

Identity and the Economics of Organizations

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The economics of organizations is replete with the pitfalls of monetary rewards and punishments to motivate workers. If economic incentives do not work, what does? This paper proposes that workers' self-image as jobholders, coupled with their ideal as to how their job should be done, can be a major work incentive. It shows how such identities can flatten reward schedules, as they solve the "principal-agent" problem. The paper also identifies and explores a new tradeoff: supervisors may provide information to principals, but create rifts within the workforce and reduce employees' intrinsic work incentives. We motivate the theory with examples from the classic sociology of military and civilian organizations.

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I. Introduction

At the United States Military Academy at West Point of the 1950s, plebes guilty of minor infractions had to report to the basement of their dorms on Sunday afternoons. The upper classmen would then order them to run to their rooms, on the fourth floor, and return in full dress uniform — in 2 ½ minutes. The plebes invariably returned late with something wrong with their uniforms and were subjected to further harassment.¹ There was no direct benefit to the Army from this practice, nor did the cadets like such treatment. No principal in a standard model would treat an agent in such a fashion. Yet the Academy encouraged the practice.

This example and many others we discuss below suggest that a source of motivation is missing from current economic models of organizations. This paper characterizes this missing source as *identity*. By identity we mean a person's self image — as an individual and as part of a group. The rituals at West Point and other organizational features can change the way people see themselves; they become part of the organization and internalize its rules. In the Army as well as in civilian organizations, such identification — or lack of it — plays a critical role in determination of work effort, incentive schemes, and organizational design.

This paper incorporates the basic sociology and psychology of identity into economic analysis of work incentives. We build two rudimentary models. Our first model is a prototype, which shows the most elementary addition of identity to a standard principal-agent model. It is based on Weber's classic description of bureaucracies, with their hierarchies and division of personnel, where those in subordinate offices follow the directives of those above them. Weber emphasized the role of hierarchy in the efficient handling of information. Economists, through

1. See Janowitz (1960, pp. 129-30).

principal-agent models, have picked up on this theme of information management, though twisting it a bit to emphasize how subordinate agents can exploit information asymmetries. But principal-agent theory has missed completely Weber's emphasis on the identification of the officeholder with the office itself. "An office is a vocation;" and "entrance into an office ... is considered an acceptance of a specific duty of fealty to the purpose of the office."² In our prototype model an organization can change the identity of its employees. When employees identify with the firm and their office within it, they have a loss in utility if they do not follow the rules of their superiors and act in the interests of the organization. This paper models organizations' ability to motivate their employees through such identification. We picture such motivation as a valuable asset of the organization as well as a possible object of investment.

Our second model delves a bit deeper. Following the post-Weber generation of sociology, we allow for workers to identify with their work group rather than with the organization as a whole. In this case, organizational policy involves a trade-off. The firm can introduce a supervisor who reports on workers' actions. With more information, the firm can reduce the incentive pay it gives its workers. On the other hand, introducing a supervisor creates a rift within the firm, and workers are less likely to identify with the firm and its goals.

This modeling reflects a rich literature in the psychology of organizations known as the "social identity approach," based on the seminal experiments of Henri Tajfel and John Turner.³ In a typical experiment, subjects are randomly given labels, such as even or odd, or assigned to groups. They then play a game where they are asked to assign payoffs to different people, or

2. Weber (1978, pp. 958-959).

3. See Haslam (2001) for an excellent review of the experiments supporting the social identity approach to organizations.

they are asked to evaluate the judgments of different people. The experiments reveal a strong tendency for group assignments and labels to influence behavior, and subjects display in-group favoritism and out-group discrimination.⁴ Since organizations are groups themselves and since their activities, by happenstance or by design, invariably create subgroups within them, this social psychology applies broadly to the workings of any organization.

We support and accompany our analysis by a discussion of descriptive literature on the United States military and the modern firm. The military provides an extreme counterpoint to the standard economic model of organization. Rather than work to obtain pecuniary rewards, the literature describes officers and enlisted personnel as internalizing a sense of duty associated with a military ideal.⁵ The literature on civilian firms also shows the remarkable extent to which job performance depends upon workers' identities and adoption of particular ideals.

The vast economic literature on employee compensation [see Prendergast (1999) for review] provides a foil for the non-economic motivations we describe in this paper. We see this literature as exposing the difficulties of using compensation systems to control employee behavior. Just as the theory of finance (*e.g.* Miller and Modigliani) shows that a firm's attempts to control its financial environment can be offset by private investors, theories of employee compensation show the many ways that employees can blunt a firm's attempts to control their

4. To give just one example, subjects were told they were assigned to one of two groups according to their expressed preference for one of two paintings (one by Klee, the other by Kandinsky). In fact, the division was random. When subsequently asked to assign rewards to members of the two groups, subjects assigned rewards that maximized the relative difference in the groups' rewards, even while doing so reduced their group's absolute rewards. See Tajfel (1978).

5. See, for example, the Mission Statement of the United States Military Academy: "The West Point mission is to educate, train and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, Country, professional growth throughout a career as an officer in the United States Army, and a lifetime of selfless service to the nation." Source: http://www.usma.edu/admissions/faqs_wp.asp.

actions. To give a few examples, in the benchmark principal-agent model, a principal's control is limited because agents' actions are not observable. Pay is based only on a signal, and employees must be compensated for variations in pay. When jobs involve more than one task, workers can ignore those tasks that have low correlation with the signal. In another example, in tournaments, where compensation is based on relative performance, workers also have incentives to sabotage their fellow workers.

This paper is then the natural counterpart to the current economic literature on incentives. If monetary incentives do not work, what does? This paper describes why workers might act in a firm's interest, even when they have many chances to behave opportunistically. In our models, a worker may identify with the firm, the position within it, or the work group. The principal pays lower monetary rewards if the worker identifies with the firm. Moreover, pay schedules have less variation; they are dependent on outcomes. In both of these senses, the presence of identity acts as a substitute for monetary incentives.

Because identity reduces the need for monetary rewards, it can be viewed as a new type of firm capital, which could be called *motivational capital*. Typically a firm is described in terms of its physical and human capital. But the skills and abilities of the firm's workers — their human capital — is latent; the firm must motivate workers to use their skills in the interest of the organization. When workers identify with the firm, they act as its fiduciaries and in its interest. Thus, the ability of a firm to motivate its employees through non-pecuniary rewards and punishments is a form of capital and a source of rents.

The result that non-pecuniary motivations and wages are substitutes mirrors findings in other work. Bewley's (1999) interviews, for example, indicate that most employers do not cut

wages in a recession because of the consequences for workers' morale and loyalty to the firm. There is a growing recognition of such substitutability in the theory of organizations; at least two papers (Rob and Zemsky (2001) and Huck, Kübler, and Weibull (2003)) show how pecuniary incentives can crowd out workers' motivations to cooperate with each other in the work place.⁶

This paper then provides a framework that both extends and synthesizes previous work that considers non-pecuniary sources of worker motivation.⁷ Other researchers have explored how status, morale, team spirit, preferences for cooperation or fairness, may all affect incentives and job performance.⁸ Our approach can provide a common language to study such aspects of workers' utility. For example, morale, as in Bewley (1999), would embody the extent to which workers identify with the firm and desire to achieve its goals. Workers' preferences for cooperation in Rob and Zemsky (2001), or for team spirit in Kandel and Lazear (1992), would be, in our language, workers' identification with their organization or work group. Their preferences for "fairness" as in Akerlof and Yellen (1990) would be the desire to live up to an

6. A growing experimental literature finds that monetary incentives can displace other motivations for behavior [see Rob and Zemsky (2001) for review]. For example, in a leading experiment, Fehr and Gächter (2002) examine the interaction between subjects assigned to be "buyers" or "sellers." The results show sellers provide lower quality when they face a fine for doing so than when they do not. A study by Gneezy and Rustichini (2000) shows similar perverse effects of pecuniary incentives: at an Israeli day care center, parents were more likely to pick up their children late when facing a fine than when not. These and other experiments indicate that pecuniary incentives displace other kinds of incentives, such as fairness, reciprocity, and adherence to social norms. A variety of evidence, discussed in Fehr and Gächter (2002), supports such an effect.

7. Most theoretical and empirical research on incentives assumes pecuniary motivations for workers' behavior. Workers care about pay, effort on the job, and advancement in their careers to the extent this advancement increases their income. See Prendergast (1999) for discussion and review. Lazear (1991) reviews psychological explanations for different organizational practices — such as pay equality — and shows how they can emerge from standard economic models.

8. For status, see, for example, Frank (1985), Fershtman, Weiss, and Hvide (2001), Auriol and Renault (2002). For morale, see Bewley (1999). For team spirit, see Kandel and Lazear (1990). For preferences for cooperation, see Rob and Zemsky (2002). For fairness, see Akerlof and Yellen (1990).

ideal. Our framework could describe “corporate culture,” but our modeling is quite different from prevailing economic views, such as Kreps (1990) where corporate culture is an equilibrium of a repeated game between management and employees, Cremer (1993) where culture is shared information, or Lazear (1995) where culture is common beliefs or preferences that emerge from an evolutionary process [see Hermalin (2001) for review and critique of the type of approach we take]. Our modeling is closer to Hodgson (1996), where culture is internalized preferences. In our view, corporate culture would be the division of the workers into different groups, the prescribed behavior for each group, and the extent to which workers identify with the organization or with the work group, and adopt their respective goals.

The paper proceeds as follows. Section II builds our prototype model of identity in organizations. We follow the model with a discussion of military organizations and civilian firms. Section III builds a model of work groups and illustrates the model with several leading examples from firms and military sociology. Section IV discusses empirical implications of our theory. We then conclude.

II. Identity and Organizations

A. A Simple Principal-Agent Model with Identity

We build a principal-agent model where the agent could identify with the organization and her office within it. The model is simple and the analysis is straightforward. Yet the exercise shows when identity could be most important to an organization.

We suppose that the agent, or worker, derives utility from two sources. The first source is the standard utility from income and work effort found in the economics literature. The

second source is the worker's self-image, or identity. For simplicity, we will specify each of these utilities separately and then add them to comprise a worker's overall utility. This linear model parsimoniously melds much of the sociology and psychology of identity with the economic model.

