COMPENSATION MATTERS:
INCENTIVES FOR MULTITASKING IN A LAW FIRM

Ann Bartel
Brianna Cardiff-Hicks
Kathryn Shaw

Compensation Matters: Incentives for Multitasking in a Law Firm
Ann Bartel, Brianna Cardiff-Hicks, and Kathryn Shaw
NBER Working Paper No. 19412
September 2013
JEL No. J33,L23,L84

ABSTRACT

Due to the limited availability of firm-level compensation data, there is little empirical evidence on the impact of compensation plans on personal productivity. We study an international law firm that moves from high-powered individual incentives towards incentives for "leadership" activities that contribute to the firm's long run profitability. The effect of this change on the task allocation of the firm's team leaders is large and robust; team leaders increase their non-billable hours and shift billable hours to team members. Although the motivation for the change in the compensation plan was the multitasking problem, this change also impacted the way tasks were allocated within each team, resulting in greater teamwork.

Ann Bartel
Graduate School of Business
Columbia University
3022 Broadway, 623 Uris Hall
New York, NY 10027
and NBER
apb2@columbia.edu

Brianna Cardiff-Hicks
Graduate School of Business
Stanford University
Stanford, CA 94305-5015
bcardiff@stanford.edu

Kathryn Shaw
Graduate School of Business
Stanford University
Stanford, CA 94305-5015
and NBER
kathryns@gsb.stanford.edu

Compensation Matters:

Incentives for Multitasking in a Law Firm

Ann Bartel[*], Brianna Cardiff-Hicks[†]and Kathryn Shaw[‡§]

August 23, 2013

Abstract

Due to the limited availability of firm-level compensation data, there is little empirical evidence on the impact of compensation plans on personal productivity. We study an international law firm that moves from high-powered individual incentives towards incentives for "leadership" activities that contribute to the firm's long run profitability. The effect of this change on the task allocation of the firm's team leaders is large and robust; team leaders increase their non-billable hours and shift billable hours to team members. Although the motivation for the change in the compensation plan was the multitasking problem, this change also impacted the way tasks were allocated within each team, resulting in greater teamwork.

1 Introduction

Firms face the difficult task of aligning their employees' interests with the long run goals of the firm. A multitasking problem can arise if measured individual performance omits important contributions to the firm that are essential for long term profitability. If a firm can measure individual performance, pay for such performance will raise productivity (Lazear, 2000). But pay based on individual productivity alone is only desirable if other activities cannot be measured or do not contribute to the long run profitability of the firm. While economists have

1

built models of optimal compensation plans,[1] there is a lack of extensive empirical evidence on how a variety of typical compensation plans actually alter an employee's allocation of time across competing tasks.[2] Data on compensation practices and productivity are often not available within firms; even more rare is an experiment which enables the researcher to precisely measure the impact of a change in the compensation plan on productivity.

We study the impact on task allocation and personal productivity when a firm moves from high-powered individual performance incentives towards incentives for enhancing the long term growth of the firm. The data come from one international law firm headquartered outside of the U.S., with 431 lawyers, for the time period 2005 to 2010, with 14,430 lawyer-month observations. The firm is continuously organized into teams, having 177 teams over this time period; each team is headed by a team leader (who is a senior lawyer or partner) and has, on average, an additional two to seven members.

A new compensation plan was implemented to encourage team leaders to take a long term view of the firm. This was in response to difficulties in getting team leaders to spend time on activities that benefitted the firm but took time away from the leaders' billable hours. Both individual output and these other activities were valuable to the firm, but the firm's original compensation plan tied wages to personal productivity with little or no reward for leadership activities that would enable the firm to increase its long run profitability. Since individual output and leadership activities were both valuable to the firm, the compensation plan needed to balance the tradeoff between the two. In order to do this, the firm reduced the commission that the leader received for billable hours and introduced a bonus that included objective and subjective metrics that measured a variety of leadership activities. The activities on which the bonus was based were: setting the future direction of the firm and enhancing its reputation (done in part through client selection, firm meetings, conference presentations, and writing newspaper articles), enhancing long run commercial success (via cross-selling

---

[1] See Lazear (1986); Holmstrom and Milgrom (1991); Gibbons (1998); Prendergast (2009) for models of optimal compensation design in the presence of multitasking.

[2] For summaries of the empirical literature, see Lazear (1999), Lazear and Oyer (2012), Lazear and Shaw (2007), Ichniowski and Shaw (2003, 2012), and Bloom and Van Reenen (2011).

or attracting business for the firm), contributing to financial success (via selection of good clients and controlling costs), and training, mentoring and managing associates.

The model we develop shows that a change in the compensation plan that puts greater emphasis on leadership activities will increase the team leaders' non-billable hours (a measure of leadership activities) and will decrease the team leaders' billable hours (a measure of the leader's individual client output). An interesting aspect of our model is that it is able to show how a change in the leader's billable hours impacts the time that his team members bill, i.e. the time they individually spend on client output. The model shows that, when team leaders spend less time on client output and reduce their billable hours, two things happen. First, there is a scale effect. Since the team is less busy because the leader has brought less client work to the team, team members' billable hours will fall. Second, there are conditions under which this scale effect will be more than offset by an increase in the percentage of the team's billable hours accounted for by the team members. Thus, in addressing the multitasking problem, the new compensation plan can also change the way tasks are allocated within each team.

Since there were no additional organizational changes in the firm at this time, we can attribute the observed changes in leaders' behavior to the change in the compensation plan. Our findings are:

1. When incentive pay shifts from high-powered personal incentives towards leadership incentives, the team leaders decrease their billable hours and increase their non-billable hours. Leaders' billable hours fall by six hours per month (a 4% drop) and leaders' non-billable hours rise by seven hours per month (a 35% increase).

2. The move towards leadership incentives results in an increase in the billable hours of subordinate team members of 12 hours per month (a 9% increase) per team member, indicating a shift in the allocation of billable hours within teams.

3. The change in incentives does not change the take-home pay of leaders, but increases

pay for subordinates by 11%, thereby reducing the variance in pay across all lawyers in the firm.

This paper is related to several literatures. First, there has been considerable theoretical work on how a firm should structure compensation to provide incentives for competing tasks (see Lazear, 1986; Holmstrom and Milgrom, 1991; Baker, 1992; Gibbons, 1998; Prendergast, 1999, 2009). But there is little empirical work on how behavior changes in response to incentive plans that address the multitasking problem. Griffith and Neely (2009) show that a move towards multi-dimensional Balanced Scorecard performance pay increases profits when managers are experienced; inexperienced managers find it difficult to optimize their behavior in response to multiple metrics. Drago and Garvey (1998) show that helping efforts are reduced when pay through promotion emphasizes individual performance.

Second, the paper extends the literature on leadership. Leadership is often defined as providing a vision and accumulating a group of followers. There is a small economics literature and a very large organizational behavior literature on leadership.[3] Our definition of leadership assigns a general role for leaders in guiding the followers on their teams and setting a vision for the firm, but our leaders have additional day-to-day tasks to undertake as well. For the empirical analysis of leadership incentives, the literature has focused on the compensation of CEOs, where data have been available.[4] Designing optimal compensation for CEOs requires balancing the tradeoff between incentives for personal productivity and incentives for activities that serve the long run interest of shareholders.

Third, this paper is related to the literature on teamwork since the leaders and associates work together to produce a product.[5] Teamwork is increasingly important in firms: surveys show greater use of teams over the last twenty five years (Lazear and Shaw, 2007; Bloom and Van Reenen, 2011) and a number of papers have studied the formation of teams and their

---

[3]See Hermalin (1998) and Lazear (2012) for examples of the work on leadership and a summary of the literature.

[4]Murphy (forthcoming) provides a thorough overview of CEO compensation in the U.S. and other countries. Wulf (2007) studies the sensitivity of division managers' pay to division performance and firm performance.

