NBER WORKING PAPER SERIES

ANTITRUST AND THE NOT-FOR-PROFIT SECTOR

Tomas J. Philipson
Richard A. Posner

Working Paper 8126
http://www.nber.org/papers/w8126

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
February 2001

We are grateful to seminar participants, and to Gary Becker and Casey Mulligan, for helpful comments on a previous draft, and to Anup Malani for his very valuable research assistance. The views expressed herein are those of the authors and not necessarily those of the National Bureau of Economic Research.

Antitrust and the Not-For-Profit Sector
Tomas J. Philipson and Richard A. Posner
NBER Working Paper No. 8126
February 2001

ABSTRACT

Although the not-for-profit sector contributes greatly to aggregate output in many industries, there is little explicit analysis of the consequences of applying antitrust policy in this sector. This paper argues that the same incentives to collude exist in the non-profit sector as in the for-profit sector and that therefore, since competition is socially valuable regardless of the particular objectives of producers, the fact that antitrust law does not distinguish between the two sectors is efficient. The similarity in incentives derives from the fact that altruistic firms benefit from exploiting market power even when they would price below cost without regard to competition. Although the legal regulations governing the nonprofit sector limit the degree to which profits can be distributed, and therefore seek to reduce rents in a similar manner to antitrust laws, this nondistribution constraint does not obviate the need for antitrust in that sector. The argument for uniform antitrust doctrine in the two sectors extends to the exemptions from antitrust as well. In particular, patents (lawful monopolies intended to create incentives for innovation) stimulate innovation in the nonprofit sector only when they enable market power to be exploited, just as in the for-profit sector, and so the patent exemption from antitrust should be as broad in the nonprofit sector.

Tomas J. Philipson
Irving B. Harris Graduate School of Public Policy
The Department of Economics
The Law School
The University of Chicago
1111 E. 60 Street
Chicago, IL 60637
and NBER

Richard A. Posner
The Law School
The University of Chicago
1111 E. 60 Street
Chicago, IL 60637

Section 1: Introduction

A not-for-profit (NFP) enterprise is one that (1) enjoys an exemption from taxation and (2) operates under a nondistribution constraint—that is, any surplus of revenues over expenses cannot be distributed as profits to the firm's "owners." Much economic activity nowadays occurs in the NFP sector of the economy. Even when defined narrowly, as we shall do in this paper, as (1) nongovernmental (2) charitable enterprises (thus excluding government corporations such as Amtrak and the Postal Service, public universities and hospitals, and worker, business, and consumer cooperatives), the NFP sector in the United States is estimated to produce one-fifth of all R & D, most of the economy's human capital that is not produced by on-the-job training, many cultural products and services, and most health care services, which alone account for about one-sixth of U.S. economic activity. About a fifth of all U.S. corporations are incorporated under NFP statutes. Health-care providers, particularly hospitals, dominate the NFP sector. Education and research make up the second largest component of NFP employment, at about 20 percent, followed by social services, such as child-care and job-training, at about 15 percent.

The federal antitrust laws are applicable to enterprises whether they are FP or NFP, [2] even though modern thinking about antitrust begins with the assumption that firms maximize profits. Generally, the NFP sector is subject to the same antitrust regulations as the FP sector. Table 1 presents data on federal antitrust activity since 1980 in the health care industry, the largest in the NFP sector.

Table 1: Antitrust Cases Brought by the U.S. Department of Justice or Federal Trade Commission in the Health Care Sector since 1980

Industry	*FP*	*NFP*	*Total*
Hospitals	20	17	37
Pharmaceuticals	25	0	25
Health Insurers	3	2	5
Physicians and physician groups	58	9	67
HMO's	2	0	2
Total	108	28	136

Excluding the pharmaceutical industry (which is entirely for-profit), almost a third of antitrust cases in the health care industry were brought against NFPs during this period. When asked to decide such cases, judges generally assume, in the absence of a widely accepted theory of the incentives and behavior of such enterprises, that NFPs behave the same—at least as far as competition and monopoly are concerned—as ordinary profit-making firms.[3] Our goal in this paper is to explore that assumption.

