INCENTIVES FOR LAWYERS: MOVING AWAY FROM "EAT WHAT YOU KILL"

ANN P. BARTEL, BRIANNA CARDIFF-HICKS, AND KATHRYN SHAW*

The authors study an international law firm that changed its compensation plan for team leaders to address a multitasking problem: Team leaders were focusing their effort on billable hours and not spending sufficient time on leadership activities to build the firm. Compensation was changed to provide greater incentives for the leadership activities and weaker incentives for billable hours. The effect of this change on the task allocation of the firm's team leaders was large and robust; team leaders increased their non-billable hours and shifted billable hours to team members. The firm's new compensation plan (combining an objective formula with subjective evaluations) is the fastest-growing compensation system among law firms today.

A recent international survey of the processes law firm partnerships use to determine partner compensation identified a variety of plans (Wesemann and Jarrett-Kerr 2012). Among law firms, four primary plans occur: lockstep, in which pay is usually a fixed function of seniority; a quantitative formula, in which pay is typically a function of billable hours and other objective measures; a combination plan, in which pay is a function of a formula and some subjective factors; and pay based on a set of subjective factors. The formula approach is appealing because law firms can easily track lawyers' billable hours; this approach is often referred to as "eat what you kill." An old adage in economics states: The problem with performance pay is not that it does not work; rather, it works too well. In other words, you get what you pay for. Under a formula approach, in which compensation is based on billable hours, partners have an incentive to bring in business and to hoard billable hours.[1] They are not incentivized to share

[1]A survey of law firm partners in the United States (Lowe 2012) found that 90% of the respondents reported that billable hours were very important or somewhat important in determining their compensation.

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billable hours with members of their team or to spend time on non-billable activities that benefit the firm, such as presenting at conferences, attending firm meetings, and training and mentoring associates. As multitasking models have shown, if individual pay-for-performance omits some tasks, employees will not allocate time to these tasks.

We study an international law firm that revised its compensation plan to address this multitasking problem. The firm is organized into teams, with each team headed by a leader (who is a senior lawyer or partner) and having, on average, an additional two to three members called "associates." The new compensation plan was designed to encourage team leaders to spend time on non-billable activities that are beneficial to the firm's growth, rather than focusing solely on providing client services that are billable. The firm reduced the commission the team leader received for billable hours and introduced a bonus that included objective and subjective metrics that measured a variety of non-billable activities. We find that, in response to the new compensation plan, the team leaders significantly increased their non-billable hours and decreased their billable hours (although the latter is not significant). The changes in the leaders' time allocation affected the time allocation of the team members; as the leaders spent more time on non-billable leadership activities, billable work was shifted to team members. Thus, in addressing the multitasking problem, the new compensation plan changed the way tasks were allocated between team leaders and team members. Furthermore, after the new compensation plan was introduced, the revenue generated by the associates rose more than their compensation.

A challenge for any study on the impact of a change in a compensation plan is the role other factors possibly play in the observed change in employees' behavior. In the firm we study, no additional organizational changes took place at the time of the change in the compensation plan (i.e., no changes in training, recruitment practices, or any other human resource practices). The team structure in the firm pre-dates the change in the team leaders' compensation plan by more than a decade, enabling us to isolate the effect of the change in the compensation plan.[2] In other studies (e.g., Freeman and Kleiner 2005; Helper, Kleiner, and Wang 2010), changes in the structure of production such as introducing "just in time" manufacturing or "continuous flow mode" have accompanied changes in compensation plans. Furthermore, in those studies, data were available only at the level of the plant, precluding observation of how employees allocate their time among various tasks.

Even though the service sector accounts for 50% of worldwide employment (The World Bank 2014), most papers on incentives study manufacturing or

[2]See Bandiera, Barankay, and Rasul (2013) and Hamilton, Nickerson, and Owan (2003), who examine the formation of teams.

agriculture.[3] This article contributes to the empirical literature on compensation and productivity by quantifying how team leaders in a professional service firm respond to changes in their compensation plan and, in turn, how this affects the subordinate members of their team.[4] Although our data come from only one law firm, this firm's new compensation plan (combining an objective formula with subjective evaluations) is the fastest-growing compensation system among law firms, regardless of the country in which the firm is based (Wesemann and Jarrett-Kerr 2012). Our findings are therefore of broad interest to law firms and other types of professional service firms as well.

The Multitasking Problem

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. Several papers (Lazear 1986; Holmstrom and Milgrom 1991; Gibbons 1998; Prendergast 2009) have modeled how compensation should be designed in the presence of multitasking. The compensation function needs to precisely mirror the firm's profit function. For example, if employees are paid a piece rate for the amount they produce, they will not be incentivized to pay attention to the quality of their output, unless the firm also measures and pays for quality. A number of empirical studies have found evidence of the multitasking problem. In a study of Australian workers who were mostly employed in manufacturing, Drago and Garvey (1998) showed that helping efforts were reduced when promotion decisions emphasized individual performance. Hong et al. (2013) found that factory workers in China increased their productivity when new incentive pay was offered for the quantity produced, but the quality of their output decreased. Dumont et al. (2008) studied how physicians in Quebec responded to the introduction of an optional mixed-compensation system that combined a fixed per diem with a partial fee for services provided. Physicians who changed from the original fee-for-service plan to the mixed system decreased their billable services but increased the average time spent per service, suggesting there may have been a quality–quantity substitution.