First we make the standard set of assumptions. The agent's utility is increasing in income, and she is risk averse. Her actions affect profits but the principal cannot observe them. The agent can take either action A at cost of effort e_A or action B at cost of effort e_B , where $e_A > e_B$. Revenues are random, and conditional on the agent's action. When the agent takes action A, with probability $\frac{1}{2}$ revenues are high, π_H , and with probability $\frac{1}{2}$ revenues are low, π_L . When the agent takes action B, revenues are always low. The principal can observe realized revenues, but not the agent's action. The agent's utility from income y is $u(y)$, and her overall economic utility is $u(y) - e$, where e is her choice of effort. For our example, we let $u(y) \equiv \ln y$.

We now specify utility from identity, following the model in Akerlof and Kranton (2000). There is a set of social categories \mathbf{C} , which in general include those who work for the firm and those who do not, those who belong to a particular work group or unit, and those who do not, etc. Here we suppose that the set of categories is $\mathbf{C} = \{N, O\}$ where N denotes those people who think of themselves as part of the firm — Insiders — and O denotes those who think of themselves as not a part of the firm — Outsiders. The agent's utility from her self-image, or identity, depends on her category assignment and the match between her actions and the ideal for her category. Prescriptions \mathbf{P} dictate the ideal effort level for each of the two categories: Insiders should act in the firm's best interest, and Outsiders should take the least cost action. We denote these prescribed ideal efforts as $e^*(c)$, where $e^*(N) = e_A$ and $e^*(O) = e_B$. For a simple

specification of utility from identity, let the utility the agent derives from belonging to social category c be a constant amount I_c and the utility she loses from diverging from the ideal effort level be

$$t_c | e^*(c) - e |,$$

where t_c captures the importance of living up to the ideal.

This formulation represents the individual's identity utility in parallel to standard terminology in social psychology. The individual belonging to category c has an ideal for the behavior of someone belonging to that category. This is her *ideal type*. She derives a given amount of utility from belonging to the category in question, but she also will lose utility insofar as those actions fail to live up to her ideal for how someone in her social category should behave.⁹

Adding the economic and the identity parts of utility, we suppose a person's overall utility is summarized by:

$$U(y, e; c) = \ln y - e + I_c - t_c | e^*(c) - e |,$$

for $c \in \{N, O\}$. The agent's outside opportunities yield utility of amount \bar{u} .¹⁰

We ask whether a principal will find it profitable to invest in "motivational capital" and change a worker's identity from an outsider, O , to an insider, N , at a cost q . To do so we compare the principal's expected profits when the worker is an O to the expected profits when the worker is an N , assuming that in both cases the principal finds it optimal to give the worker

9. In a more general framework, an individual's utility from identity would also depend on the extent to which her own innate characteristics match the ideal characteristics for her category.

10. The agent does not take into account the gain or the losses in utility that she will experience from changes in her identity in joining another organization. (An alternative version of the model would assume that the agent has rational expectations and takes this into account.)

incentives to do action A. If the cost savings are high enough, the principal will find it optimal to invest q .

To compare profits, we solve for the wages the principal would pay if the agent were an N to the wages the principal would pay if the agent were an O . For each category, the principal chooses a high wage, w_H^c , to pay when the realization of revenues is π_H , and a low wage, w_L^c , to pay when the realization of revenues is π_L . For a worker with identity c , the principal's expected profits are then

$$\Pi(c) = \frac{1}{2}[\pi_H + \pi_L] - \frac{1}{2}[w_H^c + w_L^c],$$

and the principal maximizes these profits subject to the following participation constraint (PC) and incentive constraint (IC) for a worker with identity c :

$$\frac{1}{2} \ln w_H^c + \frac{1}{2} \ln w_L^c - e_A + I_c - t_c | e^*(c) - e_A | \geq \bar{u} \quad (\text{PC})$$

$$\frac{1}{2} \ln w_H^c + \frac{1}{2} \ln w_L^c - e_A + I_c - t_c | e^*(c) - e_A | \geq \ln w_L^c - e_B + I_c - t_c | e^*(c) - e_B | \quad (\text{IC})$$

We can see in these constraints why the principal could prefer a worker with an insider identity. An insider feels that she should act in the interest of the firm, i.e., $e^*(N) = e_A$. Hence, for $t_N > 0$, an insider loses utility when she takes action B. This loss loosens the agent's incentive constraint, and the principal can pay wages with less variation to induce the agent to take action A. In addition, when $I_N > I_O$ the worker directly gains utility from being an insider, and this utility gain loosens the participation constraint.

We can see both effects in the optimal wages. When all constraints are binding, the optimal wages for an O agent are, respectively:

$$w_L^O = \exp [\bar{u} - I_O + e_B]$$

$$w_H^O = \exp [\bar{u} - I_O + e_B + 2(1 + t_O)(e_A - e_B)].$$

If $t_N < 1$, the low and the high wages for an N agent are respectively:

$$w_L^N = \exp [\bar{u} - I_N + e_A - (1 - t_N)(e_A - e_B)]$$

$$w_H^N = \exp [\bar{u} - I_N + e_A + (1 - t_N)(e_A - e_B)]$$

We thus see that the wages for an O agent always involves less variation than for an N agent.

The difference between the high and the low wages for an O is $2(1 + t_O)(e_A - e_B)$; the difference for an N is $2(1 - t_N)(e_A - e_B)$.¹¹ Indeed if $t_N > 1$, there is no difference between high and low wages.

Comparing expected wage bills,¹² we see there are two effects from a worker adopting an insider identity. Expanding the arguments of \exp in the formulae for w_L^O , w_H^O , w_L^N , and w_H^N into their first two components reveals both a first-order effect and a second-order effect. Both of these reduce the expected wages needed to compensate employees. The first-order effect reduces these wages, reflecting the relative gain in identity utility ($I_N - I_O$) and the reduced loss in identity utility of an outsider taking action A, $t_O(e_A - e_B)$. The second-order effect further reduces the wages that need to be paid to insiders: since there is less variation in an insider's wages, the principal can pay less additional expected compensation as insurance.

The formulae for w_L^O , w_H^O , w_L^N , and w_H^N also suggest another result, which is of importance both for public policy and for the proper organization of firms. Those workers for whom t_N is high should receive relatively little variation in their wages. We imagine that most executives' identities are strongly bound to the success of their firms (high levels of t_N in the model), and

11. For $t_N > 1$, the incentive constraint is not binding, and the agent is paid a constant wage that satisfies the participation constraint.

12. Taking a second-order approximation, the difference between expected wages for an O worker and an N worker is approximately: $\frac{1}{2}[w_H^O + w_L^O] - \frac{1}{2}[w_H^N + w_L^N] \approx (I_N - I_O) + 2t_O(e_A - e_B) + [\bar{u} - I_O + e_B]^2 - [\bar{u} - I_N + e_A]^2 - [(1 - t_N)^2 - 2(1 + t_O)](e_A - e_B)^2 + 2(\bar{u} - I_O + e_B)(1 + t_O)(e_A - e_B)$.

hence it seems ironic (and also exceptionally wrong-minded) that corporate boards have felt that CEO's need special compensation in the form of stock options to induce them to perform their duty. On the contrary, our model suggests that those lower down in the firm, may instead be those who need the greatest incentive compensation.¹³

Motivational Capital. Our model suggests a definition of the “motivational capital” of the firm. Denote the firm's profits when workers are outsiders as π_O^* , and π_N^* as its profits when workers are insiders and identify with the firm. With a rate of interest r , the value of the stream of the firm's additional earnings when it pays q to change workers' identity will be $[\pi_N^* - \pi_O^*]/r$. Accordingly, these discounted profits measure the “motivational capital” of the firm.¹⁴ In our partial equilibrium model, the returns to an additional unit of motivational capital will accrue totally to the individual firm. Whether the worker is an insider or an outsider, the worker earns utility \bar{u} . Hence the rents from changing the worker's identity accrue to the firm. In general equilibrium, of course, additional motivational capital will increase the demand for workers and thus will increase \bar{u} . Some of the returns to the additional capital will accrue to firms, but some will also accrue to workers. Similar changes occur in the standard model of physical capital, as more physical capital decreases its return, while it increases the return to the complementary factor, labor.¹⁵

13. Of course a CEO's actions may have more effect on profits than those of employees lower in the hierarchy, and this difference might more than offset the effects of stronger CEO identification with the firm.

14. This formula overstates the return to motivational capital, since a firm can always choose not to operate when all agents are outsiders. A more general formula would be $[\pi_N^* - \max[\pi_O^*, 0]]/r$.

15. This statement follows with constant returns to scale production and standard production function $Q = F(K, L)$, where $F_{KK} < 0$ and $F_{LK} > 0$.

B. Examples of Model

In this section we argue that our model captures basic features of military and civilian organizations in the United States as described in a diverse set of literature.

i. The Military

We first discuss the military. In the model above we assumed (1) an individual more or less identifies with his organization; (2) prescriptions dictate that members of the organization should act in the organization's best interest; (3) the principal can invest to change the identity of the agent; and (4) when the principal makes this investment, there is little need for monetary incentive for the agents. We present four different types of evidence — officer guides, autobiographies, sociological studies and military history — all of which indicate the fit with our model.