---

[2] There is no antitrust exemption for nonprofit firms. See, for example, National Collegiate Athletic Ass'n v. Board of Regents, 468 U.S. 85, 100 n. 22 (1984); Hospital Corp. of America v. FTC, 807 F.2d 1381, 1390–1391 (7th Cir. 1986).

[3] The traditional for-profit analysis may be exemplified by Jaquemin and Slade (1989), Ordover and Saloner (1989), or Viscusi et al (1998). For an influential case in the nonprofit sector, see, for example, Hospital Corp. of America v. FTC, note 2 above; United States v. Rockford Memorial Corp., 898 F.2d

The antitrust laws are concerned with two broad categories of firm behavior. One consists of efforts by which a firm collaborates with competing firms in an effort to reduce competition. This collaboration can take the form of an agreement limiting competition (a "cartel agreement"), ordinarily charged as a violation of section 1 of the Sherman Act (which forbids contracts, combinations, or conspiracies in restraint of trade), or a merger between competing firms (a "horizontal merger"), ordinarily charged as either a violation of section 1 of the Sherman Act or section 7 of the Clayton Act, which forbids acquisitions that may substantially lessen competition or tend to create a monopoly. Such a merger may eliminate competition if it embraces all the principal firms in the market (in which event it may also violate section 2 of the Sherman Act, which forbids monopolization and attempts and conspiracies to monopolize), or it may facilitate cartel agreements by reducing the number of firms whose behavior must be coordinated in order to bring about a reduction of competition; other things being equal, it is more difficult to coordinate the activities of more than of fewer firms without committing readily detectable violations of the antitrust prohibition against cartel agreements. The second major category of behavior with which the antitrust laws are concerned consists of efforts by a firm, ordinarily one having monopoly power, to eliminate or reduce competition without collaborating with its competitors. One example of such exclusionary conduct is predatory pricing, by which one firm, by charging a price below cost, tries to drive its competitors from the market and deter new entry. Another example is an agreement with a customer whereby the customer agrees not to buy from or sell to a competitor of the seller, thus depriving the competitor of outlets or inputs. These practices can violate either sections 1 or 2 of the Sherman Act or various sections of the Clayton Act, such as section 2, which forbids certain price discriminations, and section 3, which forbids certain tying and exclusive-dealing arrangements.

A history of the application of these principles to the NFP sector would extend this paper unduly, but we will sketch the salient features. There are three broad categories of NFP antitrust cases. The first involves trade and professional associations and cooperatives. Although these entities are usually organized in the NFP form, they are agents of FP firms and individuals, and the courts sensibly pierce the NFP label and treat them as functionally FP entities.[4] The second class of NFP antitrust cases involves educational institutions charged with collusion, for example collusion on financial aid to students or collusion on the grant of rights to broadcast intercollegiate sports events.[5] The third major class of NFP antitrust cases involves challenges to mergers between NFP hospitals.[6] In the second and third classes, both of which involve genuine NFPs rather than NFP agents of FPs, defendants will often argue that their NFP status entitles them either to an outright exemption from antitrust scrutiny or to a different, more permissive standard of liability, but these arguments meet with little success.

---

pital Corp. of America v. FTC, note 2 above; United States v. Rockford Memorial Corp., 898 F.2d 1278 (7th Cir. 1990).

[4] See, for example, American Column & Lumber Co. v. United States, 257 U.S. 377 (1921); National Society of Professional Engineers v. United States, 435 U.S. 679 (1978); Northwest Wholesale Stationers, Inc. v. Pacific Stationery & Printing Co., 472 U.S. 284 (1985).

[5] See, for example, National Collegiate Athletic Ass'n v. Board of Regents, note 2 above; United States v. Brown University, 5 F.3d 658 (3d Cir. 1993).

[6] See, for example, the *Rockford* case cited in note 2 above.

And rightly so, in our view. We shall argue that similar antitrust treatment of the FP and NFP sectors is efficient. Although the *level* of activity of the two types of firm may differ—in particular, quantity and quality of output may be greater for an NFP firm than for an FP firm—the incentive to *change* that behavior through collusion, and the adverse social consequences that result from that change, are the same.