The multitasking problem arises in law firms because firms value two types of activities in which their partners (or team leaders) engage: client services, which are billable, and other activities, which are non-billable but are important for growing and maintaining the firm (e.g., attending

[3]For summaries of the empirical literature on incentives, see Lazear (1999), Ichniowski and Shaw (2003, 2012), Lazear and Shaw (2007), Bloom and Van Reenen (2011), and Lazear and Oyer (2012). Outside of manufacturing and agriculture, see Gaynor, Rebitzer, and Taylor (2004), Encinosa, Gaynor, and Rebitzer (2007), Dumont, Fortin, Jacquemet, and Shearer (2008), Lavy (2009), and Neal (2011).

[4]For a field experiment in which a change in the incentive pay of managers on a fruit-picking farm affects the allocation of work to the subordinates, see Bandiera, Barankay, and Rasul (2007).

meetings, promoting the firm at conferences, mentoring and training junior employees, and so on). While, historically, law firms relied on billable hours to compensate their partners (or team leaders), today fewer than 10% of law firms use this formula approach (Wesemann and Jarrett-Kerr 2012).

Data

The data for this study come from a large, international law firm headquartered outside the United States. 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 three associates and two to three trainees.[5] Lawyers split their time between billable and non-billable hours, and leaders decide how to divide their team's billable hours among members. Associates have law degrees but are less experienced than leaders.[6]

The firm is young, having begun operations in the 1990s. At that time, the firm's founders wanted to focus on bringing in business and gaining market share, and they determined that the best way to do so was to pay for billable hours. Because the firm grew rapidly, there was less concern with bringing in new clientele and more concern with building the firm's capabilities. More lawyers also 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. These many factors led the firm's management to recognize the need to change incentives.

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."[7] Despite this, the firm's management liked the type of lawyer attracted to their firm and wanted to shift the focus of leaders without having them self-select out of the firm. Rather than focus on personal billable hours, they wanted team leaders to provide direction for the firm and to invest in their teams. The firm's management expressed difficulty in getting team leaders to participate actively in firm meetings when individual billable hours were the emphasis. The new incentives needed to emphasize "the firm [making] money, not just the leaders." The new compensation plan was phased in beginning in June 2007, with a transition period of about six months when there were both new and old incentives.

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[5]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.

[6]For a model of law firm organization, see Rebitzer and Taylor (2007). For models of task allocation in hierarchies within law firms, see Garicano and Hubbard (2007) and Garicano and Van Zandt (2012). Oyer and Schaefer (2010) studied the degree to which lawyers from certain law schools concentrate within law firms.

[7]This quote and subsequent quotes are from a personal interview with the firm's managing director.

Data from the firm are for the time period 2005 to 2010, with observations at the individual-month level and sample sizes of 4,745 leader-months and 9,685 associate-months. Over the six-year time period, the data set includes 431 unique lawyers who are part of 168 different teams. There are 131 leaders, some of whom sequentially lead different teams, and 369 associates, with 69 associates promoted to the position of leader at some point 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 gender, law school attended, tenure at the firm, number of hours spent working, number of billable hours, measures of the compensation received, and revenues generated. We calculate non-billable hours as the difference between the total hours spent working and the number of billable hours. To protect confidentiality, hours are normalized to a base of 1,800 total annual hours in January 2005, compensation is adjusted for inflation using the country's Consumer Price Index (CPI), and compensation is converted to U.S. dollars using the 2005 exchange rate.[8]

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 the leader's output because it directly corresponds to what generates short-run revenue for the firm.[9]

Monthly data are available for each lawyer's total compensation and salary. Although we do not have compensation breakdowns by type of incentive (i.e., amounts paid for billable time and the subjective bonus), the managing director explained in an interview that leaders' incentives for billable hours fell after June 2007. The percentage of client revenue that was paid to a leader for the hours he or she billed fell from a range of 30 to 50% prior to June 2007 to 15% after June 2007. The profits of the firm were instead paid to the leaders in the form of higher salaries, bonuses for leadership performance (described later), and higher profit-sharing.[10] The compensation change represented a shift away from emphasizing variable pay and toward a more mixed compensation package with a much larger component of fixed pay. Table 1 shows that total compensation for leaders was largely unchanged in the pre-leadership incentive and post-leadership incentive periods (hereafter pre- and post-periods), but salaried pay rose markedly. The difference—the pay for performance—declined substantially.

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[8]This deflation and conversion allows us to present monetary values in constant U.S. dollars.

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

[10]As shown by Prendergast (2000, 2002), increasing salary reduces the riskiness of pay. It also reduces gaming behavior (Larkin 2014).

Table 1. Summary Statistics

Leader pre-period	*Mean*	*Standard deviation*	*Observations*
Billable hours	146.27	74.11	1,417
Non-billable hours	20.79	24.59	1,417
Tenure months	65.80	41.46	1,417
Size of team	3.13	1.53	1,417
Total income	$22,013.71	$10,540.28	1,417
Total salary	$1,233.40	$2,840.47	1,417
Leader post-period			
Billable hours	132.61	62.46	3,268
Non-billable hours	28.20	30.29	3,268
Tenure months	85.25	47.58	3,268
Size of team	4.13	2.14	3,268
Total income	$20,866.14	$9,719.91	2,349
Total salary	$6,095.95	$4,530.14	2,349
Associates pre-period			
Billable hours	128.71	55.39	3,266
Non-billable hours	23.86	27.25	3,266
Tenure months	41.12	26.94	3,266
Size of team	4.16	1.70	3,266
Team leader's billable hours	137.53	81.70	3,266
Total income	$10,090.50	$4,665.17	3,249
Total salary	$923.96	$815.11	3,249
Associates post-period			
Billable hours	131.75	55.34	6,159
Non-billable hours	24.50	26.70	6,159
Tenure months	41.31	30.05	6,159
Size of team	5.28	2.10	6,159
Team leader's billable hours	134.36	61.88	6,159
Total income	$8,962.22	$4,128.96	4,391
Total salary	$1,709.97	$793.00	4,391

Notes: Hours are monthly and are normalized by a base of 1,800 total annual hours in January 2005. Income and salary are monthly and are adjusted for inflation. Tenure is measured in months. Team size includes the leader and the associates. The differences in average team size for leaders and associates are attributable to having only one leader but many associates on a large team. Pre-period is the period before leadership incentives were introduced and post-period is the period when leadership incentives are in place.

