Self-Selection and Screening in Law Firms

John Gordanier

December 3, 2007

Abstract

This paper develops a framework to analyze the implications of a model where workers with heterogeneous effort costs choose between firms with alternate promotion policies. In one path, the worker faces strict up-or-out rules that potentially destroy valuable firm specific human capital. The other allows for the possibility of permanent employment without promotion. A costly investment, in the form of effort as an associate, is required to reveal productivity as a partner. Workers with high effort costs do not find the investment worthwhile, thus, they will not make partner and select firms without up-or-out rules. Workers with low effort costs are indifferent between the policies at the equilibrium. Up-or-out rules are optimal for firms when they must screen new associates to find partners and have an incentive to maintain partnership quality. The model predicts that wages of both associates and partners are increasing when partnership is more exclusive. For the same partnership threshold, wages are higher in firms that use up-or-out rules. The implications are tested and confirmed in a unique data set of the nation's largest law firms.

1 Introduction

Over the past two decades, the most common form of law firm organization has switched from a traditional up-or-out partnership tournament to a multi-tiered partnership. Under the traditional arrangement, lawyers spend a predetermined number of years as associates, usually between six and ten. At the end of the probationary period, an associate is either promoted to a partnership position, in which they are entitled to some share of firm profits, or asked to leave the firm. The multi-tiered partnership allows for a third option at the end of the evaluation period; promotion to non-equity partnership[1].

Traditionally, a partner differs from an associate in both the compensation scheme (i.e. a share of the profits) and in the type of work performed. The primary responsibility of partners is to bring in new business and work extensively with clients. The partners bringing in new clients, the "rainmakers," create work for associates. Although, a non-equity partner's actual role and title varies across firms, the responsibilities typically mirror that of a senior associate. I refer to a non-equity partner or permanent associate as a lawyer employed in the same tasks as an associate, but with no prescribed end date of employment.

The emergence of two-tiered partnerships changed the incentive structure within law-firms, providing opportunities for associates unlikely to make partner (Gordanier, 2006). Additionally, the two-tiered partnership raises

---

[1]At some firms, all associates first are promoted to non-equity partner (if not asked to leave the firm) and some associates from this subset will be promoted to partner. In either case, associates are allowed to remain in the firm with no chance of becoming a partner.

the possibility of newly minted Juris Doctors self-selecting into firms based on the partnership structure. The argument for self-selection usually goes like this: in the multi-tiered partnership there is a lower standard available either in terms of ability and/or effort that is needed to become a non-equity partner[2]. Associates that are less able or less willing to work the exceedingly long hours required for partnership, may be able to meet this standard for a non-equity position. Under the traditional arrangement, these workers are terminated after (or during) their time as associates. If staying on as a non-equity partner is preferable to being let go from a traditional firm, the non-partnership position will serve as a magnet that attracts the less able or less ambitious. Potentially, this could negate some of the benefits of the multi-tiered system.

The role of gender in law firms is another dimension of the selection question. Despite near equal proportions of law school graduates, female partners are still relatively rare. Newspaper articles and books continue to be published asking why women are under-represented in the upper ranks of law firms ("Why do so few women reach the top of big law firms?"). The traditional organizational structure makes family life difficult for all lawyers, perhaps disproportionately so for women[3]. Women are over-represented in

---

[2]This is just a modification of the story told in Akerlof (1976) where the traditional law firm structure is a mechanism for associates to demonstrate low cost of effort. Associates work far longer than is efficient to demonstrate their type.

[3] Workloads continue to be recognized as a major barrier in retention. The Project for Attorney Retention, a University of California Hasting's College of Law initiative, defines its role as "to improve recruiting and retention of talented attorneys through the use of work schedules that allow attorneys to better balance the competing demands of their work and their lives outside the office."

government or corporate counsel practices and under-represented in private law firms. The two-tiered system could attract quality associates into private law firms. Researchers that study gender in law firms might observe an increase in women in private law firms, but no major change in the proportion of female partners.

While the intuition behind the selection story is simple, several questions arise from it. In particular, why is it that a worker, who is not going to make the equity partnership position, prefers to go to a firm where they can make it to the non-equity partner position? Is there a reason this is better than starting in a firm that uses up-or-out employment contracts and then moving into a non-equity position in another firm after the evaluation period? This may seem like a trivial question, after all, no one wants to be fired. However, if the labor market is truly competitive, with no frictions, then the wage is equal to the marginal product as an associate. If we can explain why it is preferable to stay with the same firm, why do any firms enforce up-or-out rules at all?

The purpose of this essay is to develop a framework where some firms employ up-or-out rules and others do not, in order to analyze the potential for self-selection by associates into firms employing different partnership models. The framework generates testable implications regarding the effects of selection. The two main results demonstrate that self-selection by associates can occur if firm specific human capital exists and up-or-out rules are an optimal screening device, if firms have incentives to keep the average partner quality high. The model implies wages for both associates and partners increase when partnership becomes more elusive in firms with up-or-out

4

rules. When firms with up-or-out rules promote the same percentage to partner as firms with permanent associates, associates and partners are paid more under up-or-out rules.

While selection could occur on the dimension of ability, here I focus on selection among associates with ex ante identical abilities and heterogeneous costs associated with effort.

Workers live for two periods in the model. In the first period, everyone is employed as an associate and has an identical marginal product. Three things are going on in the first period: workers are producing output as associates, workers are generating firm-specific human capital, and they are being evaluated as possible partners[4]. The first two happen automatically, but the third requires a costly investment. During the first period, the associate makes a discrete investment choice in the form of effort, as part of the evaluation process. The utility cost of effort varies across the population. While the marginal product as an associate is identical for all workers, the marginal product as a partner is random and unknown at the start of a career. The partnership productivity is revealed only if a sufficient level of effort is expended in the first period. Only the associate and original firm can see the partnership productivity realization. An associate that chooses a lower effort level will not be able to work as a partner in the second period.

Consider an associate that chose to put in enough effort to reveal the partnership productivity in the first period. If he continues as an associate at the same firm in period two, his marginal product will be the inherent

---

[4]Its natural to think that workers are also developing general human capital during this time, but that is extraneous to the model.

associate productivity common to the whole population plus the output generated by his firm-specific human capital. As a partner, the individual's marginal product is the realization of a random draw. Not all of the associates that put in the requisite effort will be good partner candidates, in the sense that their marginal product is still higher as an associate than as a partner. The third possible outcome is to remain an associate, but at a second firm. In this scenario, the associate only produces at the same marginal product as in the first period. The output in the second period is higher for workers that stay with the current firm, due to the existence of firm-specific human capital.