[5]See Lazear (1998) and Kandel and Lazear (1992) for models of optimal teamwork. See Holmstrom (1982) on incentives for teams. For peer interactions within teams, see Falk and Ichino (2006) and Mas and Moretti (2009).

impact on productivity (e.g. Bandiera, Barankay, and Rasul, 2012; Hamilton, Nickerson, and Owan, 2003). When our firm changes its compensation plan to include incentives for leadership, it is also moving towards greater teamwork. The leaders invest in activities that build a stronger team, and the leaders share more work with their team members. Unlike past studies, we are able to identify individual output and model whether the change in incentive pay affects the productivity of each team member.[6]

Finally, the paper contributes to the literature on service sector firms. Most papers on incentives study manufacturing or agriculture (see footnote 2 above). Services have become a mainstay of employment in the United States making this an important industry to study.[7]

The remainder of the paper is organized as follows: Section 2 presents the theoretical framework; Section 3 discusses the data and treatment; Section 4 introduces the empirical hypotheses; Section 5 presents the empirical analysis and results; and Section 6 concludes.

2   Theoretical Framework

Since the law firm we study is continuously organized into teams, with each team headed by a team leader (who is a senior lawyer or partner), we seek to model how the team leader allocates his time to a variety of activities and how this allocation changes in response to a change in the firm's incentive plan.[8] The team leader must divide his time between work aimed at meeting his clients' needs and leadership activities that help to build the firm.[9] Because of the way work is organized in the firm, the leaders' choices affect not only their

---

[6]Freeman and Kleiner (2005) and Helper, Kleiner, and Wang (2010) both examine the shift from piece-rate to time-rates in a team setting as we do. However, they only have plant-level data preventing observation of the underlying distribution of tasks within a team. Individual level data provides additional insights into how task allocation within the team changes when incentives change. Our paper is also related to Boning, Ichniowski, and Shaw (2007) which shows that there is a complementarity between incentive pay and problem-solving teams; incentivizing employees to take actions that benefit the team only make sense when team members are empowered to problem-solve and have authority to make decisions that affect team production.

[7]For other service sector studies, see Encinosa, Gaynor, and Rebitzer (2007) and Gaynor, Rebitzer, and Taylor (2004) who analyze the effects of group based pay on physician performance and Dumont, Fortin, Jacquemet, and Shearer (2008) who study the multi-dimensional response of physicians to changes in their incentives.

[8]Levin and Tadelis (2005) and Carr and Mathewson (1990) explain why it is generally optimal for law firms to be organized as partnerships.

[9]For models of task allocation in hierarchies within law firms, see Garicano (2000), Garicano and Hubbard (2007) and Garicano and Van Zandt (2012). For a model of how law firms are organized, see Rebitzer and Taylor (2007); for models of the hiring of lawyers, see Oyer and Schaefer (2009, 2010). For a model of task allocation by managers and variable incentives for managers, see Bandiera, Barankay, and Rasul (2007, 2009).

own output, but determine the output of their team members as well.

Leaders initially received piece rate compensation for their individual client output, a small salary, and a profit-sharing bonus. In the new regime, piece rate pay for individual work on client matters was decreased, pay for long-term leadership activities was introduced and was determined both objectively and subjectively, and the salary component was increased.[10] The model below derives the changes in hours allocation by team leaders and team members that result from the change in the firm's compensation plan.[11]

For simplicity, we assume that leaders have a time constraint, T. Empirically, this is a reasonable assumption because we observe that the leaders in this firm do not change their total work hours after the new incentive plan is introduced.[12] Leaders must decide how to divide their total work time, T, between time spent on client work, h, and time spent on leadership activities that help the firm to grow, f.[13]

The leader's choice regarding allocation of his hours between client work and leadership activities affects the hours spent on client work by his team members. Team members depend on their leader to bring in business for the team and to assign tasks. We model the client output of team members as the product of a factor μ and leader client output to capture the fact that leaders must be generating clients in order for the team to have work. Thus, a team member's client output is $\mu * h$, where h is the client output of the team leader. For a given μ, the more time the leader spends on client output (i.e. the higher is h) the more time team members spend on client output because the workload for the team increases.

We assume μ is an increasing function of the leader's non-billable hours, f, for the fol-

---

[10]The increase in salary reduces the riskiness of pay, which is not studied here. See Prendergast (2000, 2002) and Oyer and Schaefer (2011). It also reduces gaming (Larkin, forthcoming).

[11]Standard task incentive models predict that, as a result of these changes, team leaders would reallocate their time from client work towards leadership activities. As shown below, we modify the standard model to incorporate the fact that team leaders share in the profits of the firm and that team members may be able to perform some of the client-related tasks done by leaders.

[12]An alternative way of modeling the leader's time allocation problem is to combine disutility of effort with production functions indicating how effort is turned into output. The conclusions should be the same, but the mathematics are less straightforward.

[13]For firms producing services, it is often the case that individual output is equivalent to time spent on work for a client. In other industries time at work and output are different.

lowing reasons. The new compensation plan reduces incentives for leaders to hoard hours.[14] Rather than leaders taking on as many hours as they can to boost their pay they may instead spend more time on leadership activities. This may require team members to spend more time on client work as the leader passes on billable hours to team members. Additionally, the new emphasis on developing firm capabilities may encourage leaders to train associates and billable hours are a potential source of valuable on-the-job training. We further assume that the second derivative of μ with respect to f is negative so that time spent on leadership increases μ at a decreasing rate.

The leader's maximization problem is:

$$
\max_{h_j, f_j} s_j + \alpha h_j + \beta f_j + \gamma \left(a \sum_{i=1}^{L} (h_i + n_i \mu(f_i) h_i) + \sum_{i=1}^{L} (b(f_i)) \right)
$$
$$
- \gamma \left(F + \sum_{i=1}^{L} (\alpha h_i + \beta f_i) + \sum_{i=1}^{L} (c_1 n_i \mu(f_i) h_i + c_2 n_i g_i) \right) \tag{1}
$$
$$
\text{s.t. } T = h_j + f_j
$$

where $j \in 1, 2, ..., L$ denotes a particular leader, s is salary, αh is compensation for individual client work, βf is compensation for leadership, and $\gamma(*)$ is a profit-sharing bonus (with $\gamma < 1$). Profit is calculated as revenue brought in from total client work plus the direct impact of leadership activities on revenue minus fixed costs and employee variable compensation. In equation (1), a is the revenue brought in per hour of client work[15] and the first sum is the client output generated by all the teams' (with each team denoted by its leader i) composed of the client work of the leader (h) and the client work of the n team members each producing $\mu(f)*h$. The second sum is the revenue generated by the leadership activities of all leaders, where $b(f)$ is the direct impact of leadership on revenue (we assume it has a positive first derivative and negative second derivative).[16] F is the fixed cost (which includes

---

[14]See Landers, Rebitzer, and Taylor (1996) on excessive hours worked by lawyers.

[15]The model abstracts away from differences in revenue for leader and team member client work. Using two different parameters for per hour revenue adds complication without changing any substantive results.

[16]In a multi-period model, leadership activities could be considered an investment in the future. As such, profit in future periods would be positively impacted by leadership activities. For simplicity, we use a single period model and incorporate the

the salaries of all workers), the third sum is the variable compensation for leaders, and the fourth sum is the variable compensation for associates which is composed of compensation for associate client work ($c_1 n \mu(f) h$) and associate non-client work ($c_2 n g$ where g is time spent on non-client work).