Associates also experienced a decrease in individual incentive pay and an increase in salary after June 2007, but they are unable to choose how they allocate their time between billable and non-billable hours because 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.

Empirical Hypotheses

The firm used high-powered individual incentives, or "eat what you kill" compensation practices, until June 2007, when individual incentives for billable hours were reduced and leadership incentives were introduced.

Although there was a significant change in the compensation plan, the firm's management and production structures were unchanged. Therefore, we are able to attribute the changes we observe after June 2007 to the change in the compensation plan.[11] Leadership incentive pay is determined by objective and subjective evaluation of activities that fall into one of the five following categories (the percentage value in parentheses represents the category's weight in determining leadership incentive pay): 1) Contribution to institutional image (15%), that is, setting the future direction of the firm and enhancing its reputation (done in part through client selection, conference presentations, and writing newspaper articles); 2) Commercial performance (25%), that is, enhancing long-run commercial success (through cross-selling or attracting business to the firm); 3) Financial performance (25%), contributing to financial success (through selection of good clients and controlling costs); 4) Professional development (20%), through training, mentoring, and managing associates; and 5) Active in management (15%), that is, spending time on managing the firm, including attending firm meetings.[12] In a multitasking environment, we would expect leaders to respond to the change in compensation by shifting some time spent on billable client work to leadership activities that are conducted during non-billable hours. Leaders' non-billable hours measure the time leaders spend on activities that benefit the long-run growth of the firm.

Hypothesis 1: Following a shift toward leadership incentives, leaders' billable hours will decrease and non-billable hours will increase.

To test Hypothesis 1, we estimate the following regressions:

$$h_{it}^{L} = \psi^{L} + \eta^{L} I_t + X_{it}^{L}\theta_1^{L} + \sigma_i^{L} + \delta_j^{L} + \tau_t^{L} + \varepsilon_{it}^{L} \quad (1)$$

$$f_{it}^{L} = \phi^{L} + \rho^{L} I_t + X_{it}^{L}\theta_2^{L} + \kappa_i^{L} + \omega_j^{L} + \lambda_t^{L} + \nu_{it}^{L} \quad (2)$$

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 at time t, X_{it} is a set of controls for tenure and team size, 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 leadership incentives.

[11]The managing director of the firm also informed us that there were no changes in the firm's business model that coincided with the move toward leadership incentives. The business continued to grow—increasing the number of associates and partners—but this growth should not affect the composition of hours of work.

[12]These activities will occur during work time that is not directly billable to a specific client, with the possible exception of training.

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 standards for baseline billable hours. The calendar months fixed effect, τ_t or λ_t, permit some months to be busier than other months. The country where this firm is headquartered experienced a recession lasting four quarters. Because this overlaps with the time period of our study, all regressions include a dummy variable labeled "Recession" for the recession months. Robust standard errors are clustered at the individual level to account for correlations across observations of the same individual.

When the firm shifts to paying more for non-billable leadership activities and less for billable hours, the teams still must meet their clients' needs. Therefore, one goal of the plan was to shift more billable hours to the associates in the firm. The leaders of the team make the decisions on how much associates work.

Hypothesis 2: Following a shift toward leadership incentives, associates' billable hours will increase. Because associates are not as productive as team leaders, the rise in associates' billable hours should exceed the fall in leaders' billable hours.

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

$$h_{it}^A = \psi^A + \eta^A I_t + X_{it}^A \theta_1^A + \sigma_i^A + \delta_j^A + \tau_t^A + \varepsilon_{it}^A \tag{3}$$

where a superscript A is for associates and the variables are defined as above in Equation (1). We expect that $\eta^A > 0$ and $\eta^A > |\eta^L|$.

No clear prediction could be made on the impact of the change in the compensation plan on associates' non-billable hours. If leaders are spending more non-billable time on mentoring associates, the associates might also be spending more time being mentored. Alternatively, because associates are predicted to be spending more time on billable activities, their non-billable time would fall if their total work hours remain constant. We estimate the impact of the change in the compensation plan on associates' non-billable hours with the following regression:

$$f_{it}^A = \phi^A + \rho^A I_t + X_{it}^A \theta_2^A + \kappa_i^A + \omega_j^A + \lambda_t^A + \nu_{it}^A \tag{4}$$

where variables are defined as above in Equation (2). This empirically tests the degree of substitutability between the two tasks for associates and the impact on the total hours worked.[13]

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

Associates' billable hours should also vary with their leaders' hours. Some leaders are "rainmakers" and bring in a lot of business, and other leaders bring in less business. Those bringing in a lot of business will share it with their associates in order to complete the clients' work. Thus, we would expect to see associates' billable hours increasing with the billable hours of their leader. Whether this effect increases when leadership incentives are introduced is an empirical question that we can test with our data.

