.6	0.57	0.54
2014	622	0.55	13.5	5.3	28.0	0.59	0.56
2016	622	0.54	14.1	5.4	27.5	0.60	0.56
2018	645	0.52	14.7	5.6	28.0	0.61	0.55
2020	684	0.51	15.7	5.9	28.8	0.62	0.54

Note: Home state is defined as the state containing the largest share of the firm's lawyers. Each branch is a city with an office (excluding the city containing the firm's headquarters). A large office or branch contains at least 25 lawyers. Any large NY office is the share of firms with a large NY office (includes if the firm's headquarters is in New York). Data is from NLJ reports.

Table 4: Value of \$190K pre-tax salary across cities in 2019

	\$190K After-Tax Salary (\$1000s)	ln(After-Tax Salary)	Relative to NYC		Total Compensation	NYC Pre-Tax Equivalent (\$1000s)
NYC	129	0.00	0.00	0.00	0.00	190
D.C.	127	-0.01	0.22	-0.03	0.24	243
Chicago	131	0.01	-0.05	-0.08	0.05	200
Philadelphia	134	0.04	-0.49	-0.15	-0.30	141
Boston	131	0.02	0.16	0.04	0.13	217
Los Angeles	129	0.00	0.28	-0.04	0.32	264
San Francisco	129	0.00	0.16	0.15	0.01	192
Dallas	140	0.08	-0.05	-0.25	0.28	253
Houston	140	0.08	-0.35	-0.32	0.05	200
Atlanta	130	0.01	0.12	-0.14	0.27	250

Note: After tax salary calculated using NBER TAXSIM calculator for unmarried workers with no other income. Data on amenity and local prices adjustments comes from [Diamond \(2016\)](#) estimates for college educated workers in 2000.

Table 5: Bonus announcements and leaders

Bonus	First	Date	Standard	Date	Description
2021 Spring	Willkie Farr	3/19	Davis Polk	3/22	\$7,500 → \$12,000
2020 Year End	Baker McKenzie	11/11	Cravath	11/23	\$15,000 → \$22,500
2020 Covid	Cooley	9/14	Davis Polk	9/15	\$2,500 → \$7,500
2019 Year End	Milbank	11/7	-	-	\$15,000; No other matches until Cravath 11/11
2018 Year End	Cravath	11/19	-	-	\$15,000
2017 Year End	Cravath	11/27	-	-	\$15,000
2016 Year End	Cravath	11/27	-	-	\$15,000
2015 Year End	Cravath	12/7	-	-	\$15,000
2014 Year End	Simpson Thacher	11/21	Davis Polk	11/25	\$15,000; Davis Polk raised for older classes
2013 Year End	Cravath	12/2	-	-	\$10,000
2012 Year End	Cravath	11/26	-	-	\$10,000
2011 Year End	Cravath	11/28	-	-	\$7,500
2011 Spring	Sullivan & Cromwell	1/21	Cravath	1/31	\$2,500; Cravath raised for older classes
2010 Year End	Cravath	11/22	-	-	\$7,500
2009 Year End	Cravath	11/2	-	-	\$7,500
2008 Year End	Skadden	11/19	Cravath	11/20	\$35,000 → \$17,500
2007 Year End	Cravath	10/29	-	-	\$35,000

Notes: For major law firms. Standard is the firm whose bonus scale is most commonly matched (if it is a different firm from the first firm). Bonus amounts are for first-year associates. Second listed bonus amount is from the eventual standard. Data from AboveTheLaw.com announcements.

Table 6: Example firms exceeding market compensation (2012)

Firm	Lawyers	Salary	Bonuses	Notes
Cravath	453	\$160,000	\$10,000	
Bickel & Brewer	43	\$185,000	N/A	Litigation
Boies Schiller & Flexner	258	\$174,000	\$25,000+	Litigation
Desmarais	60	\$180,000	N/A	Litigation
McKool Smith	180	\$165,000	\$12,500	Litigation
Susman Godfrey	90	\$170,000	\$40,000+	Litigation
Wachtell Lipton	249	\$165,000	Above market	M&A
Williams & Connolly	271	\$180,000	\$0	Litigation

Notes: Data is for 2012 first-year associates. Data from AboveTheLaw.com article.

Table 7: Relationship between change in log of associates (2005-2008) and firm constraints

	(1) Profit	(2) Leverage	(3) Both
ln(Profit per partner) in 2005	0.0809** (0.0388)		0.104*** (0.0364)
Change in ln(Associates/Partners) 2002-05		-0.221** (0.109)	-0.309*** (0.113)
Observations	79	79	79
R-squared	0.049	0.032	0.108

Notes: For NLJ 200 firms with data on revenue from AmLaw that also matched the 2000 salary increase. Regressions are weighted by employment in 2002. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

A Supplementary analysis

A.1 Estimating market wage for equity partners

Equity partners earn compensation from directly providing labor, but they also earn compensation by providing capital. Non-lawyers are typically barred from owning law firms, so the expected return on equity could be higher than that of the economy overall. Therefore, it is not immediately clear how to separate wage labor and capital returns for equity partners. Note that for some analysis, I care only about the total compensation that is directly available.

In order to impute the market wage for equity partners, I rely on the wages for non-equity partners. I take three separate approaches, which require differing assumptions. Let w_{it}^{NE} be the yearly compensation for non-equity partners in firm i at time t and w_{it}^E be the same for equity partners. In the first approach, I assume that the market wage for equity partners is a firm-specific multiple of the non-equity partner wage, i.e. $r_i = \frac{w_{it}^E}{w_{it}^{NE}} \implies w_{it}^E = r_i w_{it}^{NE}$. The drawback of this approach is that not all firms have non-equity partners. Therefore, in the second approach, I rely on the predicted compensation for non-equity partners. I run the regression:

$$\ln w_{it}^{NE} = \beta \ln \bar{RPL}_i + \gamma_t + \varepsilon_{it}$$

for the sample of firms with w_{it}^{NE} where $\ln \bar{RPL}_i$ is the firm's average log of revenue per lawyer (after conditioning on year fixed effects). In practice, I allow β to vary by year. I then predict \hat{w}_{it}^{NE} for the entire sample of firms and again assume that equity partner wage is a firm-specific multiple of the predicted non-equity partner wage. For calculating the total variable costs, I make the additional assumption that $r_i = 1$.

The third and final approach is used to estimate the time series variation in the market wage for equity partners. I assume that the growth rate in the market wage for equity partners is the same as the growth rate in the wage for non-equity partners. Starting in 1994, I take the average within firm growth rate in non-equity partner compensation (weighted by the number of non-equity partners at time t-1). I then apply this year by year to create the growth rate in the market wage for equity partners, indexed to the starting year of 1994.

A.2 Alternate models of production

I presented the most basic static model of firm production in the text. My focus is on the first order condition for associates. The key alternatives are cases where, conditional on the quantity of partners chosen, K_t , there are frictions that affect the quantity of associates, N_t . The two most obvious cases are (1) if there are adjustment frictions or (2) if new associates are imperfect substitutes for experienced associates (e.g., if associates develop firm-specific human capital) and firms cannot charge separate wages. I consider basic models of both cases and show that the first order conditions still depend primarily on current productivity and wages plus future expected input wedges.

(1) *Adjustment costs*: For expositional simplicity I focus on the case of symmetric convex (quadratic) adjustment costs where there is one input, associates (N_t). Adjustment costs are given by $\frac{b}{2}(N_{t+i} - N_{t+i-1})^2$. The firm's revenue production function is $F(A_t, N_t)$. The firm's expected discounted profit at time t is given by:

$$\Pi_t = \mathbb{E}_t \left[\sum_{i=0}^{\infty} \beta^i (F(A_{t+i}, N_{t+i}) - w_{t+i} N_{t+i} - \frac{b}{2} (N_{t+i} - N_{t+i-1})^2) \right]$$

where $F(A_t, N_t)$ is the revenue production function and A_t are exogenous productivity shocks. Then the Euler equation is given by:

$$F_N(A_t, N_t) = w_t + b(N_t - N_{t-1}) - \beta b \mathbb{E}_t[N_{t+1} - N_t]$$

The term $b(N_t - N_{t-1}) - \beta b \mathbb{E}_t[N_{t+1} - N_t]$ creates a wedge between the marginal revenue productivity and the wage. If $(N_t - N_{t-1})$ and $(N_{t+1} - N_t)$ are positively correlated, then they will tend to offset each other and reduce the size of the wedge.

