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Source: *The Journal of Legal Studies*, Vol. 3, No. 1 (Jan., 1974), pp. 1-18
Published by: The University of Chicago Press for The University of Chicago Law School
Stable URL: http://www.jstor.org/stable/724119
Accessed: 11/06/2014 15:46

LAW ENFORCEMENT, MALFEASANCE, AND COMPENSATION OF ENFORCERS

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THE new economic approach to political behavior seeks to develop a positive theory of legislation, in contrast to the normative approach of welfare economics. The new approach asks why certain industries and not others become regulated or have tariffs imposed on imports or why income transfers take the form and direction they do, in contrast to asking which industries *should* be regulated or have tariffs imposed, or what transfers *should* be made.

Both the normative and positive approaches to legislation, however, generally have taken enforcement of laws for granted, and have not included systematic analyses of the cost of enforcing different kinds of laws. In separate studies[1] we recently formulated rules designed to increase the effectiveness of different laws. We proposed that offenders convicted of violating laws be punished by an amount related to the value of the damages caused to others, adjusted upwards for the probability that offenders avoid conviction.

In and of itself, this rule says nothing about appropriations for enforcing laws, or the diligence and honesty of enforcers. We did discuss optimal enforcement through the introduction of enforcement cost functions, but did not seek to explore the detailed content of these functions. The purpose of the present essay is to inquire more closely into the enforcement problem.

Part I discusses the general circumstances that influence the vigor of enforcement and the frequency of violations. Part II considers the consequences of weak enforcement for the operation of the legal system. Part III makes two suggestions for improving the incentives given enforcers. Both

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Our research has been supported by a grant from the National Science Foundation to the National Bureau of Economic Research. This paper is not an official Bureau publication, however, since it has not yet undergone the full critical review accorded National Bureau publications, including approval by the Bureau's board of directors.

[1] See Gary S. Becker, Crime and Punishment: An Economic Approach, 76 J. Pol. Econ. 169 (1968); George J. Stigler, The Optimum Enforcement of Laws, 78 J. Pol. Econ. 526 (1970).

utilize the price mechanism in related, yet somewhat different, ways: one penalizes malfeasance and other signs of weak enforcement; the other, which we think is preferable, rewards successful enforcement.

I. The Market in Enforcement

There is a powerful temptation in a society with established values to view any violation of a duly established law as a partial failure of that law. Even economists long trained in the harsh realities of a world in which wishes far outstrip resources will be found lamenting the moral laxity that leads to widespread violation of law. Yet it surely follows from basic economic principle that when some people wish to behave in a certain way very much, as measured by the amount they gain from it or would be willing to pay rather than forgo it, they will pursue that wish until it becomes too expensive for their purse and tastes. And in general it will not be inexpensive for society to make prohibited behavior expensive for the potential violator.

Thus the prohibitions of prostitution, gambling, and narcotics are widely held to be failures or at least very meager triumphs of enforcement. There is an obvious economic reason why violations should be extensive. These so-called victimless crimes are highly remunerative, if undetected, when entry into their performance is restricted by law. It is worth perhaps $500 a week to practice one of these trades in a neighborhood, and we must ask: to whom is it worth $500 a week to suppress the traffic? Indeed, a somewhat more effective enforcement of the prohibition would serve to increase the potential earnings. Unless the society has a preoccupation with this one goal to the exclusion of all others, it will not—it cannot—completely drive out the illegal activity, "whatever the cost."

Or reverse the viewpoint: how will the violator conduct himself? If a person violates a law carrying a punishment equivalent to[2] a fine of $10,000 he would be willing to spend up to $10,000 to avoid apprehension and conviction. He could, for example, bribe, intimidate, harass or cultivate the police to avoid apprehension, and prosecutors or judges to avoid conviction if apprehended.

The same problem is encountered in the enforcement of noncriminal policies which bear heavily on particular people or enterprises. The recent, much publicized, episode of International Telephone and Telegraph's endeavors to obtain permission to remain merged to Hartford Insurance is a striking, but perhaps widely misinterpreted, illustration of our argument. ITT deployed extensive resources to obtain consent for the merger—clearly the company would have been delighted to spend $10 million in a legal

[2] We say "equivalent to" because the punishment may be in the form of imprisonment, loss of business, probation, etc., instead of a fine.

manner to obtain the consent. To whom was it worth this sum to prevent the merger? (As an aside, we do not believe it was worth anything to society to prevent it.) The common misinterpretation, we suspect, is to assign a special significance to the episode: we are prepared to predict that an equally complex and expensive set of negotiations has dwelt behind the process of every major governmental decision of comparable consequence to a large company or labor union. Another illustration is the Knapp Commission's recent report of significant corruption in the New York City police department, a corruption which we confidently predict is not unique to the largest city's police department.