Although there is a substantial economic literature on NFP firms[7], most of it is at the firm rather than the market level and so does not address issues of competition.[8] There is also an empirical literature on the relative significance of concentration in the two sectors (see, e.g., Lynk (1995, 1999), Dranove and Ludwick (1999), Kessler and McClellan (1999)). The fact that this literature has not established a differential effect of concentration in the two sectors supports our argument for the similarity of the competitive incentives in the two sectors. That argument is developed in the next section.

Section 2: Restraint of Trade by Firms That Do Not Maximize Profits

Let v(y) denote producer surplus and s(y) consumer surplus, with

$$v(y) = u(\pi(y),y)$$

$$s(y) = \int_{0 \le q \le y} [p(q)-p(y)]\, dq$$

where p(y) is the inverse demand curve. The producer derives utility not only from profits, $\pi(y)=p(y)y-c(y)$, but also from output per se, y. We call this "output preference." It need not be altruistic. For example, professors may prefer research output to maximizing their pecuniary income; hence they favor lower than maximum tuition in order to attract good students, a complement to research. Donors may give money to hospitals to do research on diseases they have or fear without necessarily being altruistic. They seek an in-kind return on their investment, in terms of output, rather than a pecuniary return, as a for-profit investor would seek.

Social welfare is the sum of producer and consumer welfare: W(y)=v(y)+s(y). The producer chooses the quantity to produce that will maximize his own utility

$$dv/dy = 0$$

which differs from the quantity that maximizes social welfare

$$dW/dy=dv/dy + ds/dy = 0$$

These simple first-order conditions illustrate the basic misalignment between producer surplus and social surplus that exists even when firms do not maximize profits. Only if the producer's utility is equal to consumer welfare, v(y) = s(y), do the private incentives of the firm coincide with social welfare maximization.

This misalignment leads to similar effects of monopoly power on output whether or not the producer is a profit maximizer. The effect on the producer of expanding output is

$$dv/dy = u_\pi \pi_y + u_y$$

[7] See Weisbrod (1999) or Malani and Philipson (2000) for a synthesis and review.

[8] See the review by Gaynor and Vogt (2000). An exception on which we build is Lakdawalla and Philipson (1997).

while the effect on consumers is the additional spending by them that the expansion of output induces

$$ds/dy = -yp_y$$

Inserting the two into the condition for a socially optimal output one we have

$$u_\pi \pi_y + u_y = yp_y$$

Since the marginal effect of output on profits depends on marginal revenue less marginal costs, $\pi_y = yp_y + p - c_y$, the socially efficient price must satisfy

$$p - c_y = p_y y[1/u_\pi - 1] - u_y/u_\pi$$

This is a generalized social mark-up condition which takes into account the fact that producers may not maximize profits. In the special case in which they are profit-maximizers, this condition reduces to the familiar equation of price to marginal cost:

$$u_\pi = 1 \ \& \ u_y = 0 \Rightarrow dv/dy + ds/dy = 0 \text{ iff } p = c_y$$

The loss to producers from expanding output comes from the fact that the expansion results in (assuming no price discrimination) lower prices for existing consumers, which is simply a transfer to consumers—they gain as much as the producer loses. But when profits are valued less than dollar for dollar by producers, and output is preferred, $u_\pi < 1$ and $u_y > 0$, efficient output requires that price be below marginal cost, since the producer desires to forgo his own consumption in order to finance additional output. Hence when price equals the marginal cost of production, there are still unexploited gains from trade between the output-preferring producer and potential consumers. Concretely, if price and marginal cost are both $2, but the producer derives utility (independent of revenue) of $1 from each unit of output, price must be reduced to $1 in order for the value of the producer's output to equal its marginal cost. So we have the counterintuitive but fundamental proposition that antitrust policy in the NFP sector should not seek merely to equate price with marginal cost, because output may be restricted (from a social standpoint) even at that level; the goal of antitrust in such a case is to force price below marginal cost.[9]