We can proceed further by rearranging to obtain $N_t - N_{t-1} = \frac{1}{b} F_N(A_t, N_t) - w_t + \beta \mathbb{E}_t[N_{t+1} - N_t]$. Iteratively substituting out $N_{t+1} - N_t$ in the Euler equation gives:

$$F_N(A_t, N_t) = w_t + b(N_t - N_{t-1}) - b \mathbb{E}_t \left[\sum_{i=1}^{\infty} (\beta)^i (F_N(A_{t+i}, N_{t+i}) - w_{t+i}) \right]$$

In the data, wage increases are typically positively correlated with $N_t - N_{t-1}$. This correlation means that we would expect the marginal revenue productivity to increase by more than the increase in wage in the presence of adjustment costs (holding $\mathbb{E}_t[\sum_{i=1}^{\infty} (\beta)^i F_N(A_{t+i}, N_{t+i}) - w_{t+i}]$ fixed). The only other alternative is a discrete change in $\mathbb{E}_t[\sum_{i=1}^{\infty} (\beta)^i F_N(A_{t+i}, N_{t+i}) - w_{t+i}]$; which is a discounted sum of future input wedges. However, this means there is

a large jump in the expected future gap between marginal revenue product and wages. Take the simplest case where the expected gap at time r between the marginal revenue product and wages for all future periods is some constant ψ_t . Then we have that the change in the Euler equation (from time $t - 1$ to t) is given by:

$$\Delta F_N(A, N) = \Delta W + b(N_t - N_{t-2}) - \frac{\beta}{1-\beta} \Delta \psi$$

Discrete wage increases (ΔW) that are not accompanied by changes in $\Delta F_N(A, N)$ require large changes in future expected input wedges ($\Delta \psi$). Future productivity shocks affect current wages only if they affect the future wedge between marginal revenue productivity and wages.

(2) *Firm-specific human capital*: An alternative formulation is if new associates are required to gain firm-specific human capital before being productive. This dynamic means that associates in other firms are imperfect substitutes for a firm's own associates. For intuition, I will consider a simple model where experienced associates can be "grown" only within the firm. At time t , firms hire new associates N_t who produce no output in the current period. The associates then become experienced associates, E_t , at time $t + 1$. After time $t + 1$ they leave the firm, so they are productive only for one period. The firm's expected discounted profit at time t is given by:

$$\Pi_t = \mathbb{E}_t \left[\sum_{i=0}^{\infty} \beta^i (F(A_{t+i}, E_{t+i}) - w_{t+i}^n N_{t+i} - w_{t+i}^e E_{t+i}) \right]$$

where $E_{t+i} = N_{t+i-1} \forall i$

The first order condition for N_t is given by:

$$\beta \mathbb{E}_t [F_E(A_{t+1}, N_t) - w_{t+1}^e] = w_t^n$$

so the firm will hire new associates until w_t^n equals the gap between the expected marginal revenue productivity and wages for experienced associates at time $t + 1$. Therefore, an increase in w_t^N needs to be offset by either an increase in expected $F_E(A_{t+1}, N_t)$ or by a decrease in expected w_{t+1}^e . w_{t+1}^e typically increases at the same time as w_t^n , so the latter option seems unlikely.

A.3 Productivity and markups with general CES functions

In this section I will discuss more generalized measures of productivity and markups.

Productivity: In the main text, I discussed how to measure productivity when the production function is Cobb-Douglas. In this section I discuss extensions to the more general CES case. Take the general production function $Q_{it} = A_{it}(\alpha_i N_{it}^\rho + (1 - \alpha_i)K_{it}^\rho)^{\nu/\rho}$. Then we have:

$$\begin{aligned} P_{it} \frac{\partial Q_{it}}{\partial N_{it}} &= \nu \alpha_i P_{it} N_{it}^{\rho-1} A_{it} (\alpha_i N_{it}^\rho + (1 - \alpha_i)K_{it}^\rho)^{\nu/\rho-1} \\ &= \nu \alpha_i P_{it} \left(\frac{Q_{it}}{N_{it}} \right) \left(\frac{Q_{it}^{1/\nu}}{N_{it}} \right)^{-\rho} \end{aligned}$$

Consider the case where $\nu = 1$, i.e., constant returns to scale (P_{it} can still be decreasing in quantity). Then the above simplifies to:

$$\begin{aligned} P_{it} \frac{\partial Q_{it}}{\partial N_{it}} &= \alpha_i \left(\frac{P_{it} Q_{it}}{N_{it}} \right)^{1-\rho} P_{it}^\rho \\ \ln P_{it} \frac{\partial Q_{it}}{\partial N_{it}} &= \ln \alpha_i + (1 - \rho) \ln \frac{P_{it} Q_{it}}{N_{it}} + \rho \ln P_{it} \end{aligned}$$

Cobb-Douglas is the special case where $\rho = 0$. If we do not have a Cobb-Douglas production function, then we need to estimate ρ . Taking the ratio of the first order conditions for N_{it} and K_{it} from the profit maximization problem gives:

$$\begin{aligned} \frac{w_{it}^n}{w_{it}^k} &= \frac{\alpha_i}{1 - \alpha_i} \left(\frac{K_{it}}{N_{it}} \right)^{\rho-1} \\ \ln \frac{w_{it}^n}{w_{it}^k} &= \ln \frac{\alpha_i}{1 - \alpha_i} + (\rho - 1) \ln \frac{K_{it}}{N_{it}} \end{aligned}$$

Therefore, we can estimate ρ by looking at how relative employment and wages vary. There is limited cross-sectional variation in wages, so this ratio will be identified from time-series variation. I restrict the sample to firms that employ non-equity partners and assume the market compensation of partners is a constant firm-specific multiple of non-equity partner compensation. I include firm fixed effects. I estimate several variations: with average partner compensation or with average non-equity partner compensation and with and without fixed effects for five-year groups.

The results of this regression are in Appendix Table B.1. The estimated values of ρ are significantly greater than 0 and are around 0.7 and 0.9. ρ can be converted into the elasticity of substitution (σ) since $\sigma = \frac{1}{1-\rho}$. In all four specifications, $\sigma > 1$.

The next step is reproducing productivity estimates for various values of ρ . The outcome variable is $(1 - \rho) \ln \frac{P_{it} Q_{it}}{N_{it}} + \rho \ln P_{it}$. I use the minimum hourly associate billing rate

as a proxy for P_{it} . I estimate the regression using $\rho = 0, 0.5, 0.7, 0.9$ and plot the year fixed effects for each value of ρ . I omit the confidence intervals for visual clarity. The results are presented in Appendix Figure B.13. Using a CES production function generally decreases productivity estimates. Therefore, it is even more difficult to explain the wage jumps with more general CES production functions.

Markups: Suppose the total variable cost function ($VC(Q)$) is homogeneous of degree d . Then we have the relationship:

$$VC(\lambda Q) = \lambda^d VC(Q)$$

Taking the derivative of both sides with respect to λ and then setting $\lambda = 1$ gives:

$$\begin{aligned} \frac{\partial VC(Q)}{\partial Q} Q &= d VC(Q) \\ \frac{\partial VC(Q)}{\partial Q} &= d \frac{VC(Q)}{Q} \\ MC(Q) &= d \frac{VC(Q)}{Q} \end{aligned}$$

i.e., the marginal cost is equal to d times the average variable cost. The markup, μ is given by $\mu = \frac{P}{MC}$. Therefore we have:

$$\ln \mu = -\ln d + \ln \frac{PQ}{VC}$$

Accordingly, we can measure the change in markups using the ratio of revenue to variable costs if the variable cost function is homogeneous of degree d . A sufficient condition for the variable cost function to be homogeneous of degree d is if the production function is homogeneous of degree $\frac{1}{d}$. A major issue is classifying costs as either fixed or variable. Most costs for law firms are plausibly variable since they primarily consist of workers and rented office space, as opposed to large fixed capital investments. There are also minimal research and development or marketing costs compared to most industries. Therefore, total operating costs seem to be a reasonable estimate of variable costs.

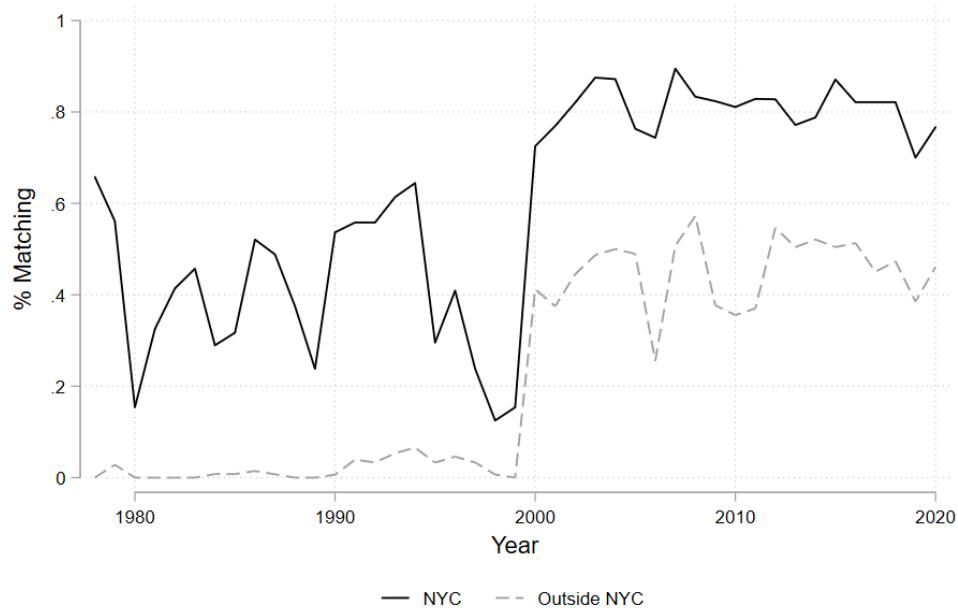
A final issue is how to measure partner compensation. Equity partners earn compensation from directly providing labor, but they also earn compensation by providing capital. They are also the owners of the firm and will receive any direct profit. I use three alternative approaches. In the main analysis I impute the market wage of partners by using the observed non-equity partner wages in similar firms. In this section I try two alternative approaches: first, excluding all partner compensation; second, using only firm

observations with non-equity partner wages (and excluding all firms without non-equity partners). I assume the market wage of equity partners is similar to that of non-equity partners within a firm.