Military as Social Category. Both military and civilian analysts document the “military” as a social category distinct from civilians. (In terms of the model the military are N , civilians are O .) In Omar Bradley's *A Soldier's Story*, the classic autobiographical account of the Allied invasion of Europe in World War II, the line between those in the army and those out of it is clear. Numerous times Bradley speaks of the *soldier*, a social category which (consider the title of his book) he takes as his own identity.¹⁶ Bradley's use of the term *soldier* is not new; the Union general William T. Sherman described himself as such more than a century ago: “It is

16. Bradley describes the prescriptions for a *soldier* by referring to ideals personified by famous generals: Patton: “... infectious, his wit barbed, ... a mixture of obscenity and good humor; ...at once stimulating and overbearing:...a magnificent *soldier*”; Alexander: “a patient wise and fair-minded *soldier*”; Hodges: “A spare soft-voiced Georgian without temper, drama, or visible, emotion,... a military tactician whose faultless techniques and tactical knowledge made him....a general's general.” Bradley (1999, pp. 225-226, emphasis added).

enough for the world to know that I am a soldier.”¹⁷

Prescriptions in the Military. Associated with a *soldier* or a military officer are prescriptions for behavior, and these prescriptions — which define $e^*(N)$ in the model — underlie military organization. The ideal military man has been described by military sociologists Moskos, Williams and Segal as “war oriented in mission, masculine in make-up and ethos, and sharply differentiated in structure and culture from civilian society.”¹⁸ At the beginning of an officer’s career the prescriptions are expressed in the oath of office. In the Air Force, the oath is repeated with the assumption of each higher rank. “I will well and faithfully fulfill the duties of the office upon which I am about to enter, so help me God.”¹⁹ The semi-official officers’ guides for each branch of the services, as well as the Marines, give the prescriptions of those who have sworn the oath. The *Air Force Guide* tells its readers that soldiering is a profession with “a sense of corporate identity (*sic*).”²⁰ The officer must obey the rules of the organization — to follow orders given in the chain of command. The officer should not follow those orders passively: he must have “faith in the system.” Indeed, “[t]o lose faith in

17. Quoted by Huntington (1957, pp. 230-231). Selznick (1984, p. 75, fn. 10) also picks up on the use of the word soldier: In *Crusade in Europe* “Eisenhower points to [Churchill’s] ‘concern as a political leader for the future of the Balkans. For this concern I had great sympathy, but as a soldier I was particularly careful to exclude such considerations from my recommendations’ (*Crusade in Europe*, p. 194).” Selznick continues to point out that “The word ‘*soldier*’ as used here and in similar contexts obscures the distinction between low-echelon and high-echelon responsibilities.” We see here part of how the brass attempt to inspire and include those in all ranks, by implying that we *soldiers* are all in the same war to fight the same fight.

18. Moskos, Williams and Segal (2000, p. 1).

19. See Benton (1999, p. 2).

20. See Benton (1999, pp. 2-3).

the system is to place self before service,”²¹ and thus is a betrayal of the Air Force motto of “service before self.” Note the correspondence to the model, in which, exclusive of economic rewards, an *N* has “faith in the system” and prefers activity A, which is “service” and an *O* prefers activity B, which is “self.”

The *Air Force Guide*’s description of military discipline further supports our characterization. Discipline can reveal a community’s code of ideal behavior, since, following Kai Erikson (1966), disciplinary proceedings not only judge and punish offenders, they define proper conduct for non-offenders. The *Air Force Guide* is explicit about this role of discipline.

[The] constraint [of discipline] must be felt not so much in the fear of punishment as in the moral obligation that it places on the individual to heed the common interests of the group. Discipline establishes a state of mind that produces proper action and cooperation under all circumstances, regardless of obstacles. It creates in the individual a desire and determination to undertake and accomplish any mission assigned by the leader.²²

Note the contrast between this response to discipline as compared to the imagined response in standard economic models, e.g. the response to fines in Becker’s (1968) “Crime and Punishment,” dismissal in the efficiency wage model of Shapiro/Stiglitz (1985),²³ and the wage schedule in a standard principal-agent model. These standard economic models have no place for the *moral obligation* of the agent. In all of these models the *state of mind* is invariant: for all punishments and rewards, the agent maximizes the *same* utility function. In contrast, following

21. See Benton (1999, p. 8). In a variant of the model, the agent and the principal would have different information as to which action should be pursued. The prescriptions would then stipulate that an Insider undertake the action the principal would have chosen if she had had this information. This is exactly how an officer is expected to behave.

22. See Benton (1999, p. 41).

23. And also in the model of Becker and Stigler (1974).

the Air Force Guide, punishment and reward change individuals' preferences so they desire to follow the rules.

Production of Military Identity. In both our fictional model and in the real-life military, identification is consciously produced. In terms of the model the military makes investments, q , to turn civilian recruits, who are initially O , into soldiers, who are N . Enlisted men as well as officers are turned into soldiers. Thus for Bradley “the impersonal routine [of basic training] changes a man into a *soldier*.”²⁴ In World War II General James Ulio described “military morale [as] that *conditioned* quality... which holds the soldier ... to the performance of duty despite every opposing force or influence [our emphasis]”²⁵ The short haircut given to inductees is just one indicator of the transformation of self: according to General Malham Wakin they are: “a visible signal” of “the subordination of the individual to the good of the military unit, its mission, and the ultimate good of our country.”²⁶

The routine of the military academies shows some of the psychological tools used to inculcate military identification. Training at the military academies lasts years, and the trainee is isolated from civilian life.²⁷ The hazing we describe in the introduction is just one of the rituals by which the army stamps a new military identity on plebes and on other new recruits.²⁸ Social

24. See Bradley (1999, p. 14).

25. See Ulio (1941, p. 321).

26. Wakin continues: “...If that’s the reason for short haircuts, maybe the next time I see my reflection in the mirror I’ll take greater pride in having short hair — and I’ll remember how critical ‘service before self’ is to carrying out the military function.” The military uniform similarly “signif[ies] that the wearer is a member of the uniformed services ... dedicated to service before self.” Source: <http://www.usafa.af.mil/core-value/service-before-self.html>.

27. At West Point rules relaxed so that cadets could receive an occasional six-hour pass away from the campus only after 1922 [Janowitz (1960, p. 133)].

28. This description comes from Janowitz (1960, p. 129).

psychology explains why such hazing could cause the cadet to change his view of himself.

Following the textbook accounts of cognitive dissonance and identity change,²⁹ the plebe at West Point, like the initiate in civilian fraternity initiation rites, takes on a different self-image because he must explain to himself why he has (seemingly willingly) accepted such treatment.³⁰

Military personnel are also turned from *O* to *N* as a byproduct of normal operations. Below the level of the officer corps, *The American Soldier* (Stouffer *et al.* (1949)) — a study of combat soldiers in WWII — finds soldiers' major motivation came from their adherence to the ideal fostered in the combat unit — of being “a man.” It meant showing “courage, endurance and toughness, ..., avoidance of display of weakness in general, reticence about emotional or idealistic matters, and sexual competency.”³¹ *The American Soldier* describes how social interaction creates this soldier. While initially, the recruit tried to avoid the ridicule of his peers, ultimately, the new recruit internalized the ideal himself:

The fear of being thought less than a man by one's buddies can be as powerful a control factor as the fear of the guardhouse. When the former is socially directed to reinforce the latter, the army has begun to succeed in building a soldier — a process which continues until as much as possible is internalized and automatized

29. See especially Aronson (1984, Chapter 4, pp. 113-79).

30. There is some dispute regarding the extent to which enlisted men ascribe to a military ideal. Regarding the officer corps, the dispute only concerns the exact shading of the nature of that commitment. The two best known works on the professional officer (Huntington [1959] and Janowitz [1960]) differ in their emphasis: Huntington sees the officer corps even after World War II as imbued with the heroic military values: duty, honor, country. Janowitz sees the military ideal as different from, but nevertheless evolving toward, the ideal of civilian organizations. Huntington and Janowitz both wrote in the aftermath of World War II. Since that time authors write of the further evolution of the military ethos, into one in which the military may also see itself as an international constabulary force. See Moskos, Williams and Segal (1997). Ricks (1997) claims that the military has become increasingly different from civilian society.

31. See Stouffer *et al.*, vol. 2, p. 131.

in the form of ‘conscience.’”^{32,33}

Eschewal of Monetary Rewards. The military’s stress on “service before self” and little emphasis on pecuniary rewards suggests that identification with the organization and monetary rewards are substitutes, as occurs in the model.³⁴ In the U.S. military until after World War I, a rigid seniority system for both rank and pay reflected a disregard of monetary incentive in the officer code.³⁵ The officer, according to Janowitz, views himself as a standard bearer against the materialism and “crass commercialism,” of civilian, and especially of urban society.³⁶ In a more recent ethnography, an Army officer, Matt, expresses such sentiments directly. Upon

32. Stouffer *et al.*, Vol. 1, p. 412. Ninety percent of veterans interviewed in November 1945 (vol. I, p. 415, details of survey, p. 418) agreed with the statement: “most soldiers care a great deal about what the rest of the men in their outfit think of them.” The basic motivation to fight in turn came from what was expected in such company: “you didn’t want to be a *quitter* (italics added).” Hospital interview with wounded veteran of Italy and of North Africa, reported in Stouffer *et al.*, vol. 2, p. 84.

33. Interviews with German prisoners of war reveal similar motivation of the German soldier, who also fought to maintain his sense of manliness within the primary unit (Shils and Janowitz (1984)).

34. Rob and Zemsky (2002) construct a model of the firm in which workers can engage in individual tasks or in cooperative tasks. Workers’ tastes for cooperative tasks depends upon a past history of them. It then pays the firm to sacrifice some current profits in order to increase the workers’ desire for future cooperation. Our paper concentrates on the workers’ “identity” as a source of what Rob and Zemsky describe as cooperation.

35. While there are some exceptions to the “up-or-out” system, those not promoted were expected to leave, thus giving monetary incentive even though rank and pay for those who remained was based almost solely on seniority [Janowitz (1961, pp. 61-62)]. Both Janowitz (1961) and Rostker *et al.* (1992) view the pre-World War II system in both the Army and Navy as mainly based upon seniority. The paucity of monetary incentive is seen not only within the military, but in comparison between military and civilian pay. For example, a 1955 comparison between Air Force brigadier generals and civilian executives of seemingly comparable rank showed the civilians had 60 percent fewer supervisees and charged over 94 percent less inventory, yet they received five times the pay of their military counterparts. See Janowitz (1961, p.184). Similarly Asch and Warner (2001, p. 524) demonstrate the lack of dispersion in military pay by contrasting the pay of a colonel relative to a second lieutenant (a ratio of 3) to the relative pay of level 6 managers to level 1 managers in a firm studied by Baker, Gibbs and Holmstrom (a ratio of 5). Asch and Warner (2001) offer an explanation for the low dispersion of military pay that is different from ours. They emphasize that the lack of lateral entry into the military means that the military has to recruit its managerial talent early in their careers and at the bottom of the hierarchy. This restriction results in relatively high entry level pay in the military. In their model the option value of talent also explains “up or out” and the unusual levels of retirement pay given to military employees.

