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Replacing a criminal punishment with another that both is more severe and has a lower ratio of punishment cost to amount of punishment, while reducing the probability of conviction to maintain the same level of deterrence, lowers both punishment cost and enforcement cost. Hence imprisonment is always dominated by execution and both are dominated by fines and other alternatives. Modern legal systems do not fit that pattern. One possible explanation is that the ability of enforcers to profit by convictions can produce costly rent seeking. Examples include product liability litigation, civil forfeiture, and fraudulent prosecution motivated by rewards in eighteenth-century England. The problem was avoided by the use of inefficient punishments in the legal system of saga period Iceland and the private norms of Shasta County, California. Execution, while not directly profitable for enforcers, facilitates rent seeking through threats leading to out-of-court settlements.

In the literature stemming from Becker's (1968) classic article on the economic analysis of crime, criminal punishment is analyzed as a Pigouvian tax intended to make criminals internalize the costs their acts impose on others. Criminals, unlike the polluters of the standard textbook examples, are often judgment-proof, so their ''tax'' may take more costly forms such as imprisonment or execution.[1]

I am indebted for the central idea of this article to an unknown discussant on a Usenet Newsgroup who, some years ago, pointed out to me the potential hazard of the system of efficient punishment I was then proposing.

[1] This leads to a variety of complications in the theory of optimal punishment, discussed in Friedman (1981, 1993) and Polinsky and Rubinfeld (1988), among others.

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Suppose that we have a choice between two punishment lotteries, combinations of probability of conviction and punishment if convicted, which impose the same ex ante cost on the criminal but differing costs on the rest of us. It would seem that we should always prefer the more efficient of the two. The criminal is unaffected, victims are unaffected since deterrence remains the same, and the cost to the enforcement system is reduced. This appears obvious, but it does not describe the way our society, or any modern society, actually punishes crime.

The Puzzle

For a simple example, consider an offense currently punished by a 10-year prison term imposed on offenders with a probability of .6. The certainty equivalent to the criminal of that punishment lottery is the same as the certainty equivalent of some lower probability of execution—say .1. Obviously a reform is in order. We shut down the prison. Every time we convict a criminal, we roll a die: 1–5 we let him go, 6 we hang him.

The criminal is as well off ex ante, deterrence is the same, and we no longer have to spend money on prisons, so the change is a net improvement. We can, however, do better; there is little point spending time and energy catching and convicting criminals only to turn them loose at the last moment. We reduce our expenditure on courts and police until we are convicting only one criminal in 10. We are now saving money on apprehension, litigation,[2] and imprisonment.

Nothing in this argument limits it to serious crimes; it applies to any crime currently punished by imprisonment. If the sentence is only a month, we use a 720-sided die instead of a six-sided one. It follows that an efficient legal system will make no use of imprisonment. Defendants who can pay fines will be fined since fines are more efficient than execution. Defendants who cannot pay fines will

[2] A defendant will spend more on his defense if conviction leads to execution than if it leads only to a prison sentence, ceteris paribus, but this will be balanced by a reduction in the number of defendants. In any case, since we are redesigning the legal system, we can, if we wish, limit defense expenditures. Alternatively, we could allow higher expenditures if we believe that their cost is at least balanced by the resulting reduction in the probability of convicting the innocent. A further advantage to raising the punishment and lowering the probability of imposing it is that it permits us to lower the risk to innocent defendants by raising the standard of proof required for conviction. Death penalty cases at present are very expensive to litigate, making execution less efficient than my argument supposes. But that was not true in the past and need not be true in the future; it is the result of policy choices, possibly reflecting hostility to capital punishment by judges and others.

be executed, with probability scaled to the seriousness of the offense.[3] More generally, no penalty will be used if there exists another penalty that is both more severe and more efficient,[4] since substituting the more efficient punishment and reducing enforcement expenditures so as to maintain a constant level of deterrence reduce enforcement and punishment costs while leaving other relevant costs and benefits unchanged.