Hypothesis 3: Associates' billable hours should rise with the billable hours of their leader; it is possible this effect increases after the move toward paying leaders more for leadership activities (i.e., the rainmakers may shift even more hours to their associates).

To test this hypothesis, we estimate the following regression:

$$h_{it}^{A} = \psi^{A} + \eta^{A} I_t + \zeta h_{it}^{L} + \xi\left(h_{it}^{L} * I_t\right) + X_{it}^{A}\theta_1^{A} + \sigma_i^{A} + \delta_j^{A} + \tau_t^{A} + \varepsilon_{it}^{A} \quad (5)$$

where the variables are defined as above in Equation (3). 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 $\eta + \zeta + \xi$ under the new compensation plan. Leaders who bring in more business (and thus have more billable hours that the team must complete), will have associates who bill more hours. Thus, we expect $\zeta > 0$. Furthermore, $\xi > 0$ would indicate that rainmakers shift even more hours to the associates after the introduction of leadership incentives; there is no clear prediction for this parameter.

Empirical Results

Summary Statistics

Variable means in Table 1 suggest some patterns that will be explored below in the regressions. After the introduction of incentives for leadership, average billable hours for leaders drop and their non-billable hours rise. Associates' billable hours increase and their non-billable hours are unchanged. Note that this is a young firm: the average tenure for leaders rises from 5.5 years to 7.1 years and average tenure for associates is 3.4 years. The short tenure of associates is attributable to new hires and to exits as associates are promoted or leave the firm.

Leader Billable and Non-Billable Hours

Table 2 shows the results of estimating Equations (1) and (2). Leadership incentives is a dummy variable equal to 1 in months when the new compensation plan is in effect. The results are largely consistent with Hypothesis 1. Leaders decreased their billable hours by 7.6 hours after the introduction of leadership incentive pay, though the decrease is significant at only the

Table 2. Leader Billable and Non-Billable Hours

	(1) *Leader billable hours*	*(2)* *Leader non-billable hours*	*(3)* *Leader total hours*
Leadership incentives	−7.57*	7.00***	−0.57
	(4.53)	(2.05)	(3.95)
Tenure	0.049	−0.12	−0.068
	(0.14)	(0.095)	(0.15)
Tenure squared	−0.0013	0.0012	−0.00016
	(0.0010)	(0.00072)	(0.00094)
Size of team	2.66**	0.38	3.04***
	(1.08)	(0.45)	(0.95)
Recession	−8.44***	0.83	−7.62**
	(3.15)	(1.16)	(3.19)
Constant	140.1***	16.1***	156.2***
	(8.20)	(4.53)	(7.71)
Practice area dummies	Yes	Yes	Yes
Month dummies	Yes	Yes	Yes
N	4,685	4,685	4,685
Number of lawyers	131	131	131
R^2	0.402	0.509	0.411

Notes: Leadership incentives is a dummy variable equal to 1 in months when the new compensation plan is in effect. Hours normalized by U.S. average for confidentiality. Robust standard errors clustered at the individual level. Individual fixed effects included in all regressions.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

10% level (column (1)). Leader non-billable hours increased by 7.0 hours (or 33%) after the introduction of leadership incentive pay (column (2)), a significant and substantial increase in time spent on non-billable activities.[14] Leaders do not change their total work hours following the shift to leadership incentive pay; the increase in non-billable hours is offset by a drop in billable hours of the same magnitude. In the total hours worked regression (column (3)), the coefficient on the treatment effect of leadership incentives is not statistically significant. 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. Billable hours fall in the recession.

The new compensation plan for leaders was rolled out across the entire firm simultaneously. Therefore, we do not have a control group, and we are estimating the before/after effects of the change in compensation.[15] Because no other organizational changes occurred at the time of the compensation change, it is reasonable to assume that the changes in allocation

[14]Our results are in keeping with the multitasking findings of Helper et al. (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 marginally significant drop in our measure of individual output (an easy-to-observe task) and a 33% increase in our measure of leadership (a hard-to-observe task).

[15]For an example of an article that has a control group, see Griffith and Neely (2009) who studied the introduction of a change in compensation plans in the retail plumbing sector.

Table 3. Associate Billable and Non-Billable Hours

	(1) Associate billable hours	*(2) Associate non-billable hours*	*(3) Associate total hours*	*(4) Difference between average associate and leader billable hours*	*(5) Associate billable hours*
Leadership incentives	9.23***	−0.23	9.05***	12.8***	−2.16
	(3.22)	(1.56)	(3.14)	(4.53)	(5.11)
Team leader's billable hours					0.16***
					(0.019)
Leader billable x leadership					0.079***
					(0.025)
Tenure	−0.0087	−0.24***	−0.26*	−0.046	0.13
	(0.15)	(0.074)	(0.14)	(0.17)	(0.14)
Tenure squared	−0.0011	0.0012*	0.00014	0.0015	−0.0021*
	(0.0013)	(0.00068)	(0.0012)	(0.0010)	(0.0012)
Size of team	0.29	0.18	0.48	−1.04	−0.39
	(0.48)	(0.27)	(0.43)	(1.31)	(0.46)
Recession	−8.76***	2.39***	−6.34***	−0.88	−6.79***
	(2.16)	(0.90)	(2.03)	(3.63)	(2.02)
Constant	71.7***	43.6***	115.3***	−12.5	68.1***
	(11.8)	(6.97)	(9.68)	(10.3)	(12.8)
Practice area dummies	Yes	Yes	Yes	Yes	Yes
Month dummies	Yes	Yes	Yes	Yes	Yes
N	9,425	9,425	9,425	3,966	9,425
Number of lawyers	369	369	369	119	369
R^2	0.286	0.470	0.290	0.258	0.331

Notes: Leadership incentives is a dummy variable equal to 1 in months when the new compensation plan is in effect. Hours normalized by U.S. average for confidentiality. Robust standard errors clustered at the individual level. Individual fixed effects included in all regressions.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

of time observed in Table 2 are a result of the change in the compensation plan.