In fact the problem is encountered throughout the private sector. Every employer of a person who will have the opportunity to serve his own interests at the cost of his employer faces the problem of fidelity. The employee may commit torts for which there are legal remedies, as when the purchasing agent receives subsidies from a favored supplier. The employee may simply engage in nonfeasance: shirking or underperforming tasks which cannot be completely supervised.[3] (Even the professor must determine whether the term paper he is grading was written or purchased by the student!)

We should abandon all thoughts of judging enforcement of laws and rules as simply successes or failures, even if these categories are "realistically" defined. The society (or a person) buys the amount of enforcement which it deems appropriate to the statute or rule: more will be bought if the statute serves a more valuable goal (protects us from murder rather than assault) and if a given increase in enforcement is less expensive. So it is with all prudent conduct.

The level of enforcement will depend upon a variety of factors in addition to the effort (*i.e.*, the amount of resources) that the society is prepared to devote to enforcement as a function of the amount of enforcement (reduction in probability of successful commission of the offense) that is obtained. There is, first of all, the degree of honesty of the enforcers: for a given bribe, some men will condone offenses that other men would prosecute. The honesty of enforcers will be dependent not only upon the supply of honesty in the population, but also on the amount spent to ascertain how honest a given person is. With an increasingly thorough and expensive investigation, one can determine with increasing precision the probable behavior of a given person.

There is, second, the structure of incentives to honesty embedded in the remuneration of enforcers. The correlation between the gain to enforcers

[3] See Armen A. Alchian & Harold Demsetz, Production, Information Costs, and Economic Organization, 62 Am. Econ. Rev. 777 (1972); Gary S. Becker, Economic Theory 122-23 (1971).

from enforcing laws and the gain to violators from successful violation is almost certainly positive. But the variation in the gain to violators is often much greater than that to enforcers from preventing or punishing violations, so that the quality of enforcement would tend to decline as the gain to violators increased. This is one reason why effective enforcement against petty larcenists, muggers, or minor smugglers (once apprehended) is more common than it is against major antitrust or SEC violators, or wealthy murderers. The ITT case is in fact one illustration of this relation.

We do not mean that a highly profitable violation that is also flagrant and politically conspicuous can be committed without fear of apprehension and punishment. The penalty incurred by the enforcer—be he President, mayor, prosecuting attorney, or patrolman—from connivance would be sufficient to make it in his interest to enforce the law. Even so, would Leopold and Loeb, for example, have escaped the death penalty if their parents had been paupers?

The quality of enforcement depends, thirdly, on the temporal pattern of violations. It is difficult to bribe or even intimidate the enforcers who would be involved in a nonrepetitive violation. They are not easy to identify in advance—whose prowl car will be going by?—and not easy to negotiate with —how can negotiation be distinguished from entrapment? Repetitive violations, such as gambling, prostitution, or the sale of drugs, are otherwise. The substantial transactions costs of ascertaining that the other party is reliable (abides by contracts) become manageable for both violators and enforcers. In fact, the particular enforcers are no longer an independent variable: if the police chief is an unyielding saint, the mayor may be in greater need of cash.

This expectation of mutually profitable contracts between repetitive violators and enforcers is part of the logic behind the widely held view that prostitution or the regular sale of consumer goods cannot be successfully prohibited. It also helps explain the development of organized crime: an organization is engaged more continually in violations than its individual members are, and can, therefore, make arrangements with judges or police that would not be feasible for these members.

The quality of enforcement depends, fourthly, on whether a violation has a "victim," *i.e.*, a particular person who largely bears the cost of the violation. The customer of the numbers game or of the prostitute or of the marijuana peddler is not, in his opinion, a loser by these activities, as contrasted (say) to the person who is burglarized or charged more than the permissible rent. Enforcement is generally more effective against violations with victims because victims have a stake in apprehending violators, especially when they receive restitution (as the recovery of a stolen television set or the excess paid over the legal rental). Consequently, victims, in effect, often

do the enforcing themselves. The role of victims in enforcement is discussed more extensively in Part III.

II. The Quality of Enforcement and the Effectiveness of Laws

We have argued that the quality of enforcement depends on the magnitude and regularity of violations, and the interests of victims, but have not considered the relation between the quality of enforcement and the effectiveness of laws. We do this now for corruption, an extreme manifestation of apparently poor enforcement; a related analysis can be developed for intimidated or lackadaisical enforcement.

Consider enforcers with sufficient evidence to convict a person of a violation that is punishable by a $5,000 fine. The violator would be willing to bribe enforcers as much as $5,000 to ignore the evidence. If a $5,000 bribe were paid,[4] the violation would be punished as fully as it would be if the violator paid the fine; consequently, the deterrent effects of the bribe and the fine would be the same. Moreover, if the enforcers anticipated the bribe (and had no fear of detection), they would be willing to work for $5,000 less than they otherwise would. Then the state, rather than the enforcers, would in essence be collecting the bribe. The transaction between the violator and the enforcers is equivalent to the violator's paying the state $5,000 for his violation; *i.e.*, it is equivalent to honest and diligent enforcement.