I repeat the main analysis of looking at changes in markups around major wage changes with the alternative markups. The results are presented in Appendix Figure B.14. The alternative approaches to measuring markups do not change the main results significantly.

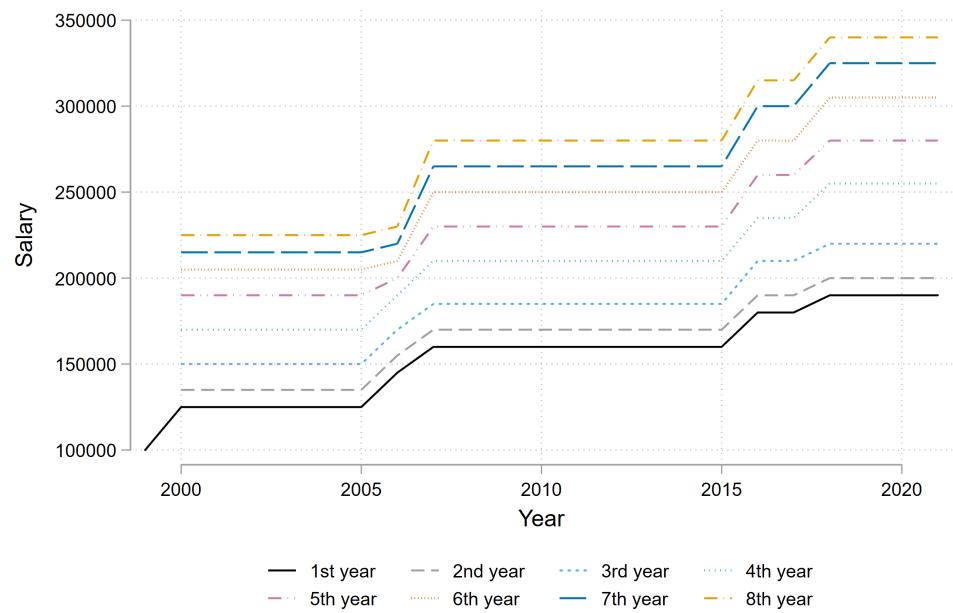
B Appendix Figure and Tables

Figure B.1: Share of firms matching modal NY starting salary (NLJ 200)



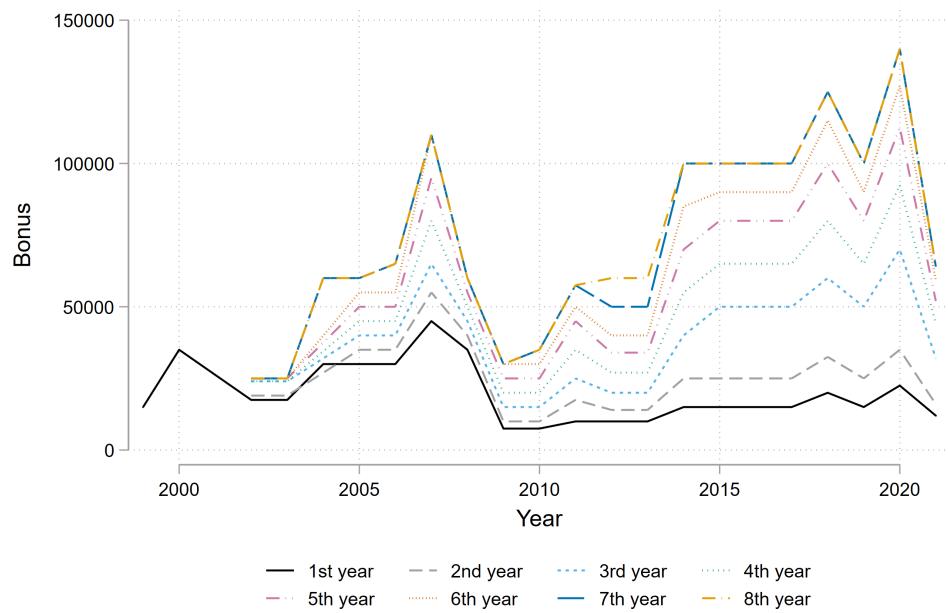
Note: Figures are conditional on firm's reporting starting salaries in NLJ surveys. Starting salaries represent the highest reported starting salary for each firm. New York firms are firms with headquarters in New York City.

Figure B.2: “Cravath” scale salaries by year and associate experience



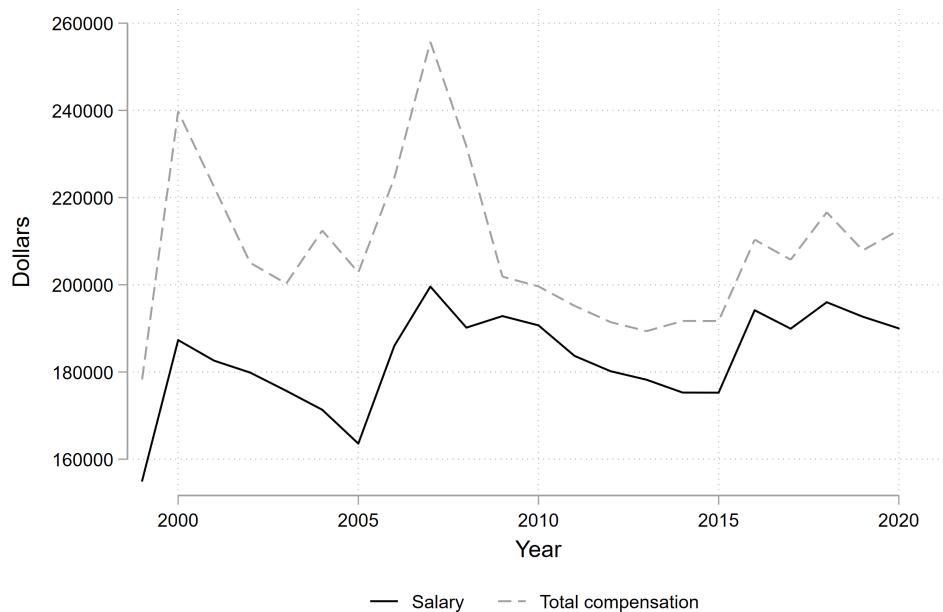
Note: Salaries are in nominal dollars. Source is BigLawInvestor.com.

Figure B.3: “Cravath” scale bonuses by year and associate experience



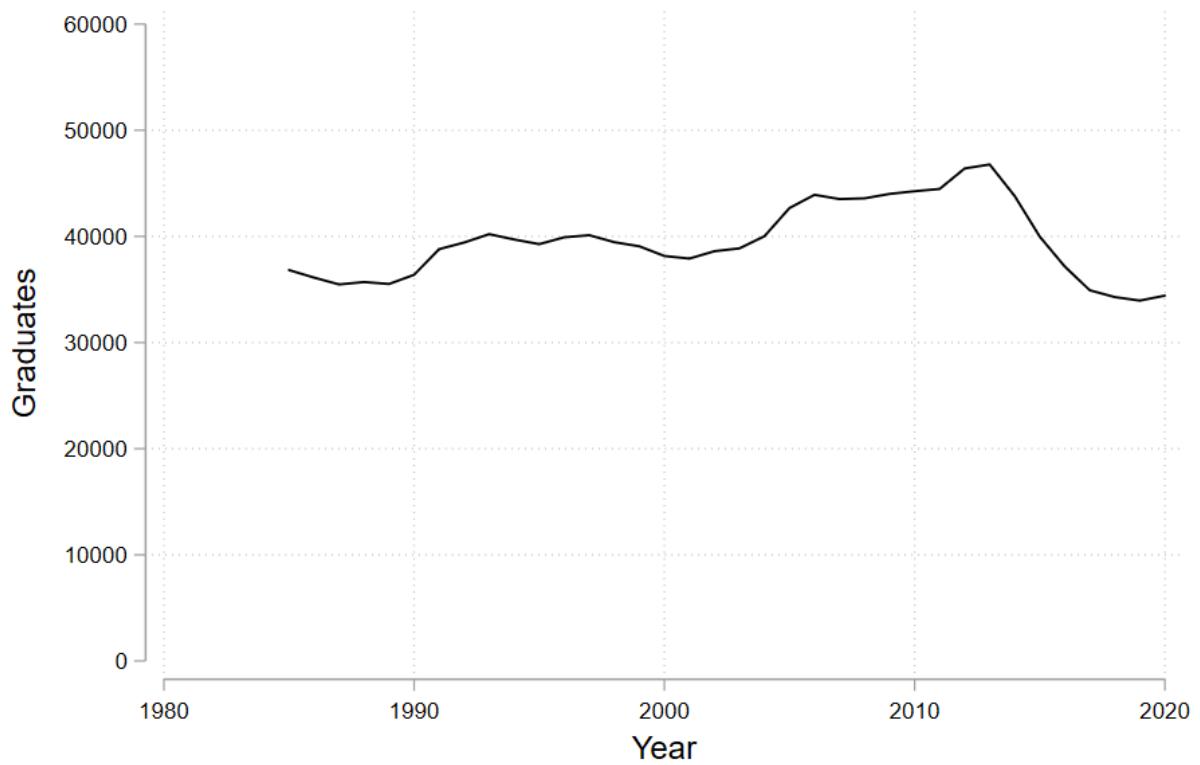
Note: Bonuses are in nominal dollars. Source is BigLawInvestor.com.

