

THE MORAL ECOLOGY OF EFFORT SUPPLY

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ABSTRACT

This paper shows that effort supply is the result of controllable social processes—the work of “leadership”—and that these processes can be subsumed under the rubric of a rational action model, based on the concept of “identity utility,” introduced by Akerlof and Kranton [1]. This model is used to theoretically derive the proposition that Labor supplies as much productive effort as it believes Management “deserves.” Implications for the study of leadership and the nexus between how Labor is “treated” and its productivity are suggested.

I. INTRODUCTION

This paper seeks to create a direct theoretical connection between the work of “leadership” and Labor’s supply of productive effort. It seeks to do so by adapting a rational action model that was inspired by the work of George A. Akerlof and Rachel E. Kranton [1], [2]. It also builds on pioneering work by Harvey Leibenstein, whose concept of “X-inefficiency” [16] lives on in managerial commonsense discourse as “discretionary effort”—basically, effort that is available, but *not* deployed by Labor to the interests of the Firm. The nexus between this discretionary effort and the well-being of the Firm is the work of Management, presumably working on behalf of the Firm, or more accurately, the work of “leadership.” As will be revealed in this paper, the way people are “led” has direct and in principle, measurable effects on their productivity. The productivity of Labor will be shown to be the result of a moral ecology that includes Management (or the “boss”), other agents of Labor (peer groups), and each worker’s inner moral standards, which individuals unavoidably bring, along with their bodies, to the workplace.

The paper begins by introducing Leibenstein’s insights about “peer group standards,” and their impact on productive effort supply. In the process of explaining why two Ford plants that were identical in all essential respects had quite different labor productivity outcomes, he created a dilemma: The more productive workers’ efforts were “non-rational,” i.e., not explainable, in terms of orthodox economic theory. This is followed by a discussion of the concept of identity utility, which, when added to the “ordinary utilities” in Labor’s total utility function, resolves Leibenstein’s dilemma, and shows that the more productive workers were fully rational, after all. With the insights garnered in that discussion, a general utility function for Labor is constructed, and optimality conditions for Labor’s supply of productive effort are derived. It is then shown, at a theoretical level, that Labor’s supply of productive effort is a function of how it is “led” by Management. The paper closes with suggestions as to how this theoretical assertion can be tested.

II. PRODUCTIVE EFFORT SUPPLY AND PEER GROUP STANDARDS

Standard treatments of effort supply in economics focus on “labor-leisure” preference, which analytically addresses the trade-off between the amount of money that is paid to Labor and the amount of time Labor is willing to work (for pay). The focus of this paper is on the amount of productive effort that Labor supplies when, having accepted a contract to work for a Firm, while it is “at work.” Here, “effort” is regarded as a function of time and energy; “*productive* effort” is effort that is directed to the fulfillment of the goals of the Firm. For example, does Labor spend all eight hours of a workday performing activities that are productive to the Firm? Or does Labor take, say, a linear sum of two and a half of those eight hours networking for another job, planning a vacation, or in “social loafing”? While she is working, is she working “fast” or “slow”? Is she giving her full attention to her work when she is actually working, or not? During the time she is working, are there activities she might be performing that generate more value to the Firm than those that currently occupy her, even though these activities are “productive”?

Assume that at the beginning of a “working day,” Labor has 100% of its potential effort supply available to direct to productive effort. Let E be the proportion of this effort that is deployed to activities that are productive to the Firm. Thus, if a worker spends all eight hours of a working day on activities that are productive to the Firm, she would be supplying about 100% of her available effort, and her E would be approximately equal to 1. If she spends 5.5 of her 8 hours on activities that are productive to the firm, she would be supplying $5.5/8 = 68\%$ of her available effort to the Firm. For her, $E \approx 0.68$. Now, whatever the level of E might be, it maps onto a “space” of measurable outputs. While it is relatively easy to measure outputs for performers of industrial or service work, it can be much more difficult to measure the outputs of relatively abstract professional work. But in principle at least, it is possible to measure the outputs of any type of work. A given level of E maps onto a “space” of measurable outputs. If technology is held constant, an increase in E will show in an increase of measurable outputs. Thus, the problem for Management is how to increase Labor’s “ E ” from whatever it is currently to a higher value. If Labor is currently supplying $E \approx 0.68$, the question becomes that of how to increase E to some higher figure. By the assumptions just made, this would result in higher output. *Ceteris paribus*, this would have a benign effect on unit costs and thus, on the Firm’s profitability.

In 1966, Economist Harvey Leibenstein coined the term “X-inefficiency” to designate the difference between labor’s potential supply of effort and what it actually delivered [16]. The greater the X-inefficiency, the less productive effort Labor supplies in support of the Firm’s objectives. In a later paper [17] he addressed the relationship between peer group standards—norms governing Labor’s supply of effort—and X-inefficiency. He had noticed that Labor sometimes enforces peer group standards that result in *more* productive effort than it might otherwise “get away with” in order to collect its paychecks. The result of these peer group standards is a reduction in X-inefficiency, or, what amounts to the same thing, an *increase* in the supply of productive effort, compared to what Labor might “get away with.” The difference in output made by such peer group standards can be significant, a claim that Leibenstein supported by citing a comparison between two Ford automobile plants, one in the US and one in Germany.

These plants had identical facilities and labor requirements. But the German plant produced 50% more per day with 22% less labor [17 p.96]. Clearly, the difference between the plants was in the willingness of their respective labor forces to supply effort. Since these standards reduce Labor's inventory of unused productive effort (X-inefficiency), they benefit the firm.

But do they benefit Labor, and if so, how? That is the question.