Associate Billable and Non-Billable Hours

Table 3 shows the results of estimating Equations (3), (4), and (5). We find that associates experience an increase in their billable hours after the introduction of leadership incentives, supporting Hypothesis 2 (column (1)). Associate billable hours increase by 9.2 hours (a 7% rise) following the shift to leadership incentive pay. This effect is sizable and highly significant.[16] There is no prediction for associate non-billable hours, and these hours show no change after the introduction of leadership incentive pay (column

[16]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. Billable hours fall in the recession.

(2)). Consistent with the increase in billable hours and no change in non-billable hours, total work by associates increases by 9 hours (column (3)).

Additionally, evidence suggests that, with leadership incentives in place, associates gain billable hours within teams, relative to their leaders. In the regression in Table 3, column (4), 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 12.8 hours.

The change in the leaders' incentive plan resulted in leaders allocating more billable hours to the associates. As discussed earlier, the associates also experienced a decrease in individual incentive pay and an increase in salary after June 2007. These two latter changes might be predicted to lead to a decrease in associates' billable hours; the fact that we observe an increase in associates' billable hours in Table 3 indicates that the effect of the change in the leaders' incentive plan swamped the impact of the change in the associates' incentive plan.

Column (5) shows the results of estimating Equation (5). We find that ζ is 0.16 (row (2)) and that $\xi > 0$ (row (3)). Although the leadership incentive dummy variable is insignificant, we can reject that the leadership incentive dummy variable and the interaction term are both 0 at the 1% level. Column (5) shows that a 10-hour increase in leader billable hours results in an additional 3 hours of associate billable hours per team before leadership incentives, but almost 5 additional associate hours per team after leadership incentives are introduced.[17] Thus, the introduction of leadership incentives results in a larger increase in billable hours for associates whose leaders have more billable hours.

Our results demonstrate that the change in incentive pay leads to a substantial change in the way lawyers do business. Each leader increases his non-billable hours by about 7 hours per month and decreases his billable hours by 7.6 hours per month (Table 2). On average, associates increase their billable hours by 9 hours per month (Table 3). Because every leader has an average of two associates on his team, the total billable hours of the associates rises by 18 hours per team. In a later section, we examine the cost and revenue effects of these changes.

Robustness

Table 4 shows three robustness checks for leader's billable and non-billable hours and Table 5 shows three robustness checks for associates' billable and non-billable hours. Additional robustness checks are discussed below but are not included in the tables.

[17]Calculations based on coefficient estimates and two associates per team.

Table 4. Robustness Checks for Leader Billable and Non-Billable Hours

	(1) Leader billable hours	*(2) Leader non-billable hours*	*(3) Leader billable hours*	*(4) Leader non-billable hours*	*(5) Leader billable hours*	*(6) Leader non-billable hours*
Leadership incentives	−9.42	8.78***	−2.63	7.82***	−8.07*	6.94***
	(5.97)	(2.64)	(6.82)	(2.87)	(4.59)	(2.07)
Tenure	−0.00056	−0.10	−0.11	−0.15	0.075	−0.11
	(0.14)	(0.098)	(0.18)	(0.11)	(0.14)	(0.097)
Tenure squared	−0.00096	0.00097	−0.00058	0.0013	−0.0014	0.0011
	(0.0010)	(0.00074)	(0.0012)	(0.00078)	(0.0011)	(0.00073)
Size of team	2.60**	0.31	2.59**	0.37	2.73**	0.36
	(1.12)	(0.47)	(1.06)	(0.45)	(1.12)	(0.46)
Senior leader			12.8	2.59		
			(8.97)	(5.41)		
Senior leader x leadership incentive			−8.12	−1.28		
			(9.23)	(2.73)		
Constant	140.9***	18.6***	139.5***	16.0***	133.3***	17.3
	(7.96)	(4.50)	(8.11)	(4.60)	(12.6)	(10.7)
Recession	−7.40**	0.43	−8.37***	0.84	−8.46***	0.94
	(3.01)	(1.35)	(3.13)	(1.16)	(3.18)	(1.13)
Practice area dummies	Yes	Yes	Yes	Yes	Yes	Yes
Month dummies	Yes	Yes	Yes	Yes	Yes	Yes
Month/practice area interaction	No	No	No	No	Yes	Yes
Person fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,215	4,215	4,685	4,685	4,685	4,685
Total lawyers	131	131	131	131	131	131
R^2	0.401	0.525	0.403	0.509	0.401	0.511

Notes: Leadership incentives is a dummy variable equal to 1 in months when the new compensation plan is in effect. Senior leader is a dummy variable for being a leader with above average tenure. Senior leader x leadership incentives is the product of the leadership incentives variable and the senior leader variable. Columns (1) and (2) omit the transition period. Columns (3) and (4) consider whether senior leaders responded differently to the change in compensation. Columns (5) and (6) add interaction terms between practice areas and the month dummy variables. Robust standard errors clustered at the individual level. Individual fixed effects included in all regressions.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

First, 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 comparable (see Table 4, columns (1) and (2), and Table 5, columns (1), (2), and (7)).