Figure B.4: “Cravath” scale total salary and total compensation for new associates (adjusted for inflation)



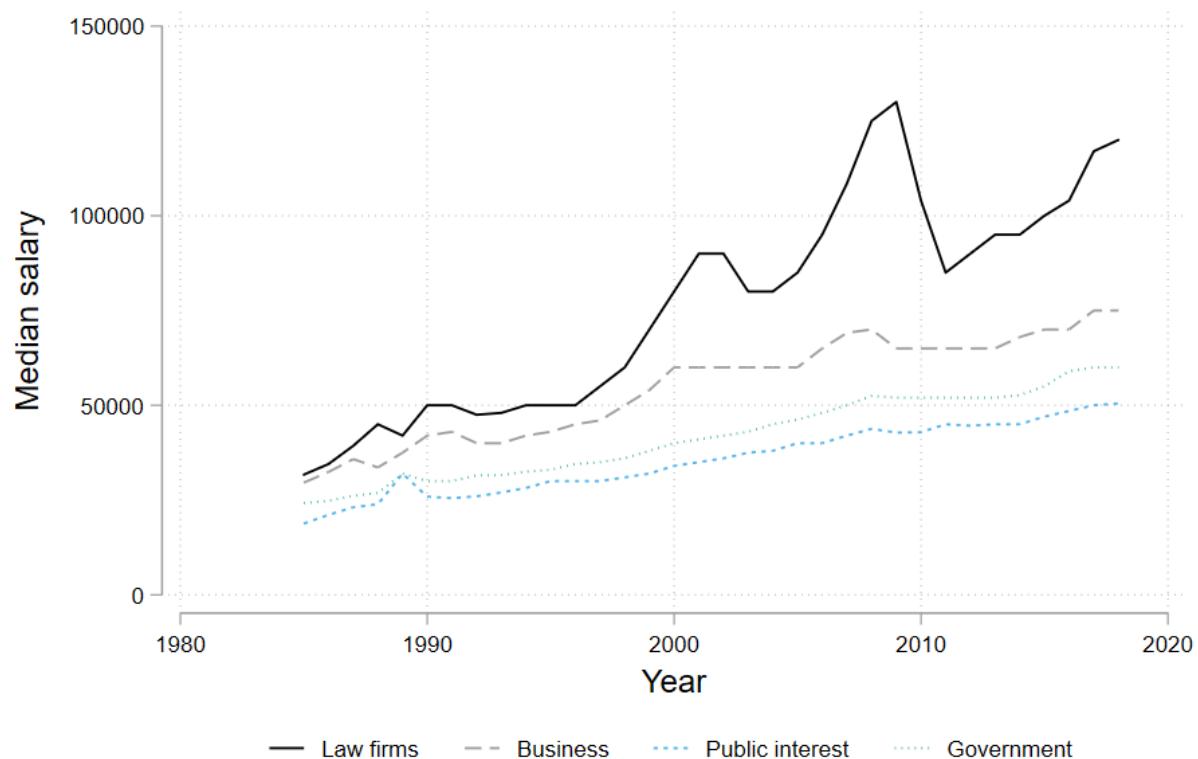
Note: Source is BigLawInvestor.com. Values are in 2020 dollars.

Figure B.5: Law school graduates by year



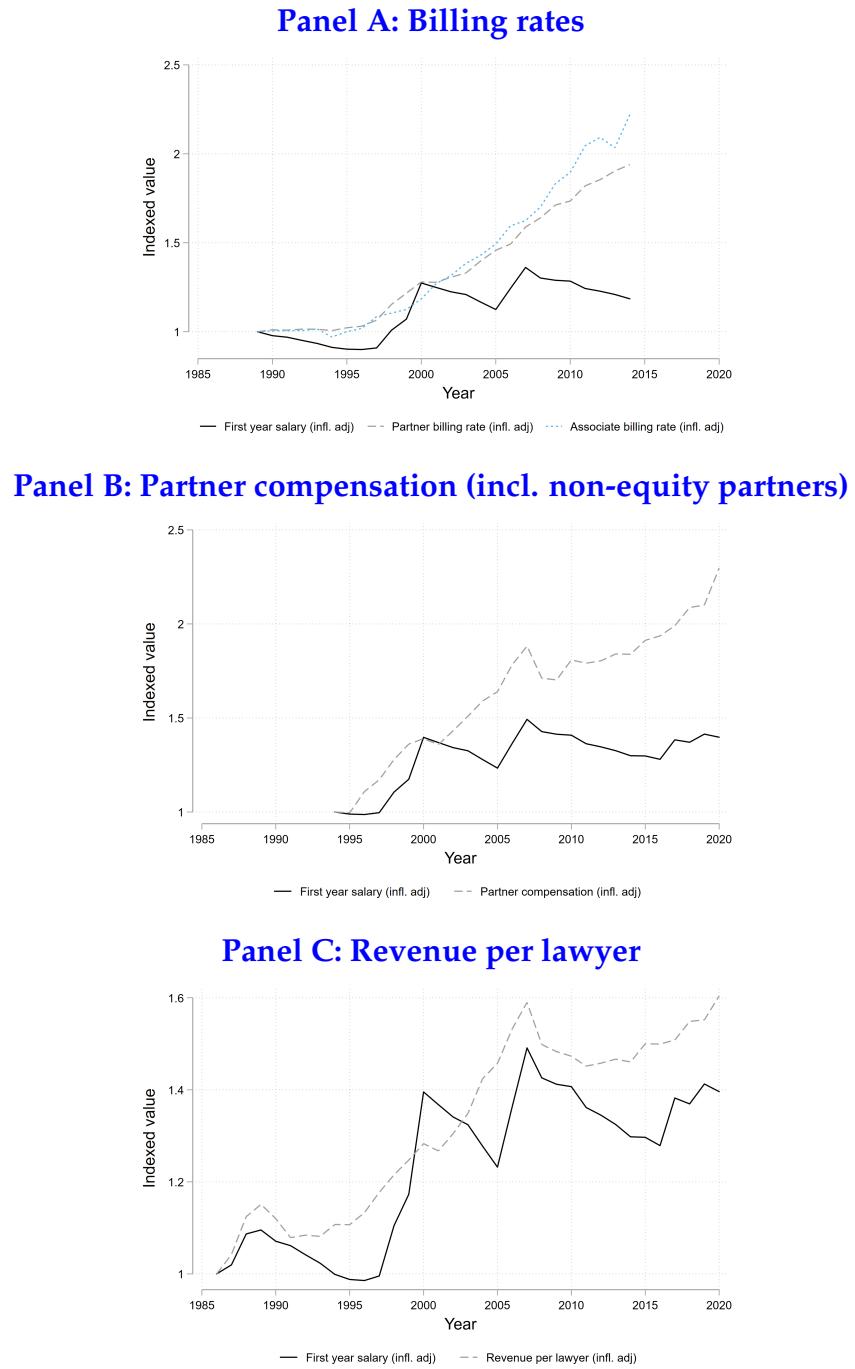
Note: Source is NALP figures.