Let us assume that the lower threshold of productive effort is established by Management (acting in the interests of the Firm). Effort is an economic resource, and hence has value to Labor. If, within a given region of effort supply, Labor's income is held constant, then the more effort it supplies for that income, the lower is its reward/effort ratio. To maximize the yield on its investment of effort, Labor would maximize its reward/effort ratio by meeting, or barely exceeding, this lower threshold. The existence of peer group standards that caused Labor to expect more of itself than this optimal solution would otherwise imply was a source of puzzlement to Leibenstein. In essence, he asked: If the economists' assumptions about effort aversion, greed, and rationality were true, how could one explain such peer group standards?

Leibenstein began his investigation by modeling the relationship between the Firm and Labor as a Prisoner's Dilemma game. The players in this game are the Firm and Labor. Each player has two strategies, "The Golden Rule" and "Individual Maximization." He describes Labor's choices as follows:

Under the Golden Rule, every employee acts in the best interest of the firm. He treats the firm as he would like the firm to treat him, and puts forth effort as if the enterprise was his own. The alternative option [Individual Maximization] is at the other extreme: the individual works as little as possible in the firm's interest and does other things (on the job) to pursue his own private interests [17 pp. 92-3].

Next, he describes the Firm's choices:

The firm has two similar symmetrical options. It could behave in a Golden Rule fashion in which it provides employees with maximal conditions, salaries, and security, consistent with "sustainable profits". . . [In the other alternative,] the firm attempts to minimize working conditions and wages cost while trying to get the most effort from employees [17 p. 93].

He then assigns payoffs to each player, relative to these two options. In Figure 1, the payoffs in each cell are to Labor and the Firm, respectively.

FIGURE 1

		Firm	
		Golden Rule	Individual Max
Labor	Golden Rule	15,15	3,20
	Individual Max	20,3	5,5

Consider the darkened cells. It is known from the theory of games that the lower right-hand cell contains the “dominant” solution (the “fink/fink” combination in the Prisoner’s Dilemma game). By the way this game is set up, if the Firm plays “Golden Rule,” Labor could improve its situation by choosing “Individual Maximization,” and vice versa. Each player is better off with this option because, in selecting it, no matter what the other player does, it will be better off. That is what the theory of games implies, and this is what one would expect in a world of “rational” players. But it is apparent that the players are not really “better off” with this pair of strategies. The Pareto-optimal solution is clearly the upper left-hand cell, where both parties select the Golden Rule (the “cooperate/cooperate” combination in the standard Prisoner’s Dilemma game). If only they could agree to do their respective parts, “trust” one another to “cooperate,” and if *in fact* both did “cooperate,” both the Firm and Labor would be better off.

Leibenstein noted that, while the “Golden Rule” solution is rare, in actual practice the Prisoner’s Dilemma outcome is frequently not the case, either. There are examples, he contended, in which the outcomes of labor-management cooperation are better than the miserable fink/fink solution of the Prisoner’s Dilemma game. Consider his comparison of the American and German Ford plants: Labor at the German plant was clearly not finking, because there was an even “worse” solution at the American plant. While Labor at the American plant may not have been making the ultimate “fink” play, it is clear that, whatever the ultimate “fink” strategy may have been, they were closer to it than Labor at the German plant was. Thus, Labor at the German plant was, in some sense, “cooperating” by *not* selecting the Individual Maximization (the “fink”) option.

Leibenstein attempted to explain the difference between the two plants by invoking the concept of “peer group standards,” which govern the supply of productive effort. Peer group standards are

workplace norms that are enforced by Labor. Drawing on Lewis’ [18] treatise on tacit conventions, he explained their operation as follows: A person walks into a new job and observes that people are working at a certain level of effort. Not wanting to stand out in a negative way, the new person conforms, thereby contributing to the maintenance of the peer group standard. He does not ask where the conventions came from or whether they should be changed. He simply conforms and will take actions to enforce the standard when he observes deviations by others. With the concept of the peer group standard in hand, Leibenstein designed an expanded Prisoner’s Dilemma game, where the parties—Labor and the Firm—would have three options: Golden Rule, Peer Group Standard, and Individual Maximization. He called the Peer Group Standard/Honor the Peer Group Standard combination the “intermediate solution.” This game structure is illustrated in Figure 2:

FIGURE 2

		Firm		
		Golden Rule	Honor the Peer Group Standard	Individual Maximization
Labor	Golden Rule	15,15	6,17	3,20
	Peer Group Standard	17,6	8,10	4,12
	Individual Maximization	20,3	12,4	5,5

Note the darkened cells along the diagonal: With the exception of the lower right-hand corner, none of these counts as a strategic equilibrium in the theory of games. On any other cell on that diagonal, each party could improve its situation—given that the other didn’t change its strategy, by electing a more adversarial position. However, note that if the rows and columns associated with the Golden Rule strategy were eliminated, the Peer Group Standard/Honor the Peer Group Standard combination would represent a Nash Bargaining solution in the remaining 2x2 matrix—a Pareto-optimal equilibrium in a cooperative game [23].

The “intermediate solution” results from Labor’s conformity to a peer group standard, and the Firm’s reaction to it: The Firm observes that the peer group standard is better for output and profits than the Individual Maximization strategy. It believes that if it “finks”—say, by demanding more than it is already getting—Labor will “fink” back, opting for a more adversarial equilibrium

solution. As a result, output and profits would decline, relative to their present levels. Thus, when a Peer Group Standard that is favorable to the Firm arises—often as a naturally occurring phenomenon—it is in the Firm’s best interest to leave it alone. But while it is easy to see why it is rational for the Firm to select the intermediate solution, it remains to be shown how it is rational—if indeed it is rational at all—for Labor to select it.

