

Pro Bono as a Human Capital Screening Mechanism in Law Firms

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Pro bono legal work has become a common practice at many US law firms. Yet the strategic value of pro bono work has not been well-established. A common explanation for why firms take on other types of socially responsible activities is that employees gain information from these activities about aspects of firm quality that are otherwise hard to observe. However, we find little support of this in the legal services industry, where pro bono is the most important socially responsible activity. We propose a different mechanism for how pro bono influences human capital in law firms: a pro bono case enables the firm to gain information about an aspect of *employee* quality - future employee quality in a more senior role. Indeed, a key feature of pro bono legal work is that it provides an opportunity for junior lawyers to take on roles typical of partners in for-profit cases. Based on a formal screening model and primary evidence, we hypothesize that firms engage in more pro bono activity when they have a higher ratio of equity partners to junior lawyers. Using a panel dataset of the top 200 law firms from 1998-2012, we provide empirical results that support this hypothesis.

Keywords: Corporate Social Responsibility, Human Capital Strategy, Promotions, Organizations, Legal Services

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1 Introduction

One of the most prominent explanations for why firms engage in socially responsible activities that do not immediately appear to add value to the firm is that these activities “reveal the values of a company” (Bhattacharya *et al.*, 2008) and signal to potential employees that the company is a good place to work (Burbano, 2016a; Greening and Turban, 2000; Turban and Greening, 1997). The argument is that this should attract prospective employees (Gatewood *et al.*, 1993; Montgomery and Ramus, 2011; Riordan *et al.*, 1997), thus contributing to firm performance in the long term. In industries such as professional services industries, where human capital is the most important source of competitive advantage, we would thus expect socially responsible activities to be a critical aspect of human capital strategy. Yet how socially responsible activities affect human capital in professional service industries has been understudied (Bode *et al.*, 2015). Pro bono, the provision of in-kind services to those who would not otherwise be able to afford them, is the most common type of socially responsible initiative in the legal services industry - a prominent professional services industry.¹

We explore pro bono in the top US law firms and find that, despite the intuitive appeal of the notion that pro bono might signal firm quality and drive employee attraction, there is little evidence of this in practice. Interviews with law students and junior associates indicate that prospective lawyers’ opinions about a firm’s working environment are informed by the plethora of guides, websites, and blogs meant for exactly this purpose and not by inferences

¹2011 *American Lawyers Pro Bono Survey*.

made from firms' pro bono levels.² The interview evidence presents us with a puzzle: if the benefit of pro bono activity is to signal the quality of the firm but perceptions of the quality of the firm are not influenced by this signal, why do the top firms do it?

We propose that, rather than acting as an informational signal about *firm* quality to the *employee* as much of the literature suggests, instead pro bono acts as an informational signal about an aspect of *employee* quality to the *firm* - namely, future employee quality in a more senior role. Our argument relies on an insight derived from interviews with lawyers and human capital managers at top US law firms: a law firm's pro bono cases are similar to for-profit cases and participating junior lawyers are commonly given "stretch roles" on pro bono cases - responsibilities that would usually go to more senior lawyers on comparable for-profit cases. For example, a pro bono case might be an associate's first opportunity to conduct a deposition or to argue a case in trial.³ Although observing a worker's performance in his or her current job can be relatively straightforward, an important human capital management challenge is assessing whether a worker will succeed in a new position with different responsibilities (Peter and Hull, 1969; Lazear, 2004). Given the stretch roles these pro bono engagements allow, work on pro bono cases is particularly informative of a lawyer's potential in a more senior role.⁴

²Based on interviews with partners, associates, recruiting managers, and human capital management representatives at top-20 law firms. Furthermore, we find no empirical correlation between acceptance rates for summer internships, the primary entry point for new lawyers, at the top law firms and levels of pro bono (results provided in more detail in Table 4).

³Based on interviews with partners, associates, recruiting managers, and human capital management representatives at top-20 law firms.

⁴At approximately 95% of the top-100 US law firms, junior lawyers' work on pro bono and for-profit cases alike is formally assessed during performance reviews. *Vault Guide to the Top 100 Law Firms*, 2008 edition.

We outline a formal screening model in the spirit of Farber and Gibbons (1996) and Gibbons and Waldman (1999) to elucidate this role of pro bono activities. In our model, a profit-maximizing firm must decide whether or not to promote a junior lawyer to equity partner, but has incomplete information on whether the junior lawyer is “equity partner material.” The firm uses a signal about the junior lawyer’s performance to date to estimate her expected surplus as an equity partner and promotes her if this signal exceeds a threshold. Our theory supposes that pro bono engagements improve the accuracy of the signal (the correlation between the signal and the junior lawyer’s future surplus). The model predicts that the level of pro bono activity will be increasing in what the industry refers to as the “leverage ratio,” or ratio of equity partners to junior lawyers. This ratio influences mentorship opportunities, competition among associates, and recruits’ and associates’ perceptions about the likelihood of promotion to partner; as such, it is an important aspect of a law firm’s human capital management strategy. Intuitively, in firms where the vast majority of junior lawyers will not be promoted to partner and only a tiny fraction with the very best records will be promoted, the marginal benefit derived from improving the accuracy of the firm’s information about a junior lawyer is smaller than the value of the billable hours foregone engaging in pro bono work.⁵ In firms where promotion is more likely (those with a higher leverage ratio), we would expect to see more pro bono engagement.

To test the model’s prediction, we analyze the top 200 firms in the US legal services

⁵We take this issue up in more detail at the end of section 4.2.

industry from 1998-2012.⁶ We use a panel event study of de-equitization events - when a significant proportion of equity partners lost equity status in some of the firms - as an exogenous shock to the leverage ratio. Both a reduced form analysis of de-equitization on pro bono and an analysis using de-equitization as an instrumental variable for the leverage ratio support the main hypothesis outlined in our model.

Our model and empirical analysis, taken together with primary and secondary industry research, provides strong evidence for a relationship between pro bono activity and an important aspect of law firms' human capital management structure, namely the leverage ratio. Our core theoretical insight is that the more highly a firm values information about future employee quality, the more we would expect it to engage in pro bono projects as a means of learning about future employee potential. Firms with distinct employee management strategies vary in how much they value this information and, thus, engage in different levels of pro bono.

2 Prior Literature

Scholars have sought to identify factors that explain the variation in corporate social responsibility (CSR), defined as practices that improve the workplace and benefit society in

⁶There has been a rather substantial amount of literature on the legal services industry in strategy, economics, and organizational behavior. A non comprehensive list includes studies focused on the issue of survival (Phillips, 2002), employee mobility (Campbell *et al.*, 2012), employee hiring (Sauer, 1998; Rider *et al.*, 2015) social status (Rider, 2013), and specialization (Garicano and Hubbard, 2007). See Baker *et al.* (2006) for further references on this extensive literature.

ways that go above and beyond what companies are legally required to do.⁷ One important factor is human capital; understanding how CSR affects the firm through employees is critical given the established importance of talent management to the firm (Campbell *et al.*, 2012; Coff, 1997; Bidwell, 2011). We build on the literature that has identified the employee as an important stakeholder through which CSR can positively influence firm value. Scholars have suggested that certain CSR practices can lead to improved employee-employer identification (Brammer *et al.*, 2007; Rodrigo and Arenas, 2008; Rupp *et al.*, 2006; Rupp *et al.*, 2013), which in turn can cause employees to work more (Burbano, 2016b), shirk less (Flammer and Luo, 2015; Tonin and Vlassopoulos, 2014), attract applicants (Backhaus *et al.*, 2002; Gatewood *et al.*, 1993; Greening and Turban, 2000; Riordan *et al.*, 1997; Turban and Greening, 1997), and improve retention (Bode *et al.*, 2015; Carnahan *et al.*, 2015). A common theme underlying much of this literature is that CSR provides information to prospective or current employees about some aspect of firm quality, which influences their behavior in a manner that is beneficial to the firm. In this paper we suggest that a type of CSR - pro bono work that enables employees to take on stretch roles relevant to for-profit work - can provide information that flows in the opposite direction; namely, that pro bono provides information to the *firm* about an aspect of *employee* quality. Although it has been suggested that some types of CSR, such as environmentally friendly policies, can be used to (passively) screen against

