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Compensation and Incentives: Practice vs. Theory

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ABSTRACT

A thorough understanding of internal incentive structures is critical to developing a viable theory of the firm, since these incentives determine to a large extent how individuals inside an organization behave. Many common features of organizational incentive systems are not easily explained by traditional economic theory—including egalitarian pay systems in which compensation is largely independent of performance, the overwhelming use of promotion-based incentive systems, the absence of up-front fees for jobs and effective bonding contracts, and the general reluctance of employers to fire, penalize, or give poor performance evaluations to employees. Typical explanations for these practices offered by behaviorists and practitioners are distinctly uneconomic—focusing on notions such as fairness, equity, morale, trust, social responsibility, and culture. The challenge to economists is to provide viable economic explanations for these practices or to integrate these alternative notions into the traditional economic model.

ECONOMISTS HAVE GROWN INCREASINGLY interested in the theory of the firm in recent years.[1] These efforts have focused on the relations between markets and hierarchies, the influence of organization-specific assets, corporate governance systems, and the agency problems caused by conflicts of interest among the contracting parties that make up the firm. One of the more important, but least analyzed, factors affecting organizational behavior is the internal incentive structure which includes the management of human resources in general, and compensation policies in particular. A thorough understanding of internal incentives is critical to developing a viable theory of the firm, since they largely determine how individuals behave in organizations.

Our economic understanding of internal incentive structures is far from complete. There has been an enormous amount of research in the economics of

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[1] A partial list of some of this work includes Coase [6], Alchian and Demsetz [1], Williamson [45], Stiglitz [41], Jensen and Meckling [20], Fama and Jensen [12, 13], Holmström and Tirole [19] and the papers at the May 1987 Yale conference in honor of Ronald Coase.

contracting,[2] but this increasingly technical research has generated few empirical implications, and offers little guidance in understanding actual compensation arrangements in large organizations. There are many common and important features of organizational incentive systems that economists have not studied extensively including pay systems that are largely independent of performance, the overwhelming use of promotion-based incentive systems, egalitarian pay systems apparently motivated by horizontal equity considerations, the asymmetric effects of rewards and punishments, tenure and up-or-out promotion systems, survey-based and seniority-based pay systems, profit sharing, holiday bonuses, the generally rare observation of bonding and up-front entry fees for jobs, "efficiency wages", and the general reluctance of employers to fire, penalize, or give poor performance evaluations to employees.

In this paper, we discuss aspects of compensation where current economic theory and actual practice seem particularly disassociated, and we summarize empirical evidence that is inconsistent with our traditional economic theories. Typical explanations offered by psychologists, behaviorists, human resource consultants, and personnel executives are distinctly uneconomic—focusing on notions such as fairness, equity, morale, trust, social responsibility, and culture. The challenge to economists is to provide viable economic explanations for these practices or to integrate these alternative notions into the traditional economic model. One promising avenue is to recognize that few decision makers in organizations are one hundred percent owners of the residual claims, and this layering of agency problems can induce serious lapses in the incentives of decision makers to devise and enforce efficient contracts and compensation systems. We return to this in the last section.

Our objective is to motivate future theoretical and empirical research that will ultimately change the way economists, behaviorists and practitioners think about incentives, compensation, the management of human resources, and organizational behavior. We believe this is a major growth area for research in management and economics.

I. The Absence of Pay-for-Performance Compensation Systems

Economic models of compensation generally assume that higher performance requires greater effort or that it is in some other way associated with disutility on the part of workers. In order to provide incentives, these models predict the existence of reward systems that structure compensation so that a worker's expected utility increases with observed productivity. These rewards can take many different forms, including praise from superiors and co-workers, implicit promises of future promotion opportunities, feelings of self-esteem that come from superior achievement and recognition, and current and future cash rewards related to performance. Economists, while recognizing that nonmonetary rewards for performance can be important, tend to focus on monetary rewards because individuals are willing to substitute nonmonetary for monetary rewards and

[2] See, for example, Hart and Holmström [16], and the 142 references therein.

because money represents a generalized claim on resources and is therefore in general preferred over an equal dollar-value payment in kind.

Evidence from research on compensation plans indicates that explicit financial rewards in the form of transitory performance-based bonuses seldom account for an important part of a worker's compensation. Table I summarizes results from Medoff and Abraham [32], who examine the pay of managerial and professional employees in two large manufacturing firms and find little differences in earnings resulting from superior performance. Column 2 shows that Company A employees ranking lowest on the performance-rating scale are paid only 7.8 percent less than those ranking highest; low-ranking Company B employees receive only 6.2 percent less than high-ranking employees. Moreover, column 3 shows almost 95 percent of the employees in Company A are classified as "Good" or "Outstanding," and the implied premium for being an "Outstanding" employee rather than a "Good" employee is only 2.5 percent. Similarly, 95 percent of the Company B employees are rated "Good" or "Superior" and the premium for being "Superior" instead of "Good" is only 1.8 percent.

Lawler [28] (p. 158) cites six separate studies of the relationship between pay and performance, and finds that "their evidence indicates that pay is not very closely related to performance in many organizations that claim to have merit increase salary systems. . . . The studies suggest that many business organizations do not do a very good job of tying pay to performance. This conclusion is rather surprising in light of many companies' very frequent claims that their pay systems are based on merit. It is particularly surprising that pay does not seem to be related to performance at the managerial level." Thus, the Medoff and Abraham

Table I

Salary Premiums Associated With Performance Ratings, and Frequency Distribution of Performance Ratings, for 7,629 Managers in Two Large Manufacturing Firms

Performance Rating	Salary Premium Relative to Lowest Performance Rating	Percent of Sample Receiving Performance Rating
(1)	(2)	(3)
Company A (4,788 managers):	%	%
Not Acceptable	-0-	.2
Acceptable	1.4	5.3
Good	5.3	74.3
Outstanding	7.8	20.2
Company B (2,841 managers):		
Unacceptable	-0-	-0-
Minimum Acceptable	-0-	-0-
Satisfactory	-0-	1.2
Good	1.8	36.6
Superior	3.6	58.4
Excellent	6.2	3.8

Source: Medoff and Abraham [32], Tables I and II. Salary premiums are estimated from regressions of log (earnings) on performance-rating dummies and demographic variables.

evidence seems to be indicative of general performance measurement and compensation systems, and we have no thorough understanding of the forces responsible for these practices.

A. Is Pay an Effective Motivator?

The potential benefits of tying pay to performance are obvious, and it is surprising to economists that firms apparently resist introducing bonus-based compensation plans with enough financial "action" to have a major motivational effect. One explanation for the lack of pay-for-performance plans, offered primarily by psychologists and behaviorists, is that monetary rewards are counterproductive. Deci [8] argues that money actually lowers employee motivation, by reducing the "intrinsic rewards" that an employee receives from the job. Similarly, Slater [40] concludes that "Getting people to chase money ... produces nothing but people chasing money. Using money as a motivator leads to a progressive degradation in the quality of everything produced." Kohn [25] in his article "Incentives Can Be Bad for Business," offers three reasons why merit-pay systems are counterproductive. "First, rewards encourage people to focus narrowly on a task, to do it as quickly as possible, and to take few risks ... Second, extrinsic rewards can erode intrinsic interest ... [Finally], people come to see themselves as being controlled by a reward."