Effectiveness could actually be improved if a bribe of $5,000 were the alternative to punishment by a prison term with a monetary equivalent of a $5,000 fine. Again, one can show that the deterrence to violators would be the same, but with a bribe the state would collect as punishment not a prison term, but, in effect, a $5,000 fine. Since fines are preferable to other kinds of punishments,[5] the monetization of punishments by bribery would improve the operation of the punishment system.

Effectiveness is reduced if the amount paid in bribes is significantly less than the monetary equivalent of the punishment. Bribes may be less because competition among enforcers (for example, alternative examiners for auto licenses) lowers the market price of bribes, or because the marketable resources of violators are less than the monetary value of punishments. In these cases, bribery reduces punishment and thus deterrence.[6]

[4] A bribe would not be less than the value to an enforcer of enforcing a law, nor would it be greater than the cost to a violator of punishment. Its location between these extremes is determined by bargaining between the parties. We are indebted to William M. Landes for comments on this point.

[5] See Gary S. Becker, *supra* note 1, at 193-98; George J. Stigler, *supra* note 1, at 530-31.

[6] Again, however, by monetizing punishments, bribery reduces the social cost of punishments.

Whether a reduction in effectiveness is desirable or not obviously depends on whether laws are passed in the "social" interest or to reward special interest groups, to revert to the theme of the opening paragraph of this essay. For example, bribes that reduced the effectiveness of many housing codes,[7] of the laws in Nazi Germany against Jews, or of the laws restricting oil imports, would improve, not harm, social welfare (although not as defined by the legislature). Some of the opposition we have encountered to our proposals (in Part III) to improve the quality of enforcement argues that more effective enforcement is often undesirable. Presumably, this is based on the belief that many laws or the way they can be interpreted do not promote social welfare.

III. How to Improve Enforcement

A. *Punishing Malfeasance*

In this part we make two proposals for improving the quality of enforcement, our assumption being that better enforcement, on the whole, does more good than bad. The first proposal concerns punishment of enforcers for taking bribes or other acts of misfeasance or nonfeasance. We assume that enforcers discovered committing such acts are simply dismissed. Although occasionally imprisonment and fines are imposed on enforcers discovered in the most flagrant bribe-taking, by far the most common sanction, if any, is dismissal.

If the state knew with certainty whenever enforcers did not perform adequately, and if dismissal always resulted, enforcers could be induced to perform adequately simply by being paid what they could get in other jobs requiring comparable skills, risk, effort, etc. To achieve certainty of detection, however, is extraordinarily expensive, partly because enforcers try to prevent detection. Since the state has its own enforcement budget constraint, the effective probability of detection is invariably less than unity. How then can corrupt enforcement be discouraged when detection is uncertain?

The fundamental answer is to *raise* the salaries of enforcers above what they could get elsewhere, by an amount that is inversely related to the probability of detection, and directly related to the size of bribes and other benefits from malfeasance. A difference in salaries imposes a cost of dismissal equal to the present value of the difference between the future earnings stream in enforcement and in other occupations. This cost can more than offset the gain from malfeasance.

To develop the analysis formally in a simple model, let p be the probability

[7] This is a propos of the recent revelation in the *New York Times* of significant bribery in the enforcement of these codes in New York City.

of detecting malfeasance during any single time period. Although p is taken as given, it depends on the amounts spent by the state on detection. Let b be the monetary value of the gain to enforcers from bribery and other malfeasance; b is also taken as given, although it depends on p and other variables. Let r be the discount rate, and v_i the earnings that could be obtained by enforcers (aged i) in other occupations. The problem is to find the minimum salary (w_i) to enforcers, in each time period, that would discourage them from malfeasance.

We start from the final period of employment of a given enforcer, n, and work backwards. He can either receive w_n with certainty, or, by engaging in malfeasance during this period, have the probability p of receiving v_n (he is dismissed at the beginning of the period and forfeits his gain from malfeasance), and $1 - p$ of receiving $b + w_n$. If he is risk neutral and maximizes expected wealth, the minimum w_n that would discourage malfeasance is determined from the equation

$$w_n = pv_n + (1 - p)(b + w_n), \tag{1}$$

or

$$w_n = v_n + \frac{1 - p}{p} b. \tag{2}$$

Consider now his position at the beginning of period $n - 1$. With no malfeasance in periods $n - 1$ and n, the present value of his income stream would be $w_{n-1} + \frac{w_n}{1 + r}$. With malfeasance in period $n - 1$, he has the probability p of receiving a present value equal to $v_n + \frac{v_n}{(1 + r)}$,[8] and a probability $1 - p$ of receiving $b + w_{n-1} + \frac{w_n}{1 + r}$.[9] By equating these present values, the minimum w_{n-1} can be determined:

$$w_{n-1} + \frac{w_n}{1 + r} = p\left(v_{n-1} + \frac{v_n}{1 + r}\right) + (1 - p)\left(b + w_{n-1} + \frac{w_n}{1 + r}\right); \tag{3}$$

hence by using equation (2),

[8] We assume that if he is fired for malfeasance in any period, he cannot return in any future period.