This result may seem paradoxical. It may seem that if the altruistic monopolist restricts his output, all that this shows is that he isn't as altruistic as we might have thought, so that the loss to the consumer from the restriction would be offset by a gain to the (quasi-selfish) monopolist. That is not correct, because an altruistic firm is unlikely to be a pure altruist. Donors do not give up *all* their wealth to expand output. They value their own consumption as well as that of the objects of their altruism. The losses that an NFP firm incurs by selling its output below marginal cost are defrayed by the firm's "owners" in their capacity as donors, thus reducing the donors' own consumption. Competition,

---

[9] An illustrative special case is where preferences are of the quasi-linear form, as would be the case under a first-order Taylor-approximation of any utility function

$$v(y) = u(\pi, y) = \pi + \alpha y$$

when the socially optimal markdown below costs is $p = c_y - \alpha$. The altruistic firm will price at

$$[p - (c_y - \alpha)]/p = 1/e$$

where $e = |-y_p p/p|$ is the demand-elasticity. Hence, the altruistic monopolist may be charging below cost but restraining trade at the same time.

whether with profit-maximizers or not, might drive the price of the altruistic firm's output to a level so far below cost that the personal utility loss of the donors exceeded their utility gain from the benefit of the low price to the firm's customers. If that were the case, the firm would have an incentive to collude with its competitors to raise price, albeit not all the way to its costs.

2.1 The Welfare Loss of Altruistic Restraint of Trade

Is the adverse impact of market power lessened by the fact that producers are altruistic in our sense? The counterintuitive answer is that in general monopolization is *more* harmful when done by altruistic producers than it is when done by profit-maximizers.

The deadweight loss from monopoly is the reduction in the number of consumers who buy times the average loss in consumer surplus for those consumers. When demand curves are linear, $p(y) = a - by$, and when there are constant returns to scale with output preference, $c(y) = (c - \alpha)y$, the average loss of surplus among the restricted consumers is simply half the markup, so that the deadweight loss is

$$L = [y_C - y_M][p_M - p_C]/2$$

It is well known that under these demand and cost conditions, monopoly output is half the competitive output and the monopoly price is halfway up the demand curve

$$y_M = [a- (c - \alpha)]/2b \ \& \ y_C = [a - (c - \alpha)]/b \Rightarrow y_M - y_C = [a - (c - \alpha)/b]/2$$

$$p_M = p_C + [a - (c - \alpha)]/2 \Rightarrow p_M - p_C = [a - (c - \alpha)]/2$$

Inserting these values into the dead-weight loss from monopoly one gets

$$L = (1/8b)[a - (c - \alpha))]^2$$

It follows that the impact of altruism on the deadweight loss, $dL/d\alpha$, is positive; altruism increases the harm caused by monopolization. The reason is that the output of a market in which price is reduced because of altruism($\alpha>0$) is greater than the output of an identical market in which producers are selfish($\alpha=0$), and so the amount of output lost when altruistic competitors collude is larger.

2.2 Multiple-Product Monopolists

Altrusitic firms may use their market power to discriminate against some consumers at the expense of others. For example, hospitals or universities may charge poor consumers less at the expense of rich ones if expanding the output for poor is part of their mission. This may involve using market power in one market to subsidize below-cost selling in the other. Such conduct does not violate the nondistribution constraint that defines the NFP sector because the constraint applies to the organization as a whole rather than to each separate line of business or consumers.

Consider a monopoly producer that has two output levels, y_1 and y_2, with the first representing the output for favored consumers (the poor, say); that output gives the monopolist a higher utility. The monopolist's preferences are then

$$v(y_1, y_2) = u(\pi(y_1, y_2), y_1, y_2)$$

and profits are

$$\pi(y_1, y_2) = p_1(y_1)y_1 + p_2(y_2)y_2 - c_1(y_1, y_2)$$

If $s_1(y_1)$ represents the surplus of the first group and $s_2(y_2)$ of the second, then the efficient output satisfies the first-order condition

$$u_\pi \, \partial\pi/\partial y_1 + \partial u/\partial y_1 + \partial s_1/\partial y_1 = 0$$

$$u_\pi \, \partial\pi/\partial y_2 + \partial u/\partial y_2 + \partial s_2/\partial y_2 = 0$$