⁷Examples of such factors include agency (Brammer and Millington, 2008; Hong *et al.*, 2013; Johnson and Greening, 1999), competition (Bennett *et al.*, 2013; Flammer, 2014; Snyder, 2010), private politics and stakeholder pressure (Baron, 2001; Delmas and Toffel, 2008; Hillman and Keim, 2001; Freeman *et al.*, 2004; Henisz *et al.*, 2014; King, 2007; Sen *et al.*, 2006; Soule *et al.*, 2013), access to finance (Cheng *et al.*, 2013; Graves and Waddock, 1994), and mitigating risk (Godfrey *et al.*, 2009; Koh *et al.*, 2013a; Minor and Morgan, 2011).

lower performing prospective employees (Brekke and Nyborg, 2008), the literature has not yet explored the use of a type of CSR as part of an active screening mechanism wherein that type of CSR provides information about employees' expected future performance in more senior roles.

We follow the lead of scholars who have broken down the rather broad construct of CSR into its distinct types of firm practices and activities. Other research has pointed out that different types of CSR affect the firm differently (Chen and Delmas, 2011; Delmas and Blass, 2010; Hawn and Ioannou, 2016; Mattingly and Berman, 2006; Rowley and Berman, 2000), and that there is value in studying finer-grained CSR activities (Godfrey *et al.*, 2009). Strategy scholars have considered the value of corporate disaster donations (e.g., Madsen and Rodgers, 2015; Muller and Kruassi, 2011), corporate philanthropy more broadly (e.g., Lev *et al.*, 2010), pollution reduction (King and Lenox, 2002), and environmental informational disclosure programs (e.g., Doshi *et al.*, 2013; Reid and Toffel, 2009), as well as standards (Delmas and Pecovic, 2012) and ratings (Chatterji and Toffel, 2010). Despite its prevalence as the most common type of CSR in professional service industries, in-kind pro bono services have received relatively little focus to date. Scholars have only very recently begun to examine the benefits of such services in one professional service industry, the management consulting industry (Bode and Singh, 2015; Bode *et al.*, 2015). We are among the first to examine the effects of pro bono services on human capital in the legal services industry (Carnahan *et al.*, 2015).

3 The Legal Services Context

3.1 Pro Bono

Definition and Trends

Pro bono work is defined by *The American Lawyer* as legal services provided to those who could not otherwise afford them.⁸ For example, many top 200 law firms have represented indigent individuals in criminal appeals, post-conviction proceedings in death penalty cases, legal matters for nonprofit clients, children's rights, civil rights, community economic development, and human rights issues.⁹ Average pro bono hours per lawyer increased by more than 65% between 2000 and 2008, although it has declined since the recession of 2008.¹⁰

Pro Bono, Recruiting and Retention

Pro bono opportunities are highlighted very heavily during law firms' recruiting of summer and new associates, the point at which the vast majority of law firm hiring takes place.¹¹ As a result, it has become increasingly difficult for prospective hires to differentiate between firms' pro bono, and few actually base their decisions to apply to or accept offers from firms based on pro bono differences. A former associate at a top-10 law firm stated, "Firms tend

⁸2011 *American Lawyers Pro Bono Survey*. Time spent by lawyers on bar association work, on boards of nonprofit organization, or on non-legal work for charities is not considered pro bono work.

⁹*Vault Guide to the Top 100 Law Firms*, 2008 Edition.

¹⁰"Pro Bono Report 2012: Under Construction," *The American Lawyer*, June 27, 2012. Over 100 law firms have signed on to the "Law Firm Pro Bono Challenge," an aspirational minimum standard of pro bono service posed to firms with 50 or more attorneys. Signatories to the Challenge target a pro bono commitment of between 3% and 5% of annual billable hours, which constitutes an average of 60 to 100 hours per attorney per year. Many firms that have signed on to the Challenge use it as a goal for their pro bono practices, although not every firm that accepts the Challenge meets its goals every year.

¹¹Based on interview with recruiters and human capital managers at top-50 US law firms

to market their pro bono programs very prominently to prospective hires...because [firms] were all marketing their pro bono hours heavily, I did not view it as a differentiator.” An associate at a top-10 US law firm stated that "as a graduating [law] student, it is hard to really know ... about pro bono at a firm." Likewise, an associate at a leading global law firm noted, "In the end my decision to apply [and] accept was based on other factors.” There are a number of guides, websites and blogs aimed to provide an insider’s perspective of top law firms, which all interviewees indicated that they referenced at some point during their decision-making process. These resources and word-of-mouth, rather than pro bono levels, appear to drive prospective lawyers’ perceptions of a given law firm and, relatedly, their decision to apply to or accept a job from that firm. Likewise, decisions to stay versus leave a firm are based on factors other than pro bono. An associate noted, “The main reasons I stay at [top 20 US law firm] are the work, the pay, and the people.” Though this associate has worked on pro bono projects, he did not indicate those projects as a consideration in his decision to stay at his firm. The primary evidence suggests that pro bono is not a major factor in the attraction or retention of employees at law firms, and that there is instead a different mechanism through which pro bono creates value for law firms.

Pro Bono Allocation Across Employees

The process of assigning pro bono cases to lawyers tends to be similar to that of for-profit cases. Although a lawyer’s interest in pro bono cases is taken into account if possible, staffing

on pro bono cases is “more often a function of other factors...case workload at the time of staffing and the expertise or experience required,” explained a human capital manager at a top-20 US law firm. The allocation of pro bono projects “is not based on associates’ performance or ranking beyond their relevant expertise and skills,” noted another human capital manager at a top-10 US law firm. Associates “across the board tend to indicate interest in pro bono projects at some point,” she explained. This suggests that associates are not self-selecting into pro bono projects, nor are associates of higher or lower quality being staffed on pro bono compared to for-profit cases. It does not appear to be the case, then, that pro bono benefits law firms through an employee selection mechanism.

Evaluation of Pro Bono Work

The notion that engaging in pro bono work could be viewed negatively or generate a negative feedback effect for participating lawyers does not appear to hold in this context. An associate’s work on pro bono cases is evaluated alongside his or her work on for-profit cases during performance reviews, and according to human capital managers at top-50 US law firms, is not treated more negatively or positively in comparison to work on for-profit cases when an associate’s performance is assessed. The number of billable hours logged is an important performance metric for lawyers. Approximately half of law firms that give their lawyers billable hours credit for pro bono work have a maximum number of pro bono hours

that will be credited, while half do not cap the number of hours that count towards billable hours. The most commonly reported maximum is 50 hours per year, reported by 51% of offices surveyed by the Association for Legal Career Professionals (NALP), followed by 100 hours per year, reported by 20% of offices. Importantly, regardless of the number of pro bono hours counted towards billable hours, supervisors' assessments of a lawyer's performance on every pro bono case are included as part of the lawyer's formal overall performance evaluation.¹² When asked if the opportunity cost of billable hours hurts an associate working on a pro bono case at the time of his or her performance review, a human capital manager at a top 20 US law firm responded, "There is much more to performance here than billable hours."