The second robustness check for leaders considers 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 Table 4, columns (3) and (4)). 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.[18] There is also no difference in how billable hours change for associates as a function of their tenure (not shown).

The second robustness check for the associates is shown in Table 5, columns (3), (4), and (8), 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 addition of the team dummy variables does not affect our results.[19]

In the third robustness check, we consider whether the results are sensitive to seasonal factors or business cycle factors and allow the practice areas to have different seasonal effects by interacting practice areas with month dummy variables. The results, shown in Table 4, columns (5) and (6), and Table 5, columns (5), (6), and (9), are largely unchanged compared to Tables 2 and 3.

We performed additional robustness checks not shown in Tables 4 and 5. We 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 differently with a team that 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 1 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 1 if the leader went to the same law school as the associate. In neither case was the coefficient on the law school variable significant. For associates, we have interacted the dummy variable for attending the same law school as the leader with the leadership incentives variable and found insignificant results. Behavior does not appear to vary based on the educational connections between leader and associates.

Finally, we added interactions between leadership incentives and gender and found no significant differences in the way male lawyers and female lawyers responded to the change in the compensation plan. In sum, the results presented in Tables 2 and 3 are robust to numerous alternative specifications.

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[18]In the firm that Griffith and Neely (2009) studied, inexperienced managers were unable to optimize their behavior in response to the introduction of new performance metrics.

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

Table 5. Robustness Checks for Associate Billable and Non-Billable Hours

	(1) *Associate billable hours*	*(2)* *Associate non-billable hours*	*(3)* *Associate billable hours*	*(4)* *Associate non-billable hours*	*(5)* *Associate billable hours*	*(6)* *Associate non-billable hours*	*(7)* *Associate billable hours*	*(8)* *Associate billable hours*	*(9)* *Associate billable hours*
Leadership incentives	11.3***	−1.43	9.46***	0.62	9.31***	−0.17	−1.38	−1.49	−2.38
	(4.26)	(2.06)	(3.09)	(1.58)	(3.26)	(1.57)	(5.59)	(5.64)	(5.22)
Team leader's billable hours							0.16***	0.17***	0.16***
							(0.019)	(0.022)	(0.019)
Leader billable x leadership							0.086***	0.078***	0.081***
							(0.026)	(0.028)	(0.026)
Tenure	−0.12	−0.20***	0.028	−0.23***	−0.0063	−0.25***	0.034	0.17	0.13
	(0.15)	(0.076)	(0.15)	(0.075)	(0.15)	(0.074)	(0.14)	(0.14)	(0.14)
Tenure squared	−0.00037	0.00095	−0.0018	0.0015**	−0.0011	0.0012*	−0.0015	−0.0025**	−0.0021*
	(0.0014)	(0.00070)	(0.0013)	(0.00068)	(0.0013)	(0.00068)	(0.0013)	(0.0012)	(0.0012)
Size of team	0.0088	0.22	−0.37	−0.23	0.41	0.15	−0.54	−1.23*	−0.29
	(0.46)	(0.27)	(0.63)	(0.35)	(0.48)	(0.27)	(0.45)	(0.65)	(0.46)
Constant	79.2***	42.3***	45.6**	30.9***	69.0***	42.4***	73.8***	37.4*	65.5***
	(11.8)	(6.67)	(19.2)	(5.83)	(9.61)	(9.14)	(12.8)	(19.7)	(10.7)
Recession	−9.37***	2.93***	−8.11***	2.72***	−8.74***	2.42***	−7.25***	−6.02***	−6.72***
	(2.18)	(0.92)	(2.21)	(0.93)	(2.19)	(0.90)	(2.07)	(2.08)	(2.03)
Practice area dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month/practice area interaction	No	No	No	No	Yes	Yes	No	No	Yes
Team dummies	No	No	Yes	Yes	No	No	No	Yes	No
Person fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,643	8,643	9,425	9,425	9,425	9,425	8,643	9,425	9,425
Total lawyers	367	367	369	369	369	369	367	369	369
R^2	0.297	0.474	0.313	0.507	0.290	0.473	0.341	0.357	0.333

Notes: Leadership incentives is a dummy variable equal to 1 in months when the new compensation plan is in effect. Leader billable x leadership is the product of the leadership incentives variable and the leader's billable hours. Columns (1), (2), and (7) omit the transition periods. Columns (3), (4), and (8) include team dummy variables. Columns (5), (6), and (9) include interaction terms between practice areas and month dummy variables. Robust standard errors clustered at the individual level. Individual fixed effects included in all regressions.

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Turnover

The change in the compensation plan may have increased the turnover of leaders and associates because those hired under the old plan may be dissatisfied with the new plan. To examine this, Weibull duration models are estimated, where $h(t)$ is the rate at which the employee exits given that he has survived until time t. In the Weibull model, the hazard can be written as $h(t) = h_0(t)e^{X'\beta}$, where $h_0(t) = pt^{p-1}$ and p is the shape parameter. X represents the characteristics of the person and the job. This equation models the instantaneous transition from the start of the job to the exit, given that the employee has survived to time t. In this hazard function, if $p < 1$, we have negative duration dependence, meaning that lawyers with greater tenure have lower exit rates, whereas $p > 1$ indicates positive duration dependence. The exponentiated coefficients capture the effect of a one-unit increase in a particular variable on the hazard ratio and changes in regressors shift the baseline hazard, $h_0(t)$. Exponentiated coefficients are reported in Table 6; a coefficient that is greater than 1 indicates that the variable increases the exit hazard rate, and a variable with a coefficient less than 1 reduces it. The levels of significance—as indicated by asterisks in the table—are assessed based on original coefficients and standard errors.