This is the intuition for why associates with high costs of effort will choose to enter firms with non-equity partner positions. Associates with a high cost of effort will not find it a good gamble to make the investment and reveal their productivity as a partner, even though some might be very able. Since they will be spending their second period as an associate, staying with the current firm protects their firm-specific human capital. Of course, this is not just true for associates that choose not pay the effort cost. Associates that make the investment lose their firm specific human capital if the realization of their partnership productivity is low and they are in a firm that uses up-or-out rules. Firm-specific human capital makes up-or-out rules costly, ex ante, for everyone.

At this point, the obvious question is if non-equity partnerships preserve firm-specific human capital, why do some firms use up-or-out rules? The crux of the argument presented here is that retained associates force the firm to promote lower quality associates to partner. A cost-minimizing firm has

an optimal mix of the associate input and the partner input. Generally the firm could just keep its older associates and hire fewer new associates, but the firm would not develop enough new partners. Since the firm is not able to hire partners from outside the firm, the number of partners at the firm is tied to the number of new associates that provide effort. Since the firm is infinitely lived, they must develop new partners or go out of business[5]. The firm could move away from the optimal mix of associates and partners, but this reduces the value of the associate inputs. The other option is to promote more to partner. When the production technology depends on average partner quality, the firm prefers to fire older associates[6].

2   Related Literature

This work is related to three veins of literature. First, is the Labor Economics/ Personnel Economics work on selection into firms based on the compensation structure. Perhaps most famously, Lazear (1986) points out the possibility for selection effects on firms that use piece rate pay. He shows when worker quality is unknown, directly rewarding performance increases the average quality of worker. This is one of a multitude of compensation policies that could lead to selection. This paper examines one such policy: up-or-out rules. Empirically there is evidence that self-selection is a real phenomenon. For example, Loh (1994) finds evidence that more able

---

[5]They are infinitely lived in the sense that the owners receive a profit stream forever. They can still go out of business and receive a stream of zeros.

[6]An alternate interpretation is that the price of output depends on average partner quality.

workers self-select into firms with probationary periods (or perhaps less able workers avoid being evaluated).

Second is the literature on the determinants of law firm organization and lawyer career choice. Gilson and Mnookin (1989) and Galantar and Palay (1991) were the first to consider the economics of law firm organization. This literature seeks to describe and explain the organizational features of law firms (profit sharing, up-or-out rules, non-compete clauses, etc.) as well as recent developments (e.g. substantial size increases in law firms).

Empirically, Sauer (1998) finds self selection by ability in a structurally estimated model of career choice (public sector, private, government, etc.) on a sample of law school graduates. Gorman (1999) looks at the predictors of whether or not a firm uses up-or-out rules using a national sample of law firm establishments. She reports that permanent associate positions, all else equal, are associated with firms with less client stability, more specialized knowledge, and less collegiality[7]. Henderson (2006) uses a longitudinal sample of law firms to show that the adoption of two-tiered partnerships appears to lower profits per partner.

Finally, this paper expands upon the reasons for the use of up-or-out rules. Up-or-out rules are generally a puzzle to economists. Why are productive workers fired? The economics literature provides us with two possible answers.

First, is the presence of moral hazard (Kahn and Huberman, 1988).

---

[7]These variables are calculated based on survey responses of employees at the firm. Does this mean that up-or-out rules in academic departments make for a more pleasant work environment?

Imagine that workers must make a costly investment in firm-specific human capital that cannot be verified in court. If the firm paid for the investment up front then we have a classic hold-up problem where the worker grabs some of the gains from investment. Knowing this, the firm will not pay the up-front cost. If the firm promises a raise if they invest, the firm can renege on the promise after the investment is made. Reneging allows the firm to make a wage offer only slightly better than the outside option, capturing rents from the investment. Since the human capital is firm specific, there is a wedge between the value in the firm and the outside option. The worker will not be able to recoup the full cost of the investment; knowing this, no investment is made. By tying continued employment to the promotion, the firm can commit to not reneging on the promise. This works because the firm would prefer to give the raise than to let the worker go. The best ex post outcome to the firm, reneging on the deal and paying them just better than the outside option, is prohibited by the contract. In turn, this commitment makes it possible for the investment to occur.

Waldman (1990) expands upon this reasoning to show that it is not necessary for the human capital to be firm specific. If the human capital investment is general, but only observed by the primary employer then up-or-out rules can again insure optimal investment. His main insight is that other firms will infer human capital investment made by the employee based on employer actions. Without up-or-out rules, other firms would suffer from the winner's curse when bidding on employees that are not promoted. They would only succeed in hiring when the worker did not in fact make the investment. The highest outside offer would be only as high as the marginal

product of a worker that does not invest. The original firm would then offer a wage only that high as well, for the same reasons as in Kahn and Huberman. Thus, there is no investment in general human capital.

In this line of reasoning, the key is the inability of firms to commit to not taking opportunistic behavior. One criticism of this is the repeated nature of the interaction. While new lawyers cannot tell if a particular associate that failed to make partner deserved it or not, they do have information on the proportion of associates that make partner. If the firm systematically cheated then this would be revealed to new recruits.

The second explanation, offered by O'Flaherty and Siow (1995), is based on the screening technology. They point out that in settings, like law firms, where a senior employee must actively work with a junior to determine their quality, up-or-out rules are necessary to free up senior employees and expand the firm. As in this paper, screening can only be accomplished on the job. Junior positions serve two roles: actively working as an input in production and as a screening position. In their model, firms must fire a present associate to screen a new one, due to a perfect complements production technology. The crucial feature of this model is that partnership productivity is discrete. There is no option of promoting a lower quality associate to partner. I find that when partnership output is continuous, even when the production technology is perfect complements, firms do not use up-or-out rules. This paper expands upon the screening explanation by showing that up-or-out rules are optimal when there are incentives to maintain average partner quality, even though retained associates do not enter the calculation of average partner quality.

One phenomenon that these explanations fail to capture is the coexistence of both up-or-out rules and two tiered partnerships. The asymmetric information explanation rests on the incentive for opportunistic behavior by firms and workers. It is hard to believe that only some law firms face this problem. I consider the possibility of firms competing for the same pool of labor, but distributed into two types of product markets. While they use the same inputs, the production process differs across the product markets. Both use the associate position to screen for partner, but only some care about average partner quality.