Substituting in the leader's time constraint, we can rewrite the maximization problem for an individual leader as (we omit subscripts in the first order condition to simplify notation):

$$\max_{f_j} s_j + \alpha(T - f_j) + \beta f_j + \gamma \left(a \sum_{i=1}^{L} ((T - f_i) + n_i \mu(f_i)(T - f_i)) + \sum_{i=1}^{L} (b(f_i)) \right)$$

$$-\gamma \left(F + \sum_{i=1}^{L} (\alpha(T - f_i) + \beta f_i) + \sum_{i=1}^{L} (c_1 n_i \mu(f_i)(T - f_i) + c_2 n_i g_i) \right)$$

$$\Rightarrow \text{FOC: } \frac{\partial}{\partial f} = -\alpha + \beta + \gamma \left(-a + \frac{\partial b}{\partial f} + \alpha - \beta + n(a - c_1) \left(\frac{\partial \mu}{\partial f}(T - f) - \mu(f) \right) \right) = 0$$

Applying the Implicit Function Theorem to the first order condition (FOC)[17] allows us to determine what will happen to time spent on leadership activities as the incentive for leadership increases (an increase in β).

$$\frac{\partial f}{\partial \beta} = -\frac{\frac{\partial FOC}{\partial \beta}}{\frac{\partial FOC}{\partial f}} = -\frac{1 - \gamma}{\gamma \left(\frac{\partial^2 b}{\partial f \partial f} + n(a - c_1) \left((T - f) \frac{\partial^2 \mu}{\partial f \partial f} - 2 \frac{\partial \mu}{\partial f} \right) \right)} \Rightarrow \frac{\partial f}{\partial \beta} > 0$$

Because $\frac{\partial^2 b}{\partial f \partial f} < 0$, $\frac{\partial \mu}{\partial f} > 0$, and $\frac{\partial^2 \mu}{\partial f \partial f} < 0$, the denominator is negative, making the entire expression positive (assuming that $a > c_1$ which must be true if the firm makes money on associate client work). As the compensation for leadership increases, the time the leader spends on leadership activities increases.[18] Since μ is a positive function of f, μ will increase and there will also be a decrease in leader client output (via the time constraint).

Although the effect of an increase in f on team member client output is seemingly ambigu-

---

positive impact of leadership activities on profit through $b(f)$. This makes sense for time periods that are long (for example a year) and, in our case, because the leaders at the firm were focused on the short-term before the compensation change.

[17]We focus on the case $0 < f < T$. It is reasonable to assume that a leader must spend some time on leadership activities (so $f \neq 0$) and the core business of the firm is client work (so $f \neq T$) making corner solutions unlikely.

[18]A similar exercise for changes in α yields $\frac{\partial f}{\partial \alpha} < 0$ indicating that decreasing α has the same directional effect as increasing β. The effects of other parameters on f can be determined similarly, however, in some cases the values of the variables at which the change occurs must be known in order to sign the impact.

ous (because μ is increasing and h is falling), the impact can be obtained by differentiating $\mu(f)(T - f)$ with respect to f. If $(T - f)\frac{\partial \mu}{\partial f} - \mu(f) > 0$ then increases in f will have a positive impact on team member client output. This will be the case for parameter values that satisfy $(\alpha - \beta)(1 - \gamma) + \gamma(a - \frac{\partial b}{\partial f}) > 0$ which can be seen by rearranging the first order condition:[19]

$$(T - f)\frac{\partial \mu}{\partial f} - \mu(f) = \frac{(\alpha - \beta)(1 - \gamma) + \gamma(a - \frac{\partial b}{\partial f})}{n\gamma(a - c_1)}$$

The inequality $(\alpha - \beta)(1 - \gamma) + \gamma(a - \frac{\partial b}{\partial f}) > 0$ means that the parameter that measures the incentive the leader receives for leadership activities (β) must be less than the parameter that measures the incentives for individual client output (α) and the revenue received from an additional unit of client work (a) must be greater than the revenue generated from an additional unit of leadership activity ($\frac{\partial b}{\partial f}$), or if one of these terms is negative it is outweighed by the other positive term. As client work is the primary business of the firm, it is likely that these conditions are met.[20] On the other hand if the inequality does not hold, both team leader and team member client output would fall. It is unlikely that a firm would structure compensation this way because this would imply a drop in short term profits. Though it is sometimes worthwhile to trade off short term profits for long term growth, in this case enhanced long term profitability (through more time spent on leadership) can be achieved without sacrificing short term profits if team member client output rises. Assuming the compensation plan is designed to maintain overall client output, increasing incentives for leadership activities will change the allocation of tasks within the team, as team members spend more time on client output while team leaders spend less. This model will be used to derive three hypotheses in section four below.

---

[19]Note that the denominator, $n\gamma(a - c_1)$, is positive.

[20]Assuming the revenue generated from client work is greater than the revenue generated from leadership activities, one would expect that the incentive for client work would be greater than the incentive for leadership.

3   Data and Background

3.1   Data Set

The data come from a large, international law firm headquartered outside the U.S. The firm has many office locations and takes on cases in all law specialties, particularly corporate law and litigation. A leader is a partner or senior lawyer who heads a team of two to four associates and two to four trainees.[21] Lawyers split their time between billable and non-billable hours. Leaders decide how to divide their team's billable hours among members. Associates have law degrees but are less experienced than leaders and do not have control over how many billable hours they receive.

Data from the firm are for the time period 2005-2010 with observations at the individual-month level and sample sizes of 4,745 leader-months and 9,685 associate-months.[22] Over the six year time period, the data set includes 431 unique lawyers who are part of 177 different teams. There are 131 leaders, some of whom sequentially lead different teams, and 375 associates with 75 associates promoted to the position of leader during the six years. Team membership is stable for established teams; however, promotions create new teams. For each lawyer and each month, the data include tenure, the number of hours spent working, the break-out of billable hours, and the compensation received. We calculated non-billable hours as the difference between the total number of hours spent working and the number of billable hours. To protect confidentiality, hours are normalized to a base of 1800 total annual hours in January of 2005 and compensation is deflated and converted to U.S. dollars using the 2005 exchange rate. The country where this firm is headquartered experienced a recession lasting four quarters. Because this overlaps with the time period under the new compensation plan, these months are dropped from all regressions.

---

[21]The behavior of trainees may be quite different from associates because trainees may be law students and/or part time workers. We do not include them in the analysis.

[22]The sample size used in the tables is smaller because we remove recession months.

3.2 Treatment Effect: Changes in Compensation

Prior to June 2007, the firm used high-powered individual incentives or "eat what you kill" compensation practices[23] and in June 2007, individual incentives were reduced and leadership incentives were introduced. Although there was a significant change in the compensation plan, the firm's management structure, structure of production and culture were unchanged. Thus we are able to attribute the changes we observe after June 2007 to the change in the compensation plan. Leadership incentive pay is determined by objective and subjective evaluation of the following activities: setting the future direction of the firm and enhancing its reputation (done in part through client selection, firm meetings, conference presentations, and writing newspaper articles), enhancing long run commercial success (via cross-selling or attracting business to the firm), contributing to financial success (via selection of good clients and controlling costs), and training, mentoring and managing associates.

Beginning operations in the 1990s, the firm was focused on using the talents of their few lawyers to gain market share. As the firm grew rapidly, it became less concerned with bringing in new clientele and more concerned with building the firm's capabilities. More lawyers meant a greater need for coordination within the firm. Additionally, the firm branched out into other practice areas switching from a specialty law firm to a full service corporate law firm. Younger lawyers, in the process of developing their talents, needed to be trained for the future.

The firm's management wanted team leaders to take a long term view of the company. The concern was that "people think only of themselves and only of output, not the whole."[24] Despite this, the firm's management believed the prevalent culture was successful and wanted to shift the focus of leaders without changing the overall culture of the firm. Rather than focus on personal billable hours, they wanted team leaders to provide direction for the firm and invest in their teams. The firm's management expressed difficulty in getting team leaders

---

[23]Rebitzer and Taylor (1995) examine the *ex ante* rents received by lawyers.
[24]This quote and subsequent quotes are from a personal interview with the firm's Managing Director.

to participate actively in firm meetings when individual billable hours were the emphasis. Incentives needed to emphasize "the firm [making] money, not just the leaders." The new compensation plan was phased in over several months, targeting take home pay to be roughly equivalent across the two compensation schemes. This included a transition period of about six months where there were both new and old incentives.

The new compensation plan substantially changed the composition of pay for leaders. Although we do not have compensation breakdowns by type of incentive, the managing director indicated in an interview that the percentage of client revenue that was paid to a leader for the business he brought in fell from a range of 30-50% prior to June 2007 to 15% after June 2007. This change documents the sharp drop in individual incentives. Additionally, 10% of a leader's compensation was in the form of profit-sharing bonuses before and after June 2007. Monthly data are available on total compensation and salaried pay. We observe that prior to the change in the compensation plan, 6% of the leaders' compensation was in the form of salary while after the change, this percentage rose to 29%. Total compensation for leaders was unchanged over the time period with the income from individual incentives replaced by salary and leadership incentives.