A second group of merit-pay critics argue that, while financial incentive schemes improve productivity in principle, in practice they induce significant adverse side effects that are costly to employee morale and productivity. The costs of dealing with many of the problems induced by merit systems simply outweigh the limited organizational benefits they offer.[3] Among the side effects often mentioned are horizontal equity concerns, and problems associated with imperfect performance measurement. Hamner [15] in his article "How to Ruin Motivation with Pay" argues that merit systems decrease motivation because managers systematically mismanage pay-for-performance programs.

Personnel executives often espouse the virtues of *horizontal equity* systems, which treat employees at the same level in an organization "fairly" and "equally."[4] Aggressive pay-for-performance systems ultimately involve distinguishing workers on the basis of their performance, and there is a large behavioral literature arguing that treating employees differently from each other is detrimental to employee morale. The notion is that a worker will "feel badly" if a co-worker gets a bigger bonus, and the net effect of this inequity is to reduce morale and ultimately productivity. It's difficult to provide an economic explanation for why horizontal equity is desirable, and yet it seems to be a powerful force that drives firms towards consistency of pay within job type, and even across job type when employees are viewed as being of "comparable worth." Pay scales throughout much of corporate America are determined by "job evaluation systems," which

[3] See Hamner [15] and Beer, et al. [5] for a summary of the problems associated with merit systems.

[4] General Motors VP Roy Roberts offers a refreshing alternative view that underscores the inherent ambiguity of words like *fair* and *equal*: "To treat people fairly you have to treat people differently." (Quoted in Schlesinger [39].)

"stem from the need to establish internal pay equity" (Risher [36], p. 24). Such plans set wage levels by conducting surveys within and across organizations to assess the "value of a job" according to a set of criteria such as the amount of training and education required, the total budget involved, the number of people supervised, and the amount of "independent decision-making" the job entails. Traditional economic analysis, however, would indicate these variables are important only to the extent that they affect the opportunity cost of the relevant-quality worker and the salary level that determines the optimal turnover rate.

We believe that careful examination of the criticisms of monetary pay-for-performance systems indicates not that they are ineffective but rather that they are *too* effective: strong pay-for-performance motivates people to do exactly what they are told to do. Large monetary incentives generate unintended and sometimes counterproductive results because it is difficult to adequately specify exactly what people should do and therefore how their performance should be measured. Moreover, merit-pay systems encourage employees to spend effort lobbying about both the specification and application of the system to measure and evaluate output. Viewing the dispute between economists and others as centered on the counterproductive effects of strong monetary rewards is useful: it focuses attention on how these unintended effects are generated and on their importance, rather than on arguments about whether people are motivated by money or whether they "should be" motivated by money.

B. Objective vs. Subjective Performance Measurement

Pay-for-performance systems can be based on objective measures (such as sales, divisional profits, or the number of relay switches produced) or subjective measures (such as the estimated "value" of the employee to the organization). While some jobs, such as sales, lend themselves to objective measurement, performance in most jobs cannot be measured objectively because joint production and unobservability mean that individual output is not readily quantifiable.

Objective merit systems appear to have several disadvantages over systems where performance is evaluated subjectively. One disadvantage is that misspecifying the performance measure in an objective system results in resourceful employees "gaming the system" by optimizing with respect to actual instead of intended measures. Piece-rate workers, for example, will sacrifice quality for quantity, while managers paid on the basis of annual accounting profits will sacrifice long-run profitability for short-run earnings.

Objective performance measurement and evaluation systems are hard to change because altering the measurement scheme inevitably harms some employees. Changing the rules of the game is thus costly, even when change is economically desirable. Such problems are particularly costly with piece-rate pay systems in an environment undergoing substantial technical change. Changing the standards is always contentious, and the fear of such changes generates incentives to withhold details of the production process from the performance evaluator. The threat of increased standards and reduced bonuses when production is greater than anticipated generates incentives for employees to restrict output.[5] Elimi-

[5] See Lawler [29], p. 123.

nating these incentives to restrict output requires that the compensation contract make changes in standards or piece rates difficult—except for productivity increases due to technological change and/or capital investments. Contracts preventing confiscatory standard or rate changes are, however, extremely difficult to write. They will tend to reduce the rates at which new technologies or new capital equipment is introduced. Lincoln Electric, one of the best known pay-for-performance success stories, is known to have very old equipment.[6]

Specifying the correct objective measure of employee performance is often impossible. Indeed, the primary reason decision-making authority is granted to subordinates is because they have superior specific knowledge about the job they are doing. The principal knows, in general terms, what he wants the agent to do, but the range of possible actions that the agent can take, and the range of possible outcomes, is enormous. It would be very costly for the principal to assign, *ex ante*, explicit rewards and punishments to all of the possible outcomes which might be induced by the agent's actions. Yet, *ex post*, the value of a particular outcome is much clearer.

Consider the performance-measurement process used to evaluate junior faculty at research universities. The exact nature of the evaluation scheme is not specified explicitly, although many components of what makes a good scholar can be described. Even if substantial effort were made to specify *ex ante* the correct performance-measurement formula, it is hard to imagine it would be complete. The problems arising from making such an evaluation formula explicit are obvious: assistant professors would devote time and effort to maximizing the explicit performance measure. *Ex post*, it would be painfully obvious, at least in a few cases, that good performers as measured by the formula were not the best scholars.

The problems associated with basing pay on objective measures suggest that subjective performance measures should be utilized, but subjective appraisal systems are unpopular with both employees and supervisors. Milkovich and Newman [33] (p. 334) summarize survey results indicating that thirty percent of employees believe their performance appraisals are ineffective. Supervisors tend to prefer objective measurement systems because they generate fewer conflicts with disgruntled employees than subjective systems; supervisors do not have to justify their personal assessment of performance in an objective performance-measurement system.

Psychologists and behaviorists have provided an explanation for the lack of subjective performance-evaluation systems in practice. Lawler [28] (p. 171) concludes that "pay plans based on subjective criteria have little chance of success" because employees don't *trust* superiors to accurately evaluate their performance. He argues that, "the more subjective the measure, the higher the degree of trust needed, because without high trust there is little chance that the subordinate will believe that his pay is really fairly based on performance." Similarly, Hamner [15] (p. 19) argues that employees are often dissatisfied with performance evaluations by their immediate superior and recommends that merit

[6] "Lincoln Electric Company," Harvard Business School Case No. 376028.

pay "should, whenever possible, be based on objective . . . rather than subjective measures."