In addition to the leadership incentives variable, the regressions contain a set of control variables, including female, tenure, whether the lawyer attended the same law school as one team member, whether the attorney has been on the same team during his tenure as of time period t, and the size of the team. For associates, there is an indicator if the associate was ever a trainee at the firm, and an indicator if the leader attended the same law school. Included last are billable hours and their interaction with leadership incentives.

Results in Table 6 show no significant change in turnover due to the change in compensation methods (the coefficients on leadership incentives are insignificant). The primary effect is billable hours: associates and leaders with more billable hours are less likely to exit the firm, and this effect is unchanged after the introduction of the new compensation plan. Having been a trainee at the firm strongly reduces the exit rate for associates. Tenure also modestly raises the associates' exit rate; this is an up-or-out system, so as associates age, they leave.

Employee Compensation

The change in incentive pay—toward leadership activities and away from billable hours—could change the income received by leaders. Table 2 shows that total hours of work are unchanged after the treatment. Table 7 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.

Table 6. Leader and Associate Turnover

	(1) *Associate turnover*	*(2)* *Leader turnover*
Leadership incentives	1.61	1.29
	(0.57)	(0.81)
Female	0.85	1.03
	(0.16)	(0.34)
Tenure	1.03**	1.00
	(0.014)	(0.010)
Tenure squared	1.00**	1.00
	(0.00013)	(0.000054)
Same law school as leader	1.04	
	(0.32)	
Same law school as one team member	0.72	0.71
	(0.18)	(0.33)
Same team for entire tenure	1.24	1.10
	(0.26)	(0.42)
Size of team	1.02	0.93
	(0.033)	(0.10)
Ever trainee	0.64**	
	(0.14)	
Billable hours	0.98***	0.97***
	(0.0037)	(0.0079)
Billable hours * leadership incentives	1.00	1.00
	(0.0045)	(0.0092)
P	1.06	1.49
	(0.10)	(0.34)
N	7,207	4,570
Number of lawyers	293	131

Notes: Hours normalized by U.S. average for confidentiality. Exponentiated coefficients from Weibull duration models are reported. Robust standard errors clustered at the individual level. In column (1), associates who were promoted are deleted from the regression. *P* is the shape parameter.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

The change in incentive pay for leaders could also change the pay of associates, as they shift toward more billable hours. Table 7, column (3) shows that associates' total income increased by 11% in the post-period.[20] In Table 3 we had shown that in the post-period, associates' billable hours increased by 7%.

Table 7, columns (2) and (4) show that after the change in the firm's compensation plan, the composition of compensation changed, with an increase in the salaried component. Salaries increased by 55% for associates and more than doubled for leaders.

[20]This finding differs from the summary statistics in Table 1 that include associates who earn less in the post-period because they were hired in that period.

Table 7. 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	0.0023	2.24***	0.11***	0.55***
	(0.022)	(0.11)	(0.034)	(0.10)
Tenure	0.0022**	0.016***	0.012***	−0.014***
	(0.00091)	(0.0039)	(0.0017)	(0.0040)
Tenure squared	0.0000049	0.000027	−0.000044***	0.00027***
	(0.0000057)	(0.000031)	(0.000016)	(0.000045)
Size of team	−0.0049	−0.034	−0.0023	0.028**
	(0.0053)	(0.031)	(0.0055)	(0.011)
Recession	−0.046***	−0.10***	0.088***	−0.028
	(0.0089)	(0.032)	(0.017)	(0.022)
Constant	9.83***	4.78***	8.42***	6.22***
	(0.049)	(0.20)	(0.097)	(0.19)
Practice area dummies	Yes	Yes	Yes	Yes
Month dummies	Yes	Yes	Yes	Yes
N	3,496	3,596	7,453	7,563
Number of lawyers	110	107	310	313
R^2	0.816	0.811	0.779	0.692

Notes: Compensation is adjusted for inflation and normalized to U.S. dollars for confidentiality. Robust standard errors clustered at the individual level. Individual fixed effects included in all regressions. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Revenue and Personal Profits

The data set provides information on the revenue each lawyer generates, that is, the amount paid by the client to the firm for the lawyer's billable hours. Utilizing this data, we consider if revenue per billable hour has changed with the change in incentive pay. In Table 8 we examine the determinants of revenue per hour (revenue divided by billable hours) and find that revenue per hour has not changed over time. Each billable hour brings in the same amount of inflation-adjusted revenue in the pre- and post-periods.

A second important question is whether the change in the compensation plan had a positive impact on the personal profits generated by the leaders and associates. We define "personal profits" as the difference between the revenue generated by each lawyer (the amount paid by the client to the firm for the lawyer's billable hours) minus the compensation the firm pays the lawyer.[21] These personal profits do not measure the firm's profits because they exclude some costs such as employee benefits and overhead, which are unavailable to us.

[21]Unlike the compensation regressions in Table 7, which use a logarithmic functional form, the regressions in Table 9 study profit, revenue, and compensation levels. We do this to decompose the effects on profits into the effects on revenue and compensation. We have also estimated the Table 9 regressions using a logarithmic specification and our findings are unchanged.