Clearly there will often be a preference for price discrimination by such a firm, just as in the case of a profit-maximizing monopolist. Now consider competition between such a firm and profit maximizers serving both markets. The latter would operate at levels of output (y_1*, y_2*) that satisfied the standard marginal conditions. A firm with output preference would operate at a higher level, but if its two outputs are complements, that is, if serving the poor lowers the cost of serving the rich on a per-person basis (and vice versa), then the altruistic firm has a competitive advantage over a for-profit firm that serves the same two markets. This occurs because its larger output in its main activity (for example, serving the poor) lowers its costs in complementary activity.[10]

Price discrimination as such does not violate antitrust law. If, however, a firm that has a monopoly in one market uses the profits that it obtains there to sell below cost in another market with the aim and probable effect of driving an equally or more efficient competitor out of that market (or preventing a competitor from entering), this will violate section 2 of the Sherman Act regardless of the monopolist's NFP status, although we do not know of a case of this type. If an NFP sells below cost merely because it derives utility from the additional output that such pricing enables, it is not *really* selling below cost and there is no antitrust violation. If however it sells below cost with the additional objective of driving out an equally or more efficient competitor (or competitors) so that it can charge a higher price, albeit still a price below cost, then it would be in antitrust jeopardy.

2.3 Collusion in Altruistic Oligopolies

If the market contains more than one producer who does not aim to maximize profits, the misalignment between social welfare and industry profits remains. The analysis on the firm level carries over directly to the industry level. For example, the classic formal statement of the industry benefits of horizontal price-fixing, that industry profits rise with cooperation in a standard Cournot oligopoly model, remains true when output-preferring firms are reinterpreted as low-cost firms. Likewise, the standard analysis of mergers, such as the classic tradeoff between the efficiency gains and costs of market power, carries over to industries with output-preferring producers.

Let $V(y) = V_1(y) + \ldots + V_n(y)$ denote the aggregate industry welfare of n producers with quantities given by the vector $y = (y_1,..., y_n)$. Then welfare for a homogeneous product is given by

$$W(y) = V(y) + s(Y)$$

[10] This relation has implications for the regulatory treatment of "unrelated-business-income." If the alleged "unrelated business" is a complement to the NFP's main, altruistic mission, then it isn't really unrelated—it promotes the fulfillment of the mission. But this is a topic outside the scope of the present paper.

where the consumer welfare is evaluated at the aggregate industry output $Y= y_1+...+ y_n$. As was the case for a monopoly, the behavior that is best for the industry differs from the socially efficient behavior. If y_N denotes the output vector under noncooperative production and y_C under cooperation, then even though the firms may not be profit-maximizers their interests may not coincide with the social interest. A simple case to consider is when producers have Taylor expanded utility functions with parameters $(a_1,..., a_n)$. In that case they act as if they were profit-maximizers with costs $(c_1(y) - \alpha_1 y,.., c_n(y) - \alpha_n y)$, making standard analysis directly applicable.

Because expanding output imposes a negative externality on competitors (since producers do not take into account their actions on all consumers, in particular those ones not traded with; $s(Y_C) < s(Y_N)$), the optimal output from the industry's standpoint is lower than the output obtained without cooperation: $y_C*1< y_N*1$ Likewise industry profits are higher under cooperation $V(y_C) > V(y_N)$ even though overall welfare is lower $W(y_C) < W(y_N)$.

Presumably, an NFP firm that has an incentive to collude with its competitors in raising the price of its output also has an incentive, if conditions are favorable, to collude with its competitors to lower the price (and so the quantity purchased) of its inputs (monopsony). We discuss that case in the next section.