Economic theory is founded on the assumption that individuals are self-interested, therefore an employee will trust his superior to take particular action (e.g., perform a careful evaluation) if he or she knows it is in his or her superior's self-interest to take the action. We don't have a well-developed economic theory of trust, but at its core trust is a set of beliefs about the veracity, honesty, and length of horizon of an individual, and the predictability and reliability of his or her future actions. Research on reputation promises to yield insights into the role of trust in employee-employer relationships. Further empirical work is required to better understand the popularity of objective performance-measurement systems and other problems associated with "trust".

Pay-for-performance systems are powerful motivators of human action, apparently so powerful that they induce counterproductive effects and the substitution of less effective motivational devices in organizations. Although not well understood, the forces leading organizations to avoid strong monetary incentives fall into two categories. The lack of trust between employees and supervisors and their distaste for conflict lead organizations to avoid pay-for-performance systems based on *subjective* performance evaluation. Similarly, problems associated with determining and modifying objective performance measures, and the dysfunctional behavior induced by resourceful employees faced with such measures, lead organizations to avoid pay-for-performance systems based on *objective* performance evaluation. The compensation system that results from this set of forces appears to be one with little or no pay for performance.

II. Promotion-Based Incentive Systems

Wage levels in a hierarchical organization are often tied to job levels in the firm and not to individuals; most of the average increases in an employee's compensation can be traced to promotions and not to continued service in a particular position. Medoff and Abraham [32], for example, find that between-job-level earnings differentials are more important than within-job-level differentials.[7] Also, Murphy [34] finds that corporate vice presidents receive average pay increases of 18.8 percent upon promotion to another vice-presidential or higher position, compared to average pay increases of only 3.3 percent in years when they remain in the same position.

Promotions in organizations serve two important and distinct purposes. First, individuals differ in their skills and abilities, jobs differ in the demands they place on individuals, and promotions are a way to match individuals to the jobs for which they're best suited. This matching process occurs over time through promotions as employees accumulate human capital and as more information is generated and collected about the employee's talents and capabilities. A second role of promotions is to provide incentives for lower level employees who value the pay and prestige associated with a higher rank in the organization.

[7] In particular, they find that the R-squares of cross-sectional earnings-profile regressions rise from .36 to .74 in Company A, and from .34 to .85 in Company B.

A. Promotion-Based Incentives vs. Bonus-Based Incentives

Promotions are used as the primary incentive device in most organizations, including corporations, partnerships, and universities. The empirical importance of promotion-based incentives, combined with the virtual absence of pay-for-performance compensation policies, suggests that providing incentives through promotion opportunities must be less costly or more effective than providing incentives through transitory financial bonuses. This prediction is puzzling to us because promotion-based incentive schemes appear to have many disadvantages and few advantages relative to bonus-based incentive schemes.

Lazear and Rosen [30] model promotions as single-period tournaments and argue that, under some conditions, risk-averse workers prefer tournaments to linear piece rates. But, their one-period framework masks many of the complexities and inherent disadvantages of actual promotion systems. The incentives generated by promotion opportunities, for example, depend on the probability of promotion which in turn depends on the identity and expected horizon of the incumbent superior. Promoting a young employee with a long expected horizon in the job commonly diminishes the incentives of the employee's former coworkers who now expect to wait a long time until their next promotion opportunity. Promotion incentives are reduced for employees who have been passed up for promotion previously and whose future promotion potential is doubtful, and incentives will be absent for employees who clearly fall short of the promotion standard or who cannot conceivably win a promotion tournament. In addition, promotion possibilities provide no incentives for anyone to exceed the standard or to substantially outperform his or her coworkers.

Another important problem with promotion-based reward systems is that they require organizational growth to feed the reward system. This means such systems can work well in rapidly growing firms, but are likely to generate problems in slowly growing or shrinking firms. Jensen [21, 22] argues that, in slowly growing firms with free cash flow, promotion-based reward systems encourage managers to spend resources on unprofitable growth rather than paying out excess cash to shareholders. The reduction in profitable growth opportunities in many industries such as oil, chemicals, manufacturing, communications, forest products, tobacco, and food in the mid 1970s, coupled with the tendency for organizations with promotion-based reward systems to engage in unprofitable growth, provides a potential explanation for much of the hostile-takeover activity that has created major controversy in the political and regulatory sectors since the early 1980s.

Bonus-based incentives, transitory in the sense that this year's bonus depends on this year's performance, do not have the problems associated with promotion-based incentives. Bonus schemes can, in principal, provide incentives for all individuals in the organization, regardless of their ability, position, and promotion opportunities. For example, properly structured compensation policies at all levels in the organization can punish top executives for unprofitable expansion without degrading incentives for lower level managers. Finally, it is often argued that promotion contests are desirable since they need only be based on rank order and thus can reduce risk or random noise common to all contestants—but bonus systems based on ranked or relative performance can easily achieve these same objectives.

We don't understand why firms systematically choose promotion-based incentive systems instead of bonus-based systems, and solving this mystery is an exciting direction for future research. Laying aside our ignorance of the benefits of promotion-based incentive systems, we can assume that such benefits do indeed exist and analyze the characteristics of these systems.[8] Bonus-based incentives will be more important at higher levels in the organization since the probability of future promotion is lower; the CEO is not promotable and therefore his or her financial incentives must come from bonuses. Promotion-based schemes will be used more in large organizations with many hierarchical levels than in smaller organizations with fewer levels. In addition, promotion-based reward systems will be more prevalent in growing industries (because there are more new jobs to feed the reward system), while bonus-based systems will be more prevalent in declining industries.

There is some evidence that, in the face of low growth in the last decade, there has been a gradual movement toward more use of annual transitory bonuses as rewards for exceptional performance, but we don't know whether this trend is more pronounced in declining industries than in stable or growing industries. Firms that shut down plants and eliminate layers of the managerial hierarchy should switch toward bonus-based reward systems. Recent field evidence on firms that have downsized through restructuring is consistent with a move to greater emphasis on pay for performance. FMC, Colt Industries, and Holiday Corporation (which all restructured in 1986–1987) have emphasized aligning managers' rewards more closely with the interests of shareholders. These changes include emphasis on equity ownership, stock options, and annual bonus systems to avoid the potential loss of valuable younger managers.

The increase in the number and size of leveraged buyouts (from $1.3 billion per year in 1979 to $45 billion in 1986)[9] is also consistent with the theory that argues that slow-growing firms must find ways to provide new and powerful incentives to management. Making LBO managers the owners of highly levered equity in their own firm has the effect of replacing the promotion-based reward system with an important financial stake that carries large payoffs for good performance.[10]

The sharp reduction in growth for much of the American economy in the 1980s implies that promotion-based incentives will be replaced by other forms of rewards, and the available evidence on trends in bonuses, restructurings, and LBOs is consistent with the economic predictions. But, most organizations continue to rely on promotions to provide incentives, and the dominance of promotion-based incentive systems remains a major puzzle.