Pro Bono as a Means for Junior Lawyers to Take on Stretch Roles

An important aspect of pro bono is that junior lawyers tend to take on stretch roles when working on these cases. For example, Quinn, Emanuel, Urquhart & Sullivan's pro bono section of its website states, "We are always working to expand opportunities for lawyers to participate in pro bono activities; we recognize that such work contributes to a lawyer's professional development ... We generally seek out pro bono opportunities that will get associates hearing and trial experience."¹³ Indeed, pro bono cases give associates the opportunity to take on roles and responsibilities characteristic of more senior lawyers on for-profit cases.

¹²"A Look at Associate Hours and at Law Firm Pro Bono Programs," *NALP Bulletin*, April 2010, available at <http://www.nalp.org/july2009hoursandprobono>.

¹³<http://www.quinnemanuel.com/work-at-quinn/the-firm/talent-mandatory-suit-optional/why-work-here.aspx>

A recruiting manager at a top ten US law firm confirmed, "[Pro bono work] definitely gives associates stretch roles." An associate at a top-10 US law firm stated, "A major benefit to pro bono work is the experience. . . I completed six pro bono depositions by myself in my first year. Deposition experience on regular cases usually begins in the third year at my firm." Another associate at a top-10 US law firm noted that "pro bono can be. . . a way to get into the courtroom quicker." Senior associates staffed on a pro bono case often take on responsibilities characteristic of partners on for-profit cases. For example, at Akin, Gump, Strauss, Hauer & Feld, "associates are expected to take primary responsibility for all aspects of the [pro bono] case, including all court appearances and client contact."¹⁴ A former associate at a top-10 firm stated, "The majority of the pro bono cases are done with very limited partner involvement." Pro bono cases are, thus, often led and managed by senior associates.

Junior Lawyers' Pro Bono Work as Illustrative of "Partner Potential"

Given the stretch roles afforded to juniors on pro bono cases, work on such cases is illustrative of likely "equity partner potential." Indeed, the ability to effectively lead, manage, and "deliver" on cases are skills critical for law firm partners. A partner at a top-20 law firm explained, "If you are good at doing client work, that is the main way you bring in work [as a partner]." A senior associates' expected ability to deliver as a managing partner on a case is an extremely important component of expected partner potential since, in the legal services industry, there is an objective performance outcome on which a managing partner's case can

¹⁴ *Vault Guide to Law Firm Pro Bono Programs*. 2007 edition.

be assessed by potential clients. New work is often based on referrals and can result from, for example, a new division of an existing client company seeking legal services if previous legal work for that company was completed successfully.¹⁵ “[In much smaller firms], there may be more of a hustle and networking aspect [to the rainmaking abilities of a partner], but if they think you can’t lead a case successfully, there is no way you will even be considered for partner,” explained a partner at a top-20 law firm. Pro bono cases, thus, provide a setting for the firm to observe how junior lawyers would perform in these partner-like roles without the risk of disappointing or losing a paying client if the associate does not meet expectations.

3.2 Employee Management

Given its service-oriented nature, much of a law firm’s value offering is derived from its human capital - the work of its employees. Thus, employee management strategies, which influence employee satisfaction and productivity, are critical. The legal services industry as a whole is characterized by long hours, but there are great differences in lawyer satisfaction and in perception about how well lawyers are treated amongst law firms.¹⁶

“Leverage” Ratio (Ratio of Equity Partners to Juniors)

One important human capital management and structural difference among firms is what is called the “leverage ratio,” or the ratio of equity partners to junior lawyers (including asso-

¹⁵Based on interviews with legal services professionals at top-50 law firms in 2012

¹⁶For example, McKee Nelson, *Vault Guide*’s top law firm to work for, has been described as “a...place that values and recognizes the individual and fundamentally wants to develop the potential of each associate” (source: *Vault Guide to the Top 100 Law Firms*, 2008 edition), whereas Wilson Elser Moskowitz Edelman & Dicker has been described as a “sweatshop law firm” (source: Top-Law-Schools.Com online forum, posting on October 24, 2010) where “work hours/conditions...[are] objectionable.” (source: Vault.com Career Discussions page, posting on December 18, 2007)

ciates and non-equity partners). This is a statistic that is commonly reported in Vault.com and other law firm comparison sources. Firms with higher leverage ratios are considered to be more nurturing of their associates and have higher promotion potential. For example, an article about Wachtell, Lipton, Rosen, & Katz on Top-Law-Schools.com,¹⁷ a source often frequented by law students, points to the fact that the firm has the highest leverage ratio in its peer group (1:1.4) as lending credibility to the firm's recruiting claim that associates are hired with the expectation that they are capable of becoming partners. Furthermore, the article states that this ratio makes it possible for new associates to be mentored by and work closely with partners. Indeed, interviews with law students and junior associates at top law firms confirmed that the leverage ratio is an important distinction across firms that influences a firm's attractiveness to recruits and the work satisfaction of its junior lawyers.¹⁸

4 A Model of Firm Pro Bono as Employee Screening

4.1 Motivation

Our approach to modeling the economics of pro bono activity stands in sharp distinction to the approach of Brekke and Nyborg (2008), who offer an equilibrium model of the decisions of firms to pay for pollution reduction technology, a type of CSR activity. In their model, workers who derive utility from associating with a firm that pays for this technology will

¹⁷“Wachtell, Lipton, Rosen & Katz LLP,” published February 2011, available at <http://www.top-law-schools.com/wachtell-lipton-rosen-katz.html>.

¹⁸Based on interviews with law students at top-20 law schools and junior associates at top-20 law firms in 2012.

exert more effort (be less likely to shirk) when effort cannot be directly observed. The authors go on to show that firms that engage in this type of socially responsible activity and offer lower wages and firms that do not engage in this socially responsible activity and pay higher wages can coexist in equilibrium. In Brekke and Nyborg (2008), paying for pollution reduction technology coupled with lower wages screens for more productive workers. Our premise is that an incentive for the firm to engage in a different type of socially responsible activity - pro bono work - is to learn more about the employees who perform them. In our model, firms use these activities to screen for imperfectly observable qualities in junior lawyers (their potential productivity as equity partners).

We provide context for our data with a simple model of the firm's decision to promote an employee from the junior level to the equity partner level. We use this formal model as a way to clearly draw the connection between the firm's human capital strategy and pro-bono practices (Adner *et al.*, 2009). We take as fixed and exogenous two salient features of the firms in our data set: size (junior lawyers hired per year) and the leverage ratio (the ratio of equity partners to junior lawyers, namely associates and non-equity partners). We posit that these two elements of firm structure are dictated by the firm's main lines of business, its history and past practice, and local competition. With this assumption, it must be true that, in steady state, each firm promotes a fixed fraction of its juniors to equity partner (to fill vacancies left by partners who retire), which we model with a fixed probability of

promotion.¹⁹ Of course, the promotion probability will be different for firms with different leverage ratios. Like Gibbons and Waldman (1999), we think of a worker in the firm as progressing through a sequence of 'periods' (in our case, years) in one of two job categories - junior lawyer and partner - and focus on the internal decision to promote a junior lawyer to partner. Unlike Gibbons and Waldman, we take the value of an employee to derive not from learning, but from information revealed during his or her tenure as an associate. Like Levin and Tadelis (2005), we make the distinction between juniors who are paid a wage (assumed to be the same at all firms), and equity partners, who are paid a share of the firm's profits. Consistent with this viewpoint, we assume that the firm acts to maximize the expected surplus available to partners. However, unlike Levin and Tadelis, we focus on the internal decision to promote a junior to partner rather than on the decision to hire juniors from an external labor market. To more closely focus on the information value of pro bono activity, we assume that the unobserved characteristic partially revealed through pro bono activities is idiosyncratic to the firm and the employee; hence, the promotion decision has no strategic implication. This is in contrast to Bernhardt (1995), for example, in whose model promotion may signal to other firms the value of a particular employee. While our restriction may seem limiting, it is consistent with the observation that law firms promote equity partners from within more often than they recruit from outside.

