

# Corporate Management, Property Rights and the X-istence of X-inefficiency\*

THOMAS J. DiLORENZO  
George Mason University  
Fairfax, Virginia

## I. Introduction

The objective of this paper is to extend Stigler's [11] critique of the existence of x-inefficiency by incorporating into this debate a number of considerations drawn from the economics of property rights [4] as well as some of the recent literature on agency costs [6].

Many, if not most economists accept x-inefficiency as perhaps the major social cost due to monopoly. Professor Leibenstein, in his landmark article [8], concluded that gains from increasing allocative efficiency are small while benefits of x-inefficiency are often significant. However, assigning x-inefficiency such an important role with respect to the social costs of monopoly without carefully scrutinizing its theoretical underpinnings can lead to seriously misguided research efforts and policy proposals. For example, there is a growing body of literature [10; 12] that views the major social cost of monopoly as being derived from rent seeking behavior whereby real resources are "wasted" in attempts to obtain, maintain, and extend monopoly power. Preliminary empirical evidence [10] indicates that the social costs due to rent seeking may outweigh the deadweight loss of monopoly as measured by the Harberger triangle [5]. Focusing on the costs of monopoly as being primarily due to "organizational slack" or x-inefficiency relegates the rent seeking model to secondary importance. It is my contention that the opposite strategy is likely to yield the greater payoff. Focusing our attention on x-inefficiency can also lead to misguided policy proposals. For example, consider two alternative policy approaches to the monopoly problem—pursuing atomistic competition by breaking up "large" firms which are thought to possess monopoly power on the one hand, and limiting entry barriers in different industries that are created by government edict, i.e. franchises, licenses. The former type of policy is thought to eliminate motivational deficiencies on the part of management and to enhance allocative efficiency via the competitive solution. Alternatively, the latter course of action would be more conducive to ameliorating the social costs due to rent seeking by eliminating the *source* of monopoly rents regardless of whether there are three competitors or three hundred competitors. Free entry into and exit

\* I wish to thank Mark Crain for his encouraging comments on an earlier version of this paper prepared for his graduate seminar in industrial organization at VPI in December 1977. Richard A. Williams also provided helpful comments. The usual caveat applies.

from industry would be most conducive to maximizing gains from trade and may or may not require atomistic competition.<sup>1</sup>

The remainder of this paper is organized as follows. The second section briefly reviews Stigler's theoretical critique of x-efficiency. The third section proceeds to extend this critique in light of recent advances in the economics of property rights and principal-agent relationships. It is shown that managers of *private* monopoly firms, acting as rational utility maximizing agents, will not pursue profit maximization less ardently than will their counterparts in more competitive industries. The final section is devoted to summaries and conclusions.

## II. The X-istence of X-inefficiency

Since the appearance of Leibenstein's now famous article the concept of x-efficiency has gained a prominent role in economics. In a recent article, however, Stigler has expressed doubt over the importance of x-efficiency, defined (by Leibenstein) as motivation efficiency or incentive efficiency.

The degree of x-efficiency, according to Leibenstein, depends upon things such as incentive pay, competition and markets for knowledge. His major claim is that, as mentioned above, in many instances the gains to be made by increasing allocative efficiency are trivial while the amount to be gained by enhancing x-efficiency is frequently significant. This latter claim is based on the fact that existing empirical estimates of the deadweight loss due to monopoly are surprisingly miniscule [8], while tentative estimates of the costs of x-inefficiency appear, in many instances, to be somewhat more substantial. Stigler has challenged this view on two grounds. First, he denies that changes in motivation are a principle source of changes in output. Decreases in the physical output of a firm resulting from "motivational deficiencies," according to Stigler, are merely changes in the *composition* of output and not a source of inefficiency. In his own words:

... in every motivational case, the question is: what is output? Surely no person ever seeks to maximize the output of any one thing: even if the single proprietor, unassisted by hired labor, does not seek to maximize the output of corn: he seeks to maximize utility, and surely other products including leisure and health as well as corn enter into his utility function. When more of one goal is achieved at the cost of less of another goal, the increase in output due to (say) increased effort is not an increase in "efficiency;" it is a *change* in output [11, 213].