B. Can Promotion Systems Provide Both Incentives and Matching?

Given the virtual absence of incentive compensation, an organization's promotion policies must simultaneously provide incentives for lower level employees

[8] See Baker [2] and Gibbs [14] for a more thorough discussion of the comparative-statics results.

[9] Jensen and Murphy [23], Table 10.

[10] Average equity holdings of the management team in Kaplan's [24] sample of 76 buyouts in the 1980-86 period is 36.7%.

and also provide a channel through which individuals can end up in the jobs for which they're best suited. Unfortunately, a serious but generally unrecognized limitation of using promotions as the primary incentive device is that promotion-based incentive systems cannot provide optimal effort incentives while simultaneously achieving the best match between employees and positions.

Tournament promotion systems, in which the best performer at each level is promoted to the next higher level, provide performance incentives for employees. In many cases, however, the best performer at one level in the hierarchy is not the best candidate for the job one level up—the best salesman is rarely the best manager, for example, and the best scholar is rarely the best dean. Firms that use promotion-based incentive systems commonly face problems with the loss of talented engineers, scientists and salespeople who insist on moving into management to realize promotion possibilities when none are available in their area of expertise. Two-track systems attempt to resolve this,[11] but they often fail when the technical promotions are to jobs with higher rank but no real purpose. The Peter Principle (people are promoted to their level of incompetence) reflects problems generated when talents for the next level in the hierarchy are not perfectly correlated with talents required to be the best performer in the current job.

Tournament promotion systems cannot simultaneously provide optimal incentives and matching. For matching to matter, employees must differ. For tournaments to provide optimal incentives, employees must be alike, since differences in ability lead to reduced incentives if participants know that those of high ability will win. Lazear and Rosen [30] suggest the use of handicapping to reintroduce incentives in promotional contests when employees have different abilities; O'Keeffe, Viscusi, and Zeckhauser [35] suggest increasing the importance of random factors in the contest. Their solutions are technically elegant, but adding randomness and imposing handicaps are clearly in conflict with both casual empiricism and the objective of selecting the employee whose talents best match the demands of the new job.

C. *Tournament Promotion Systems Cannot Provide Matching*

Tournament promotion systems cannot in general match employees to the jobs for which they are best suited. This is demonstrated by Figure 1, which provides a plot of the output (net of wage) of two types of employees in jobs at three representative levels in the hierarchy—entry-level management, middle management, and top management. As drawn, employees of type A are the best top managers, while type-B employees excel in lower level management positions. A promotion tournament at the middle-management level, in which the best performing middle manager moves to the executive suite, will result in type-B employees being promoted to top management, which is clearly inconsistent with optimal matching.

Both types of employees in Figure 1 are assumed to be increasingly productive

[11] Deutsch [9] comments on the growing prevalence of "dual-track promotion ladders" as a means of keeping technical employees from losing incentives and leaving organizations.

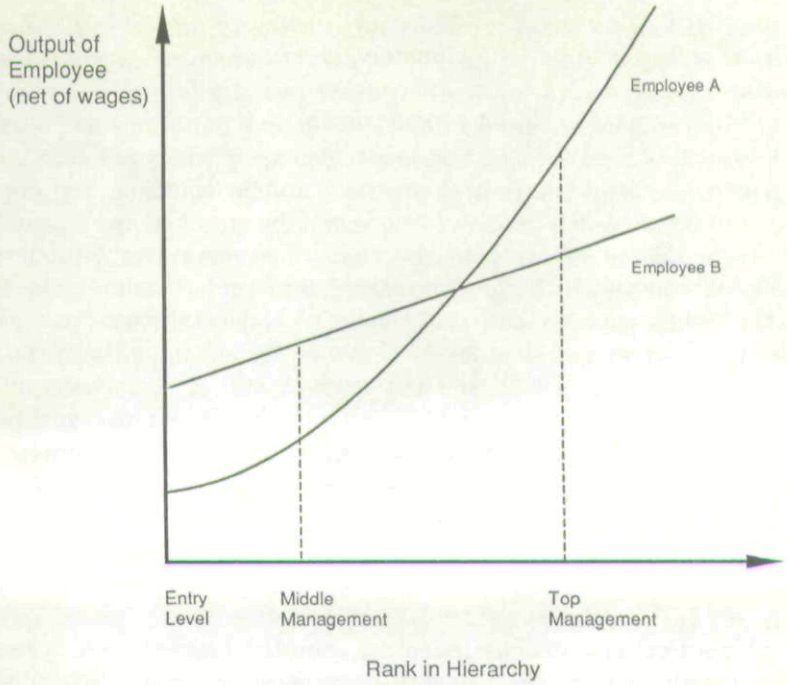

Figure 1. Relation between output (net of wages) in jobs at different levels in the hierarchy for employees of type A and B. Type-A employees, who are best suited for top management jobs, will lose promotion tournaments at lower management levels.

at higher levels, but the inability of tournament promotion systems to match employees with jobs is general and does not depend on these particular relations between output and hierarchical rank. In fact, matching problems in tournaments are even worse if output does not continuously increase as employees climb the hierarchy.

Each type of employee in Figure 1 is assumed to have an advantage over the other type in some jobs within the hierarchy. There are two other situations that should be considered—the case where the relation between output and rank is the same for both employee types, and the case where one type "outproduces" the other type at all levels.[12] Matching is important only when employees differ in their abilities to perform different jobs. Therefore, matching is trivial in the first case where the employee types are identical. Matching is also trivial in the second case where one type dominates the other in all jobs, as long as employee skills are observable, since the firm will never hire any of the inferior type. When skills are unobservable directly, employees can be matched to jobs as information about the employee's talents and capabilities is revealed by experience. Tournament promotion systems, in which the highest performing employee is promoted to the next level, can effectively match employees to jobs when talents are

[12] These three situations, graphically represented by the cases where the hierarchical output relations intersect one or more times, are identical, or don't intersect, are mutually exclusive and exhaustive.

unobservable so long as the required talents for the next level in the hierarchy are the same as the talents required to win the tournament in the current job. Tournament systems provide optimal incentives as long as employees believe all workers in the competition are equally talented, but handicaps are required to maintain incentives after information is revealed about unequal talents.

Instead of promoting the best performing middle manager, an alternative promotion rule that seems to solve the matching problem in Figure 1 is to promote the middle manager with the best top-management potential. This promotion rule—in which the level n employee promoted to level $n + 1$ is the one with the highest expected output at level $n + 1$ —does not guarantee matching with more than two hierarchical levels. Suppose, for example, that firms follow this alternative promotion rule and that type A and B entry-level managers compete for middle-management positions. Only type-B employees will be promoted to middle management because their expected middle-management output is higher than type A's. Thus, there are no type-A middle managers to promote to top management positions since they are selected out at lower levels. Type-A employees can, of course, be hired for top-management positions from the outside, but external hires lack the experience and firm-specific capital often required to succeed in an organization.