Figure B.6: Median earnings by initial industry for new law school graduates



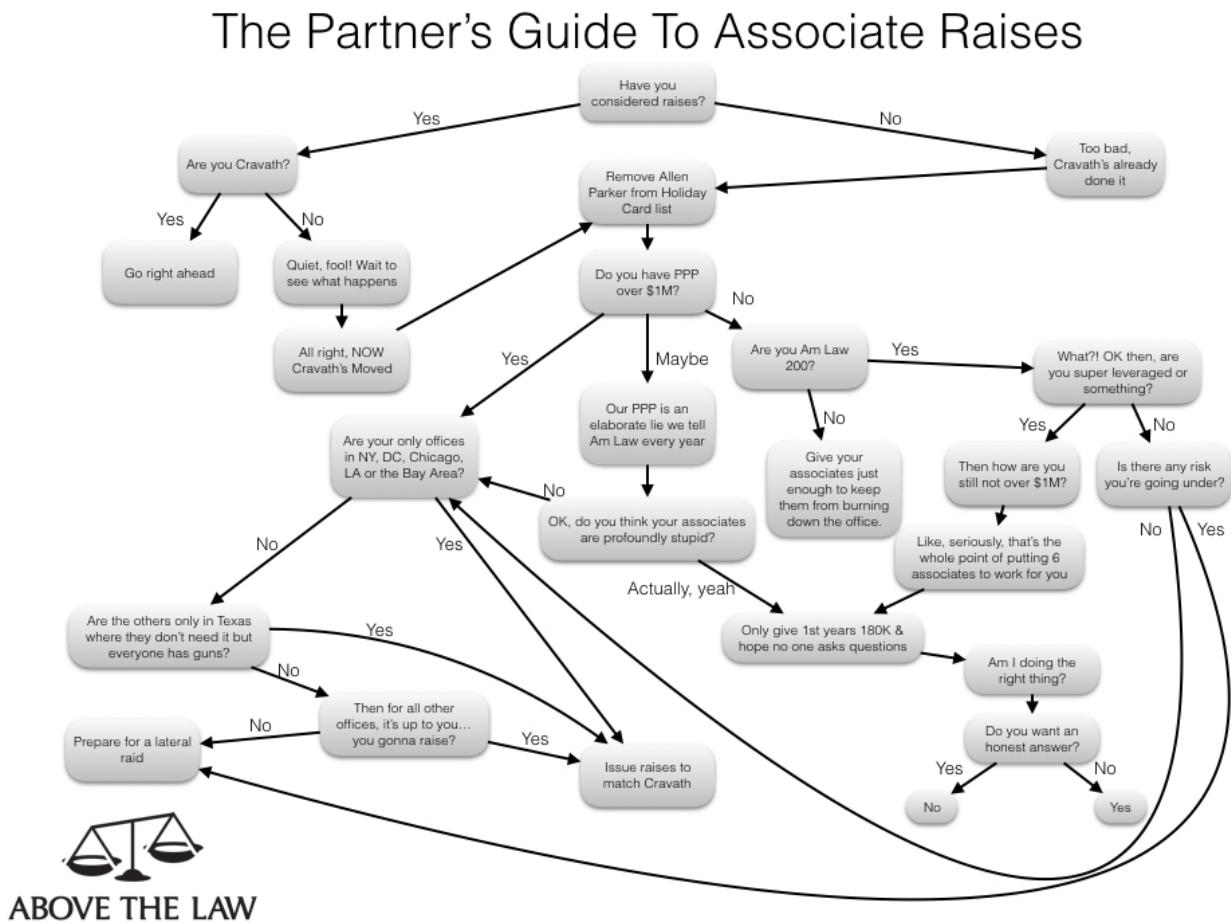
Note: Source is NALP figures. Values are in nominal dollars.

Figure B.7: Growth in real starting salaries relative to other firm metrics (AMLAW100)



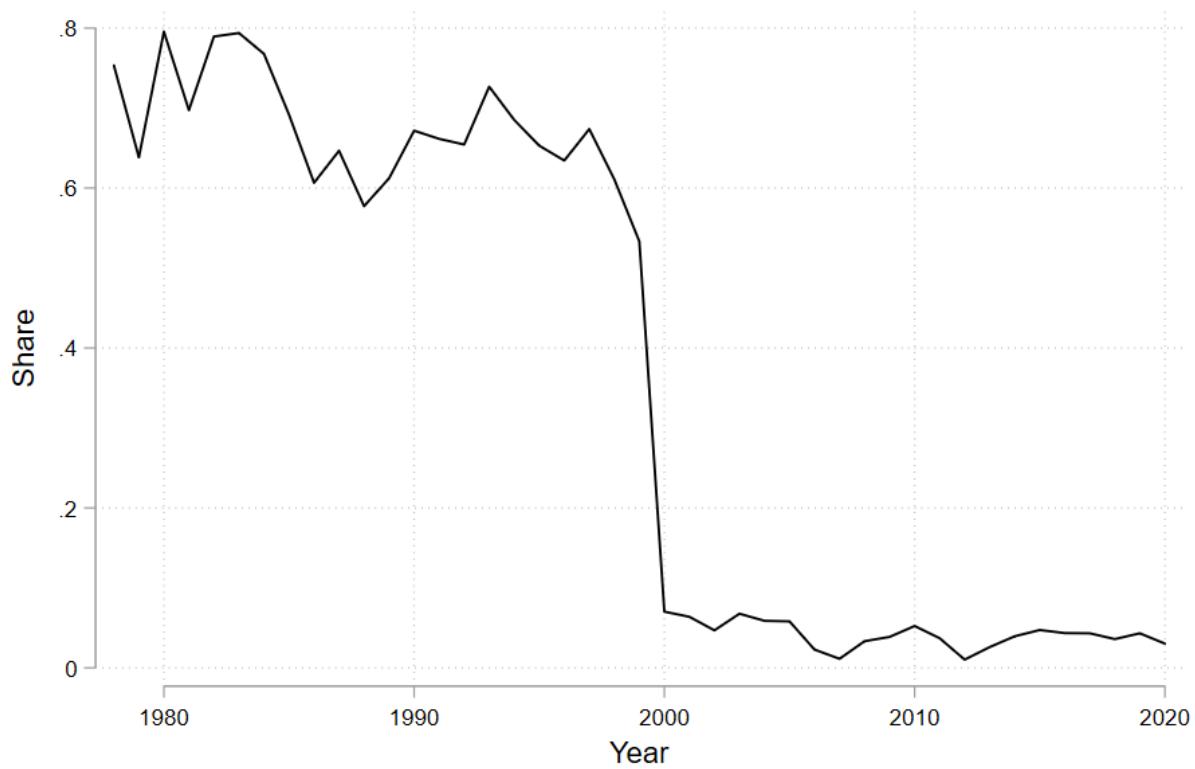
Note: Figures are conditional on firm's reporting starting salaries in NLJ surveys and featuring in the AMLAW100. Starting salaries represent the highest reported starting salary for each firm. Values are weighted by the total number of employed attorneys. Billing rates are the lowest reported partner and associate rates for each firm. For billing rates, growth is calculated by taking the average growth rate for each firm that reports rates in consecutive years due to higher rates of non-reported data in some years. Realized billing rates may be lower than reported rates. All values are adjusted to 2020 dollars using the CPI and indexed to 1986 levels.

Figure B.8: AboveTheLaw satirical guide to a firm's compensation decisions



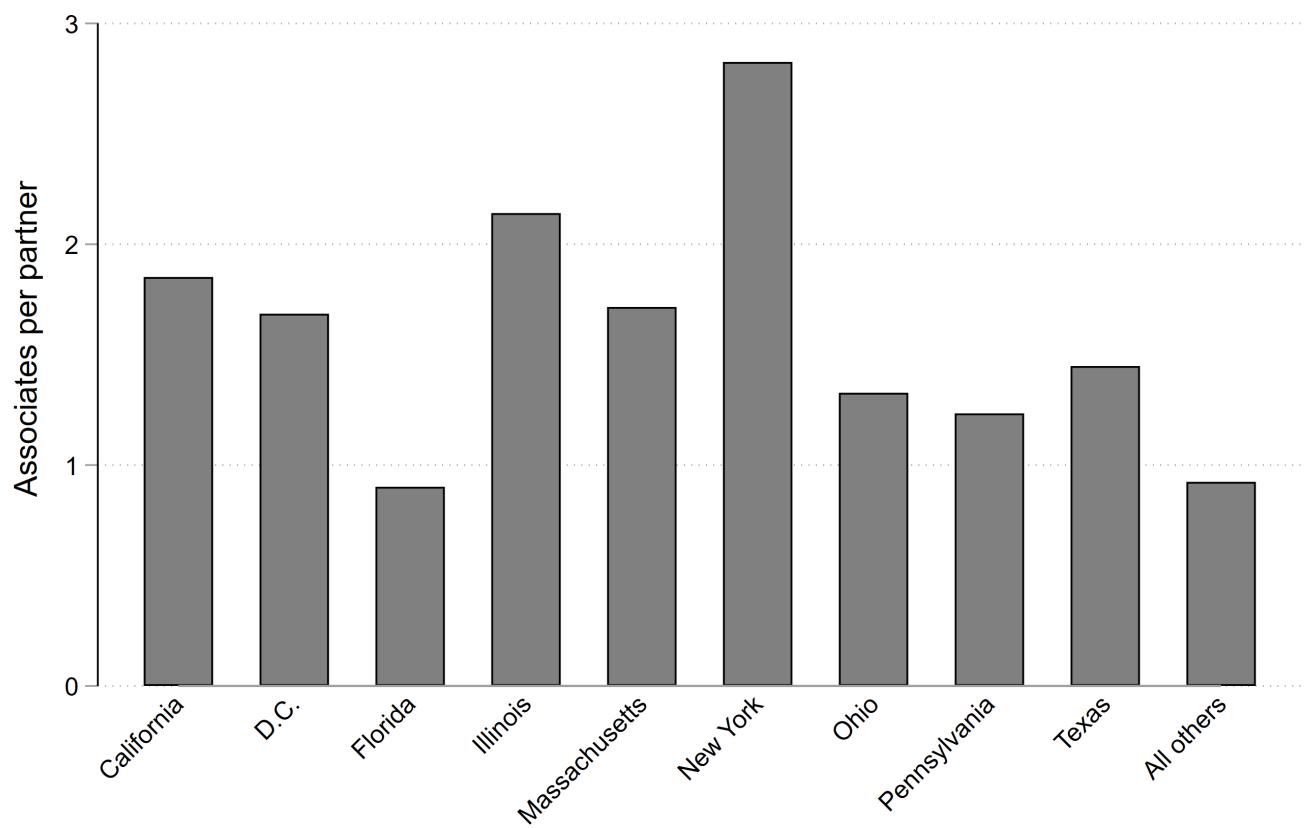
Note: Source is AboveTheLaw.com

Figure B.9: Share of firms reporting salaries that are not \$5000 increments (NLJ200)



