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Efficiency wage theories link wages to work effort by hypothesizing that higher pay elicits increased effort. The most prevalent variant of efficiency wage theory -- the work-discipline version -- predicts that imperfect information concerning work effort will lead to both a positive level of supervision and to wages above the market-clearing level. This paper presents a "competing incentives" model in which high wages play a role in enhancing trust; however, this effect is often incompatible with an emphasis on supervision.

EFFICIENCY WAGES

The competing incentives approach and the work-discipline model both recognize the heterogeneity of technology, along with its implication: that monitoring costs (the costs of obtaining information about work effort) may be expected to vary from one production setting to another. A difference between these two variants of efficiency wage theory is that, while the work discipline model predicts a continuum of jobs, in the competing incentives model it is proposed that "workers do not always choose effort levels by smoothly trading-off the pains and pleasures associated with work and leisure." [44] Indeed, this model predicts a bifurcation among jobs depending on the kinds of incentives used to promote work effort. One package of incentives comprises low wages and close supervision; the other combines high wages with little or no supervision.

The second possibility could not exist if workers were always opportunistic, for such workers would shirk when unsupervised, and the too-trusting firm would become bankrupt. A critical assumption of the competing incentives approach is that "low levels of supervision will promote trust so that employees will choose effort in an equitable fashion while, under higher levels of supervision, employees will act opportunistically, consistent with work-discipline arguments, and the threat of job loss will be required to counter potential opportunism." [42] In fact, the literature on participatory management has made a strong case that high productivity may result from the job satisfaction and good morale, which are strongly correlated with worker autonomy (i.e., lack of monitoring). The trust that links autonomy, morale and productivity is difficult to achieve. A management structure emphasizing supervision can make shirking harder to achieve, but it undermines trust.

High wages on the one hand, and intensive supervision on the other, may thus be seen as competing incentives to work effort which will be self-defeating if applied simultaneously. This

bifurcation can explain a picture of labor market segmentation in which primary sector jobs have high wages, low supervision, and technology that makes it difficult for management to monitor effort, while secondary sector jobs have low pay, high supervision, and technology that makes it simple to monitor effort.

The competing incentives model will be analyzed with the aid of the following simplifying assumptions: (1) workers are homogeneous with respect to productivity and preferences, and are employed by profit-maximizing firms that generally fit the competitive model, except that obtaining information about work effort is costly; (2) technology is given; and (3) the only costs are those required to motivate workers.

THE FIRM UNDER HETEROGENEOUS TECHNOLOGY AND COMPETING INCENTIVES

Given competing incentives, there two different decision rules under which workers may operate. With low supervision the worker will act according to an equity rule (Rule I), seeking to equate work effort and compensation fairly. Here higher pay induces greater effort. Alternatively, with high supervision the worker will act according to an opportunistic rule (Rule II), seeking to minimize effort to the extent possible without jeopardizing the job. One simple way to express this choice is:

$$e = (1 - s) (\text{Rule I}) + s(\text{Rule II})$$

where e is effort and s is supervision. As supervision approaches zero, the worker behaves according to Rule I; as supervision approaches one, the worker behaves according to Rule II.

The firm faces a choice between two strategies, one dependent on trust and the other on supervision. The strategies face different kinds of costs: the trust strategy implies higher than average wages; the other has lower wages but higher supervision costs. Under a given set of conditions (including the technologies that affect ease or difficulty of supervision) there are likely to be two points that are local optima. A profit-maximizing firm that is not initially swayed by history, or by preconceptions about what constitutes good management, could, theoretically, survey the relative costs and effort levels associated with the two strategies and adopt the more profitable one.

Once a strategy has been selected, however, marginal changes away from the local profit optimum will lead to reduced profits. When a trust regime is in place, a marginal change to more supervision will decrease effort "because the worker begins to shirk as soon as it is perceived that the firm does not trust hm or her." [47] Similarly, under a supervision regime, where workers are already looking for ways to shirk, a small move in the direction of trust will not accomplish a regime-switch -- it will only lead to more shirking. Only a complete regime switch can replace the benefits of high supervision/low wages with the benefits of high trust/low supervision, or vice versa.

Given the heterogeneity of technology, at any given time it will be found that the trust regime is the profit-maximizing choice for some firms, while for others the high-supervision regime is

rational. Given change in technology, and consequent changes (in either direction) in the cost of supervision, it may be expected that the profit motive would cause firms to switch from one regime to the other when a technology change makes such a switch profitable. However, it is hard for firms to know when they are at such a switch point, since marginal experiments (increasing or decreasing supervision by small amounts) are unlikely to yield useful information: for reasons just cited, such experiments will probably reduce effort whether or not the firm is at a potential switch point. "Firms may respond to this uncertainty by maintaining work motivation practices over time, and hence segmented jobs, even if technological change dictates managerial change." [51]

EXPLAINING SEGMENTATION AND DISCRIMINATION

This model can help to explain some important facts about the segmentation of workers and jobs.

All workers will queue for primary sector jobs, which are rationed by virtue of their higher-than-market-clearing wages. With more qualified workers than jobs in this sector, and given diverse monitoring costs, there may be a shortage of good jobs even for workers with the same productivity potentials. In this case, the cost of discrimination is zero, primary sector jobs are rationed, and secondary jobs go to groups facing discrimination.

In primary jobs, where job security is important to employee trust, employers will try to minimize layoffs, even when there is a shortage of such jobs. Preferred jobs are rationed by noneconomic criteria such as race or gender, rather than by the productivity differences emphasized by human capital theory.

Unemployment also plays a role in the structure of incentives. "Because primary sector jobs are more desirable, they will be rationed, while unemployment is required with regard to secondary sector jobs in order to maintain work discipline" [51]. It is evident that the worker's welfare is greater in low supervision jobs, not only because working conditions are less pleasant when supervision is higher, but because firms using the high supervision strategy will offset the extra supervision cost either by requiring greater effort for the same wage or by lowering the wage.

However, there is research indicating another explanation for discrimination related to the trust hypothesis. Where piece-work type incentive plans are prevalent, researchers have noted less racial discrimination, suggesting that where such plans are absent and trust is a key issue, mistrust between minority employees and white managers may be a factor in employment outcomes. Where this is true, "Rule I" effort, induced by equity considerations, may be difficult to achieve.

In further applications of the competing incentives model it will be important to make a sharper distinction between supervision and monitoring. Some supervision occurs for coordinating purposes, while in other cases monitoring might be done via output measurement or market responses rather than through direct supervision. Non-supervisory monitoring may be perceived as fairer, and may therefore be more compatible with a trust model.

CONCLUSIONS

Management theory recognizes that people are "motivated by carrots and sticks, but that the two do not work well in tandem and are not generally provided to the same employees." [54] However, economic theory usually subsumes both under the concept of opportunity costs, blurring the incompatibility of incentives noted here, and ignoring considerations based on trust.