Section 3: Antitrust in the Nonprofit Sector

The previous section compared the effects of antitrust policy applied to profit-maximizers on the one hand and firms that do not maximize profits on the other. It did not, however, consider the NFP sector as such because that sector is defined by certain government regulations that distinguish it from the FP sector, in particular (a) the federal income tax exemption (and often other tax exemptions as well) and (b) the nondistribution constraint. These regulations and the antitrust laws share a purpose of reducing rents and so interact with each other in unrecognized ways. Our main argument survives analysis of these interactions, however: there is a role for antitrust enforcement even when firms operate under the constraints of the NFP sector.[11]

Let d denote the regulatory choice of the firm, where d = 1 when a firm chooses to be FP and d = 0 when it decides to be NFP. The NFP sector is defined by the nondistribution constraint and cost-reducing tax breaks. More precisely, under NFP status, the firm is constrained to have economic profits below a certain regulated level $\pi \leq \pi_R$, whereas under FP status profits are unconstrained. Monetary cost functions differ across status: denoting by $c^d(y)$ the cost function in status d, we assume that $c^0(y) \leq c^1(y)$ and $c^0_y(y) \leq c^1_y(y)$. As depicted in Figure 1, with output held fixed both total and marginal costs are lower in the NFP sector as a result of the lower tax burden. Since NFP firms are governed by the nondistribution constraint, the respective profit functions for the two sectors are

[11] The nondistribution constraint has certain market consequences that we do not discuss in this paper. In particular, the NFP sector cannot raise capital in the equity markets because it cannot offer a profit incentive to investors. As a result, there is no market for corporate control of NFP institutions, and so there can be no hostile takeovers of such institutions, as there can be in the FP sector, by means of tender offers, although of course friendly takeovers remain possible. Despite the differences between the two sectors in terms of corporate control, both forms of organizations co-exist under competitive conditions in many industries, which may suggest that output competition is a more important mechanism for disciplining a firm than competition in the market for corporate control.

$$\pi^0 = \min\{\pi_R, py^0 - c^0(y^0)\}$$

and

$$\pi^1 = py^1 - c^1(y^1),$$

where y^d represents the output level under FP status. Presented with the option of NFP status, the firm chooses between retaining positive profits with lower output in the FP sector and producing more output given the NFP tax breaks but with lower profits.

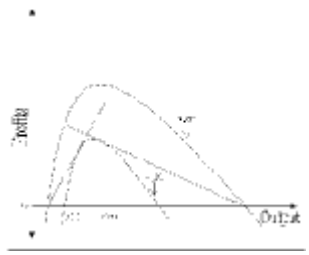

Figure 1

Differences in output preference can be represented, as before, by the linear Taylor expanded utility function

$$v = \alpha \cdot y + \pi$$

where the preference parameter α, the marginal rate of substitution between profits and output, is distributed according to $F(\alpha)$ across firms. We are interested in the case in which the maximum profit attainable under FP status and the maximum profit attainable under NFP status lie strictly above π_R, representing zero economic profit.

Consider first the case in which there are no cost differences between the two sectors, so $c_0 = c_1$. In this case, the NFP choice weakly dominates the FP choice, since the NFP choice involves a nondistribution constraint. If the constraint fails to bind, so that the equilibrium level of profit under FP status falls below π_R, firms will be indifferent between FP and NFP status, because such status involves no loss of foregone profits. If the constraint does bind, firms will strictly prefer FP status, as there are no cost differences in this initial case. The profit functions are sector-specific, with $\pi^1(y)$ for the FP sector, and $\pi^0(y)$ for the NFP sector. Under NFP production, the level of profit π_R is feasible for two different levels of output $y_L < y_U$:

$$\pi_0(y_L) = \pi_0(y_U) = \pi_R$$

An output preferrer always prefers the pair (π_R, y_U) to (π_R, y_L) because holding profits constant, it prefers more output to less. There will be a marginal firm, denoted α_M, which will be indifferent between its best FP choice and its best NFP choice. Such a firm's best choice under NFP status must be the constrained choice (π_R, y_U): it cannot be indifferent between an unconstrained FP choice and an unconstrained NFP choice, since unconstrained NFP status strictly dominates unconstrained FP status. Consequently, the marginal firm will be indifferent between its optimal FP choice $(\pi^1(y^*), y^*)$ and its optimal NFP choice (π_R, y_U). Any firm that values output more than the marginal firm $\alpha \geq \alpha_M$ will be in the NFP sector, while those firms with lower output preference will be in the