Although associates also experienced a decrease in individual incentive pay during this time period, they are unable to choose how they allocate their time between billable and non-billable hours as the leaders assign tasks to associates. Associate hours are a by-product of the leader's time allocation and the empirical analysis below is based on this relationship.

4   Empirical Hypotheses

The theoretical model implies that the shift towards leadership incentives and salary should result in more leadership activities targeted at raising the long run profitability of the firm. Three empirical hypotheses follow from this expected shift.

Hypothesis 1: Following a shift towards leadership incentives, leaders' billable hours will

decrease and non-billable hours will increase. From Section 2 this corresponds to $\frac{\partial h}{\partial \beta} < 0$ and $\frac{\partial f}{\partial \beta} > 0$.

Leaders' billable hours are the measure of individual leader client output. In the professional services industry, output is not typically a physical product but instead is represented by time spent on a project, service or task. The product sold is the time and effort of the professionals in the firm. Thus, the number of hours the leader is engaged in billable work for a client is a measure of output as it directly corresponds to what generates short run revenue for the firm.[25]

Leaders' non-billable hours measure the time leaders spend on activities that benefit the long run growth of the firm. As described above, these activities, which we label leadership activities, involve setting the direction of the firm, through, for example, the solicitation of new clients, firm-level meetings, attending outside conferences, mentoring and training associates, and coordinating their teams. All of these activities involve time on the job that is not billable.

To test Hypothesis 1, we estimate the following regressions:

$$h_{it}^L = \psi^L + \eta^L I_t + X_{it}^L \theta_1^L + \sigma_i^L + \delta_j^L + \tau_t^L + \epsilon_{it}^L \tag{2}$$

$$f_{it}^L = \phi^L + \rho^L I_t + X_{it}^L \theta_2^L + \kappa_i^L + \omega_j^L + \lambda_t^L + \nu_{it}^L \tag{3}$$

where a superscript L is for leaders, h_{it} is billable hours, f_{it} is non-billable hours, I_t is a dummy variable for leadership incentives being in place, X_{it} is a set of controls, σ_i and κ_i are individual fixed effects, δ_j and ω_j are fixed effects for law specialty, τ_t and λ_t are fixed effects for calendar months, and ϵ_{it} and ν_{it} are the error terms. An observation is at the lawyer-month level. Hypothesis 1 predicts that $\eta^L < 0$ and $\rho^L > 0$ as leaders reduce their billable hours and increase non-billable hours following an increase in β, i.e. a shift towards leadership incentives.

---

[25]Note that even if the client and firm later negotiate over the number of hours that is ultimately paid for, this is still a reasonable measure of output. This is akin to measuring output as hourly production in a manufacturing firm because the amount produced is not necessarily the amount sold.

The individual fixed effect, σ_i or κ_i, controls for personal work effort or the skills of the person. These attributes are fixed over time for each person and affect the number of hours worked. The law specialty fixed effect, δ_j or ω_j, accounts for differences in the baseline hours of work for different law areas. Certain specialties may have systematically different standard lengths of cases that do not vary over time. The calendar months fixed effect, τ_t or λ_t, permit some months to be busier than other months. Robust standard errors are clustered at the individual level to account for correlations across observations of the same individual. X_{it} includes additional controls for tenure (in months) and team size.

Hypothesis 2: Following a shift towards leadership incentives, associates' billable hours will increase. As discussed in Section 2, although h falls, this is likely to be more than offset by the increase in μ making billable hours of the associates rise.

To test this prediction, we estimate the following regression for associates:

$$h_{it}^A = \psi^A + \eta^A I_t + X_{it}^A \theta_1^A + \sigma_i^A + \delta_j^A + \tau_t^A + \epsilon_{it}^A \tag{4}$$

where a superscript A is for associates and the variables are defined as above in equation (2). We expect that $\eta_A > 0$.

Although the model in Section 2 is silent about the non-billable hours worked by associates, we estimate the impact of the change in the compensation plan on associates non-billable hours with the following regression:

$$f_{it}^A = \phi^A + \rho^A I_t + X_{it}^A \theta_2^A + \kappa_i^A + \omega_j^A + \lambda_t^A + \nu_{it}^A \tag{5}$$

where variables are defined as above in equation (3). This empirically tests the degree of substitutability between the two tasks for associates and the impact on the total hours worked.[26]

Hypothesis 3: Following a shift towards leadership incentives, associates will receive more

---

[26]The non-billable activities of associates are likely training and administrative work.

billable hours for each leader billable hour. In other words, $\mu(f)$ in equation (1) increases when f increases in response to the new incentive plan.

To test this hypothesis, we estimate the following regression:

$$h_{it}^A = \psi^A + \zeta h_{it}^L + \xi(h_{it}^L * I_t) + X_{it}^A \theta_1^A + \sigma_i^A + \delta_j^A + \tau_t^A + \epsilon_{it}^A \tag{6}$$

where a superscript A is for associates and the variables are defined as above in equation (2). Unlike leaders, associates do not choose how many billable hours to work; their billable hours are assigned to them by their leader, as measured by the parameter ζ under the original compensation plan and $\zeta + \xi$ under the new compensation plan (these terms represent the empirical estimates of μ as described in Section 2). As explained in Section 2, leaders who bring in more business (and thus have more billable hours that the team must complete), will have associates who work more. Thus, we expect $\zeta > 0$. The additional variables in equation (6) control for possible differences in assignment of hours to associates. As shown in Section 2, after the increase in leadership incentives (β), μ will increase because μ is an increasing function of the leader's non-billable hours. Hence in equation (6), we expect $\xi > 0.$[27] $\xi > 0$ can be interpreted as an increase in the amount of sharing that the leader does with his team members.

5 Empirical Analysis

5.1 Summary Statistics

The summary statistics show a shift in leader hours (Table 1). After the introduction of incentives for leadership, the average billable hours for leaders drop and their non-billable hours rise. The opposite is true for associates. Table 1 also shows that total compensation for leaders is unchanged after the change in incentive pay, while it decreases for associates.

---

[27]Note that we are not capturing a multiplicative effect of interactions between leaders and associates (see Hayes, Oyer, and Schaefer, 2006; Hamilton, Nickerson, and Owan, 2003).

By design, salary increased for both leaders and associates after the change.

5.2 Leader Billable and Non-Billable Hours

Table 2 shows the results of estimating equations (2) and (3). Leadership Incentives is a dummy variable equal to one in months when the new compensation plan is in effect. The results are consistent with Hypothesis 1. Leaders decreased their billable hours by six hours after the introduction of leadership incentive pay, though the decrease is not statistically significant (column 1, Table 2). Leader non-billable hours increased by seven hours (or 35%) after the introduction of leadership incentive pay (column 2, Table 2), a significant and substantial increase in time spent on leadership activities.[28]

Leaders do not change their total work hours following the shift to leadership incentive pay: the rise in non-billable hours is offset by a drop in billable hours. In the total hours worked regression (column 3, Table 2), the coefficient on the treatment effect of leadership incentives is not statistically significant. Thus, the increase in leader non-billable hours by about seven hours per month should be offset by a decrease in billable hours of roughly the same magnitude, as it is in columns 1 and 2.[29]

The new compensation plan may cause leaders to sort into or out of the firm in response to the change in incentives. Incentive pay that aims for increased leadership activities should induce those who are more skilled at these tasks to join the firm or remain with the firm.[30] Regression results show no evidence of leader sorting in response to the change in incentives. The regression test for leader sorting is the following. Consider first the equation for non-billable hours. When the firm puts in place enhanced incentives for non-billable hours, we observe an increase in the non-billable hours in the fixed effects regression: each lawyer

---

[28]Our results are in keeping with the multitasking findings of Helper, Kleiner, and Wang (2010) who estimate that a shift to time-rates (from piece-rates) results in a 20% decline in an easy to observe task and a 16-19% increase in a hard to observe task. For our team leaders, we find a 4% drop in our measure of individual output (an easy to observe task) and a 35% increase in our measure of leadership (a hard to observe task).