36. Janowitz (1961, p. 229).

completion of his five years of obligatory service after West Point, he explored a return to civilian life. But among the companies he interviewed, “None of them ever really talked about what was important to me and that was service. All they talked to me about was money.”³⁷ Matt remained in the army.

ii. The Civilian Workplace

In this section we examine the extent to which the model also applies to the civilian work place, despite “Matt’s” observation above. To many managers, at least, identity is central to employee motivation. We briefly review management theories and techniques suggested to enhance performance. We then examine sociological and ethnographic literature that further supports our assumption that firms try to mold workers’ identity. Of course, such techniques are not always used, nor are they always successful, so we illustrate some of the problems that can arise. Finally, we see statistically that most of the United States labor force seems to have some sort of identification with their jobs.

Organizations’ Management of Identity. The different incentives in our model correspond to a well-known dichotomy in the literature on management.³⁸ We see the primacy of monetary incentives in Taylorism. In this theory, especially influential at the beginning of the 20th Century, management’s job was to divide work into tasks, determine the best way to accomplish them, and instruct and pay employees accordingly.³⁹ Some jobs, especially those involving repetitive, easily-monitored tasks, are still managed this way. Since the 1930's

37. McNally (1991, p. 101).

38. Adler and Borys (1996), whose “Two Types of Bureaucracy: Enabling and Coercive” correspond to the two branches of our model, suggest that this dichotomy is reproduced in the business literature on the role of bureaucracy.

39. See quote from Taylor in Hodson (2001, p. 29).

management theory has moved away from Taylorism and has increasingly emphasized employee self-motivation, especially in jobs that are hard to monitor. According to this school of thought, if employees are given a role in setting their own goals (called *management by objective*) or if the organization itself has a goal that gives the workers pride in their work, such as attainment of high standards of quality (called *Total Quality Management* or *TQM*), their identification with the job will lead them to perform.⁴⁰ Management's job is to set these goals.⁴¹ The literature thus sees the costs of motivating workers by monetary incentives and advocates reduction of those costs by inducing workers to take on the goals of management — which in terms of our model is an investment q to turn employees from O to N .

A study of accountants (Covaleski, Dirsmith, Heian and Samuel (1998)) describes how management by objectives (MBO) can enhance worker self-motivation.⁴² In MBO, employees meet with supervisors to set mutually performance goals. Standard economic analysis would view MBO as a disciplinary device; the measurable standards of performance set for each

40. Peters and Waterman (1982) give concrete examples of firm policies. In their view, a corporate mission — such as commitment to service or to product quality — pays off because employees will also adopt these prescriptions. Thus, the costs to Caterpillar Tractor to deliver parts within 48 hours anywhere on the globe, or to McDonald's of throwing away fries that are warm, but not hot, are more than worthwhile. The workers' self-images are enhanced when they help accomplish the firm's goals.

41. "The leader's responsibility [is] to define the mission of the enterprise...Truly accepted values must infuse the organization" (Selznick (1957, p. 26). Barnard (1950) was another early exponent of this role of management.

42. O'Reilly, Chatman and Caldwell (1991) have established the existence of corporate values by their research on accounting firms. The authors gave respondents who were familiar with an accounting firm in their sample a deck of cards with 54 value statements. The respondents were asked to divide the pack in nine different groups according to the degree to which the statements correspond to the firm's characteristics. The authors then, in parallel, gave new accounting recruits to different firms the same pack of cards and asked them to give a similar ranking in answer to: (p. 494) "how important is this characteristic [as] a part of the organization you work for?" Agreement between the values of the candidates and the values of the firm ranked in this fashion predicted the tenure of these new accountants at their firms over the next three years (p. 507). In addition, there was significant correlation between the fit of the organization and the individual's preferences with measures of commitment to the organization, job satisfaction, and intent to leave (p. 504). This study shows the existence of corporate values; in the absence of such values the correlation between the workers' preferences and the values of the firm would be zero.

worker are the basis for reward and punishment. But Covaleski *et al.* emphasize a different effect: these goals are subsequently internalized by the employees. (In our terminology, employees are changed from *O* to *N* and they adopt the ideal $e^*(N)$.) Covaleski *et al.* report that employees believe themselves more “energized” by achievement and recognition than by the financial rewards.⁴³ In the words of one manager, “After a while [striving to exceed targeted objectives] had nothing to do with the bonuses, that the actual bonuses became peanuts. It’s the concept of having people fired up and be recognized — we publish their names every month....It’s a lot of ‘atta boys.’”⁴⁴

The Importance of Work Identity to Almost All Employees. Not only is self-motivation and identification with the firm important to professionals; it is also important to workers far down the occupational ladder, whose jobs are, typically, dead-end and boring. We see here the problems that can arise when workers do not feel they are part of the organization. Hodson’s (2001) study and the litany of workers’ stories in Stud Terkel’s classic *Working* (1973) show time and time again that workers would like to take pride in their jobs and are angered — and may do damage — when management does not respect their efforts.

Consider Mike, a steelworker from Cicero, Illinois.⁴⁵ Even though pecuniary rewards guide most of his work behavior, he resents the way his managers treat him and this resentment leads to destructive behavior. Mike identifies himself in his interview with Terkel as “a dying breed. A laborer. Strictly muscle work,” who “handle[s] between forty and fifty thousand

43. Covaleski, Dirsmith, Heian and Samuel (1998, p. 313).

44. Covaleski *et al.* also describe how mentoring can change an employee’s sense of self, as the employees want to become like their mentors.

45. Terkel (1973, p. xxxi- xxxv).

pounds of steel a day.” He is emphatic that his three-year old son should grow up with a different life, to become an “effete snob” college boy. Indeed, Mike attaches meaning to his work by viewing his earnings as earmarked for that future college tuition. For fear of losing his job, he shows only minor resistance for the hours of operation of his bonderizing machine, when he does not “even try to think.” Mike refuses to say “Yes, sir” to the boss and occasionally slightly damages some steel. “I put a little dent in it...I deliberately fuck it up, to see if it will get by.” Most often, he contains his anger on the job and lets it out in tavern brawls “[c]ause all day I wanted to tell my foreman to go fuck himself, but I can’t.”⁴⁶

Mike’s job and behavior reflects the economic branch of our model. He is an outsider who performs action A rather than action B because of the monetary rewards. Also, corresponding to the model, he loses utility, in amount $t_O(e_A - e_B)$, as a result. His expressions of hostility both on the job, and also off of it, are a way of partially restoring this loss of identity.⁴⁷ Remarkably, even in the pecuniary branch of the model, identity does not lie totally dormant: its consequences can be seen.

We now turn to another worker, Shirley, who unlike Mike, takes pride in her position, despite daily insults. Smith (2001) observes employees of Reproco,⁴⁸ an agency that subcontracts workers to run corporate mail room/photocopy centers. With only occasional help, the employees are responsible for meeting the variable needs of the clients. The clients often fail to see the photocopyists’ hard work, initiative, and ingenuity necessary to complete quickly

46. Terkel (1973, pp. xxxii-xxxiii).

47. Akerlof and Kranton (2000, 2002) describe consequences of attempts to restore a person’s self-image.

48. A pseudonym.

large-scale assignments. The misunderstanding is compounded by the differences in organization, in occupational status, and also, typically, in ethnicity. Reproco recognizes the potential for conflict and trains its employees precisely how to deal with insult from clients. An exchange at a Philadelphia law firm between a white lawyer and Shirley, an African-American photocopyist illustrates. After the lawyer has expressed her impatience with the time it will take to finish an order, Shirley responds by using her calculator to estimate the length of the queue. The lawyer walks off in a huff, saying: “Shirley, you always bitch about these things. You are always just pushing those little buttons [*i.e.* on the calculator], and what are you doing with that?”⁴⁹ Shirley explains the interchange as due to the law firm’s attitude: she is “just a Reproco person, [who] just makes copies.” Shirley maintains her composure by calling on her work identity as “a Reproco person.” With her pride in that identity (even in the presence of the lawyer’s contempt for it), she complies with the prescription to treat the client with respect.

Shirley is the opposite pole from Mike. She is an *N*, not an *O*. In terms of the model she gains identity utility of $t_N(e_A - e_B)$ by holding her temper, e_A , rather than venting her anger, e_B . It is also clear that she gains positive utility I_N from being a Reproco employee.

We chose Shirley and Mike, the office worker and the steelworker as illustrations. Yet every work ethnography we read contained significant signs either that workers identify with their work, often in circumstances that make that identification extraordinarily difficult, or, feel deeply frustrated.⁵⁰

49. Smith (2001, p. 30).

50. Here are just a few snippets: Delta Airline stewardesses, who, for the most part, practice what they are taught in company training sessions: to be representatives of the Airline, which entails a permanent smile, even in the face of “irates” — the company’s term for angry passengers [Hochschild (1983 p. 250)]. A stone mason, who takes pride in each and every job that he has ever finished (Terkel (1973, pp. xlv-xlix)). A worker in a wire factory who is denied permission to buy a new screwdriver and is then chewed out for subsequently stripping the screwheads on his

Representativeness of Examples. We might want to know how workers are distributed between those (like Mike) who feel hostility towards their jobs and those (like Shirley), who, notwithstanding negative aspects, have some commitment to their workplaces. We took a look at the General Social Survey, which asks employees about job satisfaction, and the 1991 GSS which includes a module about work organizations. Employees were asked their degree of agreement or disagreement with the following statements: “I feel very little loyalty to this organization”; “my values and the organization’s values are very similar”; and “I am proud to be working for this organization.”⁵¹ In the Survey, 82 percent of employees disagree, weakly or strongly, with having little loyalty toward their work organization; 78 percent agree that their values and those of their organization are similar; 90 percent say they are proud to be working for their organization; and 86 percent are very satisfied or moderately satisfied with their jobs.⁵² These fractions differ only marginally across such divisions as gender, race, and blue collar vs. white collar occupation. Of course, these responses do not tell us why workers feel this way: It could be that firms invest in identity, as in our model. It could be that workers select organizations that share their values. It could be that workers adopt their firms’ values to minimize cognitive dissonance. All of these explanations fit our general framework, where identity is a component of an individual’s utility.

machine. He further retaliates by hammering to pieces a spare part worth hundreds of dollars. (Juravich (1985, pp. 135-6)). Fast food workers in Harlem and Washington Heights—despite the grease, heat, disrespect from customers (especially teenagers), and low wages—still take pride that they earn their money. In the words of one worker, “I will walk tall with my Burger Barn uniform on” (Newman (2000, p. 96-99)). Burger Barn is a pseudonym for a major fast food chain.