III. LEIBENSTEIN’S DILEMMA

When applying Lewis’ [18] theory of tacit conventions to the problem, Leibenstein avoided making conformity with them a conscious, rational action, opting instead to describe it in behavioral terms: a worker takes a job, observes the effort supply of her peers, and conforms in order to “avoid standing out in a negative way,” but does not do so as part of a conscious, rational decision. As a result, Leibenstein created a dilemma: Either Labor maximizes the ratio of reward to effort by doing the least it can get away with, or it unconsciously conforms to the conventions of a peer group and works harder for its money. In the first case, labor acts rationally. In the second it does *not* act rationally, because it chooses a higher level of effort without an offsetting monetary reward (and without an explicit calculation). That being the case, labor’s adherence to peer group standards that are favorable to the firm cannot be explained by a rational choice model. This was Leibenstein’s Dilemma.

IV. IDENTITY UTILITY: THE RESOLUTION OF LEIBENSTEIN’S DILEMMA

The problem with this formulation is that there are only two utilities involved: The utility Labor has for its unused effort and the utility it has for income. Akerlof and Kranton [1] proposed an expansion of an individual’s utility function. It includes not just the utility associated with ordinary economic goods, which can be purchased in a market, but an additional utility, which they named “identity utility.” As will be shown, the addition of this element to Labor’s total utility function will imply that it is rational for it to conform to a peer group standard that requires more effort than that of the Individual Maximization strategy. But to explicate this, it is necessary to address what an “identity” is, and how it is related to norms and values—in this case, the norms and values that comprise a peer group standard. Then it will be possible to define what kind of *utility* is associated with it.

Over a hundred years of sociological theorizing and research have been dedicated to clarifying and explaining what an “identity” is. It can be argued that the evolution of identity theory began with Cooley [5] and Mead [22]. Their contributions were subsequently elaborated by Goffman [11] [12], *inter alia*, Garfinkel [9], Giddens [10], and Perinbanayagam [26], among many others. Cooley is credited with having invented the concept of the “looking glass self,” which is embodied in the following model: When human agents interact with one another, they perform these operations:

- They imagine how they appear to the Other
- They imagine the judgment of the Other
- As a result, they feel some sense of pride, happiness, guilt, or shame

This “imagining” does not occur in a vacuum. Mead [22] would subsequently argue that human agents develop their initial concepts of “self” by taking the viewpoints of others—first, their parental figures, and later, other “authorities” and peers—and seeing themselves as they *assume* others to see them. To secure their approval, human agents learn to do whatever it is that they believe will make them “look good” to others and avoid what might make them look “bad.” This begins at an early age (the toddler stage) and continues all through life. Initially, human agents see themselves from the standpoints of a number of “particular others” in their immediate environments. At some point—Kohlberg [13], for instance, claimed that it was around the age of puberty—they develop an abstract model of all these particular points of view. Mead named this model the “generalized other.” The generalized other is a just a metaphor for what actually goes on “in the agents’ minds” when they decide whether or not to perform some act, or when, after they have performed an action, they evaluate both the performance and their “selves.” It applies standards that agents have imported into their consciousness from “without,” through interpreting the reactions of others, and through “internal” deductive reasoning based on this data. The generalized other consists of a set of beliefs that human agents have regarding how they are supposed to act, or what they should aspire to “be,” and with whom they should affiliate. These beliefs are held to be true and morally sound. So, in addition to exerting effort to achieve “looking good” in the eyes of the specific people with whom they interact, they also invest effort to look good to this generalized other, or put simply, to *themselves*.

It follows that, once the generalized other is formed, agents will try to satisfy, in addition to the requirements of particular others, “its” requirements. Having chosen their preferred affiliations—say, with groups G_1, G_2, \dots, G_n —they will look good to themselves if they look good to *them*. However, the standards they apply may be more inclusive than, and therefore, not identical with, those of any of the groups G_1, G_2, \dots, G_n , or perhaps not even with the whole set of the G_i . (This is explained further below, in Section V.)

The upshot of this brief summary of the theoretical literature on identity is that human agents are committed to “looking good” in the eyes of their fellow human beings, or more usually, a subset of them (“significant others”), whose judgments matter most. Moreover, they prefer to look good to their “selves” when, in the privacy of their inner discourses, they assess and evaluate things they might do, or that they have done, and decide whether they are “good” or not. When they evaluate them as “good,” they approve of themselves, and this is accompanied by whatever physical correlates are associated with “feeling good about oneself.” When they see them as not “good,” or as “bad,” they disapprove of themselves, and experience anxiety, guilt or embarrassment, which have their own, generally unpleasant physical correlates. Since “looking good” makes people feel better, and “looking bad” makes them feel worse, there must be some *utility* associated with looking good or bad.

Akerlof and Kranton gave that utility a name: “identity utility.” In their initial paper [1] they posited its existence and proposed a general utility function that included both the usual economic utilities—derived from goods that can be acquired through exchange in “markets”—and the “identity utility” of the agent. They defined “identity utility” as the satisfaction that an agent derives from conforming to the norms and values of a social group or social category. That this satisfaction involves “looking good” to oneself and significant others is assumed here.