Following out the logic of the argument, consider what an efficient system of criminal punishment might look like. It would be designed to squeeze the largest possible fines out of convicted criminals, using the threat of less attractive alternatives for those who cannot pay. If the fines that victims can pay, even under such threats, are inadequate, they are supplemented by penal slavery for criminals who can produce more than it costs to guard and feed them, and execution with the organs forfeiting to the state for those who cannot. Any prisons that do exist and do not pay for themselves are as unpleasant as possible so as to produce the maximum quantity of punishment per taxpayer dollar. It is a consistent picture, and considerable parts of it can be found in the not very distant past (see, in particular, Andrews [1994] and Friedman [1995]), but it is not a pretty one. Nor does it look very much like the system of punishment actually existing in modern societies. Why?

One possible answer is that modern societies have failed to find their way to an efficient set of penal institutions. Another is that apparently inefficient punishment is actually efficient because our populations are squeamish: the utility loss from the knowledge that convicted criminals were being mistreated or disassembled would outweigh the direct gains. I find neither entirely satisfactory.

The Virtue of Inefficient Punishment

Consider the world of efficient punishment described above from a more symmetrical viewpoint—one that takes account of the incentives of all the relevant actors. It is a world in which, by persuading

[3] This point should not be confused with the corner solution of infinite punishment imposed with infinitesimal probability in Becker (1968). Becker's result depended on a constant ratio of punishment cost to amount of punishment and was driven by the reduction in enforcement cost with reduced probability of apprehension. My result is based on the reduction in punishment cost, with the shift to a punishment that is both more severe and more efficient; savings in enforcement cost strengthen the result but are not essential to it. For a critique of Becker's argument, see Friedman (1981, pp. 203–4, n. 3).

[4] The efficiency of a punishment is measured by the ratio of punishment cost to amount of punishment: the higher the ratio, the less efficient the punishment (see Friedman 1981, pp. 190–92).

a court that someone is guilty of a crime, I can expropriate large amounts of the defendant's physical, human, and perhaps biological capital. In a world of efficient punishments, somebody gets most of what the convicted defendant loses. It is in that somebody's interest to convict defendants whether or not they are guilty.

The conventional analysis of optimal punishment on which my arguments up to this point have been built is based on a mistake that has been extensively criticized in other contexts: the philosopher-king account of government action. The old literature on regulation treated market participants as rational self-interested actors but the state as a proxy for the author: a wise, benevolent, and wholly altruistic organization, doing whatever would best correct the failures of the market. It was by abandoning that model that we got public choice and the modern theory of regulation.

The orthodox theory of optimal punishment makes the same mistake. It treats criminals (and, when carefully done, potential victims) as rational self-interested actors. But it treats the enforcement apparatus—police, courts, prosecutors, and legislature—as a philosopher-king, with imperfect knowledge but only the best of motives (a notable exception is Becker and Stigler [1974]).

One cost of that approach is that it makes it harder to include tort law and criminal law in the same theory despite their obvious similarity of means and objective. Tort law is enforced by the actions of private parties, criminal law by the actions of the state. It seems obvious that private plaintiffs ought to be treated as rational self-interested actors, and that is how they generally have been treated in the law and economics literature. By treating state actors differently, not only do we obscure the similarities, we also make it harder to think clearly about the choice between privately and publicly enforced law.

Once we start treating all actors symmetrically, it becomes obvious that a system of efficient punishments has a substantial cost as well as substantial benefits. The cost is rent seeking. The legal system becomes a mechanism to be used by some people to expropriate other people—who respond by taking expensive precautions to avoid being expropriated. The population as a whole might well be better off with less efficient punishments.

In a system of tort law regulated by a philosopher-king government, the solution is obvious: if too much is being spent on litigation and precautions to defend against litigation, tax damage awards until we get incentives down to the right level.[5] But once we take ac-

[5] One problem with this approach is that the tax can be evaded by out-of-court settlements, so they must be taxed as well.

count of the incentives of state actors as well as private actors, that no longer works. If the punishment is efficient, the money collected is going to someone, whether plaintiff or tax collector, and that someone has an incentive to try to manipulate the system to his own advantage. That is an argument for legal rules that limit or prevent efficient punishments.

Consider some examples. For reasons that should by now be obvious, I include ones from both civil and criminal law.

One example of the problem in civil law is the effect of treating defective product design as a deliberate tort subject to punitive damages. It is widely alleged that the result of that doctrine has been a host of unjustified legal actions, motivated by the desire of plaintiffs and their attorneys to enrich themselves at the expense of defendant corporations and their insurers, with widespread adverse results, including the almost complete elimination of at least one industry.[6] Similar allegations have been made with regard to class actions, with a notable recent example being the controversy over the consequences of the legal doctrine of ''fraud on the market.''