Although promotion decisions based on expected performance in the next-highest position solve the matching problem in a two-level hierarchy, these systems will not provide optimal effort incentives. Law firms, for example, will promote the associates who are likely to make the best partners, and not the highest performing associates. This induces incentive problems for associates, who will compete to demonstrate that they will make the best partners instead of striving to be the best associates. This is likely to result in nonoptimal associate behavior.

D. Tenure and Up-or-Out Promotion Systems

In tenure systems, after working for five to ten years with virtually no performance bonuses, the "best" employees are promoted and receive a grant of partnership or lifetime employment. The special characteristics of tenure systems, their effects on productivity, and why they are used in certain industries and not in others, have not been thoroughly studied. These systems must be primarily used for matching purposes rather than incentive purposes since it is difficult to argue that the desire for tenure provides incentives for law associates and junior faculty and simultaneously argue that no further incentives are required once tenure is achieved.[13] Tenure systems appear to prevail in situations where human capital, creativity and an unstructured environment are particularly important in the production process, and where long lags between actions and

[13] Some behaviorists might argue that the pre-tenure period is one in which new members are indoctrinated into the culture of the organization, and that after tenure is awarded incentives are no longer necessary for motivation. Although indoctrination or training is important for other reasons, the problem faced by many institutions with unproductive senior faculty, many of whom devote considerable energy and effort to outside activities, seems inconsistent with the argument that apprenticeship substitutes for incentives in an organization.

the observation of outcomes make performance measurement and evaluation difficult. It can take years, for example, to discern whether a controversial paper is an intellectual breakthrough or an unproductive diversion of the profession's attention.

Tenure and partnership systems are often associated with up-or-out promotion policies, in which organizations force the unsuccessful candidate for tenure or partnership to leave the organization. This avoids the difficult problem of providing incentives for unpromotable employees in an organization using promotion-based incentives. But up-or-out policies seem to us to be a particularly harsh way of dealing with these employees. Such employees are often highly productive to the organization, and the inability to provide an alternative internal career path imposes costs through the loss of organization-specific human capital destroyed by the up-or-out policy.

Up-or-out systems work better in situations where the required human capital is general rather than organization-specific, and where turnover is important to provide the new energy, ideas, enthusiasm and change that young people generate. These factors seem to be important in research universities and in many professional partnerships.[14] In addition, up-or-out systems increase the size of the sample from which the best performers can be chosen, and this can lead to a large increase in quality of the promoted group so long as the policy does not reduce the quality of the applicant pool. Maintenance of the applicant-pool quality is undoubtedly why high-turnover up-or-out employers such as public accounting and law firms spend considerable effort on outplacement services for those not awarded partnership. Such outplacements can also have a positive effect on the demand for the firm's services—for example, when the individual becomes controller or general counsel of potential clients.

Tenure, partnership, and up-or-out systems tend to be associated with relatively small organizations with few hierarchical levels. With the exception of the military, up-or-out promotion systems are almost never observed in large multilevel hierarchical organizations. These firms, large hierarchies accounting for a substantial portion of Corporate America, are characterized by strong promotion-based reward systems and little use of bonuses. The fact that these firms use "up-or-stay" policies, stressing low firing rates and long-term employment relations, is puzzling since the incentive problems associated with nonpromotable employees seem particularly pronounced in these organizations.

III. Profit-Sharing Plans

Profit-sharing, in which an individual's compensation is tied to the overall performance of the firm, has become increasingly popular in U.S. corporations. Kruse [27] reports that twenty percent of the U.S. labor force (22 million employees) participate in over 400,000 workplace profit-sharing plans, and that the number of profit-sharing pension plans has increased by 19,000 per year

[14] If turnover were really important in these organizations, however, it is hard to explain why these firms provide for no turnover among those who are promoted. There seems to be a trend to increasing the partner turnover in accounting and law firms, as more partners are asked to leave.

since 1970. Ehrenberg and Milkovich [11] summarize studies in the personnel literature that show that merit pay and bonuses based on individual performance are less effective than profit-sharing, stock ownership, and team-based bonuses. A recent New York Stock Exchange survey indicates that seventy percent of firms with profit-sharing plans report that they lead to improved productivity. The NYSE Office of Economic Research study, summarized by Ehrenberg and Milkovich [11] (p. 31), concludes that "gainsharing can play an important role in motivating people to be more productive."

The productive effects and popularity of profit-sharing plans are poorly understood by economists. The free-rider problem associated with these plans seems insurmountable in large organizations—employees bear the full cost of working harder and yet receive only a fraction on the order of $1/n$ of the increased profits (where n is the number of participants in the plan). When measures of individual performance are available, it always seems better to tie pay to individual performance rather than to overall firm performance. Joint-production situations where only group, and not individual, output is observable, lend themselves to team-based incentive plans, but this cannot possibly explain tying the janitor's wage to the stock price. Weitzman [44] argues that profit-sharing plans have desirable macroeconomic properties but cannot explain why individual firms or employees would choose such a plan.

A common economic argument for team-based incentives is that these policies encourage mutual monitoring. Worker A has incentives to monitor co-workers if the co-workers' performance affects worker A's compensation and vice versa. This type of mutual-monitoring system also suffers from the free-rider problem. An *over-monitoring problem* can also arise if workers prefer monitoring others to working themselves; shirking behavior by one worker may be observed and reported by dozens of co-workers even when it is more efficient to appoint a single monitor. More importantly, this system can only work when rewards and punishments are based on *individual performance* and not strictly on team performance—that is, mutual-monitoring systems only work if the shirkers are punished. Team-based compensation can sometimes create incentives for workers to reward and punish the performance of their colleagues with social courtesy, honors and sanctions such as withholding of cooperation and exchanges. This makes sense when the workers have information about the performance of their peers that is not available to their superiors. Economists have little understanding of the dynamics of this phenomenon.

Compensation practitioners argue that fundamental changes in the "corporate culture" occur when employees are made partial owners of the firm. The effects of these plans include "rooting for the home team" and a growing awareness of and interest in the corporate bottom line. We do not understand how these effects translate into increased productivity, nor do we have a well-developed economic theory of the creation and effects of corporate culture.