In a book published ten years after their ground-breaking paper, Akerlof and Kranton [2] used the concept of identity utility to deal with several economic puzzles. One of those examples is particularly germane to the present discussion: They addressed the question of why workers will, under certain circumstances, and independently of how much they are paid, exert more productive effort than they could “get away with,” as a traditional economic model would assume. To accomplish this, they make a distinction between “insider” Labor, which consists of individuals who are committed to the norms and goals of the Firm, and “outsider” Labor, which consists of individuals whose orientation to work resembles that of the “rational” agent of orthodox economics. Insider Labor supplies “high” effort; outsider Labor supplies “low” effort. Insider Labor sees itself as “building a cathedral”; outsider Labor is just laying bricks in exchange for a paycheck. In that discussion, the authors argued that, in order to secure equivalent effort from outsiders, they would have to be paid a premium, since they only react to material incentives [2 pp. 42-3]. It is therefore incumbent on the management of the Firm to try to convert outsiders into insiders [2 p.59].

It is essential to Akerlof and Kranton’s theory that agents (consciously or unconsciously) *choose* their identities. The immediate question here is why a rational agent would *choose* to be an insider, since the reward/effort ratio of an insider is lower than that for an outsider, who seeks to maximize this ratio. So, what needs to be explained, given the assumption that Labor is rational, is how “committed insiders” are maximizing *their* utilities.

The incorporation of identity utility into the agent’s total utility function makes this easy, at least conceptually: If the agent’s identity utility is increased as a result of exerting “high” rather than “low” effort, and if this more than offsets the subjective cost—to him—of his incremental effort, then he will work harder, and maximize his *total* utility in doing so. This decision would, therefore, be rational. The extra effort is the shadow price a committed insider is willing to incur in order to “look good” to significant others and to himself. He looks good to himself because he has embedded the norms and values of the Firm into his personal identity narrative, which is just another way of saying that he is “internally” committed to them. He judges his decisions and actions according to them. He judges others’ actions according to them and may take actions to enforce compliance with them. It can be concluded that the individual who chooses the “insider” identity has made a trade-off between an ordinary economic good—his productive effort supply—and his identity utility. In paying the shadow price of greater E, he derives a more than offsetting gain in identity utility. This trade-off maximizes his total utility.

The same reasoning makes it rational for Labor to conform to a peer group standard, if one is operant in his work environment. This resolves Leibenstein’s Dilemma.

V. THE PERSONAL IDENTITY NARRATIVE

The distinction between insider and outsider Labor suggests that an agent’s total utility function can be separated into two general components: “identity” utility and “other economic” utilities, which include goods and services that can be purchased in markets, as well as leisure time, which can also be purchased, and *will* be purchased if the hire price of Labor is sufficiently high. Akerlof and Kranton [1] proposed a general form of an agent’s utility function, based on this distinction. Let $O_j = O_j(a_1, a_2, \dots, a_n)$ be agent j ’s utility function relative to these “other” goods and the activities

j performs to attain them, and let $\mathbf{I}_j = I_j(I_{G1}, I_{G2}, \dots, I_{Gk})$, where the I_{G_i} represent the identity utilities j derives from associating with groups G_1, G_2, \dots, G_k . Then j 's total utility function can be written

$$U_j = U_j(\mathbf{O}_j(a_1, \dots, a_n); I_j(I_{G1}, I_{G2}, \dots, I_{Gk}))$$

Consider the identity utility component of U_j . The agent derives identity utility from conforming to the *norms* of groups G_1, G_2, \dots, G_k , which are embedded in the “idiocultures” [8] of those groups. When the agent j joins (or attempts to join) a given group, she does not come with a blank slate, but is already equipped with norms and values to which she aspires to conform, and relative to which she seeks consistency. In seeking this consistency, she must balance her inner standards with the normative requirements of any group with which she seeks to affiliate. The effort she supplies to conform to any of these sets of norms is therefore determined by her *personal identity narrative*, which determines whether she looks “good” or not to herself when she evaluates her actions and the reactions of significant others in these groups to them. (This position is inspired by Davis [6] and Boulu-Reshef [4].) The personal identity narrative includes not just the contents of the generalized other—an essentially “private” entity observable only to the agent—but also the contents of the accounts that the agent provides to significant others, in order “look good” to them, or to normalize actions that might, on the surface, be questionable [9], [23], [28]. This is the “public” side of personal identity. With respect to groups G_1, G_2, \dots, G_k , she has an observable “history,” based on her actions and the accounts she provides for them, and with which she is expected by significant others to be “consistent.” Since this term is more inclusive than the “generalized other”—which applies to her subjective deliberations and self-assessments—it will be used in place of it in what follows.

The concern here is with the agent’s *productive effort supply* while “at work.” Thus, we will simply model the whole identity utility component as $I(E)$ —the identity utility she derives from supplying productive effort while “at work.” $I(E)$ is determined by the agent’s personal identity narrative. To change E , *her personal identity narrative must be somehow modified*. Her inner standards about what constitutes a fair day’s work for a fair day’s pay would have to be changed, and the way in which she accounts for herself to others must be also be changed, since she would on occasion have to provide reasons for her actions when interacting with her peers and with her supervisor.