3   Model

Workers live for two periods in the model. They are risk neutral and do not discount the future, but dislike effort. The disutility associated with effort differs across the population. A fraction of the population loses c_L dollars per unit of effort, while the remaining fraction loses c_H dollars per unit of effort. They see the available contracts with full information and choose to maximize lifetime wealth net the cost of effort.

There are many firms biding on workers in the labor market, but they are not identical. Some firms are of type C, competing with one another in a perfectly competitive market for legal services. Type M firms compete in a different product market, reflecting that there is more than one type of legal product for sale. Firms, regardless of type, transform two inputs, associates and partners, into legal services. However, the firm's production functions are not the same. The production technology for type M firms,

F, also depends on the average quality of partners. Type C firms have a production function, G. The idea is that some services or clients require a different mix of partner and associate effort as well as quality. For example, a complicated merger of two firms might require a different mix of partners to associates than drafting a prenuptial agreement. Similarly, drafting Tiger Woods' prenuptial agreement might require a different mix than for a lowly economics professor. Type C firms sell their output at a price of 1, while type M firms sell at a price of v.

Workers contribute to the production process by producing one of these inputs. In the first period of a career, all workers have identical productivity. They can produce a units of the associate input and zero units of the partner input. During the initial period, workers choose whether to make a costly investment of E units of effort. The utility cost, in dollars, is either $c_H E$ or $c_L E$ depending on the type. If the investment is made, then the worker's productivity as a partner, θ, is revealed to both parties. θ is a realization from the distribution, H, of possible outputs. As a by-product of employment in the initial period, workers develop firm-specific human capital, regardless of effort choice. This could take the form of specific client knowledge, social capital associated with colleagues, or knowing how to work the copier. A worker employed at the same firm in the second period, produces $a + f$ units of the associate input. The firm-specific human capital does not affect their output as a partner.

Since only the present firm knows the partnership realization, there is no spot market for partners. However, firms can credibly commit to promoting

a percentage of associates to partner and paying a partnership wage[8]. The commitment device is through repeated interaction in the labor market. New entries into the labor market are able to observe the promotion rate and the wage among partners.

4 Equilibrium

Consider the implications of the simplest example. Type C firms have a production function, G, where associates and partners are perfect substitutes. Type M firms have a perfect complements production technology, scaled by the average quality of partners, i.e.

$$
\begin{aligned}
G(A,P) &= A + P \\
F(A,P) &= q(\widetilde{\theta}) * \min\{A,P\}, \text{ where } \widetilde{\theta} \text{ is average partner quality}
\end{aligned}
$$

The equilibrium is defined by the wages offered at each type of firm, the assignment policies of each type, the price of output for type M firms, and the decision rules for workers of each type.

4.1 Type C firms

Firms in this market can always add any worker at their marginal product. For example, an associate that is coming from another firm will produce an output of a and will be offered that wage. Because of the free entry

---

[8]I treat the compensation associated with partner as a wage instead of a share of profits. If the number of partners were observed, but the wage were not, then a share of profits is a way to credibly pay the equilibrium wage.

condition, the policies in these firms must maximize the total output of each type of worker during their career.

Proposition 1 *Any worker with partnership productivity $\theta_i > a + f$, is promoted to partner in type C firms.*

This follows trivially from the production function. If θ exceeds $a + f$ then the marginal product of output is higher as a partner. Due to the zero-profit condition workers are paid their expected contribution to the firm over their lifetime. If the equilibrium had some workers assigned to tasks where they have lower output, then a firm could enter, offer higher expected lifetime wages and earn rents.

Let γ be the probability that a worker is promoted to partner conditional on paying the effort cost. Using the proposition above, we know that γ is just the probability that the realization from the partnership distribution is less than $a + f$, i.e., $\gamma = 1 - H(a + f)$.

Proposition 2 *Each effort type will make the efficient investment decision and no one is fired.*

First, notice that an incentive compatible contract exists, namely pay workers their marginal product in each period. Second, the efficient investment choice maximizes total output which, in turn, maximizes wages. If this contract is not being used, a firm can enter the market and earn rents by offering just less. Thus, it is efficient for low cost types to invest and high cost types to not invest if $c_H E > \gamma(\overline{\theta} - (a + f)) > c_L E$, where $\overline{\theta} = E[\theta | \theta > a + f]$. For the rest of this exercise we will assume that this condition holds, i.e.

14

that it is not optimal for high effort types to invest in type C firms[9]. Firing workers reduces total output because of the firm-specific human capital, by the same logic as above, no one is fired from the firm.

Proposition 3 *The wage offers satisfy the following:*

(1) $w_a + w_{pa} = 2a + f$, where w_{pa} is the wage of a permanent associate

(2) $w_{pa} \geq a$ and $w_a \leq a + f$, where w_a is the initial period associate wage

(3) $c_H E > \gamma(w_p - w_{pa}) > c_L E$, where w_p is the partnership wage

(4) $w_p - w_{pa} = \overline{\theta} - a - f$.

Notice that one wage scheme that satisfies these conditions is to pay the marginal product in each period. The flexibility regarding wages is due to the lack of a spot market in the partnership position and the presence of firm-specific human capital. As a result, the firm has some flexibility about moving wages from period one to period two, but only if the expected value is the same for each combination.

The first condition is just a re-statement of the zero-profit condition associated with hiring high effort cost workers[10]. There is zero chance that

---

[9] Since high effort types will not select into type M firms, no high effort types will make the investment.

[10] If the zero-profit condition did not hold for one of the types then one group must be being paid less than their marginal product over their lifetime. A firm could come up with a policy that paid the marginal product and induce only one type to join the firm. For example, a firm could promise to give no one partnership and get only the high effort cost workers. Alternatively, a firm could fire all workers that don't make the investment and get only the low effort costs workers.

a worker with high effort costs will become a partner in the firm, because they will not make the investment in period one. In their career, they will produce a units in the first period and $a + f$ in the second. Their total wages must equal this total to satisfy the zero profit condition.

The second condition arises from the inability for workers to commit to firms. If the firm offered a wage less than a to permanent associates, then from the first proposition they must be paying more than $a + f$ in the first period. This would satisfy the zero profit condition, but invites opportunism from workers. After earning more than $a + f$ as an associate they can leave and work at another firm for a wage of a.