¹⁹Neither promoting a fixed fraction of associates nor a fixed probability of promotion are completely comfortable assumptions. In the former case, firms will not lower standard arbitrarily low simply to preserve their leverage ratio, and in the latter case, firms will not fail to promote any associates for years in a row. Either assumption is in accord with our empirical observations for large firms. Choosing a fixed promotion probability is an adequate approximation yields a constant ex-ante expectation of promotion likelihood for new hires, and offers analytical tractability.

4.2 The Model

The firm has two classes of workers who, for simplicity, we shall call 'juniors' and 'partners' (drawing from the leverage ratio, juniors refers to both associates and non-equity partners, partners refers to equity partners). Each year, k candidates are hired as first-year juniors. Employees remain in the junior position for n_J years. At the end of his or her n_J^{th} year, a junior lawyer is either promoted to equity partner or let go. Once promoted, the new partner remains with the firm for n_P years and then retires. Tenures as a junior lawyer or as a partner are the same for all firms in the industry.

Our model of firm profits is very simple: we assume that the profit available for division amongst the partners is equal to the revenue derived from engagements less the cost of the juniors. There are no fixed costs and all out-of-pocket expenses are proportional to the cost of juniors. Each partner brings in an amount of business that generates a surplus (revenue less out-of-pocket costs specific to the generated business) to the partnership exclusive of the cost of juniors and pro bono activity.²⁰ We call this the partner's "productivity."²¹

The key decision for the firm is to choose which juniors to promote to partner. We assume that juniors, when hired, are identical as far as observable characteristics, and are paid the same wage at each firm in the industry (an assumption supported by the data).²² Juniors

²⁰In the simplest model, assume no non-wage costs. Productivity is revenue, costs are the wages of junior lawyers plus the cost of pro bono work. See equation (2).

²¹We think of "productivity" as representing the annual revenue produced by a partner exclusive of all non-wage costs. See equation (2).

²²Salary data from the *2013 Vault Guide to the Top 100 Law Firms* and interviews with recruiting representatives at top-20 law firms support this assumption.

differ in their potential to become productive partners. The characteristic that makes a junior a productive partner is not directly observable in advance by the firm or by the junior lawyer; it is idiosyncratic to the pairing of junior lawyer and firm. At the end of a junior's n_j^{th} year of employment, the firm bases its promotion decision on the information it has obtained about him or her so far. If promoted, the new equity partner's annual productivity is Θ , a normal random variable²³ with mean $\mu_\Theta > 0$ and variance σ_Θ^2 . We call this the "productivity." The firm's information about the junior's future productivity is represented by a signal S that is jointly normally distributed with Θ ; we denote the mean of S by μ_S , the variance of S by σ_S^2 , and the correlation between Θ and S by $\rho \geq 0$ ²⁴. The conditional distribution of Θ given $S = s$ is normal with mean $E(\Theta|S = s) = \mu_\Theta + \rho \frac{\sigma_\Theta}{\sigma_S} (s - \mu_S)$ and variance $\sigma_\Theta^2(1 - \rho^2)$ (see, for example, Thomasian, 1969, pp. 463). The effect of pro bono activity is to increase ρ .

To maintain constant expected leverage, the firm promotes juniors with a constant independent probability α . Because expected productivity is non decreasing in the signal, the firm adopts the policy of promoting those junior associates whose signal value falls in the upper α^{th} percentile (which we denote ξ_α) of the signal distribution.²⁵ The resulting conditional expected productivity is $E(\Theta|S > \xi_\alpha)$. To write this last quantity in terms of the

²³We allow for the possibility that a tragically bad choice of partner could lead to a negative net revenue.

²⁴ One way to construct such a signal is to let $S = \Theta + \epsilon$, where ϵ is a normal random variable with mean 0 and variance σ_ϵ independent of Θ , reflecting the "noise" in the firm's understanding of the associate's future surplus. Improvements in the firm's information correspond to decreases in σ_ϵ . The resulting correlation between signal and Θ is $\sqrt{\frac{\sigma_\Theta^2}{\sigma_\Theta^2 + \sigma_\epsilon^2}}$.

²⁵This simplified promotion dynamics model allows us to focus on the screening effect of pro bono activities while maintaining a constant ex ante probability of promotion, and constant expected leverage.

parameters of the model, we make use of two standard results (detailed in the appendix):

$E(\Theta|S > x) = E[E(\Theta|S)|S > x]$ and for a normal random variable X with mean μ and variance σ^2 $E(X|X > x) = \mu + \sigma \frac{\phi(\frac{x-\mu}{\sigma})}{1-\Phi(\frac{x-\mu}{\sigma})}$, where we denote the standard normal density

and cumulative distribution by $\phi(x)$ and $\Phi(x)$ respectively. Thus,

$$\begin{aligned}
E(\Theta|S > \xi_\alpha) &= E[E(\Theta|S)|S > \xi_\alpha] \\
&= E \left[\mu_\Theta + \rho \frac{\sigma_\Theta}{\sigma_S} (S - \mu_S) | S > \xi_\alpha \right] \\
&= \mu_\Theta - \rho \frac{\sigma_\Theta}{\sigma_S} \mu_S + \rho \frac{\sigma_\Theta}{\sigma_S} E(S|S > \xi_\alpha) \\
&= \mu_\Theta - \rho \frac{\sigma_\Theta}{\sigma_S} \mu_S + \rho \frac{\sigma_\Theta}{\sigma_S} \left[\mu_S + \sigma_S \left(\frac{\phi\left(\frac{\xi_\alpha - \mu_S}{\sigma_S}\right)}{1 - \Phi\left(\frac{\xi_\alpha - \mu_S}{\sigma_S}\right)} \right) \right] \\
&= \mu_\Theta + \rho \sigma_\Theta \left[\frac{\phi\left(\frac{\xi_\alpha - \mu_S}{\sigma_S}\right)}{1 - \Phi\left(\frac{\xi_\alpha - \mu_S}{\sigma_S}\right)} \right].
\end{aligned}$$

all juniors whose signals fall in the upper α -percentile of the signal distribution assures

that $\frac{\xi_\alpha - \mu_S}{\sigma_S} \equiv z_\alpha$, where z_α is the upper α percentile of the standard normal distribution.

Observing that $1 - \Phi(z_\alpha) = \alpha$, the expected productivity of a partner under this screening

regime can be written as

$$E(\Theta|S > \xi_\alpha) = \mu_\Theta + \rho\sigma_\Theta \left(\frac{\phi(z_\alpha)}{\alpha} \right). \quad (1)$$

Each worker's (Θ, S) pair is independent so promotion outcomes are independent. After $n_J + n_P$ years, the number of juniors in the firm is kn_J and the number of partners is a random variable equal to the number of associates promoted to partner over the last n_P years, a binomial random variable representing the number of successes in kn_P trials, with each trial having independent probability of success α . The expected number of partners per junior is given by r , where $r = \alpha kn_P / kn_J = \alpha(n_P/n_J)$ and reflects the production technology of the firm. We assume that r (and hence α) is exogenously determined and varies from firm to firm, depending on factors such as the location, history, and main lines of business. Note that r and α are positively linearly related and so any comparative static result obtained for α applies to r as well.