51. Such questions are components of sociologists’ leading index of organizational commitment (the Organizational Commitment Questionnaire). For a list of the questions see, for example, Angle and Perry (1981, Table 1, p. 4).

52. Source: authors’ tabulations.

III. Work Groups

We now modify our model to capture different levels of identification within an organization, as described by the post-Weber generation of sociologists. Here, workers and supervisors can identify with their work unit instead of with the organization as a whole. We model a conflict that arises in this situation. When a supervisor is appointed to monitor workers, the firm gains more information and can fine-tune its incentive pay. However, a rift is created among the employees, and workers may feel less a part of the firm. When a supervisor does not actively monitor workers, on the other hand, workers are less hostile to the firm and there is more cooperation within the unit. But this cooperation and identification with the work group could maintain group norms of lower output and otherwise subvert management goals. After presenting the model, we discuss the extensive literature on workplaces that describes these tradeoffs.

A. Work Group Model

Workers, as before, are risk averse and have utility from income $u(y) = \ln y$. As previously, they have a choice of action A at cost of effort e_A or action B at cost of effort e_B , where $e_A > e_B$. We now add the choice of a third action, Γ , representing work group behavior. An agent's cost of effort in performing Γ is e_Γ , where $e_A > e_\Gamma > e_B$. Revenues generated by each agent's action are random, and conditional on the agent's action. When an agent takes action A, with probability $\frac{1}{2}$ the revenues he generates are high, π_H , and with probability $\frac{1}{2}$ the revenues are low π_L . When the agent takes action B, revenues are always π_L . When the agent takes

action Γ , the probability of π_H is $\gamma/2$ and the probability of π_L is $1 - (\gamma/2)$, where $0 < \gamma < 1$. The parameter γ represents how work group interaction — such as time spent socializing, refusal to reveal information to management about another work group member, adherence to norms of lower output — may reduce productivity. The principal can observe the realized revenues from each agent's action, but not the action itself.

In this new model the firm has the option of using a supervisor to obtain information on workers' actions. For modeling simplicity, we assume that the supervisor costlessly observes the worker, as a byproduct of her managerial duties, say, which are otherwise necessary for running the firm. That knowledge, however, is not perfect. If the worker has taken action B, the supervisor can verify this action to the principal with probability x . The supervisor cannot verify that the worker has taken action A.

Such information would allow the principal to fine-tune the wage schedule it pays its agent, but an active supervisor can have negative consequences. In our new model, the agent could belong to two possible categories. He can identify with his work group — social category G — or think of himself as an outsider — social category O .⁵³ Following the ethnographies and social psychology experiment, we assume that appointing a supervisor who actively reports her information to management creates a rift within the work force. The agent takes on an identity in opposition to the firm — as an Outsider. On the other hand, if the principal does not divide the work force, the agent takes on a work group identity — social category G . Thus management may choose a *strict* work place, where supervisors are on the side of management and report their observations of worker behavior, and workers consider themselves as *outsiders*;

53. In a more complicated version of the model, there would be three categories: Insiders, Work Group members, and Outsiders.

alternatively management may choose a *loose* work place, where workers and supervisors both identify with the work group rather than with the management. In this latter case, the supervisors may observe worker behavior, but they fail to report their observations to management.

The outsider or work group identification affects identity utility and therefore worker behavior. According to the prescriptions, ideal effort for a G is $e^*(G) = e_\Gamma$; ideal effort for an O is $e^*(O) = e_B$. The utility from identity of a worker in categories $c = \{G, O\}$ is specified, as before, as:

$$I_c - t_c | e^*(c) - e | ,$$

where $t_c \geq 0$ for both categories. Thus a person's overall utility is simply

$$U(y, e; c) = \ln y - e + I_c - t_c | e^*(c) - e | .$$

Each agent's outside opportunities yield utility of amount \bar{u} .

We compare the optimal compensation schedules under the two different supervisory regimes: *loose* or *strict*. We consider the pay schedules the principal would use to elicit actions A, Γ or B. This exercise reveals the costs and benefits of different supervisory policies.

Strict Supervision; Elicitation of A. Suppose the principal appoints a supervisor. In this regime the agent takes on identity O . To give him the incentive to take action A, the principal pays a high wage w_H^O when realized revenues are π_H and a low wage w_L^O when they are π_L . In addition, the principal fines the worker an amount f if the supervisor verifies that the worker has taken action B. We assume a limited liability constraint; the fine cannot be so high that the

worker earns less than $b > 0$ wages.⁵⁴ The principal then receives expected profits⁵⁵

$$\Pi(O) = \frac{1}{2}[\pi_H + \pi_L] - \frac{1}{2}[w_H^O + w_L^O],$$

subject to the following participation constraint (PC), incentive constraint (IC), and limited liability constraint (LLC) for a worker with an outsider identity:

$$\frac{1}{2} \ln w_H^O + \frac{1}{2} \ln w_L^O - e_A + I_O - t_O |e_B - e_A| \geq \bar{u} \quad (\text{PC})$$

$$\frac{1}{2} \ln w_H^O + \frac{1}{2} \ln w_L^O - e_A + I_O - t_O |e_B - e_A| \geq (1-x) \ln w_L^O + x \ln(w_L^O - f) - e_B + I_O \quad (\text{IC})$$

$$b \geq w_L^O - f \quad (\text{LLC})$$

Since the LLC is binding, we can easily solve for the worker's wages in this case. When all constraints are binding,⁵⁶ we have

$$f = w_L^O - b$$

$$w_L^O = \exp [1/(1-x)][\bar{u} - I_O + e_B - x \ln b]$$

$$w_H^O = \exp [[(1-2x)/(1-x)][\bar{u} - I_O + e_B] + 2(1 + t_O)(e_A - e_B) + [x^2/(1-x)] \ln b] .$$

For $x = 0$, as may have been noticed, this solution matches that of the model in the previous section. As x increases, the gap between w_L^O and w_H^O decreases.⁵⁷ The variation in wages decreases because supervision (with fines) substitutes for monetary rewards. The choice of *A cum* supervision then relaxes the participation constraint by reducing the risk on the part of the worker. But the choice of supervision also tightens the participation constraint in two ways, and thereby increases the wage bill. First, the worker's identity as an *O*, rather than as a *G*,

54. This assumption prevents the firm from fining the worker so much that he earns arbitrarily large negative utility, which occurs at a wage of zero with our utility function $\ln y$.

55. These profits are exclusive of the costs of supervision, which we consider to be fixed.

56. If x is sufficiently close to one or b sufficiently close to zero, the incentive constraint is not binding and the principal will set a constant wage.

57. More precisely, w_L^O increases and w_H^O decreases.

necessitates an increase in compensation because his basic identity utility is I_O , rather than I_G . In addition, an O -worker who is performing effort e_A must be compensated for the gap between e_A and e_B , rather than for the smaller gap between e_A and e_Γ , as would be the case with a G worker.

Loose Supervision; Elicitation of A. We now consider a principal who elicits A from workers without the benefit of supervision. The principal receives expected profits

$$\Pi(G) = \frac{1}{2} [\pi_H + \pi_L] - \frac{1}{2} [w_H^G + w_L^G].$$

G -workers have different identity utility than O -workers and have the following participation and incentive constraints:

$$\frac{1}{2} \ln w_H^G + \frac{1}{2} \ln w_L^G - e_A + I_G - t_G |e_\Gamma - e_A| \geq \bar{u} \quad (\text{PC})$$

$$\frac{1}{2} \ln w_H^G + \frac{1}{2} \ln w_L^G - e_A + I_G - t_G |e_\Gamma - e_A| \geq (\gamma/2) \ln w_H^G + (1 - (\gamma/2)) \ln w_L^G - e_\Gamma + I_G \quad (\text{IC1})$$

$$\frac{1}{2} \ln w_H^G + \frac{1}{2} \ln w_L^G - e_A + I_G - t_G |e_\Gamma - e_A| \geq \ln w_L^G - e_B + I_G - t_G |e_\Gamma - e_B| \quad (\text{IC2})$$

where IC1 shows an agent's incentive to do action Γ rather than A , and IC2 shows an agent's incentive to do action B rather than A .

These constraints show the costs and benefits of loose supervision. The worker has an ideal action of Γ — rather than action B under strict supervision. On the other hand, the principal receives no information on the agent's action. When γ is sufficiently close to one, IC1 will be the tighter constraint, and we work with that case here. When PC and IC1 are binding, the optimal wages are:

$$w_H^G = \exp [\bar{u} - I_G + e_A + t_G (e_A - e_\Gamma) + ((1 + t_G)/(1 - \gamma))(e_A - e_\Gamma)]$$

$$w_L^G = \exp [\bar{u} - I_G + e_A + t_G (e_A - e_\Gamma) - ((1 + t_G)/(1 - \gamma))(e_A - e_\Gamma)].$$

The contrast with the previous formulae shows how wages will decrease because the participation

constraint is relaxed: because I_G exceeds I_O and because $(e_A - e_T)$ is less than $(e_A - e_B)$.

But these formulae also show a problem that could make eliciting action A from G workers quite expensive. The difference in wages, between $\ln w_H^G$ and $\ln w_L^G$ is

$$\ln w_H^G - \ln w_L^G = 2(e_A - e_T)[(1 + t_G) / (1 - \gamma)].$$

This difference may be quite large, especially large as γ approaches unity. In this case, high revenues are realized more often, and thus it is costly to compensate for high effort. Indeed as γ approaches one, the added compensation necessary to induce activity A becomes prohibitively costly. The principal must either resort to tight supervision, as examined above, or maintain loose supervision but aim for a lower level of worker effort, Γ . We examine the latter choice next.