FP sector. For the marginal firm, the marginal rate of substitution between profits and output equals the dollar cost per unit of the output gained by choosing NFP status, as in

$\alpha_M = [\pi^1(y^*) - \pi_R]/[y_U - y^*]$

Because a nonprofit firm is forbidden to distribute any excess of revenues over costs as profits, a firm that wants to have profits will not organize in the not-for-profit form. And this might seem to imply that nonprofit firms should not be forbidden to cartelize; presumably they will do so only under conditions, unusual as they may be, in which cartelization is efficient. It might even be argued that the presence of nonprofit firms in a market (the hospital market for example, which has a mixture of for-profit and not-for-profit firms) is a factor that should discourage bad cartelization, since such firms will not join bad cartels.

But this is wrong in two respects. First, it assumes that the nonprofit firm is impartial in the sense of valuing the consumption of its customers equally rather than favoring some over others. For in the latter case it may well pursue a policy of profit maximization, only distributing the profits (through low, zero, or even negative prices) to a set of favored customers rather than to shareholders. For example, a nonprofit hospital might join a hospital cartel in order to maximize its profits, but avoid the no-distribution constraint by devoting those profits to the operation of a clinic for poor patients. Until challenged by an antitrust suit, the Ivy League colleges colluded to deny scholarships based on merit rather than need in order to increase scholarships for minority students without a net increase in scholarship expense.[12] The National Collegiate Athletic Association, a consortium of nonprofit colleges and universities, appears to operate much like a conventional cartel.[13]

Second is the point emphasized throughout this paper, that the fact that a firm is altruistic does not make it insensitive to cost. The nondistribution constraint, if effective (which we'll assume it is), prevents the donors (that is, the "owners" of the NFP) from receiving profits, but it does not protect them against incurring losses. If the price of the NFP's output is driven to a very low level by competition with other firms (whether NFP or FP), the donors may have to choose between closing the enterprise and further reducing their personal consumption in order to defray the additional losses caused by competition. Either course of action will impose disutility on them that may well exceed the disutility loss that they experience as altruists from the effect of any price increase on the NFP's customers. Desire to eliminate that disutility may in the absence of antitrust law induce them to collude with their competitors.

An implication of this analysis that remains for future exploration is that the weaker antitrust enforcement is, the larger the FP market share will tend to be. Weak antitrust enforcement but strong NFP regulations are more likely to induce firms to choose to be FP firms. Similarly, differential enforcement of certificate of need laws may explain why nursing homes operate at or near full capacity and are predominantly FP, as opposed to hospitals that operate at little more than half capacity and are predominantly NFPs. Those

---

[12] See Bamberger and Carlton (1999). A complicating factor, however, is that if the best students are complements to faculty, the loss of those students may be experienced as a cost to the faculty, thus requiring the colleges to raise salaries in order to restore the wage equilibrium. However, this assumes that the bidding wars have a significant effect on the assignment of students to colleges, and they may not. The students may end up at the same schools, only with higher rents.

[13] See Fleisher, Goff, and Tollison (1992); Koch (1973).

laws aim to restrict output, so if enforced strictly they will tend to discourage entry by NFPs, which are output preferrers.

Section 5: Antitrust Exemptions and Intellectual Property

Patent, copyright, and trade secret law allows firms to obtain lawful monopolies of intellectual property and thus raises the question whether this regime is as appropriate for the NFP sector as it seems to be for the FP sector. The rationale for the law's permitting (indeed encouraging) these monpolies is that without protection from free riders, the creators of intellectual property would have insufficient incentives to invest in its creation, since they could have no confidence of being able to recover their fixed costs. The cost of making an additional copy of a piece of intellectual property is generally less than its average total cost and is sometimes quite close to zero even for intellectual property that may have cost a great deal to create.