[9] Equation (1) insures that his expected income in period n equals w_n both when he does and when he does not engage in malfeasance in that period.

$$w_{n-1} = v_{n-1} + \frac{(1-p)b}{p}\frac{r}{1+r}. \tag{4}$$

Similarly, by continuing to go backwards in time one can derive the general expression

$$w_i = v_i + \frac{(1-p)b}{p}\frac{r}{1+r}, \qquad i = 1, \ldots, n-1. \tag{5}$$

The income as an enforcer in the first $n-1$ periods is higher than elsewhere by an amount that is inversely related to the probability of detection, and directly related to the gain from malfeasance and (approximately) to the interest rate. The term $\frac{(1-p)b}{p}$ can be considered a measure of the "temptation" of malfeasance.[10] The cost of dismissal is the present value of the excess income stream that would be forgone. The income in the last period is still higher to offset the increasing attractiveness of malfeasance as retirement nears because of the decline in the number of years of future income that must be forgone.

The excess of the premium in the last period over that in other periods can be considered the capital value of the "pension" at the beginning of the last period:

$$P = \frac{(1-p)b}{p} - \frac{(1-p)b}{p}\frac{r}{1+r} = \frac{(1-p)b}{p}\frac{1}{1+r}. \tag{6}$$

The prospect of losing the pension is an increasingly important deterrent to malfeasance as one gets closer and closer to retirement. The forgone interest on this capital value, $r\,P$, the pension "income," equals the annual premium in the first $n-1$ years:

$$r\,P = \frac{(1-p)b}{p}\frac{r}{1+r}. \tag{7}$$

Consequently, the pension income is also directly proportional to the gain from malfeasance and inversely proportional to the probability of detection. The ratio $r\,P/w_i$, of pension income to salary, clearly ranges from 0 to 1[11] and would be larger the more tempting malfeasance is relative to the incomes

[10] We assume that enforcers plan their behavior using the expected value of the gain from malfeasance. Therefore, they would not be tempted to engage in malfeasance if the expected value did not justify it, even if an unexpected good opportunity for malfeasance came along, because they would not have planned their behavior ("covered their tracks") for malfeasance. We are indebted to Arnold Harberger for raising this point.

[11] It approaches 1 as v_i gets smaller and smaller relative to $r\,P$.

available elsewhere. Therefore, this ratio can serve as an indirect measure of the relative importance of bribes and other temptations available.

The present value of the lifetime salary to an enforcer is

$$V_w = \sum_{i=1}^{n} \frac{w_i}{(1+r)^{i-1}} = \sum_{i=1}^{n} \frac{v_i}{(1+r)^{i-1}} + \sum_{i=1}^{n-1} \frac{(1-p)b}{p} \frac{r}{(1+r)^i} + \frac{(1-p)b}{p} \frac{1}{(1+r)^{n-1}}, \quad (8)$$

$$= V_v + \frac{(1-p)b}{p}. \quad (9)$$

This present value would exceed the present value of salaries available elsewhere by the temptation of malfeasance. Consequently, the payments to each enforcer could be reduced by charging an "entrance fee" equal to $\frac{(1-p)b}{p}$; then enforcement would pay as well as the best alternative, no more and no less, and an appropriate number of persons would be available for employment as enforcers.

Malfeasance can be eliminated, therefore, even when the probability of detection is quite low, without lifetime payments to enforcers that exceed what they could get elsewhere. The appropriate pay structure has three components: an "entrance fee" equal to the temptation of malfeasance, a salary premium in each year of employment approximately equal to the income yielded by the "entrance fee,"[12] and a pension with a capital value approximately equal also to the temptation of malfeasance. As it were, enforcers post a bond equal to the temptation of malfeasance, receive the income on the bond as long as they are employed, and have the bond returned

[12] This pay structure follows from our assumption that dismissal is the only punishment for malfeasance. However, if enforcers detected in malfeasance were fined, their salary should be equal to what they could get elsewhere, if fines equalled the temptation of malfeasance. The minimum value of the fine, F, that would just discourage malfeasance is given by:

$$(1-p)(w_i + b) + p(v_i - F) = w_i,$$

or

$$F = (v_i - w_i) + \frac{(1-p)b}{p}.$$

Then

$$F = \frac{(1-p)b}{p} \quad \text{if} \quad v_i = w_i.$$

if they behave themselves until retirement. Put differently, they forfeit their bond if they are fired for malfeasance.[13]

As the probability of detecting malfeasance, p, is made smaller, resources spent on detection would be reduced with no effect on malfeasance if salaries and the entrance fee adjust according to equations (2), (5) and (9). Consequently, the optimum would appear to be a probability of detection arbitrarily close to zero, and earnings and the entrance fee indefinitely high. Then malfeasance would be discouraged at zero cost to the state!