VI. LABOR’S UTILITY FUNCTION

To form a utility function for Labor, advantage will be taken of the separability of identity and income utilities. Income utility consists of whatever utilities Labor derives from its pay. Among these utilities might be identity utility, since in modern capitalist societies, at least, agents derive identity utility, among other utilities associated with ordinary consumption, from their incomes [3], [31], [32]. If it is assumed that Labor derives this utility from spending its pay “off the job,” this component of identity utility can be separated from the identity utility an agent derives from her expenditure of productive effort while “at work,” and indeed, this is implied by Akerlof and Kranton’s discussion of “insider” Labor: When at work, identity utility is derived from conforming to a complex set of norms that include management expectations (norms) and peer group standards (norms). Given this distinction, the utility that Labor derives from its expenditure

of effort, E , can be specified as follows, where the subscript j is dropped for notational convenience:

$$U(E) = O(E) + I(E) \quad (1)$$

The representation of $U(E)$ as a sum can be justified as follows: $O(E)$ is the income utility Labor derives from its pay, which it spends when not “at work.” In addition to the utilities Labor derives from material consumption, it gains identity utility as well—e.g., through “conspicuous consumption” [31]—this can be included in $O(E)$. In order to attain this utility, Labor must supply E that is sufficient to meet or exceed the lower threshold of output specified by the Firm. Identity utility, $I(E)$, is gained (or lost) by Labor based on its effort, E , as viewed by significant others while “at work”—peers and Management. Since these two utilities, $I(E)$ and $O(E)$ are conceptually separable, as illustrated by the example of “insider” Labor, and are literally separable in time and space, it is reasonable to treat Labor’s utility as their sum, and to treat this sum as a function of effort, E .

Thus, assume that E is the percentage of Labor’s total available capacity to supply productive effort during a given period—for simplicity, a statistically average “work day”—so that $E \in (E_{\min}, 1)$, where E_{\min} corresponds to the amount of effort required to meet the lower threshold set by the Firm. This effort, E , is not costless, so $C(E) > 0$ on $(E_{\min}, 1)$. Denoting the cost of Labor’s productive effort by $C(E)$, Labor’s *net* utility, as a function of its effort, can be expressed as

$$N(E) = O(E) + I(E) - C(E) \quad (2)$$

Labor will supply effort as long as $N(E) > 0$. It will maximize its total utility at some point, E^* , at which $N(E^*) = 0$, where E^* is the *percentage* of its available effort that is supplied to activities that are productive to the Firm. At this point, Labor’s marginal utility must be equal to the marginal cost of its productive effort supply, so that

$$O'(E^*) + I'(E^*) = C'(E^*) \quad (3)$$

It is assumed that on the domain $(E_{\min}, 1)$, both C' and C'' are > 0 , according to the law of increasing marginal costs. This is reasonable, since E is a function of both time and energy, and time is not free.

At effort level E^* , Labor maximizes its total utility. The difference between E^* and 1, the amount of potential effort “left on the table,” is $1 - E^*$, an example of Leibenstein’s X-inefficiency [16]. To reduce X-inefficiency, Labor’s productive effort supply must be increased from its current optimum, E^* . If Labor can be induced to do so, its contribution to unit costs will decline, and *ceteris paribus*, this would increase the profits of the Firm.

From Eq. (3), this can only be accomplished by increasing $O'(E^*)$, $I'(E^*)$, or both. For the sake of illustrating the impact of $I'(E)$ on productive effort supply, let us assume that, on some region of E around E^* , $O(E)$ is constant, i.e., that $O'(E) = 0$ on this interval. This would be the case if Labor was *not* paid by piece rates or other incentives besides its base wage or salary, and if Labor’s anticipation of a possible raise in the indeterminate future was ignored. Then the only way to increase A ’s productive effort supply would be to increase $I'(E^*)$ from its current value to a higher

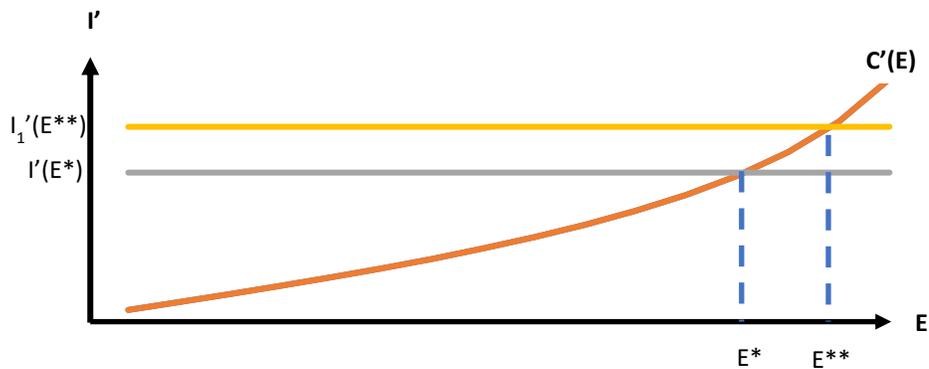
value, $I_1'(E^*)$. If this occurred, and if $C'(E^*)$ is held fixed in Eq. (3), then $I_1'(E^*) > C'(E^*)$. To restore optimality, Labor would have to increase its productive effort supply to some $E^{**} > E^*$, at which point $I_1'(E^{**}) = C'(E^{**})$. Since $E^{**} > E^*$, this reduces the X-inefficiency of the Firm.

At this new optimum, and if $I_1'(E^{**})$ is fixed, Labor would *lose* net utility, hence total utility, by recurring to the original optimum, E^* , or to any other $E < E^{**}$. To show this, recall that on the half-open interval, $[E^*, E^{**})$, $I_1'(E) > C'(E)$, so that $I_1'(E) - C'(E) > 0$. Differentiating Eq. (2), setting $O'(E) = 0$, and using differentials,

$$dN(E^{**}) = [I_1'(E) - C'(E)]dE \quad (4)$$

for any E on $[E^*, E^{**})$. For such E , $dE = (E - E^{**}) < 0$. Since the bracketed term is positive, $dN(E^{**}) < 0$. Thus, Labor would lose net utility, and hence total utility, from *reducing* its productive effort supply from E^{**} , given the new, higher value of $I_1'(E)$. The comparison between initial $I'(E)$ and a higher $I_1'(E)$ and their respective optima, E^* and E^{**} , is illustrated in Figure 3:

FIGURE 3



The challenge for Management, therefore, is how to increase current $I'(E^*)$ to a higher $I_1'(E^*)$, which would move Labor's productive effort supply to a value of $E^{**} > E^*$.