The third condition is simply the incentive compatibility condition that insures that each type will make the efficient investment choice. The degree to which the firm can delay compensation from associates to partners is limited by the incentive constraints to keep high effort cost workers from investing. Similarly, put too much money up front and no one will make the investment.

The final condition is derived by combining the zero-profit condition on workers with low effort costs with condition one. Notice that condition four, along with the assumption that it is efficient to invest, guarantees that the wage spread is incentive compatible (condition three).
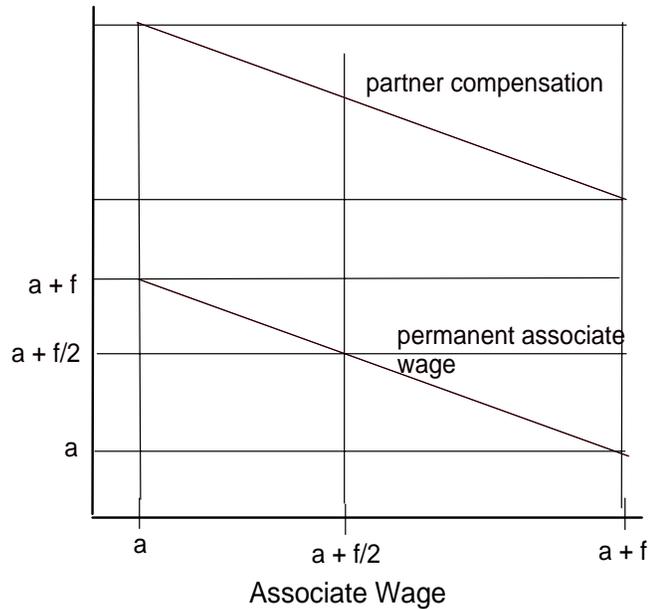
The figure above shows the set of wages that satisfy the previous conditions. On the x-axis is the initial wage paid to associates. For every dollar associate pay is increased, pay for permanent associates and partners must decrease by a dollar. Intuitively, if the firm pays more up-front then this must be accompanied by an equal expected decrease in compensation in period two. It is shared equally between permanent associates and partners because of the high effort cost workers. Since these workers will never make partner, a dollar increase in associate pay must be accompanied by a dollar decrease in permanent associate pay (condition one). Given that there is a one to one trade-off between associate and permanent associate wage and low effort cost workers have some chance of making partner, partner compensation must also fall by one (condition four). Finally, we know that associate pay cannot exceed $a + f$ since workers cannot credibly commit to earning less than a in period two (condition two). Since the spread between partner and

permanent associate wage is constant, the wage offers satisfy the incentive compatibility constraint (condition three) regardless of associate pay.

Proposition 4 *Holding associate wage constant, partnership compensation is increasing when partnership is more exclusive.*

When partnership becomes more exclusive in type C firms, the average quality of partners, $\overline{\theta}$, increases. Hence, the spread between partner compensation and permanent associate wage shifts up by the increase in average quality.

4.2   Type M firms

Firms in this market are going to choose a partnership threshold (θ^*), wages for each position, and what fraction (r), of its associates to retain that do not make partner. In principle, the firm could choose r to be anything between 0 (strict up-or-out rules) and 1. For the moment, assume that only the low cost of effort workers choose type M firms. The firm can use either retained associates or new associates to produce A. However, new associates might yet turn out to be good partners. For a given choice of θ^*, the percentage that make partner is $\alpha = 1 - H(\theta^*)$ and the average quality is $\widetilde{\theta} = E[\theta|\theta > \theta^*]$. In equilibrium, the number of partners today equals the number in the previous period[11]. Hence, the expected amount of partner input generated by a newly hired associate is $P = \alpha\widetilde{\theta}$. Because the firm can not hire partners from outside, the level of partner input at a firm depends

---

[11]The first partners must have trained themselves as associates while producing nothing.

solely on the threshold set by the firm. If it wants to raise the level of partner inputs it must lower the threshold. This raises α, but lowers the average quality. The total associate level per newly hired associate is the sum of the new hire's output (a) and the output from retained associates, $r(1 - \alpha)(a + f)$.

Here is where the screening assumption ties the retention and threshold decisions together. If the firm wishes to retain associates that do not make partner it must promote more partners to work with them. As any decent intermediate student recognizes, the cost-minimizing ratio of associates to partners is one for this production technology. Retaining an associate without pairing them with a partner produces no output. Since the partners can only come from within, the optimal mix is when $\alpha\widetilde{\theta} = a + r(1-\alpha)(a+f)$. Thus the retention rate is a function of the threshold, more specifically $r = \frac{\alpha\widetilde{\theta}-a}{(1-\alpha)(a+f)}$. For this to hold an increase in r must accompany an increase in α and a lowering of average partner quality.

The maximization problem is described by (1).

$$\max_{\theta^*, \, w} v * q(\widetilde{\theta}) \min\{A, P\} - w_a - \alpha w_p - r(1 - \alpha)w_{pa} \qquad (1)$$

$s.t. \; P = \alpha\widetilde{\theta}, \; A = a + r(1 - \alpha)(a + f), \;$ and the incentive constraints

Proposition 5 *Workers with low effort costs will be indifferent between the two firm types*

Since there is free-entry in both markets, the expression (1), must be equal to zero at the equilibrium, i.e. the total expected wage compensation over the lifetime will be equal to the value of output for each worker. When the compensation is greater than the expected compensation in type C firms,

low effort cost associates will move into this market driving down the price of output, v. Hence, the expected value of output and the expected wages are the same regardless of the firm type.

Combining propositions three and four we can write average lifetime earnings in type M firms, as a function of the threshold selected and the portion retained,

$$w_a + \alpha w_p + r(1-\alpha)w_{pa} - c_L E + (1-r)(1-\alpha)a = a + \gamma(\bar{\theta}) + (1-\gamma)(a+f) - c_L E \tag{2}$$

The left-hand side of (2) represents total expected earnings when starting in M firms, and the right-hand side is expected earnings in type C firms. Changing the threshold (at the equilibrium) does not change the total mean, but it does change the incentive constraints on the spread of wages. Substituting equation two into our maximization problem, we can see that the policy that maximizes profits per new associate is the threshold that maximizes $v * q(\widetilde{\theta}) \min\{A, P\} + (1 - r)(1 - \alpha)a$. This is entirely a function of θ^*.