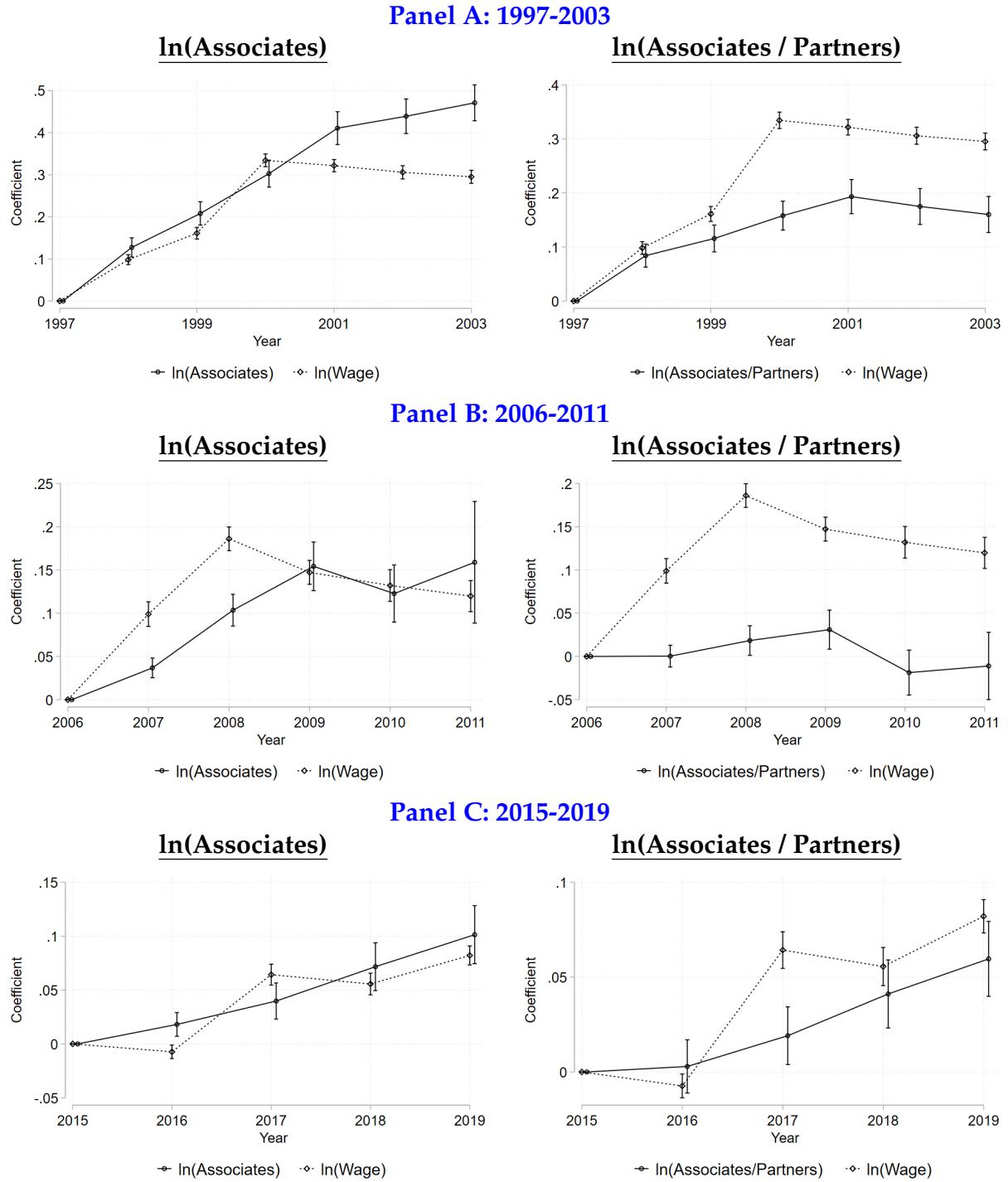
Note: Figures are conditional on firm's reporting starting salaries in NLJ surveys.

Figure B.10: Associates per partner by headquarter state (NLJ200, 2014)



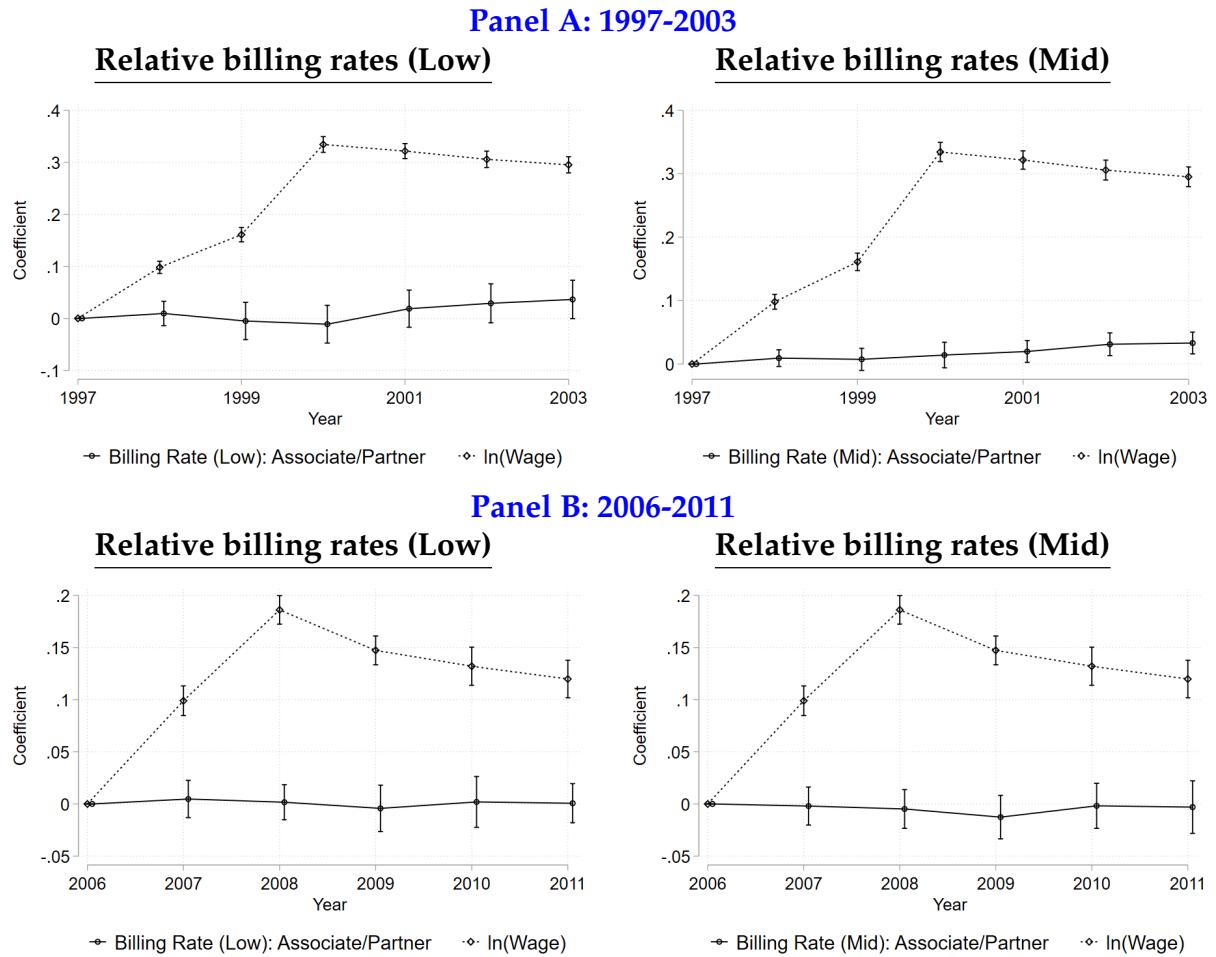
Note: Source is NLJ reports.