PRO BONO ACTIVITY

The effect of pro bono activities is to increase ρ , which by (1) increases the expected profit generated by a partner. Let η denote the annual pro bono work per junior (for convenience, measured in years) and w the annual wage of a junior. We now make ρ a function of η shall assume that $\rho(\eta)$ is strictly concave increasing in η .²⁶

²⁶An explicit construction yielding a concave increasing $\rho(\eta)$ can be obtained from the example of footnote 24. If we think of the signal as the average observed performance over several independent pro bono engagements, and that the number of engagements per junior is proportional to the pro bono time allowed per junior, then a natural specification of the signal correlation is $\rho(\eta) = \sqrt{\frac{\sigma_\Theta^2}{\sigma_\Theta^2 + \sigma_\epsilon^2(\eta)}}$ where $\sigma_\epsilon^2(\eta) = \sigma_\epsilon^2 / (\eta_0 + \eta)$.

The firm is run for the benefit of the partners, with the objective of maximizing the expected annual surplus available to them. We shall assume that the cost to the firm of pro bono activity is equal to the cost of the junior time consumed by the activity. This may be thought of either as the opportunity cost of the profit forgone when juniors are not billing their hours to other clients or as the cost of the additional junior lawyer time that must be purchased to replace the time of juniors supporting pro bono activities. At any time after $n_J + n_P$, the profit $\tilde{\Pi}(\eta, \alpha)$ of a firm that hires k juniors per year, promotes them to equity partner with probability α , pays w per year wages, and assigns a quantity η (measured in years) of pro bono work per junior per year, is the sum of the profits generated by the firm's partners, where each partner contributes her productivity Θ_i less the wage cost of junior lawyers, less the wage cost of pro bono work profit:

$$\tilde{\Pi}(\eta, \alpha) = \sum_{i=1}^{kn_P} \Theta_i \mathbf{1}_{S_i > \xi_\alpha} - kwn_J - kw\eta n_J. \quad (2)$$

Taking expectations and applying (1) yields

$$\begin{aligned} \Pi(\eta, \alpha) &= E \left[\tilde{\Pi}(\eta, \alpha) \right] = \sum_{i=1}^{kn_P} E[\Theta_i \mathbf{1}_{S_i > \xi_\alpha}] - kw\eta n_J = kn_P \alpha E[\Theta | S > \xi_\alpha] - kw(1 + \eta)n_J \\ &= kn_P \alpha \left[\mu_\Theta + \rho(\eta) \sigma_\Theta \frac{\phi(z_\alpha)}{\alpha} \right] - kw(1 + \eta)n_J. \end{aligned} \quad (3)$$

This specification yields an increasing concave ρ .

The optimal level of pro bono activity per junior lawyer satisfies the first-order condition

$$\frac{\partial \Pi}{\partial \eta} = kn_P \alpha \rho'(\eta) \sigma_\Theta \frac{\phi(z_\alpha)}{\alpha} - kwn_J = 0, \quad (4)$$

which simplifies to

$$\rho'(\eta) = \frac{wn_J}{n_P \sigma_\Theta \phi(z_\alpha)}. \quad (5)$$

The concavity of $\rho(\eta)$ assures us that there is at most one solution to (4) and that any such solution is optimal. This solution does not depend on k , the size of the firm.

1. *Suppose that $\alpha < 0.5$ and $\partial \Pi(0, \alpha) / \partial \eta > 0$, then $\eta^*(\alpha)$, the level of pro bono activity per junior that maximizes expected firm profits, is increasing in α . On the other hand, if $\alpha > 0.5$, then $\eta^*(\alpha)$ is decreasing.*

Proof. Suppose that $\alpha < 0.5$. Then $z_\alpha > 0$ and is strictly decreasing in α (approaching 0 as α approaches 0.5). Hence $\phi(z_\alpha)$ is strictly increasing in α . Hence the righthand side of (5) is strictly decreasing in α . The result follows because concavity of ρ assures that the lefthand side of (5) is strictly decreasing in η and hence $\eta^*(\alpha)$ is increasing in α . The conclusion for the case in which $\alpha > 0.5$ follows similarly. ■

We can characterize a firm for which $\alpha < 0.5$ as 'selective'. When a firm is selective, then the information obtained from pro bono activities and the selectivity of the firm act as substitutes ($\eta(\alpha)$ is increasing). Hence a decrease in selectivity (an increase in α) causes the optimal level of pro bono activity to increase. For firms that are not selective, the opposite

holds true. When all of the firms in the labor market are selective, cross-sectional samples should reveal more pro bono activities associated with less selective firms. Because α and the leverage ratio are positively linearly related, these same statements hold true for the leverage ratio. This yields a testable hypothesis:

Hypothesis : The level of pro bono activity per lawyer increases as the leverage ratio increases.

4.3 Discussion of the Model

The model makes a number of simplifying assumptions. First, we take as fixed and exogenous the number of lawyers and the leverage ratio, resulting in a policy in which juniors have a constant probability of promotion to partner in each firm. This assumption is consistent with anecdotes from both law students and lawyers, who have indicated that the promotion rate does not vary greatly over time and who have strong beliefs about the ex-ante likelihood of promotion. We also assume that the salaries of associates are the same for each firm. Interviews with lawyers and salary data from the *2012 Vault Guide to the Top 100 Law Firms* confirm that junior lawyers' salaries are indeed lock-step by years in the firm and are homogenous within - and to a large extent across - top law firms.²⁷

²⁷Based on interviews with partners, associates, recruiting managers, and human capital management representatives at top-20 law firms and on interviews with law students at top-50 law schools.

Our model takes a partial equilibrium approach to modeling our data. The top 200 firms, for which data is available from the American Lawyer Survey, are generally best in class, and thus “selective.”²⁸ We view the leverage ratio as determined by the firm’s main lines of business (and possibly location). The leverage ratio coupled with the assumed industry standard tenures for junior lawyers and partners determine the promotion proportion. This proportion drives an optimal choice of pro bono activity per lawyer. Our data only give us a view into the top firms, making the model appropriate given the data available.

We model the firm’s productivity or profit as derived entirely from the productivity of partners less pro bono expenditures plus junior wages. Hence, when juniors are up for promotion to partner, the key distinction between them is their potential to become effective partners. We believe this follows naturally from our model’s focus on the promotion juncture between juniors and partners. The productivity of the junior prior to our timeframe of focus only enters into our model as part of the signal received by the firm regarding the associate’s expected discounted future annual net surplus as a partner.

Of course, our stylized model omits factors that might influence a firm’s promotion strategy and pro bono strategy, such as a firm’s profitability and other firm-specific characteristics. We are able to address these factors in our empirical analysis.

²⁸Compared to the over 47,000 law firms serving the US according to the American Bar Foundation, the top 200 revenue generating firms can be considered selective. Source: <http://www.hg.org/marketing-us-market.html>

5 Data and Summary Statistics

Our main analysis uses two datasets of the top-200 revenue-grossing US law firms from 1999 to 2012. The first dataset, gathered from the American Lawyer Survey, includes data on firm characteristics such as structure, size, and profitability. The second dataset, gathered from the American Lawyer's Pro Bono Survey, includes information about firms' pro bono work. We use a firm identifier to merge these two datasets. Eighty-nine percent of the 200 top revenue-grossing firms provided data for the Pro Bono Survey. Larger firms (with more lawyers) were more likely to fill out the pro bono survey than smaller firms.²⁹ Firms that filled out the pro bono survey did not differ from those that did not fill out the survey in other structural or profitability characteristics. Our data is an unbalanced panel due to firms entering and dropping out of the survey over the 15-year period.