Table 8. Revenue per Billable Hour

	(1) *Leader revenue per hour*	*(2)* *Associate revenue per hour*
Leadership incentives	146.7	144.7
	(154.8)	(115.6)
Tenure	5.31**	−7.50
	(2.32)	(8.22)
Tenure squared	−0.054**	0.040
	(0.026)	(0.039)
Size of team	−20.1	−0.76
	(15.8)	(7.93)
Recession	20.0	12.6
	(30.8)	(28.0)
Constant	114.9	213.3
	(92.4)	(194.8)
Practice area dummies	Yes	Yes
Month dummies	Yes	Yes
N	3,756	7,621
Number of lawyers	111	311
R^2	0.025	−0.001

Notes: Hours normalized by U.S. average for confidentiality. Robust standard errors clustered at the individual level. Individual fixed effects included in all regressions.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Leaders' personal profits are unchanged with the introduction of leadership incentives (Table 9, column (1)).[22] Separating the components of personal profits into revenue and compensation shows an insignificant impact of the change in the compensation plan on each. Apparently, the decline in leaders' billable hours was sufficiently small that it did not affect their personal revenues and compensation.

Personal profits from associates increase significantly after the change in the compensation plan (Table 9, column (4)). The increase in associate profits comes from increases in revenue and occurs despite increases in compensation. Recall that associates received more billable hours, increasing the revenue they personally bring in, but their compensation also rose. The revenue increase is larger than the compensation increase, resulting in higher personal profits. Associates were previously underutilized by the firm. The compensation change shifted billable hours to the associates, thereby increasing their contribution to the firm. These results indicate that the firm benefited from the short-run response by associates who were employed at the firm in both the pre- and post-periods.

[22]The sample sizes in Tables 8 and 9 are smaller than the corresponding samples in Tables 2 and 3 because revenue data are not available for 2010. We also estimated the regressions in Tables 2 and 3 on these smaller samples and found very similar results regarding the decrease and increase in billable hours of leaders and associates.

Table 9. Personal Profits, Revenue, and Compensation by Individual

	(1) Leader personal profits	*(2) Leader revenue*	*(3) Leader compensation*	*(4) Associate personal profits*	*(5) Associate revenue*	*(6) Associate compensation*
Leadership incentives	−160.3	−432.4	−272.1	972.3**	1583.9***	611.6**
	(1525.3)	(1427.3)	(522.7)	(393.8)	(346.4)	(275.4)
Tenure	119.3**	142.2***	22.9	43.3**	104.3***	61.0***
	(51.5)	(53.0)	(33.6)	(20.7)	(22.4)	(11.3)
Tenure squared	−1.46***	−1.17***	0.30	−0.67***	−0.69***	−0.027
	(0.37)	(0.38)	(0.27)	(0.23)	(0.21)	(0.13)
Size of team	623.7	743.7**	120.1	29.1	35.3	6.20
	(381.5)	(326.2)	(201.4)	(66.3)	(75.7)	(38.2)
Recession	177.1	−1295.4*	−1472.5***	−353.6	264.1	617.8***
	(678.2)	(690.7)	(317.3)	(272.2)	(262.4)	(113.5)
Constant	−1085.7	15920.0***	17005.8***	−4413.2***	572.2	4985.4***
	(3148.6)	(2742.2)	(1419.5)	(957.6)	(1060.4)	(622.2)
Practice area dummies	Yes	Yes	Yes	Yes	Yes	Yes
Month dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	3,766	3,766	3,766	7,640	7,640	7,640
Number of lawyers	111	111	111	314	314	314
R^2	0.105	0.256	0.760	0.080	0.207	0.806

Notes: "Personal profits" are defined as the difference between the revenue generated by each lawyer (i.e., the amount paid by the client to the firm for the lawyer's billable hours) minus the compensation the firm pays the lawyer. Hours normalized by U.S. average for confidentiality. Robust standard errors clustered at the individual level. Individual fixed effects included in all regressions.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

The goal of the change in the compensation plan was to make the firm more profitable in the long run. Table 9 shows that the revenue brought in by each associate rose modestly after the change in the compensation plan. We are unable to estimate the long-run impact of the compensation plan on profitability.

Conclusion

In deciding how to design a compensation plan, firms must solve the multitasking problem: If rewards for individual performance omit important contributions to the firm, employees will not allocate time to these tasks. In this article, we study an international law firm that changed its compensation plan for team leaders from one that used a formula based on billable hours to one that both reduced the incentive pay for billable hours and added compensation based on objective and subjective evaluations of the leaders'

non-billable leadership activities. Because individual output and leadership activities were both valuable to the firm, the new compensation plan aimed to balance the tradeoff between the two. Among law firms today, this is the fastest-growing compensation system, regardless of the country in which the law firm is based (Wesemann and Jarrett-Kerr 2012). Most law firms now base pay on a combination of personal performance in serving clients, generating new business, and managing the firm. Our data enable us to identify the impact of moving to this approach to compensation and thereby provide insights on the likely impacts of these compensation plans in similar work settings.

We find that the change in the leaders' compensation plan resulted in the team leaders increasing their non-billable hours—with no change in total hours worked—and allowed for a shift toward increased leadership activities. An interesting by-product of the change in the leaders' compensation plan is that the billable hours of the team members increased as the leaders decreased their own billable hours. While the motivation for the change in the compensation plan was the multitasking problem, this change also affected how tasks were allocated within each team, resulting in associates engaging in more billable hours. The change in the compensation plan had a positive short-run impact on the personal profits generated by associate lawyers who worked at the firm both before and after the change.

Even though our results come from a single law firm, our findings are likely to apply to other law firms, as well as to other professional service firms. Most of the literature on incentive pay has studied manufacturing and agriculture; we show that the performance of leaders in a service setting responds to changes in incentive pay, and that this affects the performance of their subordinates.

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