As entrance fees become larger, the state appears to have more incentive to fire enforcers without cause since it could then pocket these fees. But if the probability, i, of being fired without cause (that is, if he is honest) were known to enforcers, their salaries would have to rise to take account of this, according to the formulas:

$$w_i = v_i + \frac{(1-p)b}{p-i}\frac{(r+i)}{1+r}, \qquad w_n = v_n + \frac{(1-p)b}{p-i}. \tag{10}$$

As i increased, the salaries that must be paid enforcers to discourage them from malfeasance would also increase; hence, the state would not gain from increasing i.[14] (Note that i could also be viewed as including the probability that innocent enforcers would voluntarily quit their jobs.)

It is, however, costly to determine whether someone is being fired with or without cause. The greater their salary, the greater the stake of enforcers in litigating efforts to fire them by proving their innocence: they would try to arrange for compulsory hearings on dismissals, appeals procedures, and the like. The extent of the procedures, and hence their cost, would rise as the probability of detection went down and salaries went up. When these costs of litigation are included, the optimal probability of detecting malfeasance is not necessarily arbitrarily close to zero, but would depend on the increase in litigation expenditures as salaries rose (*i.e.*, as the probability of detection fell). Of course, the optimal probability would not be zero if enforcers were unable to borrow a sufficiently large entrance "bond" because lenders were uncertain about being repaid.

Since eliminating malfeasance by raising salaries may not be costless, it may be preferable simply to permit malfeasance. If enforcers anticipate engaging

[13] The analysis is generalized somewhat in the appendix at the end of this paper.

[14] For any undesired behavior, the efficiency argument against punishing innocent persons is that behavior depends on the *difference* between p and i, the probabilities of punishing guilty and innocent persons respectively. Any increase in i relative to p would increase the undesired behavior, even if p itself was also increasing.

in malfeasance they will be willing to accept a lower salary than they can get elsewhere: their gain from malfeasance is a "compensating differential." If their gain equals the loss to the state, the state would not suffer a net loss nor would enforcers obtain a net gain—by net is meant after account is taken of the compensating differential—from malfeasance. The gain to enforcers is likely, however, to be less than the loss to the state because of the time and effort that enforcers spend on malfeasance, because of transactions costs in disposing of stolen merchandise, and because of the other reasons discussed in Part II. Then if enforcers did not obtain a net gain from malfeasance, the state (and society) would suffer a net loss.

Formally, we have

$$v_i = w_i + b, \tag{11}$$

where $v_i - w_i = b$ is the compensating differential to enforcers, and

$$w_i + \alpha b = w_i^s, \tag{12}$$

where w_i^s is the total "wage" rate paid by the state, and α is the loss to the state for each dollar-equivalent received by enforcers from malfeasance. Then, by substitution,

$$w_i^s - v_i = b\,(\alpha - 1). \tag{13}$$

The net cost to the state from malfeasance, the difference between w_i^s and v_i, is greater the greater the gain to enforcers (b), and the greater the net "social" or dead-weight loss $(\alpha - 1)$ per dollar of gain to enforcers.

Therefore, whether salaries should be raised and malfeasance eliminated (or lowered) and whether malfeasance should be permitted depend on the cost of the optimal probability of detecting malfeasance, and the dead-weight loss from malfeasance. The higher the latter—the less that malfeasance resembles a transfer payment—the more likely that malfeasance should be eliminated.

Our analysis of malfeasance is applicable not only to enforcers but to all public and private employees who must be "trusted." By "trust" is meant the following. Assume that employees must choose between several actions, say, for simplicity, two, A and B: A makes them better off whereas B makes their employers better off. Employers could ensure that action B would be chosen if they always knew when A occurred, simply by paying employees as much as they could get elsewhere, and by firing them whenever A occurred. If, however, A could be detected only some of the time, employees would have to be "trusted" to take the appropriate (that is, B) action. They would do so if the pattern of compensation we developed for enforcers were adopted: a salary premium, pension, and "entrance fee" all determined by the temptation of malfeasance.

Clearly, therefore, the temptations seducing enforcers are also available to purchasing agents, sales personnel, soldiers, physicians, lawyers, managers, and persons in many other occupations.[15] Trust calls for a salary premium not necessarily because better quality persons are thereby attracted,[16] but because higher salaries impose a cost on violations of trust.

The extent of control by the stockholders over the conduct of the officers of large corporations has been a much debated subject at least since the celebrated study by Berle and Means, *The Modern Corporation*.[17] The focus of attention has gradually shifted away from their main concern, the difficulties in using the proxy fight and the stockholders' suit to protect stockholder interests. The recent focus has been upon the takeover bid and the merger as devices to eliminate inefficient or corrupt management.

Throughout the period of discussion, however, one assumption of Berle and Means has been almost unquestioned: when one or a few stockholders have a controlling holding of voting stock, there is no serious problem of ownership control. Yet the incentives to malfeasance and nonfeasance are obviously present in all employment and agency arrangements, and these incentives are presumably important in the management of all large enterprises. There is no entry in a corporate income statement, "profits that would have been attained with superb management," to guide even the single owner of all the stock of a corporation.