IV. Biased and Inaccurate Performance Evaluations

The lack of financial incentives reported by Medoff and Abraham [32] and summarized in Table I is surprising, but even more surprising is the result that

supervisors tend to assign uniform performance ratings and tend not to assign poor performance ratings. Only .2 percent of the 4,788 employees in Company A received the lowest rating; 94.5 percent were rated "Good" or "Outstanding". None of the 2,841 Company B employees received an "Unacceptable" or "Minimum Acceptable" rating, and only 1.2 percent received a rating of "Satisfactory"; 95 percent of the Company B employees are rated "Good" or "Superior".[15]

The general reluctance of managers to give poor performance evaluations to employees is puzzling but consistent with well-documented evidence that most people believe their performance is better than average. Of several studies cited in Meyer [31], one indicates that 58 percent of a sample of white-collar clerical and technical workers rated their own performance as falling within the top 10 percent of their peers in similar jobs, 81 percent rated themselves in the top 20 percent. Only about 1 percent rated themselves below the median. Another study of 1,088 managerial and professional employees found an even stronger bias: 47 percent rated their own performance in the top 5 percent, 83 percent rated their performance in the top 10 percent, no one rated their performance below the 75th percentile.

The biased perceptions of individuals regarding their own performance may explain why supervisors appear to have a strong aversion to giving subordinates poor evaluations. There will be more dissatisfaction induced by telling someone that he or she is in the bottom 20 percent than there will be satisfaction induced by giving a top-20-percent rating. Telling everyone that they are average will make almost everyone unhappy. Forced-ranking systems will therefore generate considerable conflict in organizations. Similarly, pay-for-performance systems that provide large rewards for good performance and small rewards for mediocre performance will be avoided since these schemes force managers to give poor evaluations to a large number of employees. Visible rewards will not be granted for superior performance unless there is significant incentive for superiors to undertake the unpleasant task of telling subordinates that they are poor or even average performers.

Understanding the causes and effects of biased and inaccurate performance ratings may help explain another recurring puzzle: the apparent asymmetry between rewards and punishments. Every economist understands that a compensation scheme paying a salary of $80 plus a bonus of $20 if a quota is met is equivalent to a compensation scheme paying a salary of $100 with a $20 penalty if the quota isn't met. What economists don't understand is why compensation plans almost always are of the former type instead of the latter. Understanding this asymmetry may also shed some light on the prevalence of compensation systems that reward "winners" without explicitly identifying "losers." Promotion-based reward systems fit this category: the vast majority of employees who incorrectly rank themselves near the top of their peer group can still believe, when they are passed over for promotion, that they may not be the best but are nonetheless somewhere near the top.

It is difficult to motivate managers to devote the large amounts of resources necessary for performance measurement, and performance evaluations will tend

[15] In fact, Company B subsequently dropped the bottom two performance categories.

to be more careful and less biased as the costs of making inaccurate appraisals increase. Managers spend more time agonizing over promotion decisions, for example, than they spend on dividing up the bonus pool because the costs of mistakes in promotion (where employees are given more decision rights in addition to higher salaries) are much higher than the costs of mistakes in awarding annual bonuses (Baker [2]). Similarly, in universities, more resources are devoted to evaluating performance for tenure decisions than for nontenure promotions and annual salary decisions.

Additional evidence consistent with the proposition that evaluations are more careful when the stakes are higher is available from an experiment in which University of Rochester business school faculty members were given the right to award quarterly performance bonuses to their secretaries. Money not awarded as bonuses was available to the faculty member for purchase of a wide range of professional goods and services. In the first year, when the maximum award was \$150/quarter, 90 percent of the secretaries were awarded the maximum bonus; no bonuses were less than \$100. During the second year, when the maximum award was increased to \$250/quarter, only 59 percent received the maximum bonus and the variance in bonuses awarded was substantially higher. Over the two-year period the maximum bonus was awarded 76 percent of the time, suggesting that faculty members were generally reluctant to give poor evaluations. The decrease in maximum bonuses awarded, and the increased variance of awards, are consistent with the proposition that better evaluations result from higher stakes. The amounts were too small to motivate a professor to devote the necessary time and effort to the evaluation task, and to bear the personal non-pecuniary costs of explaining to his or her secretary why the award was less than the maximum.

Biased and inaccurate performance evaluation reduces productivity by reducing the effectiveness of incentives in the organization. If supervisors systematically make incorrect marginal decisions regarding performance evaluation, it may be optimal to induce more careful evaluations by raising the costs of inaccurate appraisals.[16] Tenure and up-or-out systems increase the costs imposed on the organization from granting lifetime employment to those mistakenly promoted and impose costs on those who are denied promotion and therefore must leave the organization. These systems, therefore, provide particularly strong incentives for monitors (faculty colleagues, administrators and partners) to invest large amounts of resources in performance measurement and evaluation. The analysis suggests that systems such as tenure and up-or-out provide incentives for the monitors as well as the employees; we do not, however, understand why organizations choose to motivate monitors in this particular way.

[16] Artificially imposing costs to affect monitoring incentives is similar to the tendency of individuals to impose costs on themselves by placing a bowl of peanuts across the room to raise the cost of consumption or by joining a Christmas, health, or diet club where costs are born from violating a precommitment. Thaler and Shefrin [43] provide a model to explain this and other puzzling behavior using the notion of conflicts between two inner selves in each individual, the "planner" and "doer". The planner acts as the monitor for the doer, and executes decisions that limit the actions of the doer that tend to be short-term oriented at the expense of long-term goals of the individual.

V. Compensation Surveys and the Relation Between CEO Pay and Firm Size

The best documented empirical regularity regarding levels of executive compensation is an elasticity of compensation with respect to firm sales of about .3—a 10 percent larger firm will pay its executives an average of 3 percent more. The compensation/sales elasticities estimated by the Conference Board, reported in Table II for five years and for five industry groups, have been remarkably stable across time and industries; the mean and median elasticity equal .31, and two-thirds of the estimates fall in the range .275 to .35. Moreover, the correlation between size and compensation is very high; R-squares for the 1983 regressions, for example, are .60 (Manufacturing), .53 (Retail Trade), .67 (Utilities), .68 (Banking), and .69 (Insurance).

It is not surprising to economists that compensation increases with firm size; larger firms, for example, may employ better qualified and better paid CEOs. Economic theory cannot, however, explain why pay increases *at a decreasing rate*, and why the relation is constant across both time and industries. Even more perplexing is that the .3 elasticity continues to hold when analyzing individual wages over time. Murphy [34] shows that, holding the value of the firm constant, a firm whose sales *grow* by 10 percent will *increase* the salary and bonus of its CEO by between 2 percent and 3 percent. This finding suggests that the size/pay relation is causal and therefore reflects more than a matching of CEOs to firms on the basis of their abilities. It also suggests that CEOs can increase their pay by increasing firm size, even when the increase in size reduces the firm's market value. This could explain some of the vast amount of inefficient expenditures of corporate resources on diversification programs that have created large conglomerate organizations over the last 20 years.

Table II and Murphy's time-series evidence are consistent with widespread acceptance of the consultant's primary analytical tool: *the compensation survey*. Compensation surveys, which compare compensation levels for CEOs in different organizations, play a very important role in determining CEO compensation.