Proposition 6 *If $\frac{\partial q}{\partial \theta} * \frac{\partial \widetilde{\theta}}{\partial \theta^*}[a]$ is steep enough, the optimal retention policy is $r = 0$.*

This is the result of evaluating the first-order condition at the threshold where no one is being retained. If the change in output associated with decreasing average quality is steep enough, it will exceed the increased output associated with retention[12]. If this condition does not hold, then there is some level of retention among associates. However, there will still be some

---

[12]See appendix for details.

associates that are fired. For the rest of the exercise we will assume that this condition is binding.

Proposition 7 *The wage offers satisfy the following*

(1) $w_a + \alpha w_p + (1 - \alpha)a = a + \gamma(\bar{\theta}) + (1 - \gamma)(a + f)$

(2) $w_p - a \geq \frac{c_L E}{\alpha}$

(3) $w_a \leq a + f$

The first statement is merely re-writing the indifference for the low effort cost workers when there is no retention policy. The second is the incentive constraint on low effort cost workers making the investment. The final condition guarantees that workers will not enter the firm if they do not plan on making the investment. Pay too much in the first period and these workers will take the job, not make the investment, and then go to the other sector in period two. As in type C firms, there is a trade-off between associate pay and partner compensation. However, unlike type C firms, the partner compensation is also a function of the probability of making partner.

Proposition 8 *Holding associate wage constant, partnership compensation is increasing when partnership is more exclusive.*

This follows trivially from the first condition on wages in type M firms. The right hand side does not vary with the exclusivity of partnership in type M firms. However, the more exclusive partnership becomes the more often the worker receives a in period two instead of the partnership wage. To maintain equality either the associate wage or partnership wage must rise.

Intuitively, a worker in a type M firm risks some share of their firm-specific human capital. When the worker is more likely to lose this share, the corresponding reward must also be higher. Because of the indifference for low effort cost workers, the equilibrium combination of partner and associate wages in type M firms is a function of the threshold in type C firms as well.

Proposition 9 *Workers with high effort costs will only choose a type M firm if retention is not equal to 1.*

This follows from the fact that the expected rewards are equal for the low effort cost workers in each type of firm. Since the expected returns are the same and high effort cost workers do not invest in type C firms, then it's true that high effort cost workers will not choose to make the investment if they are in type M firms. This coupled with the previous proposition imply that high effort cost workers will self-select into type C firms.

4.3   Wage Comparisons

Since wages in type M firms are a function of the threshold level for partnership it is difficult to make direct comparisons of wages between the two types of firms. Compensation in both types of firms is increasing in the threshold, thus, if partnership is exclusive enough in type M firms, then type M firms will trivially have greater partner compensation. However, holding the thresholds equal, i.e. the probability of making partnership equal in all firms, the possible wage profiles can be compared.

22
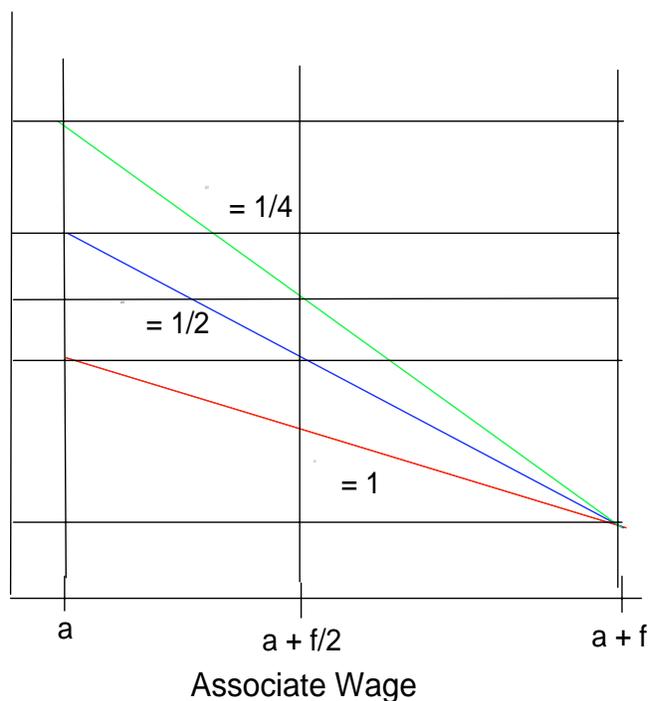
The figure above demonstrates the partnership wage and associate wage combinations that satisfy the equilibrium conditions for type M firms, when the threshold is the same for both types of firms. The x-axis is the associate wage, while the lines represent the corresponding partner compensation at different levels of α. Since we are holding the thresholds equal, when we increase α we are simultaneously increasing γ as well.

For example, the lowest line represents the partner compensation and associate wage combinations that satisfy the equilibrium conditions when everyone is promoted to partner in all firms.

Proposition 10 *The corresponding partnership wage is greater than or equal in type M firms at every associate wage*

Notice that the lower line, where $\alpha = 1$, is the same set of partner/associate

wage combinations as in type C firms. These are the combinations at type C firms regardless of the corresponding threshold. At lower levels of α the combinations that satisfy the equilibrium at type C firms shifts up by the increase in $\overline{\theta}$. However, the slope does not change. Changing the threshold also shifts the combinations that satisfy the equilibrium at type M firms by the same amount. However, the slope gets steeper as partnership becomes more exclusive. Intuitively, it is more likely that associates are asked to leave the firm and less likely they receive the partnership wage.

4.4 Generalizability

The model presented here used perfect substitutes in the type C market and perfect complements in the type M market, but it is generalizable to nearly any functional form. When there is no concern about the average quality of partners, firms will not fire any associates, regardless of the production technology. Even if the firm had perfect complements technology, the firm could always do better lowering the partnership threshold and retaining old associates than firing them.

On the other hand, when firms face an incentive to maintain average partner quality, then any production technology other than perfect substitutes can generate up-or-out rules. In its most extreme form[13], output can only be produced if average quality stays above some threshold. Firms can retain associates without hiring new partners, but the marginal product of these associates will eventually be below the outside option. Promoting partners

[13]For example, in the Siow and O'Flaherty where partner are either capable of producing any output or they are not.

is not an option because of the production technology.