The cases of diffused and concentrated ownership of a corporation's stock differ in certain respects: the dominant owner has a larger incentive to monitor the performance, and offers a more accessible market to others with information to sell on the performance of management, than each of numerous part owners. These differences may not be very important, however, if specialists ("takeover artists" and merger-seeking companies) undertake the task of searching for mismanaged enterprises.

As we already indicated, the role of trust in an employment contract

[15] Robert J. Barro analyzes these temptations for politicians in The Control of Politicians: An Economic Model, 12 Public Choice (spring 1973). Truth is perhaps no stranger than fiction:

> It appeared that the firms [makers of safes] were fully alive to the possibility of fraud or theft on the part of their men. For this reason only old hands who had been with them for many years, and of whose honesty they were completely satisfied, were entrusted with the fitting of the keys. *These men, moreover, were paid a high rate of wages, so as to reduce temptations as far as possible.*

Freeman Willis Crofts, Crime at Guildford (1935).

[16] Adam Smith believed that occupations requiring trust paid higher wages in order to attract better quality persons. "Such confidence [*i.e.*, trust] could not safely be reposed in people of a very mean or low condition. Their reward must be such, therefore, as may give them that rank in the society which so important a trust requires." The Wealth of Nations 105 (Modern Library ed.).

[17] Adolf Berle & Gardner Means, The Modern Corporation and Private Property (1933).

is larger, the less easily and quickly the quality of performance can be ascertained. The more diverse the activities of the enterprise, the more rapidly it is growing or declining, the more unstable the industries in which it is operating—in each case the greater the role for trust in one's managers. We would therefore expect to find the pattern of compensation we developed for enforcers to be especially prominent for managers in companies with these characteristics.

B. *Rewarding Enforcement*

Although the compensation structure we have developed could eliminate malfeasance, it would not automatically result in optimal enforcement. No guidance is provided to the optimal number of enforcers (or more generally to the optimal total expenditure on enforcement), as opposed to the optimal expenditure per enforcer. Moreover, considerable resources may be spent by the state in detecting malfeasance, by enforcers in hiding it, and, more generally, by the state and enforcers in protecting their own interests.

A highly promising method of compensating enforcers is suggested by the market in private transactions, which also has innumerable "rules" to be enforced. It is a rule that I am not to take a quart of milk from a store unless I pay 40 cents, or that I am not to receive wages from my employer unless I work 40 hours. Of course, there are reciprocal rules: the 40 cents is not paid unless the quart of milk is received; the wages must be paid if I have performed the work. The "rules"—which are what contracts embody —are enforced extensively and effectively: the escape rate on murders is higher than on 20 cent pencils in a variety store. The enforcement is good precisely because the incentives to enforcers are as large as the incentives to prospective violators.

The same method is often used, almost inadvertently, to enforce public statutes—namely, in the widespread reliance on victim enforcement. Persons charged in excess of the legal ceiling on rents report their landlords because they anticipate a reduction in their rents. Laws against shoplifting are enforced primarily by stores, often using private police, because the shopkeepers are the immediate beneficiaries. Similarly, libel laws are enforced by those libeled because they anticipate compensation. Private triple damage suits have become the only effective sanction of the antitrust laws. In the great electrical equipment conspiracy, General Electric was fined $400,000, and paid several hundred million dollars in damages. The recently developed class action suits extend victim enforcement to include many situations where the damage is so widely diffused that no one victim alone has much incentive to enforcement.

The amount of victim enforcement would be optimal if successful enforcers were paid the amount that they had suffered in damages, excluding their enforcement costs, divided by the probability that they are successful (this assumes that victim enforcers are risk-neutral). If this amount were levied in fines against convicted violators, so that, in effect, violators compensated victims, the gain to victims from enforcement would be the same as the punishment to violators; hence these enforcers could not be corrupted.

Of course, most victims would not literally become enforcers: they would hire lawyers, private investigators, and other specialized "enforcement firms" to gather evidence and argue their cases. Free competition among these firms would insure that enforcement was provided at cost. Moreover, these firms would not wait passively until contacted by victims, but would seek out evidence and bring it to the attention of victims.[18]

The essence of victim enforcement is compensation of enforcers on performance, or by a "piece-rate" or a "bounty," instead of by a straight salary. Why not then generalize this system, and let *anyone* enforce statutes and receive as compensation for performance the fines levied against convicted violators? Specialist enforcement firms would develop and would either compensate victims *en masse* (by appropriate division of penalties with, *e.g.*, the motor vehicle fund), or retain all awards for themselves. Where victim cooperation aids enforcement, we would expect that, whatever the formal distribution of awards, victims would receive a share. Where victims had little to contribute to detection and conviction, it seems more appropriate to allow the enforcers, whoever they be, to retain the awards. The rule that *anyone* could enforce a statute would basically achieve this distribution.