Consider a firm that undertakes a level of R&D, Z, that results in a probability of discovery P(Z). Given utility V, the producer's expected utility of

$$E[V] = P(Z)V - Z$$

which in the case of a profit maximizer ($V=\pi$) reduces to expected profits. Optimal R&D, defined by the first-order condition $P_Z V = 1$, is increasing in V: $dZ/dV > 0$. The question we examine is whether patent rights will raise V in the same manner for an output-preferring firm as for a profit-maximizing firm. This may depend on whether NFPs take advantage of market power. If they do not, then granting them market power through patents will not affect their R&D. We have argued, however, that NFP firms will take advantage of market power, and this implies that in the NFP sector as in the FP sector V will rise with patent protection.

But it may be important whether the output-preferring producers are altruistic in an industry sense, that is, caring about industry output, or in an individual sense, caring only about the producer's own output.[14] In the former case, the producers may not care as much about obtaining patents, since they want to encourage the use of their innovations rather than simply wanting to increase their own revenues. However, since as we have emphasized NFPs are not insensitive to costs, and lost revenues are the equivalent of incurred costs, they may still want to seek patent protection.

Section 5: Conclusion

Although there has been little explicit analysis of the consequences of applying antitrust policy in the NFP sector, such policy has potentially important effects in major industries. This paper has provided a theoretical analysis of the incentives to collude in the non-profit sector and has argued that they are similar to those of the for-profit sector, thus justifying antitrust law's refusal to distinguish between the two sectors. We have shown that altruistic firms benefit from exploiting market power even though they may price below cost even when they face no competition.

[14] A related issue is whether government-funded R&D should be patentable. It is related because government funded R&D operates to replace voluntary donors with involuntary taxpayers who are unlikely to have a preference for the output of any particular firm.

References

Bamberger, Gustavo E., and Dennis W. Carlton, "Antitrust and Higher Education: MIT Financial Aid," in **The Antitrust Revolution: Economics, Competition and Policy**, p. 264, edited by John E. Kwoka, Jr. and Lawrence J. White eds., 3d ed. 1999.

Dranove, David, and Richard Ludwick, "Competition and Pricing by Nonprofit Hospitals: A Reassessment of Lynk's Analysis," *Journal of Health Economics* v18, n1 (January 1999): 87-98.

Fleisher, Arthur A. III, Brian L. Goff, and Robert D. Tollison, **The National Collegiate Athletic Association: A Study in Cartel Behavior** (1992).

Gaynor, M., and W., Vogt, (2000) "Antitrust and Competition in Health Care Markets", in **Handbook of Health Economics**, edited by J. Newhouse and A. Culyer, North-Holland.

Jaquemin, A., and M., Slade, (1989), "Cartels, Collusion , and Horizontal Merger", Chapter 7 in **Handbook of Industrial Organization**, North-Holland.

Kessler, D., and M., McClellan, (1999), "Is Hospital Competition Socially Wasteful?", NBER Working Paper # 7266.

Lakdawallla, D., and T. Philipson, (1997),"The NFP Sector and Industry Performance", working paper, University of Chicago.

Lynk, W., (1995), 'NFP Hospital Mergers and The Exercise of Market Power', *Journal of Law & Economics*, XXXVIII, October, 437-461.

Lynk, William J., and Lynette R. Neumann, "Price and Profit," *Journal of Health Economics* v18, n1 (January 1999): 99-116

Malani, A., and T. Philipson, (2000), 'NFP Firm Behavior: A Theoretical Synthesis and Empirical Evaluation', working paper, The University of Chicago.

Norgard, T., (1998), 'How Charitable is The Sherman Act ?' , *The Minnesota Law Review,* v 83, 1515-1553.

Ordover, J., and G. Saloner, (1989), " Predation, Monopolization, and Antitrust", Chapter 9 in **Handbook of Industrial Organization**, North-Holland.

Simpson, J., and R., Shin, 'Do NFPs hospitals exercise market power?' *International Journal of The Economics of Business*, July 1998, v 5 , No2, 141-157.

Koch, James V., "A Troubled Cartel: The NCAA," 38 *Law and Contemporary Problems* 135 (1973).

Viscusi, K., J., Vernon, and J. Harrington (1998), **Economics of Regulation and Antitrust**, 2nd Edition, MIT press.

Weisbrod, B., (1999), **To Profit or Not to Profit**, Cambridge and London: Harvard University Press.