Thus Stigler views the manager as a utility maximizer with physical output being one of a number of arguments in his or her utility function. According to this logic, the managers of monopoly firms may in fact be very efficient in what they do, i.e., obtaining and maintaining monopoly power.

Professor Leibenstein [8] claims that when product market competition is lacking managers do not make as much use of "technical consultants" as they should, thus rendering management less efficient. However, even though monopoly firms may not hire staffs of linear programmers and statisticians as often as firms in more competitive firms do, they often employ, instead, lobbyists to obtain monopoly power as well as anti-trust lawyers to help protect their monopoly status once attained. Thus the claim that managers of monopoly

1. For example, substantial consumer demand for a particular product may lead to the existence of a few large firms in an industry which exhaust economies of scale. Breaking up these firms to pursue atomistic competition may sacrifice the benefits of economies of scale and will not, therefore, constitute a Pareto efficient move.

firms diverge from profit maximization, based on the observation that they don't hire as many "technical consultants" as they could, is highly suspect. Such managers are merely substituting the use of resources to obtain and maintain monopoly rents for the alternative use of resources in expanding physical output.

Next, Stigler also criticizes Leibenstein's treatment of the use of knowledge, particularly the claim that improvements in the efficient markets for knowledge will increase x-efficiency. He postulates that different firms have different technologies which are due to different degrees of x-efficiency. However, Leibenstein does not offer an explanation for how this comes about. From this Stigler concludes that "waste" or x-inefficiency is not a useful economic concept. It is merely "error within the framework of modern economic analysis, and will not become a useful economic concept until we have a theory of error" [11, 216].

### III. Property Rights and Motivational Efficiency

In this section the economics of property rights and agency costs is used to derive the hypothesis that, contrary to the x-efficiency thesis, managers of monopoly firms will not pursue profit maximization less assiduously than managers in more competitive industries.

First, let us consider the precise nature of Leibenstein's [8] thesis. The claim is that

[i]n situations where competitive pressure is light, many people will trade the disutility of greater effort, of search and the control of other people's activities for the utility of feeling less pressure and of better interpersonal relations. But in situations where competitive pressures are high, and hence the costs of such trades are also high, they will exchange less of the disutility of effort for the utility of freedom from pressure, etc. [8, 415].

From this Leibenstein concludes that the most significant gains to be made by decreasing industrial concentration are in the form of increased x-efficiency, whereas allocative efficiency gains are likely to be small.

The remainder of this paper, however, will show that this is not likely to be true as, generally speaking, managers themselves are the residual claimants<sup>2</sup> to changes in "managerial effectiveness". Thus it is my contention that since managerial reward is tied to profitability in both monopolistic and competitive industries, the managers of monopoly firms will not be motivationally deficient.

Consider the following model (Figure 1) where it is assumed that the representative manager of a firm is also part owner, as is often the case in large corporations. Being part and not full owner means that the manager will consume more on the job perquisites than if he were the sole owner. Let us also assume that the manager's money wage is fixed. Figure 1 depicts the manager's tradeoff between increased value of the firm,  $V$ , and the amount of the firm's wealth that is used to finance managerial perquisites [6].  $V$  is equal to  $\pi/r$  where  $\pi$  = expected profits and  $r$  = expected rate of return at capital market equilibrium, risk being taken into account.  $M$  represents the market value of the stream of managerial perquisites. If the manager consumes zero perquisites,  $V = \bar{V}$ . Alternatively, if management expropriates all of the firm's wealth the value of the firm is zero. The line  $\bar{V}M$  then represents the manager's budget constraint. Given that the manager owns a share,  $\alpha$ , of the firm where  $(1 - \alpha)V$  is the value of outside equity, the slope of the budget constraint will be equal to  $-\alpha$  as the