The objective of this work, in whatever form it takes, is to modify the *personal identity narratives* of the individual agents of Labor, and their associated identity utility functions. Let A be an individual agent of Labor. If this work results in a rise in the position of the norms and goals of the Firm in A's set of priorities, $I_A'(E^*)$ will increase to a higher value, $I_{A,1}'(E)$. She now gains more utility from her incremental effort than it costs her to attain it. If $O_A'(E^*) = 0$, her gain in total utility must be caused by an increase in $I_A'(E^*)$. That is, she gains identity utility by exerting $E^{**} > E^*$ because she looks so much better to others and to herself that she is willing to bear the cost that incremental effort. Moreover, by Eq. (4), she would lose total utility by continuing to supply E^* , or in fact by supplying any less productive effort than E^{**} . Thus, if $I_{A,1}'(E^{**})$ does not change, her new optimum will be stable.

VII. ON “GOOD” AND “BAD” BOSSES

The individual agents of Labor do not interact directly with a Firm. They interact with Management (their bosses) and with one another, i.e., with other people. These interactions have direct effects on their individual $I'(E)$ functions. It is useful in this context to distinguish the work of “management” from that of “leadership,” though ideally, the same person would do both kinds of work. Management work can be thought of as the work of producing a plan that has as its outputs the most efficient deployment of assets—with which it is entrusted—to benefit the Firm. The work of *leadership* is the work of securing the commitment of Labor to that plan. This work necessarily involves interaction between bosses and their subordinates. If this work secures more commitment to the goals of the Firm, $I'(E)$ increases. If not, it remains where it is or might actually decrease, as would be the case, for example, if Management broke the “Peer Group Standard” covenant by switching to a more adversarial “Individual Maximization” strategy, which could induce Labor to do the same. Since this translates into a greater or lesser supply of productive effort, it is reasonable to infer that the work of leadership has direct, and in principle measurable effects on the profitability of the Firm. Thus, the study of leadership work should not be treated as a residual category by economists, as it has been, traditionally. It is of direct relevance to the economics of the Firm.

That leadership work, conceived as the work of interacting with subordinates, has an impact on the profitability of the Firm has been vigorously debated, at least since the Hawthorne studies [20]. MacGregor [19] famously distinguished between two fundamental styles of leadership, which he labeled “Theory X” and “Theory Y.” Theory X leaders assume that Labor always chooses the Individual Maximization strategy and respond with a “carrot-and-stick” approach to “motivating” Labor to supply effort in the interests of the Firm. They make the decisions and follow up to assure that Labor complies with them. Theory Y leaders, who make more generous assumptions about human nature, focus on developing supportive, participative relationships with their subordinates, believing that, if so doing, they can secure a greater supply of productive effort. This distinction underwent much refinement (e.g., Fiedler’s “contingency theory” [7]) over the more than half century since MacGregor introduced his dichotomy. Rather than attempting to sort out all the variations in that discourse, let us consider the following governing questions, stated in terms used in this paper:

- (1) How does the work of management, or more accurately, of “leadership” affect the productive effort supply of Labor?
- (2) Is there a causal nexus, and if so, what is it?

One facet of the first question has focused in recent years on the difference between “good” and “bad” bosses. In 2010, Robert Sutton of the Stanford Business School wrote a book, *Good Boss, Bad Boss* [30]. His book illustrated in colorful detail the externalities to society, the effects on the Firm’s turnover costs, and the impact on productivity that are caused by “bad bosses.” His distinction caught the interest of many, and its effects on popular discourse are now easily observed: All one has to do is “Google” the phrase “good bosses, bad bosses” to see this. Here an attempt will be made to provide a theoretical explanation of the nexus between “good” bosses, “bad” bosses, and the productivity of Labor.

Herbert Simon [29] argued that, in order to be effective, Management should take actions that affect the “premises” of Labor, on the assumption that human agents in general are rational, albeit

that this rationality is “bounded.” These premises include assumptions and information about factual features of the environment and the moral principles that Labor regards as valid. To increase the productive effort of Labor, Management should try to modify these premises. If it succeeds, Labor will use the modified premises to make decisions that benefit the Firm, even when not under Management surveillance. Clearly, Simon’s approach is aimed at the personal identity narratives of Labor, since they are the sources of Labor’s decisions to supply effort. Labor’s personal identity narratives assign values to the terms and conditions of a “fair day’s work for a fair day’s pay.”

The difference between “good” and “bad” bosses is confronted when one asks about how they go about modifying Labor’s premises. The following rendering of these differences is parsed from Sutton’s (2010) work, among others, and is used for illustrative purposes; it is not intended to be exhaustive:

Good bosses seek to *persuade* their subordinates to modify their premises. To do this, they establish trust by showing, in their words and actions, that they “care” about the well-being of their subordinates [14]. Having established this, they are more likely to be trusted. They would then be able to inform their subordinates—and be believed by them—as to how their day-to-day actions affect the “big picture” of the organization that employs them. They seek to promote a “vision” of a future that is good for both the Firm and for Labor. This would affect Labor’s calculations of self-interest, and presumably, spill over into the way they perform their tasks. When subordinates have enough skill and information to perform their jobs, the good boss shares her unit’s objectives with them and asks them what *they* believe are the best ways to accomplish them [27]. This signifies to the subordinates that, while the boss has the “last word” [29], she *respects* them. And indeed, she respects them enough to acknowledge their efforts with demonstrations of gratitude and gives credit where it is due. In a nutshell, “*good*” bosses modify the premises of their subordinates through a combination of education, respect, persuasion, fairness, and gratitude. When they have to apply discipline (the “stick”), it is likely to be perceived as “fair.” In terms of this paper, it seems that a “good” boss would cause an increase in $I'(E)$, which implies that Labor responds to a good boss with more productive effort.