5   Data

5.1   Description

The data for this analysis is compiled from American Lawyer Media's annual AmLaw 200 survey, the National Law Journal's staffing survey, and the National Law Journal's diversity scorecard. Since 1984 the AmLaw 200 has been an annual accounting of the nation's 200 largest law firms as measured by gross revenues (note that originally only was the top 100 firms). The survey includes information on profits per partner, revenues per lawyer, the location of the firm's headquarters, the number of partners, the number of associates, and since 1993 the number of non-equity partners. Starting in 2002 the staffing survey and the diversity scorecard has information on the number of women and minority associates and partners, compensation for associates compensation and non-equity partners, and information on associate and partner attrition from the firm.

The analysis is done on the data from 2002-2005 on all firms that are in the AmLaw 200 for at least three of the four fiscal years, although data on compensation prior to 2002 is used for the descriptive analysis. The total sample represents 192 firms and 766 firm-years.

Variable	Mean
PPP	$801,573
Non-equity compensation	$314,946
firstyearpay	$113,181
Revenues per lawyer	$600,691
Percent NY	19.50%
Percent with non-equity track	68%
Ratio of NE to Equity	0.44
Leverage	1.45
Percent of Associates-female	46.70%
Percent of Partners-female	17%
Attrition Rate	17%

5.2   Trends

One of the most striking and talked about trends has been the dramatic escalation of partner profits. In 2005 dollars, the median partner compensation at an AmLaw 200 firm rose from $535,000 in 1996 to $561,000 in 2000 and $765,000 in 2005.
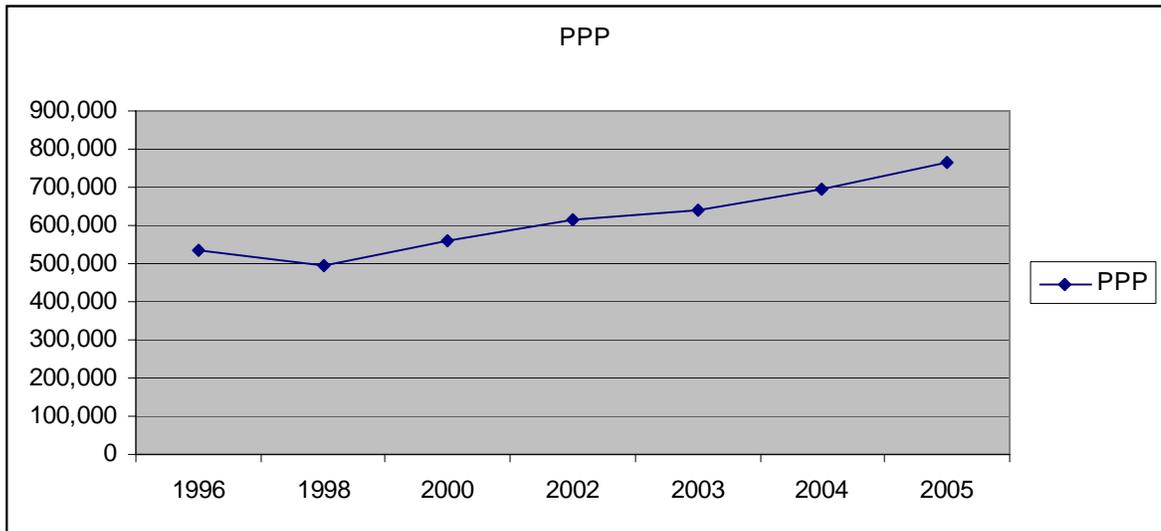
Starting in the late 1990s there was a corresponding dramatic increase in pay to associates just starting out of law school. The median starting salary

jumped from $83,000 in 1998 to $110,000 in 2000. However, the median pay increases stopped from 2002 to 2005. During this period the variation in offers to associates decreased substantially. In 2002 over 40% of firms reported the same first year salary of $125,000.
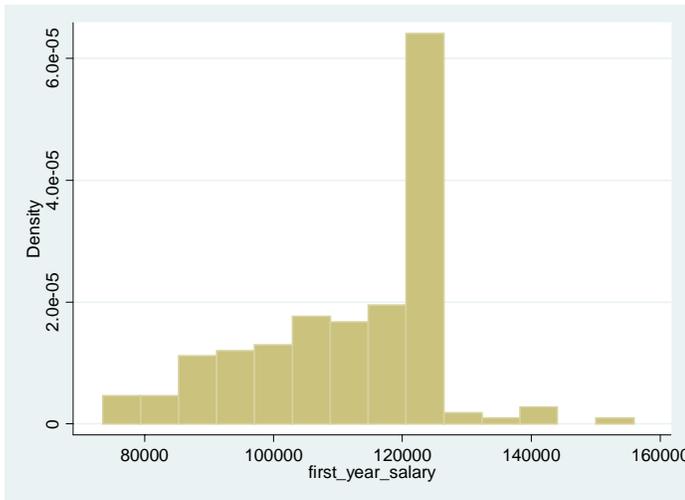
Not surprisingly, New York is the most represented city in the sample with about 20% of all firms. About half of all firms are in the five most represented cities. The dramatic trend away from the traditional up-or-out structure is apparent over the 1996-2005 period. The percentage of firms with no equity partners dropped from 60% to 27%, while the ratio of non-equity partners to equity partners nearly tripled among firms that employed non-equity partners.

	Non-equity	Ratio of NE to Equity
1996	40.50%	0.23
1998	54.70%	0.28
2000	64.40%	0.31
2002	63%	0.55
2004	70.80%	0.61
2005	73%	0.65

6   Testable Implications

Non-Equity Partnerships and Firm Structure

From the model we can make two predictions about the effect of non-equity partnership on other decisions. The first prediction is that non-equity partners are substitutes for the associate hires, that is, firms that use more non-equity partners should have lower associate to partner ratios (leverage).

Second, the more non-equity partners that a firm hires, the higher the partnership promotion rate in firms that use some non-equity partners. This was the heart of the intuition behind why firms use up-or-out rules. Keeping non-equity partners around requires more partners if there is any complementarity in the production process.

Non-equity partners, leverage and promotion rates				
	Leverage		Promotion Rate	
constant	1.27*	(0.06)	0.42*	(0.05)
newyork	1.06*	(0.07)	-0.13**	(0.06)
washington	0.09	(0.07)	-0.10	(0.06)
Ratio of non-eq partners	-0.42*	(0.06)	0.27*	(0.05)
year effects	Yes		Yes	
*= significant at 1%, **=significant at 5%, ***=significant at 10%				

From Table 6 we see evidence for both of those predictions. In firms that use non-equity partnerships, the more non-equity partners the lower the leverage and the higher the promotion rate.