2. Alchian and Demsetz [1] discuss the role of residual claimancy in economic organization.

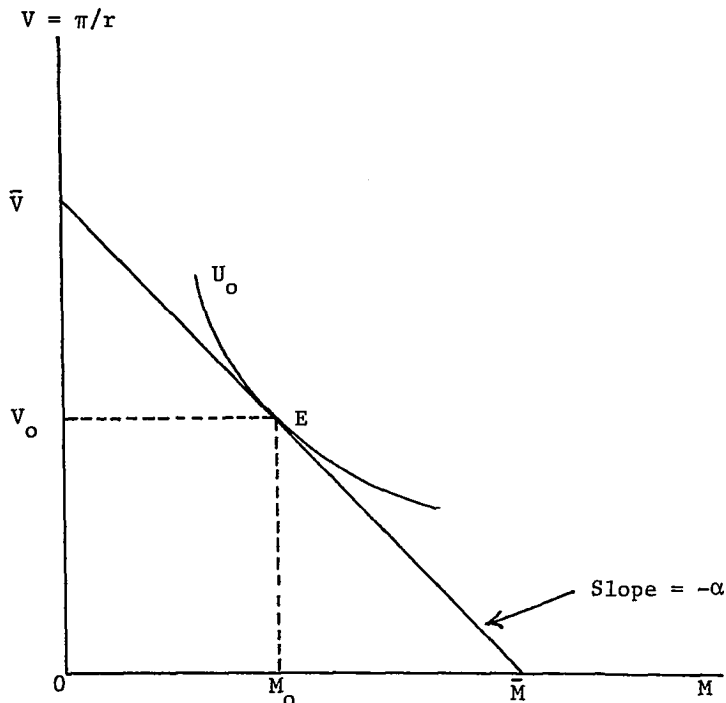


Figure 1

cost to the manager of consuming \$1 worth of perquisites is  $\alpha \cdot \$1$ . The position of the budget constraint depends upon the scale of the firm which in turn is a function of the firm's financial resources. The greater the amount of financing possible the larger the scale of the firm. The amount of perquisites consumed by the rational manager is determined by the tangency of the manager's highest indifference curve,  $U_0$ , and the budget constraint, at point  $E$  where the market value of managerial perquisites is  $M_0$  and the value of the firm is  $V_0$ .

Now, let us consider the effects of a decrease in the degree of x-efficiency or, alternatively, and increase in "organizational slack" which may occur in either a monopolistic or competitive firm. Such "x-inefficiency" will presumably increase average costs thereby diminishing both profits,  $\pi$ , and the value of the firm. The effects of this are seen in Figure 2 where point  $E$  is the original point of equilibrium. The decrease in profits and the value of the firm lead to a downward shift of the budget constraint to say  $\bar{V}'\bar{M}'$ . The new equilibrium is at point  $E'$  where the  $M_1$  level of perquisites is consumed and the value of the firm declines to  $V_1$ . The manager is made worse off by the amount of the vertical distance between  $U_0$  and  $U_1$  and is thus a direct residual claimant to the decline in profitability.

Alternatively, an increase in "entrepreneurial effectiveness" on the part of the manager will shift the budget constraint outward. The new equilibrium is altered from Point  $E$  to  $E''$ . The increased profits allow for an increase in the scale of the firm due to an increase in funds available for internal financing. The manager, in this case, is made better off, consuming the