[29]Controls for law specialty, month, and person effects are significant in the Table 2 regressions indicating that these variables influence hours in important ways. Tenure and team size are not consistently significant.

[30]Compensation policy as a sorting device is emphasized in Lazear (2000), Salop and Salop (1976), Lazear (1986), Eriksson and Villeval (2008), Lo, Ghosh, and Lafontaine (2011), Oyer and Schaefer (2005).

reallocates hours towards leadership activities. In the OLS regression there may be a greater increase in non-billable hours if those who prefer leadership activities are promoted from the associate position or are more likely to stay with the firm. Coefficients from an OLS regression capture both the within-person change in hours and the across-person change in hours. Thus, comparing OLS and fixed effects coefficients provides a measure of employee sorting. In the non-billable hours regression, the OLS coefficient on leadership incentives (column 5) is the same as the fixed effects coefficient on leadership incentives (column 2). The same is true for the billable hours: the OLS coefficient (column 4) is the same as the fixed effects coefficient (column 1). This indicates that leader sorting did not accompany the compensation change.

5.3 Associate Billable and Non-Billable Hours

We find that associates experience an increase in their billable hours after the introduction of leadership incentives confirming Hypothesis 2 (column 1, Table 3). Associate billable hours increase by 12 hours (a 9% rise) following the shift to leadership incentive pay. This effect is large and highly significant.[31] There is no prediction for associate non-billable hours and these hours show no change after the introduction of leadership incentive pay (column 2, Table 3). Consistent with the increase in billable hours and no change in non-billable hours, total work by associates increases by 12 hours (column 3, Table 3).

Additionally, there is evidence that, with leadership incentives in place, associates gain billable hours within teams relative to their leaders. In the regression in column 4, Table 3 the dependent variable is the difference between the average of the team's associates' billable hours and the team leader's billable hours. The positive coefficient on the leadership incentive variable indicates that the gap between the billable hours worked by the team's average associate and the team's leader is narrowed by 12 hours.

Although associates are unable to decide how to allocate their time since tasks are assigned

---

[31]Similar to Table 2, controls for law specialty, month, and person effects are significant in the regressions in Table 3, while tenure and team size are not consistently significant.

by leaders, there can be a sorting response to the increase in billable hours assigned to them. We do find some evidence that the composition of associates changed in response to the new compensation plan. The coefficient on leadership incentives is half as large in the OLS regression of billable hours as in the fixed effects regression (column 5, Table 3). Three types of changes in the composition of associates could explain the smaller impact of leadership incentives: 1) associates with high billable hours may be promoted to the position of leader, 2) associates with high billable hours may leave the firm, 3) associates with low billable hours may be hired into the position. In our data, the summary statistics show that the associates who are promoted have higher billable hours and the associates who leave the firm have lower billable hours (not shown). We introduce dummy variables for each of the three possible explanations of composition change into the OLS regression of billable hours and find no predominant factor that explains the observed pattern; the changing composition of associates is apparently due to a combination of the three factors.

Column 7, Table 3 shows the results of estimating equation (6). We find that ζ is 0.16 (row 2) and consistent with Hypothesis 3, we find that $\xi > 0$ (row 3).[32] Column 1 shows that a 10 hour increase in leader billable hours results in an additional five hours of associate billable hours per team before leadership incentives, but over seven additional associate hours per team after leadership incentives are introduced.[33] Thus, the introduction of leadership incentives resulted in a larger increase in billable hours for associates whose leaders have more billable hours.

Our results demonstrate that, the change in incentive pay led to a substantial change in the way lawyers do business and the extent of teamwork. Each leader decreases his billable hours and increases his non-billable hours by about six hours a month (Table 2). On average, associates increase their billable hours by 6.75 hours per month (column 5, Table

---

[32]We also estimated a version of the column (7) regression that included the leadership incentive dummy. This variable was insignificant and its inclusion did not affect the coefficients on the leader's billable hours or the interaction term between the leader's billable hours and leadership incentives. In that version of the regression, we can reject that the leadership incentive dummy and the interaction term are both zero at the 1% level.

[33]Calculations based on coefficient estimates and three associates per team.

3). Because every leader has an average of three associates,[34] the total billable hours of the team of associates rises by 20 hours. This is a large shift in the allocation of hours within the team. The ratio of billing rates for leaders to associates is approximately 3:1 making the overall cost to the clients about the same after this shift in billable hours.[35]

5.4 Employee Income

Leaders control their hours of work. Therefore, a change in the level of compensation following the treatment could change the hours of work outcomes, through traditional income or substitution effects of pay on labor supply. For leaders, the firm aimed to keep total hours of work and pay unchanged.[36] Table 2 shows that total hours of work are unchanged after the treatment. Table 4 shows that total compensation is unchanged for leaders in the post period; in column 1, where the dependent variable is the log of a leader's total income, the coefficient on leadership incentive pay is insignificant. For each associate, income rises at the same rate as total hours worked. Column 3, Table 4 shows that an associate's total income increased by 11% in the post period.[37] Regressions of total hours worked indicate that each associate increased his work hours by 10% (see column 4, Table 3). Increased income roughly kept pace with their increased work hours.

The compensation data breaks out the salary component of total compensation. The change in compensation operates in part through an increase in salaried pay and so we should observe increases in salary for leaders and associates. Regression results show that salaries did rise substantially (columns 2 and 4, Table 4). Salaries increased by almost 60% for associates and more than doubled for leaders.

Data on profits were not provided by the firm preventing us from connecting the compensation changes to profits. In the short run, there is no apparent change in total hours of

---

[34]In Table 1, the average team size is larger because it includes trainees.

[35]Calculations using compensation data suggest that this is the rough ratio of billing rates.

[36]Based on interviews with the Managing Director.

[37]This differs from the summary statistics in Table 1. The summary statistics show a decline in associate income thereby implying that there is sorting toward lower paid associates in the post period. This is consistent with composition changes of associates discussed in section 5.3.

work and pay for the leaders. For associates, hours and pay went up at the same rate. To the extent that profits depend on employee compensation and work hours, profits may be unchanged because pay and hours are either unchanged (for leaders) or rise at the same rate (for associates). However, profits likely depend on several other factors making it impossible to determine the overall effect. Furthermore, the move to leadership incentives was aimed at increasing long run profitability making it difficult to determine conclusively whether it achieved this goal.

5.5   Robustness

In this section, we report the results of a number of robustness checks. Table 5 shows three robustness checks for leader's billable and non-billable hours while Table 6 show three robustness checks for associates' billable and non-billable hours. Additional robustness checks are discussed below but not included in the tables.

First, the change in incentive pay occurred in part during the recession and, as explained above, the recession months were dropped from the analysis. When these recession months are reintroduced, the decrease in leaders' billable hours resulting from the introduction of leadership incentives is twice as large (11 hours per month) and the increase in associates' billable hours is half as large (six hours per month); see column 1 in Tables 5 and 6, for leaders and associates, respectively. This is expected if the firm experienced a slight slowdown in business resulting in fewer billable hours during the recession. The impacts of leadership incentives on leaders' and associates' non-billable hours are unchanged (column 2 in Tables 5 and 6). Column 7, Table 6 also shows that reintroducing the recession months has little effect on the estimates of ζ and ξ for associate billable hours.

Second, we consider the impact of dropping the six month transition period during which the new pay plan was phased in. It is possible that behavior over this time period, where parts of both the old and new compensation plans were in effect, may be different than what is observed when the new compensation plan is fully implemented. If these transition months

are dropped from the regressions in Tables 2 and 3, the treatment effects are essentially unchanged (see columns 3-4 in Table 5 and columns 3-4, 8 in Table 6).

Third, we consider the impact of leaders' tenure. The leaders who have been with the firm the longest may be the most resistant to change, making the treatment effect from new leadership incentives fall with tenure. An interaction term between leadership incentives and a dummy variable for the leader having above median tenure is not significant (see columns 5-6, Table 5). Similarly, an interaction term between tenure and leadership incentives is insignificant (not shown). Overall, it appears that the response to the treatment is fairly uniform across experience levels of leaders. There is also no difference in hours allocations for more experienced associates following the compensation change (not shown).