Up-or-out

For firms that employ strict up-or-out rules, the model implies that partnership compensation is inversely related to the probability of making partner. The associate wage is also increasing in the probability of making partner, but can not exceed $a + f$. Because I know only know the number of

new associates starting in 1998 and there is a seven to ten year lag in the partner decision, I can not calculate the promotion rate directly. Instead I am using a proxy for the promotion rate, the number of internal associates promoted to partner divided by the number of new associate hires. To the extent that firms are hiring more associates over time (and then promoting more to partner later) this will understate the probability of making partner. I also include the attrition rate as a proxy for the probability of making partner. The attrition rate is calculated annual to be the number of associates that leave the firm divided by the total number of associates. The results are reported in Table 1 and Table 2.

Table 1- Up or Out Firms				
Log(Partner Profits)	Model 1		Model 2	
constant	13.38	(0.12)	13.98*	(0.08)
attrition rate	1.05*	(0.44)	-0.21	(0.15)
promotion rate	-0.36*	(0.06)	0.02	(0.05)
New York	0.71*	(0.06)		
Washington DC	0.14***	(0.09)		
number of attorneys	0.0002*	(0.00007)	-0.0001	(0.0001)
year 2002	-0.32*	(0.08)	-0.27*	(0.02)
year 2003	-0.25*	(0.07)	-0.22*	(0.02)
year 2004	-0.11	(0.07)	-0.09*	(0.02)
fixed effects	No		Yes	
*= significant at 1%, **=significant at 5%, ***=significant at 10%				

Partner compensation is increasing significant and increasing in the attrition rate. Going from the median attrition rate in this sample to the 90th percentile attrition rate is associated with an 11% increase in profits per partner. Firms with higher promotion rates to equity partner have lower profits per partner as well. At the median firm, doubling the promotion rate to partner would be correspond to a 6% decrease in profits per partner. Larger firms are also more profitable in this sample. Going from a median sized firm

to the 90th percentile is associated with a 9% increase in profits, although this more than doubles the size of the firm. Clearly, New York based firms are by far the most profitable. Firms based in New York have profits per partner 71% higher than firms not in New York or Washington D.C. When firm-specific fixed effects are included the attrition rate and the size of the firm is irrelevant.

Table 2

Log(First Year Salary)	Model 1		Model 2	
constant	11.51*	(0.04)	11.66*	(0.06)
attrition rate	0.49*	(0.16)	-0.03	(0.14)
promotion rate	-0.06**	(0.03)	-.004	(0.15)
New York	0.09*	(0.02)		
Washington DC	0.11*	(0.03)		
number of attorneys	0.0001*	(0.00002)	0.000001	(0.0001)
year 2002	-0.01	(0.03)	0.01	(0.02)
year 2003	-0.01	(0.03)	-0.001	(0.02)
year 2004	0.01	(0.03)	0.005	(0.01)
fixed effects	No		Yes	
*= significant at 1%, **=significant at 5%, ***=significant at 10%				

First year pay is also increasing in the attrition rate; a move from the median attrition rate to the 90th percentile is associated with a 4% increase in first year pay. The promotion rate is statistically significant and negative, but the effect is small. Firms in New York and Washington DC pay about 10% more than the rest of the country even when holding the likelihood of making partner and attrition constant. Consistent with other industries, large firms pay more.

Two-tiered Partnerships

The model implies that in two-tiered partnership the spread in compensation between partners and non-equity partners should be increasing in the difficulty in making partner. Since firms are not promoting all workers that

30

don't make partner to non-equity partner (i.e. aren't true type C firms), the spread must account for the likelihood of making non-equity partner. In particular, the spread should be increasing in the likelihood of making non-equity partner. As a proxy for this likelihood, I'm including the ratio of non-equity to equity partners.

Table 3-Specification for Two-Tiered firms:				
lgspread	Model 1		Model 2	
constant	12.32*	(0.10)	12.56*	(-0.16)
attrition rate	0.03	(0.33)	-0.08	(0.19)
promotion rate	-0.27*	(0.06)	0.02	(0.05)
New York	0.60*	(0.08)		
Washington DC	0.33*	(0.07)		
number of attorneys	0.0005*	(0.0001)	0.0002	(0.0003)
Ratio of non-eq partners	0.34*	(0.07)	0.12	(0.11)
year 2002	-0.29*	(0.07)	-0.29*	0.04
year 2003	-0.15*	(0.06)	-0.17*	(0.03)
year 2004	-0.07	(0.06)	-0.07**	(0.03)
fixed effects	No		Yes	
*= significant at 1%, **=significant at 5%, ***=significant at 10%				

Again the promotion rate is negatively correlated with the promotion rate, New York and Washington also have higher spreads, and the fixed effects find nothing. As expected the ratio of non-equity partners increases the spread.

Two-Tiered vs. Up-or-Out

The main prediction from the model is that holding the attrition rate constant, firms that use up-or-out rules should have higher profits per partner. To test this a regression is run on the combined sample with a dummy variable representing firm-years where the firm uses a non-equity partnership track.

Table 4 Up-or-out vs. Two-Tiered Partnerships				
Log(PPP)	Model 1		Model 2	
constant	13.48*	(0.06)	13.58*	(0.06)
attrition rate	0.45**	(0.20)	-0.13	(0.08)
promotion rate	-0.30*	(0.03)	-0.003	(0.02)
New York	0.60*	(0.04)		
Washington DC	0.22*	(0.04)		
number of attorneys	0.0002*	(0.0003)	0.0001	0.00001
Non-Equity Partnership	-0.18*	(0.03)	-0.07*	(0.03)
year 2002	-0.30*	(0.04)	-0.27*	(0.01)
year 2003	-0.19*	(0.04)	-0.18*	(0.01)
year 2004	-0.08**	(0.04)	-0.08*	(0.01)
fixed effects	No		Yes	
*= significant at 1%, **=significant at 5%, ***=significant at 10%				

As expected, firms that employ a non-equity partnership have lower profits per partner; 18% lower. When fixed-effects are used the effect of non-equity partnership tracks is diminished, but firms still have a statistically significant lower profit level when firms switch from one track to two track partnerships. This begs the question as to why current partners who vote to move to a system that seems to lower profits. A likely culprit here is the endogeneity of that decision. Firms that switch from a single tier to a dual tier might do so because they are already anticipating lower profits. The switch might be picking up that effect.