Free competition among enforcement firms may seem strange, even terrifying, and much more radical than the method of compensation proposed earlier to eliminate malfeasance by salaried enforcers. But society does not pretend to be able to designate who the bakers should be—this is left to personal aptitudes and tastes. Why should enforcers of laws be chosen differently? Let anyone who wishes enter the trade, innovate, and prosper or fail. The method by which ditch diggers, professor, and Senators are obtained surely should supply us with health inspectors, antitrust inspectors, rent-control investigators, and even tax collectors.

The case for allowing rules to be enforced by normal market methods of recruitment is not simply a mechanical generalization of the case for competition, for it corrects a major error of the theory of rules. This error—or omission—is to assume that rules provide any guidance or incentive to their enforcement: on the contrary, rules usually provide neither the slightest hint of where to look for violations nor the incentive to convict violators.

[18] Some law firms now take the initiative in proving antitrust violations in class action suits.

Nothing in the Sherman Act tells us where to look for collusion; nothing in the motor vehicle laws tells us who will be a speeder; nothing in a pure food law tells us who will be an adulterator. Moreover, as we have been arguing, often there is little incentive to convict the colluder, speeder, or adulterator.

Consider some additional advantages of this proposal. Society would use fewer resources to detect malfeasance because payment for performance reduces the gain from malfeasance. Moreover, society is more likely to use fines equal to damages divided by the probability of conviction[19] to punish offenders if it must pay this amount to successful enforcers. Although private enforcement of rules need not change the rules, we predict that they would gain currency and relevance because enforcement would then be much more efficient and transparent. In addition, the right amount of self-protection by potential victims is encouraged, not the excessive (wasteful) self-protection that results when victims are not compensated, or the inadequate self-protection that results when they are automatically compensated. Further, the rewards of innovation will spur technical progress in private enforcement as in other economic callings.

Capricious or arbitrary enforcement is always possible, and is much encouraged under our present system by the policy of not compensating acquitted persons for the costs (of all sorts) that they had borne. If a man is falsely charged with a crime, or a federal regulatory body erroneously denounces a company, at present neither victim is compensated in general, and we consider this a shameful flaw in our system of enforcement. The proposed system would have full compensation of persons acquitted of charges paid by the enforcement firms bringing these charges. This proposal is equally relevant to public enforcement but is more easily adopted in a regime of private enforcement because of the legal tradition of governmental immunity.

As with our proposal to eliminate malfeasance, innumerable complications would be encountered by private enforcement in a world full of variety and ingenuity (and just a little fraud). Impoverished violators would pose a problem in restitution: where violators have no legally merchantable skills the state would be compelled to use nonmonetary punishments, such as imprisonment, and to compensate the persons apprehending them. Impoverished enforcers also pose a problem in restitution: perhaps enforcement firms should be required to post a bond or its equivalent ("malpractice" insurance) to guarantee their solvency if they are required to pay damages to persons they have falsely accused or harassed.[20] The state also would be

[19] The optimality of these fines is discussed in Gary S. Becker, *supra* note 1, at 191-93, and George J. Stigler, *supra* note 1, at 531.

[20] We owe this point to Melvin Reder.

compelled to assess more accurately the damage of numerous violations (adultery, assault, sale of a stock or commodity off an organized exchange, driving a truck without an ICC license), but one need not apologize for retracing Bentham's steps after almost two centuries. Violence unfortunately must often be met by violence; so it will be necessary to face the question of who should be permitted to use force in enforcing laws. At least limited use of licensed firms seems desirable here.

Since different enforcement firms would compete to eliminate any particular malfeasance, the concept of double jeopardy would need elaboration and rules would be needed to determine the docket order in courts of different enforcers, and, more generally, to determine the distribution of compensation when several enforcers were involved in a conviction.

If the probability of conviction implicit in the punishment levied against convicted violators and paid to successful enforcers were less than the actual probability, the state could eliminate the difference in probabilities by lowering the fines on offenders (rewards to enforcers). This would lower the actual probability because enforcers have less to gain from enforcement. By lowering fines sufficiently, the implicit and actual probabilities could be equalized. Similarly, if initially the implicit probability exceeded the actual one, fines could be raised until they were equalized.

One might question whether the equilibrium probability of conviction thus obtained with private enforcement would be socially optimal, for since the apprehension and conviction of violators consume real resources, society can conserve its resources by raising punishments and lowering probabilities.[21] Perhaps public enforcement could more readily achieve an optimal combination of punishments and probabilities, but note that the temptation of malfeasance by public enforcers and thus the cost of policing them would rise as the punishment rose, and that an appropriate tax on private enforcement could lower its equilibrium probability of conviction to any desired level.

Conclusion

We conclude by emphasizing that the view of enforcement and litigation as wasteful in whole or in part is simply mistaken. They are as important as the harm they seek to prevent, and are really only names for the orderly ascertainment of facts, resolution of doubts, and reduction of conflicts. In any event, the amount of enforcement is determined ultimately by the rules to be enforced and the quality of enforcement.