Figure B.11: Employment around major salary increases (NLJ 200)



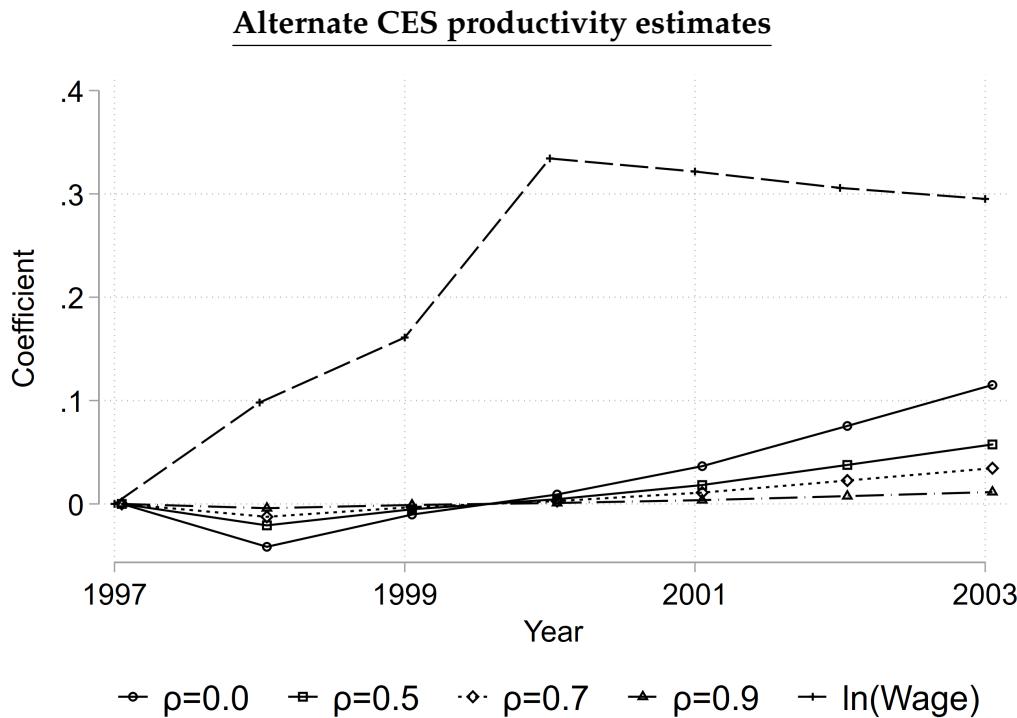
Note: For NLJ 200 firms with reported starting salaries. Coefficients are for year fixed effects; the regression includes firm fixed effects. Regressions are weighted by initial attorney employment. Standard errors are clustered at the firm level. Bands represent 95% confidence intervals.

Figure B.12: Associate billing rates relative to partner billing rates around major salary increases (NLJ 200)

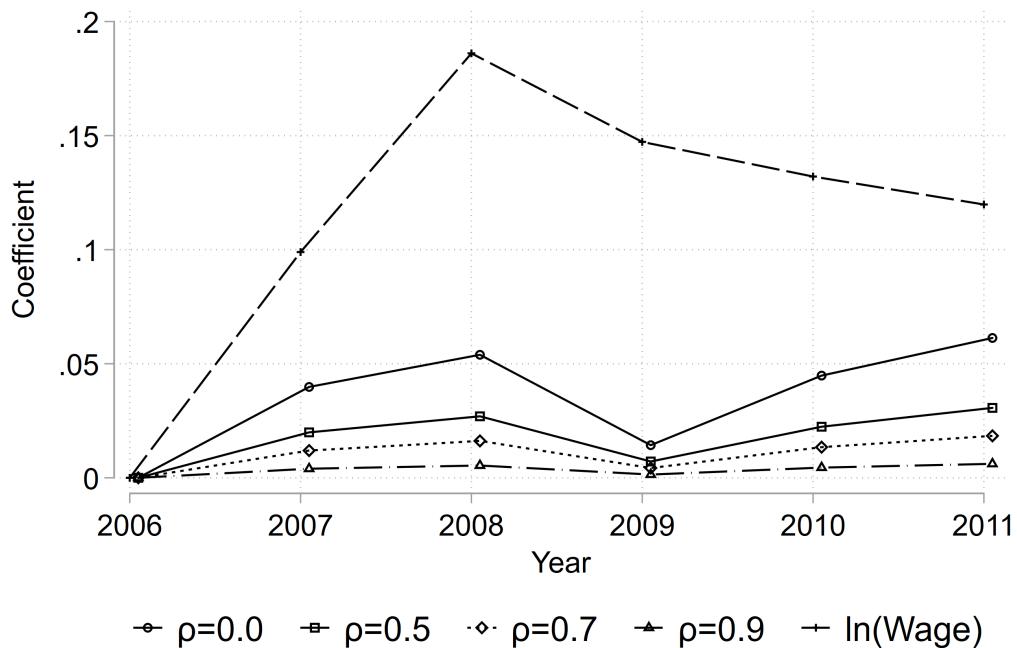


Note: For NLJ 200 firms with reported starting salaries and billing rates. Coefficients are for year fixed effects; the regression includes firm fixed effects. Regressions are weighted by initial attorney employment. Standard errors are clustered at the firm level. Bands represent 95% confidence intervals.

Figure B.13: Alternate productivity estimates (NLJ 200)