The model also predicts that the premium for non-equity partners should be higher when the attrition rate is larger. By that I mean, holding the attrition rate constant across firms, when the level is higher the premium should be larger. To test for this I divide the sample into two groups. The observations from 2002 and the observations from 2003-2005. Between 2000 and 2005 the attrition rate was steady at around 18% except for 2002 when the attrition rate fell to 14% on average.

Table 5- Up-or-out Premium and Attrition Rates				
Log(PPP)	Model 1		Model 2	
constant	13.2*	(0.10)	13.5*	(0.07)
attrition rate	-0.17	(0.49)	0.57*	(0.23)
promotion rate	-0.32*	(0.09)	-0.30*	(0.04)
New York	0.65*	(0.08)	0.59*	(0.04)
Washington DC	0.21**	(0.10)	0.21*	(0.05)
number of attorneys	0.0002*	(0.0001)	0.0002*	(0.00004)
Non-Equity Partners	-0.13**	(0.06)	-0.19*	(0.04)
Years	2002		2003-2005	
*= significant at 1%, **=significant at 5%, ***=significant at 10%				

These results are consistent with the prediction as the co-efficient on non-equity partnerships is 50% higher when the attrition rate was higher. However, one can not statistically reject the hypothesis that they are the same.

7   Conclusion

In this paper, I develop a model where up-or-out rules are generated by an incentive to maintain average partner quality. Retaining associates forces the firm to promote more partners or hire fewer new associates. However, because of the screening technology the number of current partners is tied to incoming associates. Thus firms fire able associates. Firms without this concern are able to retain their associates in a permanent capacity.

Faced with a costly investment as part of the screening process, workers with high effort costs choose only to enter firms that do not use up-or-out rules. This allows them to keep their firm-specific human capital when they do not make partner. Those with lower effort costs are indifferent between the two career paths.

Workers in firms that use up-or-out rules are paid more, both as associates and as partners, when the chance of making partner is less. The combinations of possible associate and partnership wages are higher in firms that use up-or-out rules whenever the partnership threshold is at least as high.

The implications of the model are tested on a unique data set of the nation's largest law firms.

8 Appendix

First-order conditions for type M firms

The firm is maximizing the following:

$$\max_{\theta^*} v * q(\widetilde{\theta}) \min\{A, P\} + (1-r)(1-\alpha)a$$

$$P = \alpha\widetilde{\theta}, \ A = a + r(1-\alpha)(a+f)$$

Using the fact that $r(\theta^*)$ the FOC is:

$$v\frac{\partial q}{\partial\widetilde{\theta}} * \frac{\partial\widetilde{\theta}}{\partial\theta^*}[f(A,P)] + vq(\widetilde{\theta})(a+f)[\frac{\partial(1-\alpha)}{\partial\theta^*}r + (1-\alpha)\frac{\partial r}{\partial\theta^*}] - (1-a)a\frac{\partial r}{\partial\theta^*} + (1-r)\frac{\partial(1-\alpha)}{\partial\theta^*}a = 0$$

Evaluated at the value of θ^* that equates $\alpha\widetilde{\theta}$ with a (i.e. $r=0$)

$$v[\frac{\partial q}{\partial\widetilde{\theta}} * \frac{\partial\widetilde{\theta}}{\partial\theta^*}[f(A,P)] + q(1-\alpha)\frac{\partial r}{\partial\theta^*} = 0 \rightarrow$$

$$v[\frac{\partial q}{\partial\widetilde{\theta}} * \frac{\partial\widetilde{\theta}}{\partial\theta^*}[a] + q(1-\alpha)\partial(\frac{\alpha\widetilde{\theta}}{1-\alpha})] = (1-a)a\frac{\partial r}{\partial\theta^*} - (1-r)\frac{\partial(1-\alpha)}{\partial\theta^*}a$$

9 Bibliography

References

[1] Ferrall, Christopher. 1996. "Promotions and Incentives in Partnerships: Evidence from Major U.S. Law Firms." Canadian Journal of Economics, Vol 39, No. 4, pp. 811-27.

[2] Galantar, M. and T. Palay. 1991. Tournament of Lawyers: The Transformation of Big Law Firms, Chicago: University of Chicago Press.

[3] Gibbons, Robert and Michael Waldman. 1999. "A Theory of Wage and Promotion Dynamics Inside Firms." The Quarterly Journal of Economics, pp. 1321-1350.

[4] Gilson, R. and R. Mnookin. 1989. "Coming of age in a corporate law firm: the economics oGf associate career patterns." Stanford Law Review, Vol 41, pp. 567-95.

[5] Gordanier, John. 2006. "Up or Over? The Role of Permanent Associates in Law Firms." Working Paper.

[6] Gorman, Elizabeth. 1999. "Moving Away from Up or Out: Determinants of Permanent Employment in Law Firms." Law & Society Review, Vol. 33, No. 3, pp. 637-666

[7] Henderson, Bill. 2006. "An Empirical Study of Single-Tier versus Two-Tier Partnerships in the Am Law 200." Indiana Law Review, Vol 84, No. 29.

[8] Kahn C and G. Huberman. 1988. "Two-sided uncertainty and up-or-out contracts." Journal of Labor Economics, 6: 423-444.

[9] Loh, Jeng Soh. 1994. "Employment Probation as a Sorting Mechanism." Industrial and Labor Relations, Vol 47, No. 3.

[10] O'Brien, Tim. 2006. "Why Do So Few Women Reach the Top of Big Law Firms?" The New York Times. March 19, 2006.

[11] O'Flaherty, Brendan and Alysious Siow. 1995. "Up-or-Out Rules in the Market for Lawyers." Journal of Labor Economics, Vol 13, No. 4, pp. 709-35.

[12] Prendergast, Canice. 1999. "The Provision of Incentives in Firms." Journal of Economic Literature, Vol. 37, pp. 7-63.

[13] Sauer, Robert M. 1998. "Job Mobility and the Market for Lawyers." Journal of Political Economy, Vol 106, No 1, pp 147-171.

[14] Waldman, M. 1990. "Up-Or-Out Contracts: A Signaling Perspective." Journal of Labor Economics, 8: 230-250.