We have discussed different methods of improving the quality of enforcement. One discourages malfeasance by raising the salaries of public enforcers, whereas the other encourages results by paying private enforcers for performance, or on a piece-rate basis. Both methods have considerable advantages

[21] See the discussion in Gary S. Becker, *supra* note 1, at 183-84, 193.

over much contemporary enforcement procedure, and the latter method in particular would unleash the powerful forces of competition.

APPENDIX

The analysis can be generalized by assuming that (1) the probability of detection depends on the experience of enforcers and other variables; (2) the income available at any age in other occupations depends on the age of entry into these occupations; (3) expected utility rather than expected wealth is maximized; and so forth. We here analyze the relation between the gain from malfeasance and the experience of enforcers; that is, the bribes and other gains available are assumed to increase as enforcers become more experienced and have more authority.

Let b_i be the monetary equivalent of the gain from malfeasance at age i. Then the mimimum salaries that discourage malfeasance can be shown to be

$$w_n = v_n + \frac{(1-p)b_n}{p}, \tag{A.1}$$

$$w_i = v_i + \left[\frac{(1-p)b_i}{p} - \frac{(1-p)b_{i+1}}{p\,(1+r)}\right], \qquad i - 1 \ldots n - 1 \tag{A.2}$$

and the difference in present values is

$$V_w - V_v = \frac{(1-p)b_n}{p}. \tag{A.3}$$

For the equivalent of equation (3) is

$$w_{n-1} + \frac{w_n}{1+r} = p\left(v_{n-1} + \frac{v_n}{1+r}\right) + (1-p)\left(b_{n-1} + w_{n-1} + \frac{w_n}{(1+r)}\right), \tag{3'}$$

which implies by using equation (A.1) that

$$w_{n-1} = v_{n-1} + \frac{(1-p)b_{n-1}}{p} - \frac{(1-p)b_n}{p(1+r)}; \tag{4'}$$

similarly for the other w_i. Moreover,

$$V_w = \sum_{i=1}^{n} \frac{w_i}{(1+r)^{i-1}} = V_v + \sum_{i=1}^{n} \frac{\left[\frac{(1-p)b_i}{p} - \frac{(1-p)b_{i+1}}{p(1+r)}\right]}{(1+r)^{i-1}} + \frac{(1-p)b_n}{p(1+r)^{n-1}}, \tag{8'}$$

which implies equation (A.3).

If b increases over time, the earnings of enforcers would begin *below* alternative earnings, *equal* alternative earnings when b rises at the interest rate, and remain

above alternative earnings thereafter. The effect is similar to that resulting from investment in human capital; indeed, analytically the problems are very close, with the growth in earnings due to the growth in the gain from malfeasance being akin to the growth in earnings due to the accumulation of human capital. For equation (A.2) can be written as

$$w_i = v_i + \frac{r(1-p)b_i}{p} - \frac{(1-p)}{p}\left(\frac{b_{i+1}}{(1+r)} - (1-r)b_i\right),$$

$$\approx v_i + \frac{r(1-p)b_i}{p} - \frac{(1-p)}{(1+r)p}(b_{i+1} - b_i) \text{ if } \frac{1-r}{1+r} = 1. \quad \text{(A.4)}$$

The term $\frac{r(1-p)b_i}{p}$ is the income yielded by the malfeasance "capital" accumulated to period i, and $\frac{(1-p)}{(1+r)p}(b_{i+1} - b_i)$ is the amount invested in additional capital in period i; the latter is subtracted from earnings capacity to arrive at "net" earnings.[22] The stock of malfeasance capital in period $i+1$ is then the stock in i plus the value in $i+1$ of the net investment in i or

$$C_{i+1} = \frac{(1-p)b_i}{p} + (1+r)\frac{(1-p)}{(1+r)p}(b_{i+1} - b_i)$$

$$= \frac{(1-p)}{p}b_{i+1}. \quad \text{(A.5)}$$

Equation (A.1) indicates that the pension is largely determined by the temptation of malfeasance in the terminal year of employment, not the average temptation during the whole employment period. This may help explain why pension incomes are often geared to earnings shortly before retirement instead of average earnings during the whole employment period. The "entrance fee" (given by equation (A.3)), on the other hand, equals the temptation in the initial year of employment. Since this fee results from considering the difference between life-time earnings streams the initial temptation is important not because of myopia, but rather because enforcers pay for the growth in the gain from malfeasance through appropriate reductions in earnings.

Consequently, the "entrance fee" and the capital value of the pension are no longer similar when the gain from malfeasance grows with experience. Indeed, the fee might be only a small fraction of the pension or extra earnings. For example, if the gain (b) grew 20 fold from the initial to terminal year of employment—say from \$500 to \$10,000—, and if the pension's capital value were 5 times average earnings, the entrance fee would only be about 1/20 of the pension, and 1/4 of average earnings.

[22] See the related equations for human capital in Gary S. Becker, Human Capital chs. 2, 3 (1964).