“Bad bosses” can be summarily characterized as Theory X leaders who have a decided preference for the “stick” over the “carrot.” This type of leader modifies the premises of his subordinates through a combination of orders, threats and rewards. He tells them what to do, and often how to do it, regardless of whether they “know better.” While his conversation with Labor is sometimes bi-lateral, it is mostly a one-way conversation. For such a boss, Labor exists to do his bidding. When they do not, he applies the “stick”; when they do, he may provide “carrots.” As to gratitude, a bad boss will rarely show it, or if he does, he may reward heroic efforts by Labor with something like “You’ve met *my* expectations.” If he is a *really* “bad” boss, he might also give credit for successes to his “favorites” (allocating such “carrots” as he has to them), rather than where it is due. Or he might take credit for his subordinates’ work without acknowledging them. He may even try to “bury” the more able among them when presenting his team’s accomplishments to higher-ups. In terms of Leibenstein’s model, the “bad boss” selects the Individual Maximization strategy, because he assumes that Labor is doing so. Labor, on being confronted with a bad boss, will reciprocate with its own “fink” play—ironically, validating his initial assumptions about them. In terms of this paper, it seems that a “bad” boss would cause a reduction of $I'(E)$.

VIII. EQUITY PREFERENCE AND THE “BAD BOSS” HYPOTHESIS

In his classic, *The Gift* [21], anthropologist Marcel Mauss proposed the existence of a meta-norm—the Norm of Reciprocity—that transcends cultural boundaries. Stated in simplest terms, he proposed, based on evidence from several societies at various levels of development, that *gifts obligate their receivers*. One specification of the Norm of Reciprocity follows:

Norm of Reciprocity

- *Gifts obligate their receivers.*
- *“Good” deeds should be rewarded.*
- *“Bad deeds” should be punished.*

As a corollary to the third point,

- *Failure to reciprocate a gift is a “bad deed.”*

For purposes of this discussion, “bad deed” can be defined as follows: An action performed by B is a “bad deed,” relative to the *personal identity narrative* of A,

- if it produces disutility for A, and if
- B either cannot, or does not, provide an account that normalizes it (makes it OK), relative to A’s personal identity narrative.

Recall that the agent A is completely committed to his personal identity narrative. It contains what he considers to be true, morally right, and worth aspiring to “be.” When he is making his choices, it does not matter whether he may have internalized these elements, which are rooted in his society, “correctly.” (Who would be the judge of this?). What is important is that, whatever they are, *he* has internalized them, so that he gains or loses identity utility according to his success in conforming to the norms or achieving the ideals that this narrative contains. Talcott Parsons argued in his classic, *The Structure of Social Action* [25 pp. 383-403], that agents show their inner commitment to norms by their dispositions to apply negative sanctions to those who violate them. Those so committed would lose identity utility from condoning a “bad deed.” So, if a boss commits what an agent of Labor considers to be a “bad deed,” the agent would lose identity utility if he condoned it. This leads to what will be referred to here as the Equity Preference.

Equity Preference

Let A and B be two agents. Suppose that B performs an action that A regards as a “bad deed” and for which B is unable or unwilling to provide an account that is acceptable to A. Then, either or both events will occur.

- *If A has the opportunity to increase B’s utility, A dis-prefers it.*
- *If A has the opportunity to decrease B’s utility, A prefers it.*

In the first case, A would be condoning a bad deed by taking action to increase B’s utility. Thus, A would lose identity utility from doing so. Therefore, he dis-prefers it. In the second case, A would be sanctioning B for his bad deed, from which he would gain identity utility (from “meting out justice”). The Equity Preference implies that Labor will respond to a Management “bad deed” by either maintaining its $I'(E^*)$, despite pressure to increase it, or it might actually reduce $I'(E^*)$. In either case, Labor gives to Management no more productive effort than it believes it *deserves*.

Bad Boss Hypothesis

For an individual agent, A, let E_A be the *minimum* effort that A can supply without incurring a loss in net utility (her internalized work ethic). That is, she would look badly to herself if she did any less than this, and her saved effort would not be worth it. Then A will supply at least E_A . But E_A cannot exceed current E^* because A has already optimized, based on her current $I_A'(E^*)$. If her boss performs a bad deed (or more likely, a series of them), she will modify her personal identity narrative as it regards this boss. This implies that her previous $I_A'(E^*)$ will decline to some $I_{A,1}'(E^*) < I_A'(E^*)$. Recalling Eq. (4), substituting E^* for E^{**} , $I_{A,1}'(E)$ for $I_1'(E)$, and $C_A'(E)$ for $C'(E)$,

$$dN(E^*) = [I_{A,1}'(E) - C_A'(E)]dE \quad (4)'$$

At her current optimum, $I_A'(E^*) = C_A'(E^*)$. Now suppose that $I_{A,1}'(E) < I_A'(E)$ for E near E^* . At her current optimum, the cost to her of incremental effort exceeds the incremental identity utility she derives from it. Therefore, she will reduce her effort supply to some lower value, E^{**} , such that $E_A \leq E^{**} < E^*$.