The third robustness check for the associates is shown in columns 5, 6 and 9 of Table 6 where we control for differences in behavior across teams by adding team dummy variables. Associates on the same team may receive a similar number of hours. The results are basically the same with a slightly larger coefficient on the leadership incentive variable for billable hours.[38]

There are four additional robustness checks not shown in Tables 5-6. First, using the log of hours for all the hours-related dependent variables does not change the regression results. Hours are not rightward skewed. Second, in order to consider whether the results are sensitive to seasonal factors or business cycle factors, we allowed the practice areas to have different seasonal effects, by interacting practice areas with month dummy variables. The results are largely unchanged for leadership incentives with slightly greater statistical significance for leaders and slightly smaller coefficients for associates compared to Tables 2 and 3.

We also explored whether alumni connections affect billable hours allocations. We have data on the law school that each lawyer attended. Leaders may allocate hours differently to those associates who attended the same law school that they did or they may interact

---

[38]Leader fixed effects are equivalent to team dummies in the leader regressions.

differently with a team who has an alumnus from their law school. This could be because they have previous experience with the person, have had similar training, communicate more easily, or simply show a preference for their law school. To test this, we estimate leader regressions that include a dummy variable that equals one if at least one team member went to the same law school as the leader and associate regressions that include a dummy variable that equals one if the leader went to the same law school as the associate. In neither case was the coefficient on the law school variable significant. We also tested for whether there is a difference for those who attended a law school that was part of a public or private university. Again, there does not appear to be a differential effect. We have also interacted the dummy variable for attending the same law school as the leader with leadership incentives and leader billable hours and found insignificant results. Behavior does not appear to vary based on the educational connections between leader and associates.

Finally, we estimated regressions considering differences by gender, office location, and practice area. In none of these cases, do we find a consistent and statistically significant difference. Results hold under a variety of different lawyer and work environment characteristics demonstrating robustness. In sum, our results are robust to numerous alternative specifications.

6 Conclusion

While economists have built models of optimal compensation plans that address the multitasking problem, the lack of detailed firm-level data on compensation practices and productivity has prevented the accumulation of systematic empirical evidence on the impact of compensation plans on productivity. Using a unique data set from an international law firm that moved from high-powered individual performance incentives towards incentives for leadership activities, we show how the change in compensation impacted the allocation of tasks.

Because individual output and leadership activities were both valuable to the firm, the new compensation plan aimed to balance the tradeoff between the two. The firm reduced the commission that the team leaders received for billable hours and introduced a bonus that included objective and subjective metrics rewarding a variety of leadership activities. We find that this change in the compensation plan resulted in the team leaders engaging in more leadership activities, as measured by their shifting approximately six hours of work each month from billable hours to non-billable hours. This is particularly striking in that the initial culture of this firm was geared towards individual productivity with little attention to leadership activities that were essential for long term profitability.

Since our data enable us to identify individual output we can study how the change in incentive pay affects the productivity of each team member, thereby making an important contribution to the literature on teamwork. An interesting by-product of the change in the leaders' compensation plan was that the billable hours of the team members increased as the leaders decreased their billable hours. While the motivation for the change in the compensation plan was the multitasking problem, this change also impacted the way tasks were allocated within each team, resulting in greater teamwork.

Despite the fact that results come from one particular law firm during one time period, the findings may apply to other firms. Analyses favor firms that have a fairly concrete output measure (such as billable hours), but the principles at work behind the outcomes are more broadly applicable. Just as boards of directors must determine the balance between individual and leadership incentives for their CEOs, many firms seek to find this balance for employees who are in leadership positions. The firm studied here demonstrates that the performance of leaders and their subordinates responds to changes in incentive pay in the absence of other organizational changes.

7   Tables

Table 1: Summary Statistics

Leader Pre-Period	Mean	Std. Dev.	NT
Billable Hours	146.271	74.114	1417
Non-Billable Hours	20.793	24.59	1417
Tenure	65.8	41.463	1417
Size of Team	4.600	2.513	1417
Total Income	$23,359.12	$9,280.94	1338
Total Salary	$1,277.45	$2,840.17	1369
Leader Post-Period			
Billable Hours	135.554	62.843	2323
Non-Billable Hours	28.661	30.569	2323
Tenure	85.279	47.808	2323
Size of Team	4.069	2.026	2323
Total Income	$23,141.22	$8,384.71	1303
Total Salary	$6,426.32	$4,449.65	1340
Associates Pre-Period			
Billable Hours	127.817	55.803	3306
Non-Billable Hours	23.672	27.16	3306
Tenure	41.951	27.82	3306
Size of Team	6.07	3.076	3306
Team Leader's Billable Hours	135.868	82.582	3306
Total Income	$10,306.46	$4,484.21	3221
Total Salary	$938.78	$817.96	3226
Associates Post-Period			
Billable Hours	132.832	57.488	4402
Non-Billable Hours	23.793	27.199	4402
Tenure	43.271	32.211	4402
Size of Team	5.073	2.018	4402
Team Leader's Billable Hours	131.913	66.636	4402
Total Income	$9,228.48	$4,019.97	2449
Total Salary	$1,729.78	$826.65	2511

Hours are normalized by a base of 1800 total annual hours in January of 2005.

Income and salary are monthly. Tenure is measured in months.

Team size includes associates and trainees.

Leader and associate differences in average team size stem from large teams having many associates contributing to the overall associate average team size but only one leader contributing to the overall leader average team size.

Table 2: Leader Billable and Non-Billable Hours

	(1) Leader Billable Hours	(2) Leader NonBillable Hours	(3) Leader Total Hours	(4) Leader Billable Hours	(5) Leader NonBillable Hours
Leadership Incentives	-5.75	6.90***	1.15	-5.66	6.42***
	(4.50)	(2.06)	(3.91)	(5.77)	(2.43)
Tenure	0.12	-0.088	0.031	0.59***	-0.22*
	(0.14)	(0.097)	(0.15)	(0.16)	(0.12)
Tenure Squared	-0.0017*	0.0010	-0.00072	-0.0040***	0.0017*
	(0.0010)	(0.00073)	(0.00094)	(0.0011)	(0.00086)
Size of Team	2.28*	0.22	2.50**	2.66	1.19*
	(1.16)	(0.44)	(1.01)	(1.60)	(0.66)
Constant	145.8***	4.52	150.3***	43.7**	15.7
	(9.33)	(4.94)	(8.55)	(19.8)	(16.5)
Practice Area Dummies	Yes	Yes	Yes	Yes	Yes
Month Dummies	Yes	Yes	Yes	Yes	Yes
Person Fixed Effects	Yes	Yes	Yes	No	No
NT	3740	3740	3740	3740	3740
N	131	131	131	131	131
R^2	0.405	0.507	0.412	0.141	0.170

Leadership Incentives is a dummy variable equal to one in months when the new compensation plan is in effect.

Four quarters omitted due to recession.

Robust standard errors clustered at the individual level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Associate Billable and Non-Billable Hours

	(1) Associate Billable Hours	(2) Associate NonBillable Hours	(3) Associate Total Hours	(4) Diff. Avg. Associate and Leader Billable Hours	(5) Associate Billable Hours	(6) Associate NonBillable Hours	(7) Associate Billable Hours
Leadership Incentives	12.0***	-0.32	11.7***	12.0***	6.75**	0.86	
	(3.27)	(1.50)	(3.17)	(4.33)	(2.69)	(1.42)	
Leader's Billable Hours							0.16***
							(0.017)
Leader BillableXLeadership							0.072***
							(0.017)
Tenure	-0.085	-0.28***	-0.37**	-0.082	0.21*	-0.099	0.033
	(0.15)	(0.084)	(0.17)	(0.18)	(0.12)	(0.070)	(0.15)
Tenure Squared	-0.00046	0.0017**	0.0012	0.0018*	-0.0018*	0.000060	-0.00096
	(0.0013)	(0.00082)	(0.0015)	(0.00099)	(0.0010)	(0.00067)	(0.0013)
Size of Team	-0.20	0.29	0.12	-1.06	0.25	0.70**	-0.73
	(0.49)	(0.30)	(0.45)	(1.54)	(0.51)	(0.33)	(0.49)
Constant	77.5***	46.0***	123.5***	-23.4*	60.1***	64.9***	74.5***
	(12.7)	(7.12)	(10.8)	(12.5)	(7.02)	(7.61)	(13.7)
Practice Area Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Person Fixed Effects	Yes	Yes	Yes	Yes	No	No	Yes
NT	7708	7708	7708	3198	7708	7708	7708
N	375	375	375	117	375	375	375
R^2	0.311	0.470	0.314	0.266	0.116	0.209	0.348

Leadership Incentives is a dummy variable equal to one in months when the new compensation plan is in effect.