$$V = \pi/r$$

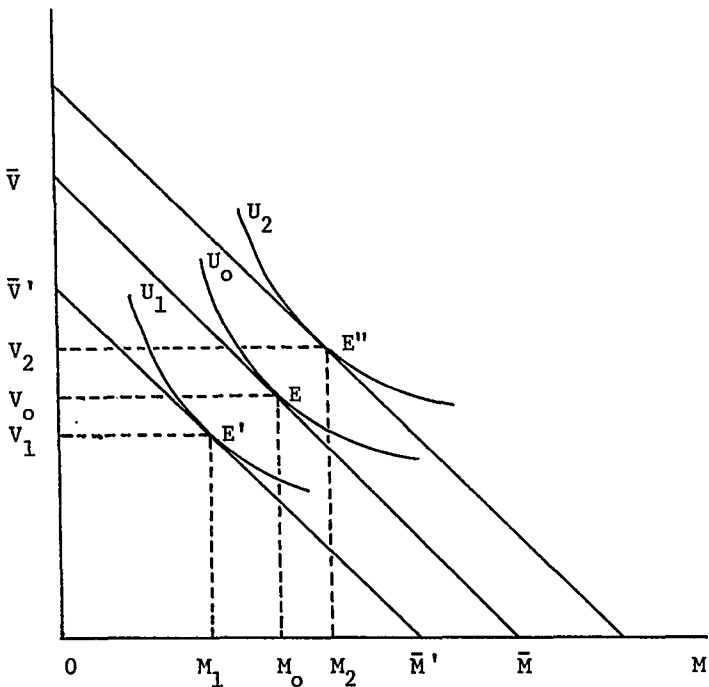


Figure 2

$M_2$  level of perquisites as he is on the higher  $U_2$  indifference curve. Thus the manager is the residual or, possibly, the *full* claimant to the increased wealth of the firm as at least part of the increased earnings are used to purchase perquisites. The manager will therefore be better able to increase his or her total utility not by "seeking the quiet life" but rather, by increasing the value of the firm. Furthermore, there is no a priori reason to believe that managers of monopoly firms will be less well motivated than their counterparts in more competitive industries given the above-mentioned relation between managerial effectiveness and managerial reward. In fact, as Alchian and Kessel [2] have reasoned, managers of monopoly firms are *more* likely to expend the firm's pecuniary wealth on perquisites as their potential profitability is constrained. That is, the profits of a regulated monopoly, for example, are constrained by the regulatory agency's perception of a "fair" rate of return. An unregulated monopoly is also constrained as such since excessive profits will attract anti-trust actions. Therefore, in accordance with the above model the residual that will be claimed by the manager who increases the firm's price-cost margin will be proportionally greater for the monopoly firm. Take, for example, the case of a regulated monopolist. It is well known that regulatory lag can be detrimental to the firm's profitability as intertemporal cost increases are not accompanied by price adjustment. However, if the regulated firm's costs decrease, profits are increased, at least until the next rate hearing. In this instance the rational manager will increase his or her discretionary expenditures on perquisites to avoid the elimination of these

rents by the regulatory agency which, in opting for the "target rate of return", will readjust the firm's price schedule accordingly. In this example the manager is indeed the full claimant to the increased profits and has every incentive to pursue them. The same is likely to be true for an unregulated monopolist for, as Alchian and Kessel have pointed out,

... the distinction between regulated and nonregulated monopolies is a false one. All monopolies are subject to regulation or the threat of destruction through antitrust action. And one of the criteria that the courts seem to consider in evaluating whether or not a firm is a "good" monopoly is its profitability. It behooves an unregulated monopoly, if it wants to remain one, not to appear to be too profitable [2, 167].

Thus the manager of the monopoly firm has no less incentive to maximize profits than does the manager of a firm that faces a greater degree of *product market* competition. Furthermore, as long as capital markets are competitive, the market will allocate monopoly rights to those who will make the most profitable use of them. The absence of competition in product markets does not necessitate managerial motivational deficiencies.<sup>3</sup>

There are two additional factors that imply that managers of monopoly firms will not be less motivated than will managers of competitive firms. These factors are the market for corporate control and managerial labor markets.

Professor Manne [9] has developed the hypothesis that failure to maximize profits will depress a firm's stock price and will therefore provide incentive for an entrepreneur to make a takeover bid and substitute more efficient management in an effort to restore profits and stock values. Subsequent empirical research [7] has found that relatively undervalued firms do run a greater risk of takeovers. Takeovers are not so pervasive that they virtually guarantee profit maximization, but they do exert pressure on managerial behavior in a way that enhances the possibilities that managers will indeed strive to maximize profits. With respect to the x-efficiency thesis, there is no a priori reason to believe that the market for corporate control will exert less pressure on managers of monopoly firms. In fact, economic theory informs us that potential takeover "raiders" would pursue the takeover of monopoly firms more diligently as the expected returns are greater than the normal economic profits that can be earned by a profit maximizing competitive firm. Thus one would expect the market for corporate control to discipline the managers of monopolistic firms *more* effectively than managers of competitive firms.

Next, consider the effects of managerial labor markets on incentives. Fama [3] has recently developed the thesis that managerial competition both within and outside the firm will discipline managers sufficiently such that the alleged redistribution of wealth from stockholders to management due to the separation of ownership from control in large corporations will simply not occur to any significant extent.