To address alternative explanations, we conduct supplementary analyses using data from the 2004-2011 American Lawyer Midlevel Associates Satisfaction Survey (a survey of 3rd-5th year associates that measures employee satisfaction) as well as the 2010-2011 Summer Associates Survey (which includes information on summer internship acceptance rates and weekly intern salaries).³⁰

Table 1 provides summary statistics for our sample. On average, 36% of lawyers logged

²⁹Based on regressing missing-survey (1 if the firm did not fill out the survey, 0 otherwise) on the log of the partner-to-associate ratio, log of profits per partner, single tier structure, log of number of lawyers, and year fixed effects, with errors clustered at the firm level (B= -0.13, p=0.01).

³⁰We include data for all years of the surveys to which we had access through our American Lawyer subscription.

over 20 hours of pro bono work per year.³¹ Pro bono work is defined as legal services provided to those who could not otherwise afford them and is based on US offices only.³² Work done by paralegals or summer associates is not included in reported pro bono hours, nor is time spent on bar association work, on boards of nonprofit organizations, or on nonlegal work for charities.³³ Summary statistics are also included in Table 1 for firm size (number of lawyers) and measures of firm profitability (net income, profits per partner and gross revenues), as well as responses to the mid-level associate survey (respondents rated their firm's qualities on a scale from 1 to 5) and summer associate surveys.

Although our model predicts a relationship between the leverage ratio and pro bono per junior, our data only includes information on pro bono amounts per lawyer. In Appendix 8.2., we demonstrate formally that, in selective firms, the leverage ratio increasing with amount of pro bono per lawyer implies that the leverage ratio increases with amount of pro bono per junior. In the empirical analyses that follow, we will thus be demonstrating an even stronger result than that predicted by the model.

Insert Table 1 about here

³¹While information on the amount of time only junior lawyers spent on pro bono work would be ideal, it is widely held in the industry that most pro bono work is done by juniors rather than by equity partners (http://www.dcb.org/for_lawyers/resources/publications/washington_lawyer/september_2004/president.cfm).

³²*American Lawyer's Pro Bono Survey.*

³³*American Lawyer's Pro Bono Survey.*

6 Empirical Results

Our model predicts that pro bono intensity should increase as the leverage ratio (ratio of equity partners to junior lawyers) increases. Both pro bono amount and the leverage ratio are strategic choices made by law firms, and neither is randomly assigned in practice. To begin to address this endogeneity challenge empirically, we use a panel dataset that enables us to control for variation between firms and over time. We also exploit a quasi-natural experiment provided by de-equitization shocks that took place in a subset of firms at different times, when approximately half the equity partners in a firm were either demoted or fired.³⁴ As this represents a negative shock to the leverage ratio, we use an event study analysis to examine the effects of de-equitization on pro bono intensity to test our main hypothesis. Our results are robust to the use of an instrumental variable (IV) approach, whereby we instrument changes in the leverage ratio with de-equitization.

Table 2 reports panel regression analyses. Year- and firm-level fixed effects are included in all regressions presented. Columns 1 and 2 report the results of reduced form analyses, wherein we consider the effect of de-equitization events on pro bono intensity without (Column 1) and with (Column 2) control variables. De-equitization is an indicator variable taking on the value of 1 if the firm experienced a de-equitization event, and 0 if the firm did not. Column 1 demonstrates that de-equitization leads to a decrease of approximately 10

³⁴De-equitization of partners is considered a “heavy hammer, but a legitimate tool in a law firm’s tool bag,” as law firms strive to maintain profits per partner. Source: Law 360. “4 Questions to Ask Before De-Equitizing Your Partners,” available at <http://www.law360.com/articles/638999/4-questions-to-ask-before-de-equitizing-your-partners>

percent of lawyers with over 20 hours of pro bono work. Column 2 indicates that the effect of de-equitization on pro bono is robust to inclusion of profitability and size controls. Columns 3 and 4 report the results of the second stage of two-stage least squares IV regressions using de-equitization as an instrumental variable for the leverage ratio. Column 3 shows that, when de-equitization is used as an instrumental variable for the partner-to-associate ratio, it is increasing with pro bono intensity. Column 4 demonstrates that this effect holds even when controlling for profitability and size controls. The corresponding F-statistics on the first stage regressions were 13.67 in Column 3, and in 19.30 in Column 4, respectively. This is well above the Staiger and Stock (1997) threshold of 10 for “strong” instruments. Overall, the results presented in Table 2 provide support for our main prediction that pro bono hours will be increasing in the leverage ratio.

Insert Table 2

To further explore the drivers of pro bono intensity, we report in Table 3 regressions using measures of employees’ perceptions about their firms’ employee management, constructed from responses to the American Lawyer Mid-level Associate Survey. All variables are continuous variables reflecting associates’ ratings of their firm on each dimension (ratings go up to 5). All regressions include both year and firm fixed effects. Model 1 shows that perception about a firm’s training and guidance is positively correlated with perception about attitude

towards pro bono. As was described in the legal services context section, the leverage ratio is considered by lawyers to be a strong indicator of qualities such as mentorship and guidance. Model 2 demonstrates that perception about other types of employee management qualities are also positively correlated with pro bono, including communication about partnership, management openness, partner relations, and benefits and compensation. This provides suggestive evidence that pro bono is correlated with positive perceptions about employee management characteristics, in line with our intuitive argument that firms that are more likely to support and promote junior lawyers engaged in more pro bono. In Models 3 through 5, we examine the relationship between perceptions about a firm's pro bono and perceptions about how interesting the work at the firm is. Though attitude towards pro bono is strongly correlated with interesting work in Columns 3 and 4, Column 5 shows that when other employee management characteristics are included, perception about pro bono is no longer correlated with perception about interesting work. This provides further suggestive evidence that pro bono is correlated more with employee management strategies that influence perceptions about how well a firm trains, guides, and supports its employees (such as the leverage ratio), rather than strategies that influence perceptions about how interesting the work is.

Insert Table 3

A plausible alternative explanation for how law firms could benefit from pro bono is through cost savings or other strategic benefits derived from the learning mechanism. The learning mechanism, wherein associates gather new skills through their work on pro bono projects, is very closely related to a critical premise of our argument - namely, the fact that pro bono projects enable juniors to take on stretch roles. We argue that these stretch roles benefit the firm by providing information about expected future employee quality in a more senior role. An alternative argument is that junior lawyers value the learning opportunity afforded them by pro bono projects, and that higher pro bono firms could benefit in the form of increased prospective employee interest, as well as by extracting a salary differential if juniors are “willing to pay” for these learning opportunities. Unfortunately, this survey did not include questions about juniors’ perceptions about how much they learn on the job, which would have been helpful in disentangling the screening mechanism we put forth from a learning mechanism. To the extent that we would expect learning to be correlated with perceptions about interesting work, however, Column 5 in Table 3 provides suggestive evidence that learning is likely correlated more with other employee management strategies than pro bono.

To further consider this alternative explanation, Table 4 explores the relationship between pro bono intensity and summer internship salaries and acceptance rates. There is little variation in junior lawyer salaries across firms, which are lock-step by years in the firm.³⁵

³⁵Based on salary data from the *2012 Vault Guide to the Top 100 Law Firms*, and confirmed by interviews with lawyers from top law firms.