Table II

Estimated Elasticity of CEO Salary and Bonus With Respect to Firm Sales, 1973–1983

	Year				
Industry	1973	1975	1979	1981	1983
Manufacturing	.313	.296	.297	.287	.285
Retail Trade	.253	.271	.230	.306	.298
Gas & Electric Utilities	.331	.236	.347	.313	.314
Commercial Banking	.317	.329	.367	.372	.404
Insurance	.313	.277	.299	.372	.345

Source: *Top Executive Compensation*, The Conference Board, various editions. Elasticities correspond to the estimated coefficient from a regression of Log (Salary + Bonus) on Log (Sales). Sales are defined as operating revenues for utilities, deposits for banks, and total premium income for insurance companies.

The use of surveys relating pay to firm size is widespread. A recent Conference Board report on compensation, for example, reports over 250 separate regressions relating compensation to sales by industry and hierarchical rank.[17] The Conference Board, which is supported by member firms, does not report these regressions to document interesting empirical regularities, but rather to help compensation committees set and compare compensation levels across firms and industries.

Compensation consultant Howard Risher [36] (p. 34) defends regression-based pay determination, arguing that consistency "is one of the purposes of a formal salary administration program, [and] the regression equation will simulate the decision process and will produce results compatible with the prevailing value system." Risher contends that "regression techniques can provide a substitute for job evaluation plans and a means for integrating internal and external factors in compensation decisions." Moreover, "the regression approach all but eliminates any undue time commitment by line managers." This substitution of a mechanical pay/sales relationship means job performance is no longer being evaluated and it provides managers with incentives to behave according to Baumol's [3] sales-maximization hypothesis.

Results from widely accepted compensation surveys are ultimately self-perpetuating—the uniformity of the elasticities in Table II is consistent with the hypothesis that the surveyed firms use the survey results to structure their own pay levels. The pay/sales elasticities of roughly .3 documented in Table II suggest that the decision rules used by boards of directors in setting CEO compensation relate pay directly to firm size as measured by sales. Consistent with this, Davidson Consultants' *Wage and Salary Administration in a Changing Economy* [7] (p. 175), explains how to set CEO compensation: "The general rule is that as sales volume doubles, executive pay increases by one-third."

Survey-based compensation systems seem inherently counterproductive. Surveys that report only pay levels encourage the establishment of compensation schemes that are independent of performance. In principal, surveys can be structured to describe the pay/performance relation across firms. That is, instead of focusing on "How much should a CEO in a firm with $1 billion sales be paid?" the survey could focus on "How much should pay *increase* for a CEO whose firm increased in value by $100 million?" To our knowledge, these surveys are never taken. Also, basing an employee's pay on external surveys leads naturally to pay decisions being made by centralized personnel departments rather than being made by managers who have better knowledge about an employee's performance. Economists must have a better understanding of the importance of these surveys in determining pay for CEOs and other employees.

VI. Incentive Contracts for Top-Level Managers

Top management is an occupation where incentive pay is expected to play an important role, but Jensen and Murphy [23] argue that actual executive-compensation contracts look very different from those predicted by economic theory.

[17] *Top Executive Compensation: 1985 Edition,* The Conference Board, New York, 1984.

The empirical relation between the pay of top-level executives and firm performance, while positive and statistically significant, is tiny. On average, each $1,000 change in shareholder wealth corresponds to an increase in this year's and next year's salary and bonus of only two cents. Jensen and Murphy argue that this estimate is too small to be consistent with the economic theory of compensation. A common criticism of this conclusion is that the theory says nothing about the *magnitude* of the pay/performance relation. Two cents per $1,000 may be just about right, for example, given risk aversion and the difficulty of writing binding contracts, or maybe it should be $2 or $200 per $1,000—economic theory alone gives us little guidance because it is incomplete.

Contracting theory predicts that pay should not be based on factors beyond the control of the executive (Holmstöm [17])—management compensation should therefore be based on performance measured relative to the performance of all firms or firms in the same industry, rather than on absolute measures of firm performance. The theory is compelling but imprecise; managers should not be insulated from outside factors if they can take actions that reduce the firm's exposure to losses from such sources. This caveat aside, it seems desirable and feasible to base pay on relative performance instead of absolute performance. However, boards of directors do not use relative performance measures—Jensen and Murphy show that absolute firm-value changes are a better predictor of changes in salary and bonus than value changes measured relative to the industry and the market. Moreover, incentives generated by cash compensation are trivial compared to incentives generated by stock options and stock ownership, and stock-related compensation is directly related to absolute returns and not relative returns.

Another anomalous result from Jensen and Murphy [23] is that the pay/performance relation is independent of stock ownership. It would make sense, for example, that CEOs with small stockholdings should have a stronger pay-for-performance compensation package than CEOs with large stockholdings. In fact, for this latter group it might even make sense to have pay go up in bad years to compensate for some of the loss the CEO is taking in the stock market. As an empirical issue, however, this turns out not to be the case. The estimated pay/performance relation is independent of stock ownership—boards of directors systematically ignore CEO stock ownership when structuring incentive-compensation plans.

Jensen and Murphy argue that the apparent anomalies in executive-compensation contracts may be explained by the strong political forces operating in both the organization and in the public sector that effectively constrain the type of contracts written between managers and shareholders. This "implicit regulation argument" is currently unsatisfactory because we don't understand why boards of directors are so easily, and unprofitably, influenced by implicit political pressures.

VII. Efficiency Wages and the Absence of Bonding Contracts

"Efficiency wage theory" is a term coined to explain persistent empirical regularities in inter-industry wage differentials that are inconsistent with the perfectly

competitive model of labor markets. According to the competitive model, wages depend only on workers' abilities and on characteristics of their employers that influence nonpecuniary benefits of employment. In competitive equilibrium, equally productive workers receive compensation that provides equal utility. According to Krueger and Summers [26], violation of this implies "... at least some employers are paying more than the going rate for workers of the type they attract. This behavior can be rationalized only by assuming that some firms do not profit maximize, or that some firms find that increasing wages above the going rate is profitable. The latter possibility is the defining characteristic of efficiency wage theories." Krueger and Summers argue that if firms maximize profits the efficiency of such wages must be explained by one or more of the following four phenomena: reductions in total turnover costs, increases in the quality of workers the firm can attract, increases in productivity caused by increases in loyalty, and increases in worker effort.

To the extent that high wages are explainable by reductions in turnover costs or in higher quality workers, they are, of course, not an anomaly but merely an indication of the incomplete notion of competitive wages in the simple model. To the extent that wage differentials are due to increased effort levels by employees that arise because the structure of pay provides superior productivity incentives, the notion of efficiency wages reflects a confusion induced by the incomplete characterization of compensation by the simple competitive model. It is useful to consider some elemental aspects of compensation policies as a basis for discussion of these issues.