Leader BillableXLeadership is the product of the Leadership Incentives variable and the Leader's billable hours.

Four quarters omitted due to recession.

Robust standard errors clustered at the individual level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Leader and Associate Compensation

	(1) Leader Log(Total Income)	(2) Leader Log(Total Salary)	(3) Associate Log(Total Income)	(4) Associate Log(Total Salary)
Leadership Incentives	-0.0020	2.21***	0.11***	0.57***
	(0.022)	(0.11)	(0.031)	(0.10)
Tenure	0.0021**	0.015***	0.010***	-0.013***
	(0.00091)	(0.0041)	(0.0016)	(0.0045)
Tenure Squared	0.0000076	0.000041	-0.000036**	0.00026***
	(0.0000060)	(0.000033)	(0.000015)	(0.000050)
Size of Team	-0.0062	-0.043	-0.00029	0.027**
	(0.0056)	(0.035)	(0.0061)	(0.014)
Constant	9.81***	4.65***	8.51***	6.07***
	(0.051)	(0.24)	(0.089)	(0.19)
Practice Area Dummies	Yes	Yes	Yes	Yes
Month Dummies	Yes	Yes	Yes	Yes
Person Fixed Effects	Yes	Yes	Yes	Yes
NT	2641	2709	5670	5737
N	109	106	304	308
R^2	0.785	0.798	0.791	0.671

Leadership Incentives is a dummy variable equal to one in months when the new compensation plan is in effect.

Four quarters omitted due to recession.

Robust standard errors clustered at the individual level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Robustness Checks for Leader Billable and Non-Billable Hours

	(1) Leader Billable Hours	(2) Leader NonBillable Hours	(3) Leader Billable Hours	(4) Leader NonBillable Hours	(5) Leader Billable Hours	(6) Leader NonBillable Hours
Leadership Incentives	-10.8**	7.31***	-8.77	8.70***	-1.78	7.80**
	(4.74)	(2.02)	(5.77)	(2.80)	(6.68)	(3.14)
Tenure	0.066	-0.12	0.078	-0.068	-0.028	-0.11
	(0.14)	(0.095)	(0.14)	(0.10)	(0.19)	(0.11)
Tenure Squared	-0.0013	0.0012	-0.0013	0.00080	-0.0011	0.0011
	(0.0010)	(0.00072)	(0.00097)	(0.00076)	(0.0012)	(0.00079)
Size of Team	2.43**	0.41	2.30*	0.069	2.23*	0.21
	(1.06)	(0.45)	(1.21)	(0.43)	(1.15)	(0.44)
Sr. Leader					12.0	1.75
					(9.49)	(6.09)
Sr. LeaderXLeadership					-6.38	-1.56
					(8.73)	(3.05)
Constant	142.4***	15.8***	143.9***	7.56	145.2***	4.42
	(7.85)	(4.46)	(9.05)	(4.88)	(9.24)	(4.98)
Practice Area Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Month Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Person Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
NT	4686	4685	3270	3270	3740	3740
N	131	131	131	131	131	131
R^2	0.400	0.509	0.404	0.531	0.406	0.507

Leadership Incentives is a dummy variable equal to one in months when the new compensation plan is in effect.

Sr. Leader is a dummy variable for being a leader with above average tenure.

Sr. LeaderXLeadership is the product of the Leadership Incentives variable and the Sr. Leader variable.

Columns 1-2 include the full time period, 3-4 omit the recession and the transition period, 5-6 omit the recession.

Robust standard errors clustered at the individual level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Robustness Checks for Associate Billable and Non-Billable Hours

	(1) Associate Billable Hours	(2) Associate NonBillable Hours	(3) Associate Billable Hours	(4) Associate NonBillable Hours	(5) Associate Billable Hours	(6) Associate NonBillable Hours	(7) Associate Billable Hours	(8) Associate Billable Hours	(9) Associate Billable Hours
Leadership Incentives	6.16*	0.69	12.8***	-1.68	13.4***	0.39			
	(3.14)	(1.60)	(4.42)	(2.04)	(3.18)	(1.56)			
Leader's Billable Hours							0.18***	0.15***	0.17***
							(0.016)	(0.017)	(0.018)
Leader BillableXLeadership							0.057***	0.077***	0.079***
							(0.015)	(0.021)	(0.016)
Tenure	-0.040	-0.30***	-0.18	-0.25***	-0.033	-0.21***	0.056	-0.059	0.097
	(0.15)	(0.080)	(0.15)	(0.091)	(0.15)	(0.074)	(0.14)	(0.15)	(0.15)
Tenure Squared	-0.00056	0.0018**	0.00024	0.0015*	-0.0012	0.0013**	-0.0014	-0.00026	-0.0015
	(0.0012)	(0.00076)	(0.0013)	(0.00090)	(0.0013)	(0.00067)	(0.0013)	(0.0013)	(0.0013)
Size of Team	0.064	0.21	-0.60	0.34	-1.01	-0.074	-0.57	-0.98**	-1.68**
	(0.46)	(0.27)	(0.47)	(0.31)	(0.70)	(0.38)	(0.44)	(0.48)	(0.73)
Constant	72.3***	45.1***	87.5***	44.8***	37.4**	14.7***	68.2***	83.0***	27.9
	(11.5)	(6.89)	(11.9)	(6.85)	(16.5)	(5.60)	(12.3)	(12.5)	(17.6)
Practice Area Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Team Dummies	No	No	No	No	Yes	Yes	No	No	Yes
Person Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NT	9619	9615	6919	6919	7708	7708	9619	6919	7708
N	382	382	373	373	375	375	382	373	375
R^2	0.305	0.472	0.324	0.474	0.341	0.512	0.349	0.359	0.378

Leadership Incentives is a dummy variable equal to one in months when the new compensation plan is in effect.

Leader BillableXLeadership is the product of the Leadership Incentives variable and the Leader's billable hours.

Columns 1-2 include the full time period, 3-4 omit the recession and the transition periods, 5-6 omit the recession and include Team dummy variables.

Column 7 includes the full time period, 8 omits the recession and the transition periods, 9 omits the recession and includes Team dummy variables.

Robust standard errors clustered at the individual level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

References

BAKER, G. (1992): "Incentive Measures and Performance Measurement," *Journal of Political Economy*, 100, 598–614.

BANDIERA, O., I. BARANKAY, AND I. RASUL (2007): "Incentives for Managers and Inequality Among Workers: Evidence from a Firm-Level Experiment," *The Quarterly Journal of Economics*, 122(2), 729–773.

——— (2009): "Social Connections and Incentives in the Workplace: Evidence from Personnel Data," *Econometrica*, 77(4), 1047–1094.

——— (2012): "Team Incentives: Evidence from a Firm Level Experiment," *Journal of the European Economic Association*, forthcoming.

BLOOM, N., AND J. VAN REENEN (2011): "Human Resource Management and Productivity," *Handbook of Labor Economics*, 4, 1697–1767.

BONING, B., C. ICHNIOWSKI, AND K. SHAW (2007): "Opportunity Counts: Teams and the Effectiveness of Production Incentives," *Journal of Labor Economics*, 25(4), 613–650.