Loose Supervision: Elicitation of Γ . With loose supervision, the firm can elicit Γ with a lower wage differential than it would take to elicit A, but it still must maintain some variation in wages.⁵⁸ There is an effort cost of Γ over B of $(e_T - e_B)$, which is only partially offset for $t_G < 1$ by the identity gain of $t_G(e_T - e_B)$.

With no variation in wages the worker would choose B rather than Γ . The IC constraint shows how much variation in wages is necessary to induce the worker to choose Γ over B. The IC constraint of Γ relative to B is:

$$\gamma/2 \ln w_H^G + (1 - \gamma/2) \ln w_L^G - e_T + I_G \geq \ln w_L^G - e_B + I_G - t_G |e_T - e_B|.$$

If this constraint is binding, we then see the difference in log wages between the high and the low states:

$$\ln w_H^G - \ln w_L^G = 2/\gamma (1 - t_G) (e_T - e_B).$$

With γ fairly close to one, if t_G is fairly high, or if e_T is close to e_B , this differential is moderate,

58. Provided $t_G < 1$. If $t_G \geq 1$ there will be no wage differential.

causing only small additional cost to compensate workers against wage variation. It would thus appear that a possible outcome of the model involves firms giving up elicitation of A, because it is too costly to provide incentives; instead the firm encourages or allows workers to form a work group with the ideal effort levels above the lowest level of B. In the next section we shall see that such an outcome matches actual practice in many firms. And, as we said above, this description fits the major thrust of the post-Weber discussions of the sociology of the workplace.

B. Classic Sociological Studies of Civilian Work Groups

Our model shows the tradeoffs of supervisory regimes. Tight supervision creates a rift among employees, where one part of the work force reports on the actions of the other. The principal has more information, but the division can create animosity and the need for greater incentive pay. Loose supervision enhances work group identity, which reduces animosity to the firm but encourages workers to follow work group ideals rather than the firm's ideals. Comparing the outcomes of the supervisory and of the non-supervisory regimes, we see that the choice of regime will depend on the extent to which a supervisor can monitor workers (x) and work group ideals reduce productivity (γ).

We have modeled a discrete choice of supervisory regimes — there is either strict or loose supervision. More realistically, firms have a choice of the intensity and nature of supervision, which could create more or less create division among their employees. By a variety of policies, the employer could affect work group identity or divisions, such as by job rotation (e.g., keeping groups together or breaking them up systematically), work group composition, physical arrangements, and more or less firm-sponsored activities (lunch room, sports teams, or company

gatherings). Affinity or discord between workers and supervisors may also derive from sources outside the workplace, such as education, ethnic backgrounds, or family ties.⁵⁹ We will see the consequences of such policies and attachments in the studies below.

This section discusses four classic studies of work group interaction in firms in the United States.⁶⁰ Each study reveals the central tradeoffs in the model.

The Wallboard Plant. Alvin Gouldner's (1954) account of a wallboard plant in the Great Lakes region clearly shows the tradeoff a firm faces when choosing a supervisory policy. Gouldner never tells us which system, Godfrey's or Peele's, yields higher labor productivity. But the account describes in detail the advantages and disadvantages of each regime. During the study the old manager, Doug Godfrey dies and is replaced by a new manager, Vincent Peele. The old manager had governed the plant by what Gouldner calls the "indulgency system."⁶¹ Workers' morale is good, and Godfrey rewards them with perks that are against company rules. Discipline is lax. Workers not assigned specific tasks are free to wander at will; they are given only mild rebukes for lateness or absenteeism, which is frequent especially in hunting season; they are allowed to sign in early to collect overtime; there is preferential hiring of relatives; relatives often work together, sometimes as father-son work teams; workers injured inside or outside the plant are given easy sit-down work; workers take material for their own construction projects and appropriate company parts and use its tools. Under Godfrey's regime workers were satisfied;

59. The behavior in our model is ultimately observationally equivalent to a cooperative equilibrium of a repeated game, and these associations could help enforce cooperative behavior in such a game. The ethnographies below, however, indicate that repeated strategic interaction is *not* the explanation of cooperative behavior.

60. Notable post-Weber sociologists include Mayo, Roethlisberger and Dickson, Merton, Homans, Dalton, Roy, Gouldner, Blau, Whyte, Crozier, Burawoy and Kanter.

61. Gouldner (1954, p. 45).

typically those who had worked elsewhere expressed their appreciation for a work place with so much trust and freedom.

Godfrey's untimely death gave Central Headquarters of the General Gypsum Company an opportunity to shape up the plant. It appointed Vincent Peele, a near opposite to Godfrey, as the plant's new director. Whereas Godfrey had been loyal to the men underneath him in the hierarchy, Peele, who comes from the outside is, instead, loyal to central headquarters, which have given him his promotion. Peele quickly ends each of the indulgences. Workers must be at their work stations unless given explicit permission to move about the plant; absenteeism is punished by a layoff equal to the absence; workers may no longer sign in early for overtime; the new personnel manager gives no special preference for relatives; workers who suffer off-the-job injuries, who Peele considers "shirkers," are no longer given easier jobs; Peele makes a test case, by firing a worker who had taken some sticks of dynamite (for fishing or for his personal construction project), even though the worker had been given the explicit permission of his supervisor. The workers are angry; they become hostile and resist the changes as best they can. Peele faced considerable difficulty in establishing good relations with the leaders in the plant under the previous system. These leaders not only tried to insinuate to top management that he was irresponsible,⁶² they also seeded worker resentment, which was widespread.⁶³ We thus see the switch in identity predicted by our model with a switch from loose supervision to tight supervision.

62. For example, when Peele was away from the office, the office manager would try to make him look irresponsibly absent (Gouldner (1954, p. 75)).

63. For example, when Peele was hospitalized, the acting plant manager appeared to inflame union sentiments during wage negotiations (Gouldner (1954, p. 75). The president of the plant's union, who was a worker in the plant, took an especially militant stance against Peele until eventually they came to terms (p. 76). Workers were contemptuous of Peele's operation of the plant and his subservience to upper management (p. 78).

Roy and Burawoy: A Machine Shop. By coincidence, sociologists, Michael Burawoy (1979) in *Manufacturing Consent* and Donald Roy (1953) in his thesis, wrote participant observer accounts of the same small-parts machine shop outside of Chicago. Despite a thirty-year gap between the accounts, both studies lend credence to each other, and both affirm the features of our model.

We see clear evidence of work group identity and how this identity can lead to productivity that is lower than the firm's ideal — in terms of the model, productivity corresponding to the work group ideal of Γ rather than the firm's ideal of A. Workers identified with fellow workers and followed ideals of how to behave, including hiding valuable information from management.

Burawoy and Roy describe how workers thwarted management's efforts to fine-tune pay schedules. A worker's pay was the maximum of an hourly wage rate and earnings from a job-specific piece rate. Management aimed to set piece rates that would equalize across jobs the difficulty of reaching a monetary target. But they seemed to have done a very bad job of it: a large fraction of jobs were "gravy," where meeting the target — or "making out" in the language of the shop floor — was very easy. In Roy's time, there were also quite a few "stinkers," where the rate was so low that making out was impossible. Supervisors, both when Roy was at the plant and in Burawoy's time, were unable to extract from workers the time and effort needed to complete a job.

In an open shop floor, why was management unable to obtain accurate information? The workers kept them in the dark, through silence and deception. Both Burawoy and Roy describe stratagems to trick the time-study men — going as slow as could be believable, failing to reveal

techniques for faster production, and using unnecessary movements when an operation was being timed. Moreover, workers abided by an informal code whereby no one would earn more than 140 percent of the base pay, and thereby attract the attention of the time study men.⁶⁴ After taking his new job, Roy was soon informed of the earnings limit of \$1.25 per hour. With this limit a worker had two possible ways to use excess time. He could finish a job early and loaf around, talking to fellow workers. Or, he could start a new job before having punched out on the old job, to increase his ability to make out on the new job. This practice was contrary to the rules and known as “chiseling.”

Chiseling required the connivance of a large number of supervisors, auxiliary personnel and other machinists in the shop. Specifically, the scheduling man gave the machine operator his new assignment before he had punched out on his previous one; the crib man gave the operator the blue prints and the tools; the stock men gave him the materials; the inspectors did their inspection either after a new job had been begun or before the old job had been punched out; and the setup men helped the operator set up the new job while the previous one was not officially completed. Other machine operators said nothing.

While the preceding description could match a repeated game model of worker interaction, Roy and Burawoy are unambiguous that such an interpretation would be a misjudgment of workers’ motivation. Both authors see the operators as having turned their work into a game, whose goal is to make out, with the monetary returns from making out less an end in itself than the means of scoring in the game.⁶⁵ The winner represents an ideal type, as described

64. Burawoy (1979, p. 51). In Roy’s time the limit was a bit higher as a function of base pay. Base pay was \$.85 per hour. The limit was 47 percent above it, at \$1.25 per hour (Roy (1952, p. 430)).

65. See Burawoy (1979, Chapter 4, and especially, p. 82 ff.). See Roy (1953, p. 511 ff.).

by the rules of any game. Burawoy holds that winning at this game was central to the self-concept of a machine operator. “Making out” is a “form of self-expression,” and “an end in itself.”⁶⁶ These feelings were shared among all the machine operators. “As Roy and I soon came to appreciate, *if we were to be anyone in the shop we had better begin making out* (italics added).”⁶⁷ Prescriptions of behavior were to make out where possible, to aid other workers in making out, which included avoiding production in excess of the output quota and evasion of the time-study man so as to aid and abet others in the game. We can view “making out” as action Γ corresponding to ideal effort for the work group. Workers lose identity utility insofar as they fail to make out, in amount $t_G | e_\Gamma - e |$. Note that workers who fail to make out and those who do not chisel lose identity utility, as in the model, from working too hard or not hard enough.

The Bank Wiring Observation Room. The Bank Wiring Observation Room also demonstrates work group norms and the tradeoffs of supervision. In 1931 the Western Electric Company, at the behest of the pioneering industrial sociologists, Mayo, Roethlisberger and Dickson, observed a small group of workers in an isolated room within a communications equipment assembly plant. We take our account of this experiment from George Homans (1951) whose interpretation corresponds to the basic tradeoffs in our model.