There is greater variation in summer internship salaries across firms, so we examine the drivers of this variation. Pro bono intensity is not correlated with intern salary (Column 1) even when including region fixed effects, size, and profitability characteristics (Column 2). Column 2 shows that intern salary is strongly correlated with firm profitability. It thus does not appear to be the case that firms are extracting financial benefits from the learning value of pro bono through lower salaries, nor that interns are “willing to pay” for a learning benefit of pro bono in the form of accepting lower salaries.

Summer internships are the primary entry point for new lawyers into major laws firms, making summer internship acceptance rates an important metric when considering the attraction of new talent into law firms. Columns 3 and 4 demonstrate that pro bono is not correlated with summer internship acceptance rates, with or without controlling for profitability and size characteristics. Profitability was highly correlated with acceptance rates. Region fixed effects also explain much of the variation in summer internship acceptance rates, suggesting that interns have strong preferences for the region in which they will work. The lack of a relationship between pro bono and summer offer acceptance rates provides suggestive empirical evidence that prospective employees’ attraction to a firm is not influenced by pro bono.

Insert Table 4

7 Conclusions

This paper uses multiple methodological approaches - a formal model and empirical analysis, supported by primary and secondary industry research - to suggest that law firms can use pro bono services to gain proprietary knowledge about expected junior lawyers' quality as partners. Our proposition that pro bono acts as an informational signal to the *firm* about an aspect of *employee* quality is contrary to the common explanation that CSR acts as an informational signal to the *employee* about an aspect of *firm* quality. This proposition relied heavily on a key feature of pro bono in law firms: the fact that pro bono cases give juniors the opportunity to take on stretch roles. We do not suggest that such a mechanism applies to other types of socially responsible activities that do not enable employees to take on stretch roles, or that the conventional argument is necessarily inapplicable to other types of CSR in other settings. Rather, our contrary finding echoes the voices of others who have highlighted the importance of distinguishing between the different types of CSR, rather than treating CSR as an aggregated construct, when examining how socially responsible activities influence firm value (e.g., Burbano, 2016a; Chen and Delmas, 2001; Mattingly and Berman, 2006; Rowley and Berman, 2000).

We demonstrate that a firm's pro bono strategy can complement its existing employee management strategy and related structure. In particular, we find that firms with higher leverage ratios engage in more pro bono activity. Although the CSR literature in strategic

management has considered how socially responsible activities influence current and prospective employee behavior, there has been relatively little consideration of how the firm's CSR strategies interact with other elements of the firm's employee management strategies. We find these strategies to be very related in the legal services context, suggesting that there may be opportunities to explore the interaction between these strategies in other industries, and for other types of CSR beyond pro bono.

While the theoretical, empirical, and industry evidence are all consistent with our novel findings, each of the elements of our analysis has weaknesses. Although supported with secondary evidence whenever possible, the primary evidence provided was anecdotal in nature and drawn from a small sample of 20 lawyers across top law firms. The perceptions of the lawyers we interviewed may not be representative of all lawyers. Our theoretical model is highly stylized in nature, and though we sought to validate the models' assumptions with primary and secondary evidence, we recognize that the model does not incorporate all factors that might influence pro bono strategies and human capital strategies at law firms. Our empirical findings, though robust to use of an event study and IV regression analyses, are still not the ideal experiment that would enable us to conclude causality in the relationship we examine. Taken together, however, the consistency of our findings using three distinct methodological approaches each with complementary benefits and limitations, provides strong support for our theory.

To ruling out alternative explanations, the primary data and supplemental empirical

analyses conducted support the notion that pro bono is not driving attraction or retention at top law firms. We also provide suggestive evidence that an employee-learning mechanism is not the primary means through which pro bono benefits law firms, though given our data, we recognize that we cannot completely disentangle an employee-learning mechanism from a screening/firm-learning-about-employee-potential mechanism. Our data and model are applicable to selective law firms in the US. Future work could explore the relationship we outline in our paper in non-selective law firms.³⁶

We see broad patterns consistent with our theory in other professional service industries where pro bono is a common type of CSR. In medicine, for instance, less-experienced doctors gain new experience by providing services to patients who cannot afford treatment (Gawande, 2002). Likewise, junior management consultants often gain stretch-role experience by working on pro bono consulting projects. At many top business schools, MBA students gain consulting experience by working for nonprofits. Success on these projects is often a key component of a newly minted management consultant's resume. Given the similar "stretch role" opportunity provided by pro bono activities in these different settings, and similar opportunities for more senior managers to observe performance in these stretch roles, pro bono likely serves the same mechanism that we put forth in these settings. Opportunities remain for future research on pro bono practices in other human-capital-intensive industries.

³⁶In fact, our model would predict that the relationship between the leverage ratio and pro bono would be negative in non-selective firms.

8 Appendix

8.1 Lemmas Used in Section 4.2

Lemmas 1, 2, and 3 are standard and recapitulated here for convenience.

1. Suppose that S and Θ are random variables on some probability space (Ω, \mathcal{F}, P) and that $E(\Theta|S)$ is well defined. Then, if $P(S > s) > 0$,

$$E(\Theta|S > s) = E[E[\Theta|S]|S > s].$$

Proof. Let \mathcal{G}_Θ denote the smallest sigma-field containing the sets $\{\omega|\Theta(\omega) > t\}$. This is the sigma-field of sets of Ω “generated” by the random variable Θ . Define \mathcal{G}_S similarly. Because Θ and S are random variables defined on (Ω, \mathcal{F}, P) , $\mathcal{G}_\Theta \subseteq \mathcal{F}$ and $\mathcal{G}_S \subseteq \mathcal{F}$. The conditional expectation of Θ given \mathcal{G}_S , $E[\Theta|\mathcal{G}_S]$, is a \mathcal{G}_S measurable function on (Ω, \mathcal{F}, P) such that, for any set $A \in \mathcal{G}_S$, $E(\Theta\mathbf{1}_A) = E(E(\Theta|\mathcal{G}_S)\mathbf{1}_A)$.

It follows from the definition of conditional expectation, that, for any set $A \in \mathcal{F}$ with $P(A) > 0$, $E[\Theta|A] = \frac{E(\Theta\mathbf{1}_A)}{P(A)}$. Denote by A_s the set $\{\omega|S(\omega) > s\}$; by assumption, $P(A_s) > 0$.

$$E[\Theta|S > s] = \frac{E[\Theta\mathbf{1}_{A_s}]}{P(A_s)} = \frac{E[E(\Theta\mathbf{1}_{A_s}|S)]}{P(A_s)} = \frac{E[E(\Theta|S)\mathbf{1}_{A_s}]}{P(A_s)} = E[E[\Theta|S]|A_s] = E[E[\Theta|S]|S > s]$$

The second equality holds because for any two random variables, X and Y , if $E[X|Y]$ is well defined, then $E[E[X|Y]] = E[X]$. The third equality holds because $A_s \in \mathcal{G}_S$. ■

2. Suppose that Z is normally distributed with mean 0 and variance 1. Then

$$E(Z|Z > z) = \frac{\phi(z)}{1 - \Phi(z)}$$

Proof. We have

$$E(Z|Z > z) = \frac{E(Z\mathbf{1}_{\{Z>z\}})}{P(Z > z)} = \frac{\int_z^\infty x\phi(x)dx}{1 - \Phi(z)} = \frac{\int_z^\infty \frac{x}{\sqrt{2\pi}}e^{-x^2/2}dx}{1 - \Phi(z)}.$$