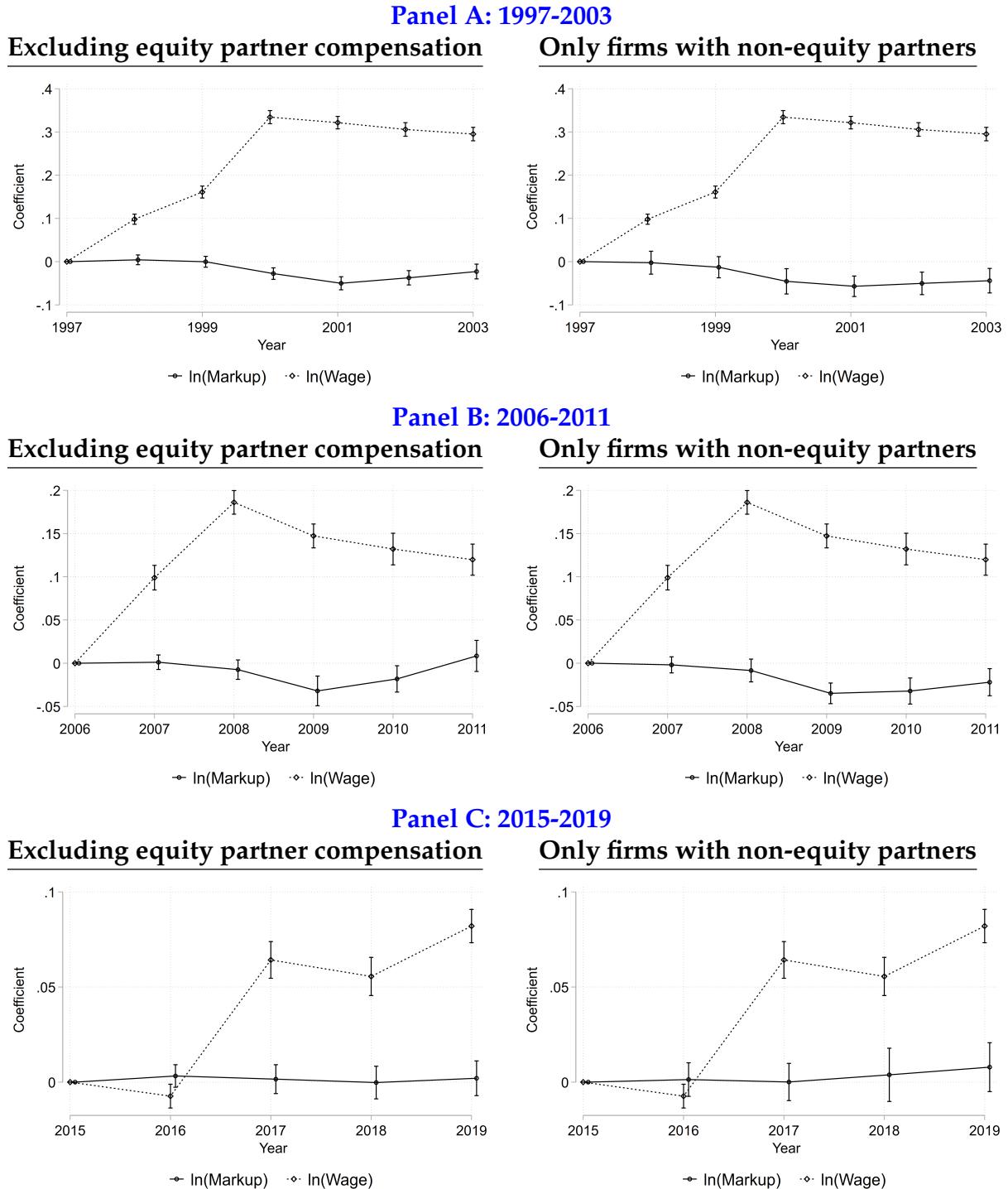


Panel B: 2006-2011
Alternate CES productivity estimates



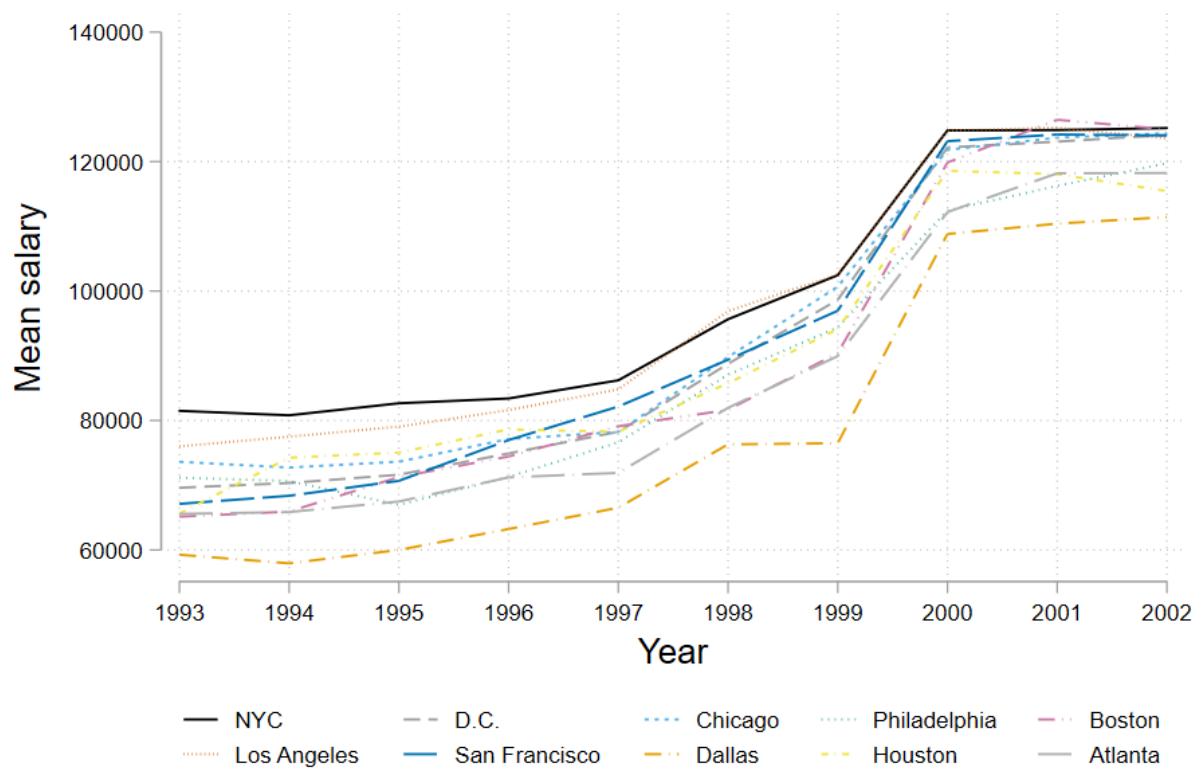
Note: For NLJ 200 firms with reported starting salaries and AMLAW data. Coefficients are for year fixed effects; the regression includes firm fixed effects. Regressions are weighted by initial attorney employment. Standard errors are clustered at the firm level. Bands represent 95% confidence intervals.

Figure B.14: Alternative markup estimates around major salary increases (NLJ 200)



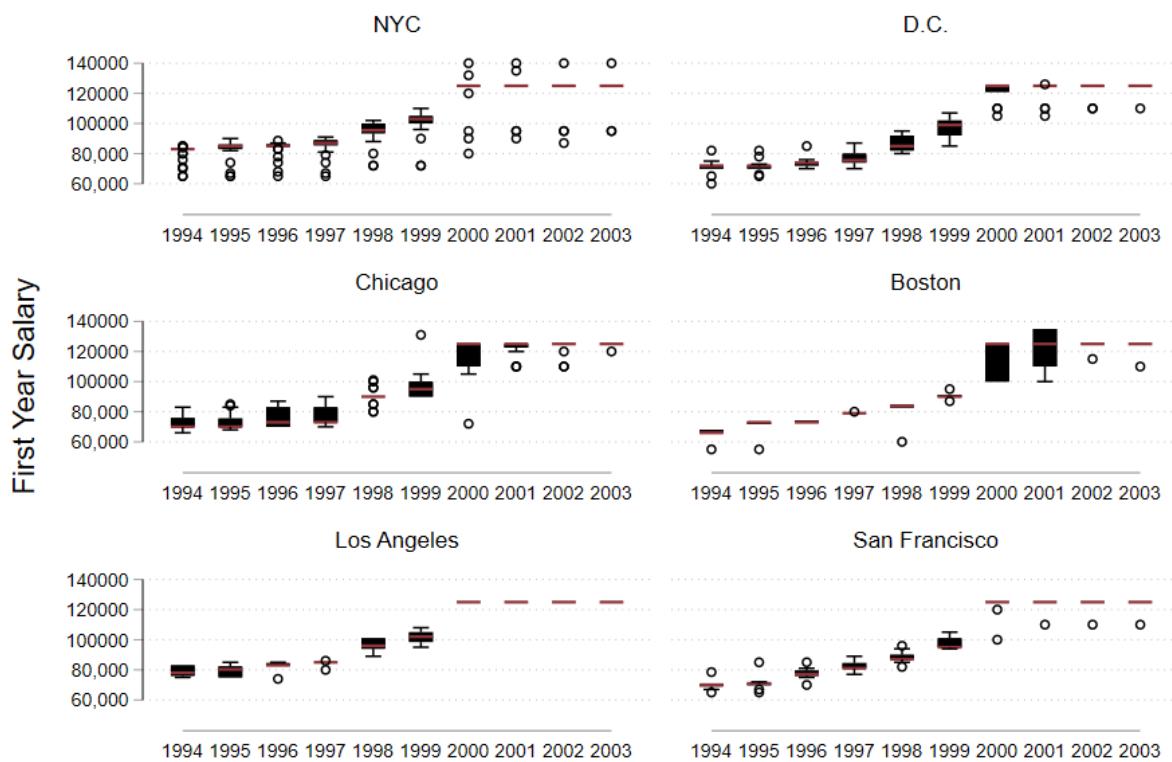
Note: For NLJ 200 firms with reported starting salaries and AMLAW data. Coefficients are for year fixed effects; the regression includes firm fixed effects. Regressions are weighted by initial attorney employment. Standard errors are clustered at the firm level. Bands represent 95% confidence intervals.

Figure B.15: Mean salary by city for 1993-2002 (NLJ200)



Note: Figures are conditional on firm's reporting starting salaries in NLJ surveys. Firms are assigned to cities based on the location of their headquarters.

Figure B.16: Interquartile salary range by city and year for 1993-2002 (NLJ200)



Note: Figures are conditional on firm's reporting starting salaries in NLJ surveys. Firms are assigned to cities based on the location of their headquarters. Only includes firms reporting salaries in at least seven of the years.

Figure B.17: Maximum salaries by city post-Cravath raise in 1968

SALARY SURVEY*	
LAW FIRMS:	
New York City	\$13,000-15,000
Washington, D.C.	\$13,500
Milwaukee	\$13,500
Los Angeles	\$12,000-13,500
San Francisco	\$12,000-13,500
Chicago	\$10,500-13,000
Cleveland	\$12,500
Boston	\$12,000-12,500
Detroit	\$12,000
Grand Rapids	\$12,000
Hartford	\$12,000
Roanoke	\$10,500-12,000
Atlanta	\$10,800-11,000
FEDERAL GOVERNMENT:	
GS-7 (Before admission to the Bar)	\$ 6,981
GS-9	\$ 8,462
GS-11	\$10,203
GS-12 (Outstanding Academic Record)	\$12,174

*Conducted and compiled by the Placement Office
under the direction of Miss Eleanor Appel, Di-
rector. Note: In most instances these salaries
represent the "going rate; which is actually the
top salary." Many firms offer much lower
salaries.

Note: As compiled by the Harvard Placement Office.

Table B.1: Relationship between change in log associates relative to partners and relative compensation

	(1) $\ln\left(\frac{\text{Associate Salary}}{\text{Avg. partner comp}}\right)$	(2) $\ln\left(\frac{\text{Associate Salary}}{\text{Avg. non-equity partner comp}}\right)$	(3)	(4)
$\ln(\text{Associates} / \text{Partners})$	-0.295*** (0.0541)	-0.298*** (0.0348)	-0.0938* (0.0499)	-0.123** (0.0513)
Observations	4,711	4,711	3,081	3,081
R-squared	0.854	0.908	0.680	0.714
ρ	0.7	0.7	0.9	0.9
Elasticity of Subst.	3.4	3.4	10.7	8.1
Firm FE	X	X	X	X
Year Group FE	-	X	-	X

Notes: For NLJ 200 firms with data on revenue from Amlaw. Regressions are weighted by employment. Standard errors are clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1