Workers in the room were divided into three units to make telephone switches, and two inspectors verified that the equipment worked. Pay was proportional to the entire group’s aggregate productivity, provided they produced at least a given minimum. Otherwise their pay

66. See Burawoy (1979, p. 84, quoting Roy (1953, p. 511)).

67. See Burawoy (1979, p. 88).

reverted to an hourly wage, individual to each worker. The incentive rate was proportional to this base wage. Thus, a worker's short-run incentive was to maximize the group's productivity, and the long-run incentive was to be productive in order to increase his base wage.

The workers developed into a cohesive unit with definable norms, including appropriate levels of output. The ideal was two switches per day, which corresponded to a number of connectors for each worker. Those who exceeded this quota were considered "rate-busters;" those who fell short of it were considered "chiselers." Those who produced output that was too high or too low were "razzed" or "binged" — hit on the forearm.

Mazmanian and Allen, the two inspectors for most of the life of the experiment, illustrate the tradeoff in our model. Mazmanian's relations with the men began badly when he was learning how to use the test equipment. He slowed down the workers and then, interpreting the rules against the workers, he refused to give them credit for their lost time. He also took a hard line in the inspection of their work, declaring some of it unsatisfactory. In escalation, the workers sabotaged his work—for example, by misaligning his test set while his back was turned.

Mazmanian then committed the ultimate crime of reporting these infractions and the output restrictions—"squealing" in the views of the men—to the Personnel Department. The company had to transfer him elsewhere. In contrast, Allen identified with the workers. While he was well aware of the workers' output restrictions, he was silent about them as well as the workers' other failures to adhere to company rules. Mazmanian's behavior could have been predicted by the social difference between him and the other Observation Room workers.⁶⁸ While the workers were all between 20 and 26 years of age, Mazmanian was 40. Moreover, while no other worker

68. See Homans (1951, p. 54).

had completed more than high school, Mazmanian had attended three years of college. Thus, social distance between workers and supervisors can further contribute to the formation of work group ideals contrary to the firm's interests. This example thus gives an excellent demonstration of the assumption in the model that if the supervisor, like Allen, is identified by the workers as a member of the work group, they will take on the work-group ideal of activity (Γ in the model). On the contrary if the supervisor, like Mazmanian, is identified as supporting the goals of the firm contrary to the work group, the workers will identify themselves as outsiders with corresponding ideal for activity B.

Work-Sections in a Midwest Heavy Machinery Factory. Seashore's study of a heavy machinery plant explores work groups and supervisors with a different methodology. Seashore wrote and implemented a questionnaire⁶⁹ to accompany data on the ratio of actual to expected performance for each worker. Seashore asks about cohesion of work groups, where assignment to work groups was close to random.⁷⁰ He created an index of cohesiveness using the responses from questions such as "If you had a chance to do the same kind of work for the same pay, in another work group, how would you feel about moving?" and "How would your work group compare with other work groups at Midwest on each of the following points? the way men get along together? the way the men stick together? the way the men help each other on the job? (p. 37)" The replies to each of the cohesiveness questions is positively associated with each other,

69. See Seashore (1954, p. 28).

70. Of course, the assignments could not have been totally random since similar jobs demand similar characteristics, and friends may seek to assignments to the same work section. The problems here are the usual ones examined by Manski (1993) and Durlauf (2002) regarding the identification of peer effects on individual behavior. What may appear to be peer effects to the naive observer may simply be the result of self-selection instead.

and suggest that there was considerable variation in the cohesion of work groups.⁷¹

The correlations between productivity and cohesiveness support the assumption that work group cohesion varies directly with following group norms. High cohesiveness is associated with *both* high and low average productivity. This result would be expected from our model, in which workers' behavior corresponds to the ideals of their respective work groups. Cohesive work groups with an ideal of high productivity are expected to have high output, and, similarly, cohesive work groups with an ideal of low productivity would be expected to have low output, corresponding to ideal activity of e_T , which varies by work group. But where management is strict and elicits activity A , productivity should have relatively little variation across work groups. Seashore also found the variance of worker productivity to be lower in high-cohesive groups than in low-cohesive groups.

Seashore's questionnaire also supports the ambiguous role of supervision. Seashore asks workers to evaluate whether their foreman is "closer to the men" or to "management." In answer to "how close is the foreman to the men in the work group?" 3 percent said he was "much closer to the men than he is to management"; 8 percent "somewhat closer to the men than he is to management"; 46 percent "about in the middle between men and management"; 22 percent "somewhat closer to management than he is to the me"; and 18 percent "much closer to management than he is to the men."⁷² These answers suggest that, as in our model, there is at least some choice regarding the extent to foremen identify with their work group.

71. For the variation in cohesiveness by work group, see Seashore (1954, Table 1, p. 38).

72. Seashore (1954, p. 41).

C. Group Identity in the Military

Loyalty and work group identity is famous in military accounts and memoirs. For example, in their description of the battle for Ia Drang in Vietnam, Harold Moore and Joseph Galloway (1992) explain why soldiers fight. They say that they went to Viet Nam because of a sense of duty: “our country asked us to go...[and] we saw it as our duty to go. That is one kind of love.”⁷³ But in battle, a tight bond developed among the soldiers, giving them the inspiration to fight:

We discovered in that depressing, hellish place, where death was our constant companion, that we loved each other. We killed for each other, we died for each other, and we wept for each other.... In battle our world shrank to the man on our left and the man on our right and the enemy all around. We held each other’s lives in our hands and we learned to share our fears, our hopes, our dreams as readily as we shared what little else good that came our way.⁷⁴

Stouffer *et al* (1949b) give similar poignant accounts of loyalty of soldiers for their buddies, as expressed, for example, by a soldier wounded in Sicily. “You would rather be killed than let the rest of them down” (vol. 2, p. 136). Such feelings appear to be quite general, as 90 percent of veterans interviewed in a survey in 1945 agreed that “most soldiers care a great deal about what the rest of the men in their outfit think of them.”⁷⁵ We saw earlier how this interaction led combat soldiers to adopt a personal code of masculine conduct: They would not quit and let their buddies down.⁷⁶ In terms of the model this masculine code of conduct defines the ideal behavior of a

73. Moore and Galloway (1992, p. xiv).

74. Moore and Galloway (1992, p. xiv).

75. See Stouffer *et al.* (1949a, vol. I, p. 418); the survey covered “a representative cross section of enlisted men in the United States in November 1945,” p. 415.

76. See especially, Stouffer (1949b, vol. 2, pp. 135-8).

member of the work group, e_T .

Yet this loyalty to the unit can have its costs. In an interview on National Public Radio, General Theodore Stroup describes the problems that arise when loyalty to the unit is greater than to the organization as a whole. When a member of their own unit does something wrong, soldiers face a conflict:

When they get in a stress situation[...] [s]ubconsciously they may have their own internal argument that says, ‘I know I must be loyal to my unit, but I must be loyal also to a higher authority, which is standard of conduct, rules of justice, rules of law.’⁷⁷

He illustrates with the crew’s reluctance to reveal the events that led to the collision of a US submarine and a Japanese fishing trawler off the coast of Hawaii in the winter of 2001.⁷⁸ Stroup cites the loyalty of the crew to its skipper as typical of small working groups in the military. They followed e_T (like the men on the shop floor in the machine shop) — here, by covering up for their supervisor.

Loyalty to their men and loyalty to higher command (choice between being loose or strict in terms of the model) frames the classic dilemma of unit leaders, and especially of Non-Commissioned Officers, as we see in questionnaires described in Stouffer *et al* (1949a). Officers, privates, and NCO’s were variously asked their opinion regarding appropriate discipline in different situations. In each and every case, reflecting the ambiguous position of the “supervisor”

77. “Profile: Loyalty in the Military,” interview by Susan Stamberg with Lieutenant General Theodore Stroup, US Army retired, National Public Radio, March 27, 2001.

78. The USS *Greeneville* collided with the *Ehime Maru* while surfacing off the coast of Hawaii on February 9, 2001. Nine Japanese drowned. It eventually was revealed that a group of oil executives and their wives were on an excursion on the *Greeneville*. The *Ehime Maru* had been sighted 71 minutes prior to the accident, but the presence of the civilians crowded into the control room is believed to have resulted in failure to re-check its position; thus the collision. It took some time before all of this information was revealed.
<http://emperors-clothes.com/articles/jared/sink.htm>

in our model, the NCO's took a middle ground between the officers and the enlisted men. For example, interviewees were asked how they would behave "as a platoon sergeant [who] find[s] that one of the men in your barrack has brought a bottle of liquor into camp." 70 percent of privates and 59 percent of noncoms, but only 35 percent of officers, said they would just "warn him to be careful and not do it again."⁷⁹

IV. Testing the Model

The reader may wonder how we can begin to test the implications of this theory. Preferences, which are at the heart of our theory, are typically not an object of economic inquiry. This paper asks us to consider how changes in workers' preferences—perhaps engineered by the firm—impact workers' productivity and their responses to different incentive schemes. In this section we briefly discuss relevant empirical work inside and outside of economics and outline the ingredients of an empirical program to test our identity model.

Empirical work in economics typically takes workers' preferences as given and considers the impact of technology or incentive schemes on workers' productivity [see Prendergast (1999) for review]. For example, researchers have examined predictions and assumptions of the principal-agent model, especially in regard to CEO performance and pay. There is evidence that agents respond to incentives (Prendergast [1999, p. 21]). For example, pay programmers by line of code, as was done at AT&T; programs will be long. Penalize a football quarterback for intercepted passes; fewer interceptions will occur. But such incentives have side effects. The programmers will write too many lines of code; the quarterback will throw too few passes.

79. See Stouffer *et al.* (1949a, vol. 1, Table 13, p. 409).

Indeed, agency theory predicts that simple incentive schemes will be rare when it is difficult to measure job performance. Perhaps, then, it should be no surprise there is only weak evidence that the type of contracts predicted by principal-agent theory are used in practice.⁸⁰

In this vacuum, this paper offers a different theory to serve as a basis for empirical analysis. The model suggests at least five separate items that could impact workers' performance.