CARR, J., AND F. MATHEWSON (1990): "The Economics of Law Firms: A Study in the Legal Organization of the Firm," *Journal of Law and Economics*, 33, 307–330.

DRAGO, R., AND G. GARVEY (1998): "Incentives for Helping on the Job: Theory and Evidence," *Journal of Labor Economics*, 16(1), 1–25.

DUMONT, E., B. FORTIN, N. JACQUEMET, AND B. SHEARER (2008): "Physicians' Multitasking and Incentives: Empirical Evidence from a Natural Experiment," *Journal of Health Economics*, 27(6), 1436–1450.

ENCINOSA, III, W. E., M. GAYNOR, AND J. B. REBITZER (2007): "The Sociology of Groups and the Economics of Incentives: Theory and Evidence on Compensation Systems," *Journal of Economic Behavior and Organization*, 62, 187–214.

ERIKSSON, T., AND M. VILLEVAL (2008): "Performance-Pay, Sorting and Social Motivation," *Journal of Economic Behavior and Organization*, 68(2), 412–421.

FALK, A., AND A. ICHINO (2006): "Clean Evidence on Peer Effects," *Journal of Labor Economics*, 24(1), 39–57.

FREEMAN, R., AND M. KLEINER (2005): "The Last American Shoe Manufacturers: Decreasing Productivity and Increasing Profits in the Shift from Piece Rates to Continuous Flow Production," *Industrial Relations: A Journal of Economy and Society*, 44(2), 307–330.

GARICANO, L. (2000): "Hierarchies and the Organization of Knowledge in Production," *Journal of Political Economy*, 108(5), 874–904.

GARICANO, L., AND T. HUBBARD (2007): "Managerial Leverage is Limited by the Extent of the Market: Hierarchies, Specialization, and the Utilization of Laywers' Human Capital," *Journal of Law and Economics*, 50, 1–43.

GARICANO, L., AND T. VAN ZANDT (2012): "Hierarchies and the Division of Labor," in *Handbook of Organizational Economics*, ed. by R. Gibbons, and J. Roberts. Princeton University Press.

GAYNOR, M., J. B. REBITZER, AND L. J. TAYLOR (2004): "Physician Incentives in HMOs," *Journal of Political Economy*, 112, 915–931.

GIBBONS, R. (1998): "Incentives in Organizations," *The Journal of Economic Perspectives*, 12(4), 115–132.

GRIFFITH, R., AND A. D. NEELY (2009): "Incentives and Managerial Experience in Multi-Task Teams: Evidence from within a Firm," *Journal of Labor Economics*, 27(1), 48–82.

HAMILTON, B., J. NICKERSON, AND H. OWAN (2003): "Team Incentives and Worker Heterogeneity: An Empirical Analysis of the Impact of Teams on Productivity and Participation," *Journal of Political Economy*, 111(3), 465–497.

HAYES, R., P. OYER, AND S. SCHAEFER (2006): "Coworker Complementarity and the Stability of Top-Management Teams," *Journal of Law, Economics, and Organization*, 22(1), 184–212.

HELPER, S., M. KLEINER, AND Y. WANG (2010): "Analyzing Compensation Methods in Manufacturing: Piece Rates, Time Rates, or Gain-Sharing?," Discussion paper, National Bureau of Economic Research.

HERMALIN, B. E. (1998): "Toward an Economic Theory of Leadership: Leading by Example," *The American Economic Review*, 88(5), 1188–1206.

HOLMSTROM, B. (1982): "Moral Hazard in Teams," *The Bell Journal of Economics*, 13(2), 324–340.

HOLMSTROM, B., AND P. MILGROM (1991): "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design," *Journal of Law, Economics and Organization*, 7(0), 24–52.

ICHNIOWSKI, C., AND K. SHAW (2003): "Beyond Incentive Pay: Insiders' Estimates of the Value of Complementary Human Resource Management Practices," *The Journal of Economic Perspectives*, 17(1), 155–180.

——— (2012): "Insider Econometrics," in *Handbook of Organizational Economics*, ed. by R. Gibbons, and J. Roberts. Princeton University Press.

KANDEL, E., AND E. LAZEAR (1992): "Peer Pressure and Partnerships," *Journal of Political Economy*, 100(4), 801–817.

LANDERS, R. M., J. B. REBITZER, AND L. J. TAYLOR (1996): "Rat Race Redux: Adverse Selection in the Determination of Work Hours in Law Firms," *The American Economic Review*, 86(3), 329–348.

LARKIN, I. (forthcoming): "The Cost of High-Powered Incentives: Employee Gaming in Enterprise Software Sales," *Journal of Labor Economics*.

LAZEAR, E. (1986): "Salaries and Piece Rates," *Journal of Business*, 59(3), 405–431.

——— (1998): "Globalization and the Market for Teammates," Discussion paper, National Bureau of Economic Research.

——— (1999): "Personnel Economics: Past Lessons and Future Directions," *Journal of Labor Economics*, 17(2), 199–236.

——— (2000): "Performance Pay and Productivity," *The American Economic Review*, 90(5), 1346–1361.

——— (2012): "Leadership: A Personnel Economics Approach," *Labour Economics*, 19(1), 92–101.

LAZEAR, E., AND P. OYER (2012): "Personnel Economics," in *Handbook of Organizational Economics*, ed. by R. Gibbons, and J. Roberts. Princeton University Press.

LAZEAR, E. P., AND K. L. SHAW (2007): "Personnel Economics: The Economist's View of Human Resources," *The Journal of Economic Perspectives*, 21(4), 91–114.

LEVIN, J., AND S. TADELIS (2005): "Profit Sharing and the Role of Professional Partnerships," *The Quarterly Journal of Economics*, 120(1), 131–171.

LO, D., M. GHOSH, AND F. LAFONTAINE (2011): "The Incentive and Selection Roles of Sales Force Compensation Contracts," *Journal of Marketing Research*, 48(4), 781–798.

MAS, A., AND E. MORETTI (2009): "Peers at Work," *American Economic Review*, 99, 112–145.

MURPHY, K. J. (forthcoming): "Executive Compensation: Where We are, and How We got There," in *Handbook of the Economics of Finance*, ed. by G. Constantinides, M. Harris, and R. Stulz. Elsevier Science North Holland.

OYER, P., AND S. SCHAEFER (2005): "Why do some Firms give Stock Options to all Employees?: An Empirical Examination of Alternative Theories," *Journal of Financial Economics*, 76(1), 99–133.

——— (2009): "The Personnel-Economic Geography of US Law Firms and Law Schools," *Unpublished paper, Stanford University.*

——— (2010): "Firm/Employee Matching: An Industry Study of American Lawyers," *Unpublished manuscript, Stanford University Graduate School of Business.*

——— (2011): "Personnel Economics: Hiring and Incentives," *Handbook of Labor Economics*, 4, 1769–1823.

PRENDERGAST, C. (1999): "The Provision of Incentives in Firms," *Journal of Economic Literature*, 37(1), 7–63.

——— (2000): "What Trade-Off of Risk and Incentives?," *The American Economic Review*, 90(2), 421–425.

——— (2002): "The Tenuous Trade-Off between Risk and Incentives," *Journal of Political Economy*, 110(5), 1071–1102.

——— (2009): "Contracts and Conflict in Organizations," *Unpublished manuscript, Graduate School of Business, University of Chicago, Chicago. Retrieved September*, 28, 2011.

REBITZER, J. B., AND L. J. TAYLOR (1995): "Efficiency Wages and Employment Rents: The Employer-Size Wage Effect in the Job Market for Lawyers," *Journal of Labor Economics*, 13(4), 678–708.

REBITZER, J. B., AND L. J. TAYLOR (2007): "When Knowledge is an Asset: Explaining the Organizational Structure of Large Law Firms," *Journal of Labor Economics*, 25(2), 201–229.

SALOP, J., AND S. SALOP (1976): "Self-Selection and Turnover in the Labor Market," *Quarterly Journal of Economics*, 90(4), 619–627.

WULF, J. (2007): "Authority, Risk and Performance Incentives: Evidence from Division Manager Positions Inside Firms," *Journal of Industrial Economics*, LV(1), 169–196.