The inside managerial labor market works in several different ways. First, top management monitors the activities of lower level management. Also, lower management at times monitors the behavior of upper management as well, as they strive to "step over" less competent managers who are above them. Such monitoring takes place as managers realize that 1) the efficiency with which upper management monitors lower management will determine the value of the upper manager's marketable human capital and 2) since the monitoring that takes place by all of the lower level management affects the firm's profitability, such mon-

3. Alchian and Kessel [2] point out that only in the case of nontransferable assets such as the singing ability of Frank Sinatra does economic theory admit a difference between competition and monopoly with respect to how effectively profit maximization is pursued.

itoring will affect the value of marketable managerial human capital. For example, the present value of the manager's marketable human capital can be written as

$$V_m = \sum_{i=1}^n W_i(1+r)^{-i} = \sum_{i=1}^n MP_i(1+r)^{-i} \quad (1)$$

where

$V_m$  = present value of marketable managerial human capital

$W_i$  = manager's wage rate in the  $i$ th year

$r$  = real rate of interest

$MP_i$  = managers expected marginal productivity in the  $i$ th year.

When management becomes more efficient and increases profits a market signal is often produced that expected marginal product has increased, increasing the price of managerial talent. The opposite is true, of course, for diminished efficiency. It is in this way that a process of what Fama calls "ex post settling up" occurs in managerial labor markets. Such settling up need not involve the manager's current employer. Higher or lower future wages may be paid by other firms.

Managers then are not the residual, but rather the *full* claimants to deviations in motivational efficiency as the value of their marketable human capital is revised over time. And there is no a priori reason to expect managerial labor markets to operate less efficiently in industries where there is little product market competition. The upper management of monopolistic firms will revise upwards the salaries and salary offers to superior lower level managers as the value of their own (upper management's) marketable human capital depends upon their willingness and ability to do so. The same is true for managers of firms in more competitive industries.

#### IV. Summary and Conclusions

The main thesis of this paper is that rational utility maximizing managers of *private* monopolistic firms will not be more lax in their pursuit of profit maximization than will the managers of firms in more competitive industries. It was shown that since managers are the residual claimants to increased firm wealth not only through frequent accompanying salary increases but also through increases in expenditures on managerial perquisites, they can increase their total utility not by "seeking the quiet life" but rather by increasing the firm's wealth. The existence of this residual claimant status renders x-inefficiency a highly suspect notion. It was also shown that both the market for corporate control and managerial labor markets work to discipline managers in a way that they become the residual, if not full claimants to variations in managerial motivation. And there is no reason to suspect these markets to be less efficient in private industries where product market competition is lacking. The absence of product market competition does not necessitate managerial deficiencies.

#### References

1. Alchian, Armen and Harold Demsetz, "Production, Information Costs, and Economic Organization." *American Economic Review*, December 1972, 777-95.

2. ——— and Reuben A. Kessel. "Competition, Monopoly, and the Pursuit of Money," in *Aspects of Labor Economics*, edited by National Bureau of Economic Research. Princeton, N.J.: Princeton, University Press, 1962, pp. 157-75.
3. Fama, Eugene F., "Agency Problems and the Theory of the Firm." *Journal of Political Economy*, June 1980, 288-307.
4. Furubotn, E. and S. Pejovich, *The Economics of Property Rights*. Cambridge, Mass.: Ballinger 1974.
5. Harberger, A., "Monopoly and Resource Allocation." *American Economic Review*, May 1954, 77-87.
6. Jensen, Michael C. and W. H. Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structures." *Journal of Financial Economics*, 1976. 305-60.
7. Keuhn, D., "Stock Market Valuation and Acquisition: An Empirical Test of One Component of Managerial Utility." *Journal of Industrial Economics*, April 1969, 132-44.
8. Leibenstein, Harvey, "Allocative Efficiency vs. 'X-Efficiency'." *American Economic Review*, June 1966, 392-415.
9. Manne, H. "Mergers and the Market for Corporate Control." *Journal of Political Economy*, April 1965, 110-20.
10. Posner, Richard A., "The Social Costs of Monopoly and Regulation." *Journal of Political Economy*, August 1975, 807-27.
11. Stigler, George, "The Existence of X-Efficiency." *American Economic Review*, March 1976, 213-16.
12. Tullock, Gordon, "The Welfare Costs of Tariffs, Monopolies and Theft." *Western Economic Journal*, June 1967, 224-32.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.