- (i.) social categories/job assignments (the Insiders, Outsiders, or Group members in our models),
- (ii.) the identity utility workers derive from a specific job (I_c in our models),
- (iii.) the ideal behavior for jobholders ($e^*(c)$ in our models),
- (iv.) their utility gain from conforming to that ideal ($t_c | e^*(c) - e |$ in our models),
- (v.) whether or not firms make investments to change workers' identities (q in our models).

Such variables may appear to be unobservable, but in fact each of these concepts can be measured—at least imperfectly. Sociologists and psychologists, especially in the area of organizational behavior, have made some progress in this direction. For example, the *social category* of insider/outsider can be measured by responses to the statement: “I feel very little loyalty to this organization” or “I talk up this organization to my friends as a great organization to work for.”⁸¹ The *social category* of work group can be ascertained, for example, by a question such as “Do you feel that you are really a part of your work group.”⁸² Identity utility from a

80. This finding is all the more remarkable since tests have been conducted only in areas where measurable outcomes (such as stock performance) are less ambiguous. Even in the case of CEO pay, Bertrand and Mullainathan (2001) offer evidence that pay depends considerably on luck—more so when stockholder control is less effective. With optimal agency theory, pay should not depend on luck since this increases the variability of the wages of the employee, who is assumed to be more risk averse than the shareholders.

81. See Angle and Perry (1981, Table 1, p. 5).

82. See Seashore (1954, questions 51 and 52, pp. 36-7). Earlier we saw that Stouffer *et al.* had ways of measuring the extent of soldiers' commitment to their combat unit.

particular job can be captured by researchers' and participants' estimations of the "occupational prestige" or "esteem" of different jobs.⁸³ For an insider, *ideal behavior* can be measured by how much the worker acts in the interests of the organization, such as making "suggestions to improve work procedures," "expressing opinions honestly when others think differently," "calling management attention to dysfunctional activities," "striving for higher quality work than required," etc.⁸⁴ When the worker belongs to a specific work group, detailed study may be needed to describe the ideal effort $e^*(c)$. However, difficult as this task may be, we have seen this effort level defined precisely in two studies, in the output quota in the Bank Wiring Observation Room and in the output restrictions in the machine shop of Roy and Burawoy. Indeed, participant observation combined with statistical analysis can allow a precise testing of several hypotheses of the model.⁸⁵ In questionnaires, it may be easier to measure *conformity to ideal type*, the whole term $t_c |e^*(c) - e|$, than the individual term $e^*(c)$. Thus, for example, "I am willing to put in effort beyond the norm [of the work group]"⁸⁶ will give an evaluation of the utility derived from the difference $|e^*(c) - e|$. Finally *investment of the firm in identity* may be quantified in a variety of ways. Some measurable factors indicative of an identity-oriented management strategy are: broadly defined jobs, high level of employee participation in decisions,

83. See Davies (1950, pp. 135 and 138).

84. See Tsui, Pearce, Porter, and Tripoli (1997, Tables 4 and 5, pp. 1104 and 1106).

85. To explore precise hypotheses of the model, such as productivity differences between those who feel like Insiders and those who feel like Outsiders, a combination of participant observation and statistical analysis could be useful. As we also discussed in our study of identity and schooling [Akerlof and Kranton (2001)], a researcher in a school or firm, like Burawoy or Roy, could discern the signs and symbols of who belongs to different groups. We see this possibility in other settings. Fryer and Levitt (2003) find that giving a child a distinctive name may be a sign of an African-American identity, and Goette and Huffman (work in progress) are using the display of biking paraphernalia as a sign of a "bike messenger" group identity.

86. Adapted from a question by Tsui *et al.* (1997, Table 5, p. 1106).

formal dispute resolution procedures, sharing of business information with employees, high percent of skilled workers, self-managing teams, extensive benefits, and a bias toward salary, rather than wage, compensation.⁸⁷

Measuring the preceding five variables may be more difficult than measuring more traditional variables, such as wages and prices, but measurement does not constitute the major problem with testing the theory. As in all empirical work, the major difficulty is identifying the effect of the relevant variables, which can typically be accomplished only in the presence of instrumental variables, or with a controlled or natural experiment. Consider Tsui *et al.*'s (1997) study on workers' motivations and work performance across ten firms. They collected data on individual workers' motivations, both from the workers themselves and from their supervisors. Our theory suggests that there will be correlation between positive worker attitudes towards a firm and behavior that benefits the organization (holding pay constant). However, since the authors use the firm as a control, they do not have any systematic relation between firm investment in identity and worker behavior, so the correlations they are recording are due only to individual difference. We can thus use this type of data to check the proposition of our model that there will be a correlation between identity and behavior, but since we do not know how this identity arises, such findings constitute only the beginnings of means to test the model. To solve the identification problem, researchers must look for situations where workers, for example, are randomly assigned to firms or work groups, as in Seashore's study.

87. See Arthur (1992, Table 1, p. 491). Arthur constructed an index of industrial relations of different steel minimills from replies to questionnaires by personnel managers. Those minimills whose business strategy aimed toward high quality products and customer satisfaction also chose what he called "commitment-oriented" industrial relations.

V. Conclusion

This paper has examined some implications of social psychology for the economics of organizations. The seminal studies of Tajfel and Turner in the 1970s showed how easily experimental subjects could be made to act as if they belong to different groups. This malleability and group identification are the building blocks of our models, where workers identify with their organization and work groups, and where organizations may affect this identification through management policy. We have shown evidence of the existence of such behavior in the classic sociological descriptions both of civilian work organizations and of the United States military.

The picture of organizations in this paper is very different from that in the traditional economics literature. The economics literature — by and large — views monetary incentives as the primary motivation for employees. In contrast, this survey describes and models organizations as they appear in other literatures — psychology, sociology, anthropology, management — where workers' identification with the organization, or with their work group within it, plays the dominant role. We model such motivations in terms of the *identities* of members of organizations, where workers lose or gain utility insofar as their behavior matches the ideals for their social identity.

The identity branch of the first model and the loose-supervision branch of the second model both demonstrate the major lesson of this paper: organizations in these branches of the model function not because workers maximize their own self interest; they function because employees also want to fulfill the goals of the organization. Returning to Weber, they wish to fulfill the ideals of their office.

The second model adds the realism that even when the goals of the worker may be somewhat different from that of the principal, it is still likely that optimal management will entail an incentive strategy that relies on workers' identification with a group. In terms of the model optimal strategy will be to encourage an ideal effort of e_T . This may not be as productive as the principal's ideal of e_A , but neither is it as unproductive as e_B , which is workers' ideal if they have no identification with their work place.

A simple way to characterize our view of organizations comes from the concept of a *fiduciary*. A fiduciary has a relation of trust and responsibility with his firm and acts in the firm's, or shareholders', best interest. If employees identify with the organizations where they work, or with their position within their organization, they may act as its fiduciaries. A great deal of management strategy concerns how to get employees to see themselves in this way and how their conduct coincides as closely as possible with the aims of the organization. This survey gives an initial stab at modeling this concept.

We conclude by discussing three arenas where the basic features of our model can change the view of organizational policy. First, consider the remuneration of employees, and especially of chief executives. A standard conclusion drawn from the economic models of executive compensation is that remuneration should be given with economic incentives, such as the award of stock options. Yet the literature also tells us that monetary incentives based upon some market signal such as firm profitability — especially given the creativity with which individuals can work to the test — are more likely to result in inefficiency than efficiency. Our analysis gives another way to motivate executives. In our reasoning, CEO's once they are suitably paid (*i.e.* once the participation constraint has been satisfied) could have the best possible incentives when

their identity is bound up with their firms and act as the firm's fiduciary. To take a maritime example, some captains do go down with their ships. They assume the responsibility of their office, even to the point of making the ultimate sacrifice.

The implications for CEO compensation is but the tip of the iceberg. Our model potentially applies to every worker in an organization. We saw at the beginning the pessimism arising from principal-agent theory regarding compensation as a motivator (Prendergast (1999)). Our models show that identification with the firm, or with the job, or with the work group can be an alternative motivator. In the first model in firms where workers considered themselves as insiders rather than outsiders, much less variation in pay was required to elicit the organization's goals.

The boundaries of firms is another arena for our analysis. For decades economists have tried to define the boundary of a firm. Researchers have focused on the difference between internal labor transactions — when a person is an employee of a firm — and external transactions — when a person works for a firm as a subcontractor. One view is that there is no inherent difference between the two, as contracts for external transactions can mimic internal labor contracts [e.g., Alchian and Demsetz (1972)]. Other researchers, such as Bolton and Rajan (2001), formalize the various transactions costs associated with external transactions (Coase (1929), Williamson (1975)), such as those from asymmetric information. Our view is that there is an inherent difference between internal and external transactions, beyond transactions costs. An employee of a firm is, by definition, a part of a group. The label itself may change a person's self-perception and impact incentives and job performance. Thus, for example, in many cases the effects of a merger between different firms depend crucially on the identities of the employees in

the respective organizations. There are prominent examples where the employees of the merged organizations maintained their prior organizational identifications so that the merged organization was divided into two warring camps.⁸⁸

Finally, we believe our framework allows an analysis of why some organizations work well and others work badly. There is now an abundant literature that suggests that the leading determinant of economic development is “institutions.”⁸⁹ But we have yet to understand well how successful governments, legal systems, and corporations function.⁹⁰ Wages, for example, do not go far in explaining why some bureaucracies are corrupt and others not [van Rijckeghem and Weber (2001)]. While many papers explain corruption as an equilibrium phenomenon [e.g. Tirole (1996)], this paper suggests another road to look for answers. The ability of economic institutions to instill loyalty in their employees, and for the employees to further the goals of forward looking institutions, may be a key to economic growth.

88. Haslam (2001, pp. 36-7) reports on studies of such failure in the merger of banks, hospitals, and airlines, government departments, and nursing groups.

89. For seminal contributions see North (1990), North and Thomas (1973). The World Bank Development Report in 2002 [World Bank (2002)] reviews and expands the large literature on institutions and economic development.

90. For legal institutions, see, for example, Djankov, La Porta, Lopez-de-Silanes and Shleifer (2003).

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