A firm's compensation policy can be broken into three independent dimensions for purposes of analysis—the *level*, the *functional form*, and the *composition*. The *level* of compensation is the expected total cost of the pay package to the employer, or the expected total value of the pay package to the employee.[18] The level of compensation determines the quality and quantity of workers an organization can attract; in order to hire a worker a firm must offer at least the worker's opportunity cost or reservation utility. The *functional form* of compensation provides the definition of the relation between pay and performance and the definition of performance. In general, while the level of compensation determines *who* the firm can attract, the functional form determines *how the employees perform* once they're hired. The functional form provides the performance incentive for employees; simple increases in the level of compensation will have no effects on effort or performance except the usual income effects in the labor-supply decision. Finally, the *composition* of the pay package defines the relative amounts of the components of the package, such as cash compensation, fringe benefits, quality of the working environment, relationships with co-workers, leisure, etc.

On the surface, the "incentive version" of the efficiency wage hypothesis would seem to relate to compensation *levels*—employees work harder and are more productive because they are paid a high wage. Formally, however, the theory cannot be about levels but rather about the *functional form*. In this view, the

[18] In intertemporal settings, the level of compensation is the expected present value of the future stream of payoffs.

contracts are structured so that at any point in time the present value of continued employment exceeds the present value of the best alternative employment, i.e. employees earn rents. It is not a high current wage, therefore, that provides the incentive not to shirk, but rather the possibility of suffering a penalty—the lost rents—if the worker shirks and gets caught. Becker and Stigler [4] show that this theory of wage dynamics is consistent with a competitive equilibrium with zero rents to employees; for example, the rents implied by paying the employee a premium throughout his or her career can be recaptured by charging an entry fee for the job. Note that varying the entry fee affects the level of compensation and thus whether or not workers will apply for a given job. But varying the entry fee does not affect the functional form and thus does not affect the performance of employees on the job.

Thus, the puzzle of efficiency wages is not why wage levels differ across firms and industries but rather why the implicit rents are not dissipated in the form of bonds and up-front entry fees. In practice, with a few notable exceptions such as franchise contracts (see Rubin [37]), substantial entry fees and bonds are virtually never observed. Dickens, Katz, Lang, and Summers [10] (p. 18) argue that liquidity constraints and the possibility that the firm will renege on a bonding contract are insufficient to explain the lack of bonding in employment contracts. They conclude that implicit limits on bonding and up-front payments reflects the "society's unwillingness to enforce" bonding contracts, and also the "potential negative impact of bonds on employee morale." Some of these enforcement constraints and social pressures are explicit, they argue, such as the required vesting of pension plans, but most are implicit and "are connected to notions of fairness that lie outside of conventional treatments of the economics of agency and incentives." But this argument is inconsistent with commonly observed franchise fees that can run into the hundreds of thousands of dollars for jobs such as managing a hamburger stand. We do not understand why these up-front fees are feasible while others in the workplace are not.

VIII. What Happens When the Principal Isn't a Principal?

Many common features of compensation systems are not easily explained by traditional economic theory. Some, like Jensen and Murphy [23], and Dickens, Katz, Lang, and Summers [10], argue that economic analysis can only go so far; at some point we must defer to political pressure or to behavioral notions of fairness, social responsibility, trust, or culture. We are not yet willing to throw in the proverbial towel, but we admit that our economic understanding of internal incentive structures is far from complete. The first step on the road to a succesful theory of organizational incentives is recognition of a variety of phenomena that economists have ignored either because they do not fit the extant theory or because they do not conform to familiar forms or standards of evidence.

One promising direction for research begins with the realization that managers in hierarchical organizations, from supervisors to CEOs and boards of directors, are not principals in the sense usually modeled in the principal-agent literature. Principals in this literature are 100% owners of the alienable residual claims to

the cash flows, and it is this characteristic that provides incentives to structure contracts that maximize the joint welfare of the manager and employee (subject, of course, to the inevitable agency costs). In hierarchies, substitutes for residual claims are allocated to managers in the form of incentive contracts and various direct-monitoring provisions. The absence of pay-for-performance compensation systems for managers implies that managers have few incentives to structure and enforce value-maximizing contracts with subordinates.

Consider, for example, a division manager deciding whether or not to terminate a popular but nonproductive employee. The personal costs borne by a manager making an unpopular termination decision are high and include personal discomfort with the task, chastisement by other employees and peers, the loss of important friendships, and the possibility of being sued for illegal discharge. Firing the unproductive employee will increase divisional profits, but this increased profitability will only benefit the manager to the extent that his or her compensation is tied to divisional performance. The smaller the relation between the manager's pay and divisional profits, the greater the likelihood that the employee will be retained. The manager will likely argue that retention is "fair" and increases "employee morale," but in fact the uneconomic retention occurs because the manager lacks incentives to do anything else.

Similarly, it is rational for employees not to "trust" the performance appraisals they receive from superiors, since their superiors bear all of the monitoring costs but receive little of the benefit from conducting more accurate evaluations. Supervisors who are also residual claimants will have incentives to make correct marginal decisions regarding performance evaluation.

Horizontal equity systems are easy to administer, and managers have few incentives to switch to a more profitable system when their own compensation is determined not by performance, but rather by managers in the horizontal equity system one layer up. Profit-sharing plans are popular with employees and supervisors because they increase the level of compensation and do not require difficult individual-performance measurement. There may be more efficient ways to increase the level of pay, such as introducing bonuses based on individual performance, but managers and personnel executives have little incentive to adopt these economically efficient alternatives.

The absence of incentives to structure efficient compensation contracts permeates the corporate hierarchy—up to and including the compensation committee of the board of directors whose task is to design executive-compensation contracts. Boards of directors, who often own only a trivial fraction of their firm's common stock, are in no sense perfect agents for the shareholders who elected them. Board members are reluctant to terminate or financially punish poor-performing CEOs for the same reason supervisors are reluctant to punish subordinates—they personally bear a disproportionately large share of the non-pecuniary costs, but receive essentially none of the pecuniary benefits. The effect of structuring CEO contracts that are independent of performance is likely to cascade down the hierarchy—each successive layer has fewer incentives to structure effective contracts than the prior layer. The absence of incentives is pervasive, and it's not surprising that large organizations typically evolve into bureaucracies.

Managers respond to their lack of incentives by taking uneconomic actions that could be interpreted as being equitable and socially responsible. This lack-of-incentives hypothesis potentially explains the prevalence of horizontal equity systems, the asymmetric use of rewards and punishments, and the general reluctance of employers to penalize poor performance. The hypothesis does not, however, explain why competitive forces in the product, labor, and control markets are not sufficient to induce economically efficient compensation policies.

Ultimately, it may be that psychologists, behaviorists, human resource consultants, and personnel executives understand something about human behavior and motivation that is not yet captured in our economic models. Alternatively, it could be that practitioners are adopting policies that sacrifice organizational efficiency for egalitarian pay systems. If one of these reasons explains the gap between economic theory and compensation practices, then either there are intellectual profits or organizational efficiencies to be gained by focusing attention on the compensation puzzles we have outlined. We believe both kinds of profit opportunities will materialize.

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