We can simplify the numerator by making the substitution $u = x^2/2$ hence $du = xdx$. x goes from z to ∞ u goes from $z^2/2$ to ∞ , for $z < 0$, as x goes from z to ∞ u goes from $z^2/2$ to 0, then from 0 to $z^2/2$ and then from $z^2/2$ to ∞ ; therefore

$$\int_z^\infty \frac{x}{\sqrt{2\pi}}e^{-x^2/2}dx = \int_{z^2/2}^\infty \frac{-1}{\sqrt{2\pi}}e^{-u}du \tag{6}$$

establishes the desired result. ■

3. If X is normally distributed with mean μ and variance σ^2 , then

$$E[X|X > x] = \mu + \sigma \frac{\phi(\frac{x-\mu}{\sigma})}{1 - \Phi(\frac{x-\mu}{\sigma})}$$

Proof. We know that $(X - \mu)/\sigma$ has a standard normal distribution; hence, X has the same

distribution (and hence, the same mean and variance) as the random variable $\sigma Z + \mu$. Thus,

$$\begin{aligned} E(X|X > x) &= E[\sigma Z + \mu | \sigma Z - \mu > x] \\ &= \mu + \sigma E[Z | Z > \frac{x - \mu}{\sigma}] \end{aligned}$$

The lemma now follows on applying Lemma 2. ■

Appendix

8.2 Pro bono per lawyer increasing in the leverage ratio implies that pro bono per junior increases in the leverage ratio

Recalling our notation, k is the junior intake size (class size), n_J the industry standard tenure as a junior, n_P the industry standard tenure as a partner, r is the leverage ratio (expected number of partners per junior), α is the selectivity (proportion of juniors who must be promoted, on the average, to maintain the leverage ratio), and η is the annual pro-bono hours per junior. Recall that $r = \frac{\alpha n_P}{n_J}$. Let β denote the pro-bono hours divided by the expected number of lawyers (junior and partners) in the firm. In steady state the expected number of juniors is kn_J and the expected number of partners is αkn_P so

$$\beta = \eta \frac{kn_J}{kn_J + \alpha kn_P} = \eta \left(\frac{1}{1 + r} \right)$$

Lemma 1 If $\frac{\partial\beta(r)}{\partial r} \geq 0$, then $\frac{\partial\eta(r)}{\partial r} \geq 0$.

Proof: Differentiating $\beta(r)$ with respect to r :

$$\frac{\partial\beta(r)}{\partial r} = \frac{\partial\eta(r)}{\partial r} \left(\frac{1}{1+r} \right) - \eta(r) \left(\frac{1}{(1+r)^2} \right)$$

Solving for $\frac{\partial\eta(r)}{\partial r}$

$$\frac{\partial\eta(r)}{\partial r} = (1+r) \frac{\partial\beta(r)}{\partial r} + \frac{\eta(r)}{1+r}$$

The result follows because $\frac{\eta(r)}{1+r} \geq 0$.

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Table I: Summary statistics

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
American Lawyer Survey: 1998-2012					
Percent of lawyers over 20hrs pro bono	2,638	36.176	19.388	0.8	99
Equity partner: junior lawyer ratio	3,000	0.467	0.239	0.08	1.971
Profits per partner (in millions of dollars)	3,000	0.869	0.600	0.19	4.975
Gross revenues (in millions of dollars)	3,000	323.020	312.706	57	2440.5
Net income (in millions of dollars)	3,000	119.523	128.010	10	1077
Up or out partnership	3,000	0.206	0.404	0	1
Number of lawyers	3,000	486.632	398.598	96	4036
American Lawyer Mid-Level Associate Survey: 2004-2011					
Interesting work	3,232	4.079	0.346	2.4	5
Firm's attitude toward pro bono	2,811	4.008	0.634	1.44	5
Training and guidance	3,232	3.684	0.462	1.8	5
Communication regarding partnership	3,232	3.080	0.635	1	5
Management openness	3,232	3.459	0.735	1	5
Associate relations	3,232	4.253	0.369	2.6	5
Partner relations	3,232	3.885	0.435	2	5
Benefits and compensation	3,232	3.890	0.578	1.2	5
Summer Associates Survey: 2010-2011					
Percent accept summer internship offer	152	.844	.129	.36	1
Weekly summer internship salary	171	\$2,814	\$434	\$1,175	\$3,100

Table 2: Drivers of Pro Bono

Independent variables	Dependent variable: Percent of lawyers over 20hrs pro bono			
	(1)	(2)	(3)	(4)
De-equitization	-10.42** (4.33)	-10.84** (4.41)		
Log (Equity partner: junior lawyer ratio)			20.01*** (7.00)	21.74*** (7.06)
Log (Profits per partner (in millions of dollars))		0.73 (3.37)		7.26* (4.40)
Log (Lawyers)		-3.79 (3.63)		3.46 (3.98)
Year fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Instrumental variables	No	No	Yes	Yes
First stage F-statistic			13.67	19.30
Number of observations	2,638	2,638	2,638	2,638
R ²	.74	.74	.71	.71

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% confidence levels, respectively. Standard errors are clustered at the firm level. Data comes from the 1999-2013 American Lawyer survey of the top 200 firms in terms of gross revenues as well as the American Lawyer Mid-level Associate Survey covering 2004-2012. Data on pro bono hours comes from a supplemental survey to the 1999-2013 American Lawyer survey.

Table 3: Self reported attitude towards pro bono correlates with training but weakly with interesting work

Independent variables	Dependent variable: Firm's attitude towards Pro Bono		Dependent variable: Interesting work		
	(1)	(2)	(3)	(4)	(5)
Firm's attitude toward pro bono			0.22*** (0.02)	0.07*** (0.02)	0.01 (0.02)
Training and guidance	0.53*** (0.03)	0.24*** (0.04)		0.38*** (0.02)	0.19*** (0.02)
Communication regarding partnership		0.07** (0.03)			0.05** (0.02)
Management openness		0.07*** (0.02)			0.02 (0.02)
Associate relations		0.06 (0.04)			0.02 (0.03)
Partner relations		0.15*** (0.04)			0.20*** (0.03)
Benefits and compensation		0.14*** (0.03)			0.06 (0.02)***
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Number of observations	2,811	2,811	2,811	2,811	2,811
R ²	.63	.66	.33	.46	.51

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% confidence levels, respectively. Standard errors are clustered at the firm level. Data comes from the American Lawyer Mid-level Associate Survey covering 2004-2012.

Table 4: Summer offer acceptance rate and intern salary

Independent variables	Dependent variable: Weekly Intern Salary		Dependent variable: Summer internship acceptance rate	
	(1)	(2)	(3)	(4)
Percent of lawyers over 20hrs pro bono	3.44 (2.21)	0.58 (1.74)	-0.11 (0.08)	-0.06 (0.09)
Log (Equity partner: junior lawyer ratio)		-53.71 (74.38)		-4.94 (3.99)
Log (Profits per partner (in millions of dollars))		493.57*** (79.36)		-8.50*** (3.18)
Log (Lawyers)		-45.17 (50.65)		1.05 (2.65)
Year fixed effects	Yes	Yes	Yes	Yes
Region fixed effects	No	Yes	No	Yes
Number of observations	161	161	144	144
R ²	.02	.58	.02	.18

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% confidence levels, respectively. Standard errors are clustered at the firm level. Data comes from the 2011-2012 American Lawyer survey of the top 200 firms in terms of gross revenues as well as the American Summer Offer Survey conducted 2011-2012. Data on pro bono hours comes from a supplemental survey to the 2011-2012 American Lawyer survey.