To verify this, note that the bracketed term in Eq. (4)' is less than or equal to zero, because $I_{A,1}'(E^*) < C_A'(E^*)$. Let $E_A < E^*$, and let E be an element of the half-open interval, $[E_A, E^*)$. Then $dE = E - E^* < 0$. Since this makes the right-hand side of (4)' positive, it follows that, for some $E \in [E_A, E^*)$, $dN(E^*) > 0$. This means that A will increase her net utility by reducing her effort supply to some E^{**} between E_A and E^* . She will reduce E until $N(E^{**}) = 0$, at which point $I_{A,1}'(E^{**}) = C_A'(E^{**})$. And this will maximize her total utility.

On the other hand, let E_{min} be the least that the agent A can “get away with.” If $E_A < E_{min}$, then $E^{**} \in [E_{min}, E^*)$, or A might lose her job. Note that if $E_A < E_{min}$, A’s identity utility would be more than offset by the subjective costs of her productive effort supply. In commonsense terms, she would be unhappy in her current job, and may contemplate leaving it.

One caveat to consider is that A may be concerned about getting a good reference if she decides to leave her job and take an opportunity with another organization. This would obviously be true for professional employees, who see their work at a given Firm as part of a lifelong career plan. In this case, she might maintain E^* —at a more severe cost in her identity utility than merely by supplying E_{min} or E_A —until she found another job. The point here is that in either case, she may look for an opportunity to remedy the situation by *quitting and leaving*. In the case of highly skilled employees, this can incur significant replacement costs to the Firm.

But suppose that A decides *not* to quit and leave. Let E_{min} be the least that the agent A can “get away with.” If $E_A < E_{min}$, then $E^{**} \in [E_{min}, E^*)$. Otherwise, $E^{**} \in [E_A, E^*)$. In this case, she would *quit and stay*.

Hypothesis:

Let E^ , E^{**} , E_A , and E_{min} be defined as above. When Labor is confronted with “bad deeds” perpetrated by Management, and if $E_A > E_{min}$, it reduces its productive effort supply from its current optimum, E^* , to a lower optimum, E^{**} , where $E^{**} \in [E_A, E^*)$. If $E_A < E_{min}$, then $E^{**} \in [E_{min}, E^*)$.*

Bad bosses, therefore, tend to affect Labor so that it either “quits and leaves” or “quits and stays.” In both cases, bad bosses harm the Firm, either by incurring replacement costs or by incurring opportunity losses in productive effort supply.

The Equity Preference can cut both ways: If Labor provides the gift of extra effort and Management responds with a “fink” play, that would be a bad deed, and, as Leibenstein’s model suggests, Labor might sanction it by responding with its own “fink” play. If a “good boss” treats Labor with respect and consideration, then Labor, knowing that the boss could “get away with” less respect and consideration, would reciprocate by giving more productive effort than it could “get away with.” Those who regard the fink play as a bad deed would lose identity utility if they did not reciprocate with a “gift” of increased effort, and will be inclined to sanction those who do not reciprocate this “gift.”

IX. RESEARCH IMPLICATIONS

These theoretical deductions can be tested. For example, Lazear et. al. [15] conducted research in which they found that work teams with “good” bosses produced about 10% more than essentially identical work teams with “bad” bosses. The authors did not specify what differentiated “good” from “bad” bosses, but since two of them were on the faculty of the Stanford Business School, it may be reasonable to infer that their definitions would conform to those of Sutton, who also teaches there. That said, there remains an opportunity to clarify this matter.

The simplest approach would be to ask, what would a “good” (or “bad”) boss be if *increasing (or decreasing) $I'(E)$ was its defining characteristic?* How would one collect the data to address this question? A second, no less important question would be that of *how much difference in productivity* a “good” boss makes. Bad bosses often “get results”; the question is, do good bosses get better results, and if so, how much better?

One approach would be to conduct interviews of Labor and Management and parse these materials for their underlying factual and moral assumptions. Such interviews could be conducted, subject to the following conditions:

- (1) after a change of bosses has occurred
- (2) technology is held constant
- (3) income is held constant
- (4) there is a change in measurable output

The interview narratives could be parsed for their underlying factual and moral assumptions, using methods already known to the disciplines of sociology and anthropology. A before-and-after rendering of these factual and moral assumptions could be directly connected to the productive effort supplies that they drive, respectively. The “transformational” work of Management could also be extracted through interview and observation, and parsed for *its* underlying factual and moral assumptions.

The ceteris paribus clauses (items (2) and (3)), the change in output (item (4)) and the interview data make it possible to identify whether $I'(E)$ has increased or decreased, and if so, *how* it was increased. Requirement (3) could be relaxed, as long as it is possible to isolate the effect of a change in $O'(E)$ from a change in $I'(E)$.

X. CONCLUSION

The concept of identity utility makes it possible to directly connect the kind of research traditionally done by anthropologists and sociologists to economic outcomes. In doing so, it creates a space in which economists and other social scientists can collaborate, unified by the explanatory force of a single model of human action, as was hoped by Akerlof and Kranton, who saw in their concept of identity utility a “Rosetta Stone” that could be used for this purpose [2 pp.20-25]. This paper has endeavored to carry their project a step forward.

If this collaboration provided a scientific basis for directly connecting the way people are “treated” at work to their productivity, approaches to leadership could be mandated by organizational policy and not left to the stylistic caprices of individual managers and supervisors. There would be less wiggle room for “bad bosses” to justify their approaches to leadership. The conversation could shift from “Well, at least he gets things done” to the issue of whether he is “getting things done in a way that maximizes the productive effort supply of Labor.”

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