An example involving a mix of criminal and civil law is civil forfeiture. Under current law, property used in the commission of certain crimes, in particular drug crimes, can be seized by the state. Seizure does not require evidence that the owner of the property violated any law since the case is against the property, not the owner; nor does it require the criminal conviction of anyone, owner or user. It is up to the owner who wishes to get his property back to demonstrate, in a civil action, that it was not used to commit a crime.[7] The incentives created by such institutions pose an obvious risk that law enforcement will be directed toward seizing property rather than toward preventing crime.[8]

For a slightly different version of the same problem, consider the background of the Ruby Ridge killings. One point on which all parties seem to agree is that the origin of the conflict was an attempt by the Bureau of Alcohol, Tobacco, and Firearms (BATF) to entrap

[6] ''At a steady pace, sales and shipments of new airplanes by general aviation manufacturers declined from a high of 17,811 units in 1978 to 1,143 units in 1988'' (Martin 1991). The author argues that the decline was due to greatly increased costs of liability and liability litigation; another author in the same volume concludes that there is no evidence of any corresponding increase in safety.

[7] For a good summary of current law, see Landman and Hieronymus (1991). An extensive collection of state forfeiture statutes is located at http://www.fear.org/stastat.html.

[8] For evidence that the opportunity to share in revenue from drug forfeiture has affected law enforcement behavior, see Benson, Rasmussen, and Sollars (1995). The authors provide statistical evidence of the overall effect and anecdotal evidence of enforcement activities obviously targeted at obtaining money rather than enforcing the law.

Randy Weaver by persuading him to sell a shotgun with an illegally short barrel to a BATF informer. The reason to do so was not that Weaver was a criminal the BATF wished to convict but that they hoped to force him to work for them as an informer, providing information on the actions of other people who shared his political views. The gain to the enforcers was services, not cash, but the logic of the situation was the same. Since law enforcement agencies make extensive use of informers, it seems likely that the same pattern has occurred in many less publicized cases.

Similar problems have appeared in other historical contexts. In eighteenth-century England, criminal prosecution was private. Unlike the plaintiff in a tort action, the prosecutor (usually, but not necessarily, the victim) did not collect damages from the convicted offender. That raised an obvious problem: what incentive did an individual have to bear the costs of prosecution, sometimes substantial, when he got nothing in return?[9] If there was no incentive to prosecute, how would criminals get convicted?

The Crown attempted to deal with the perceived problem of inadequate incentives to prosecute by offering rewards, in some cases quite substantial,[10] for the successful prosecution of certain crimes. This created a new problem. In a number of notorious cases, it turned out that a convicted defendant had been either entrapped or framed in order that those responsible could collect the reward (see Paley 1989, p. 302; Friedman 1995). Juries, suspecting that witnesses might be perjuring themselves in exchange for a share of the reward, were skeptical of their testimony, making it harder to convict even guilty defendants. As a result of such problems, the system of rewards was almost entirely abandoned in the middle of the century.

So far my examples have been taken from the Anglo-American legal system. But both the problem posed by efficient punishment and the restriction to inefficient punishments as a solution to that problem appear in a variety of other contexts, including both systems of private norms and the privately enforced law of premodern societies.

Efficient Norms with Inefficient Punishments

Robert Ellickson, in *Order without Law* (1991), describes the norms of neighborly behavior currently functioning in Shasta County, Cali-

[9] Some answers are suggested in Friedman (1995).

[10] The reward for convicting a highwayman could be £100 or more. Adam Smith, writing in 1776, notes that ''eighteen pence a day may be reckoned the common price of labour in London'' (1976, bk. 1, chap. 8, p. 84). At that rate, £100 is more than four years' wages, making it roughly comparable to a $100,000 reward today.

fornia. Included are norms controlling the enforcement of other norms.

Suppose, for example, that your cattle stray into my field and damage the crops. Local norms require you to apologize, help repair the damage, and make sure it does not happen again. If you fail to act as the norms require, my first response is true negative gossip, reporting your unneighborly behavior to our neighbors. If that does not work, I may impose costs on you by driving your straying cattle a substantial distance in the direction away from your ranch. One response not permitted by local norms is to convert one of your 10 straying cattle into steaks in my freezer or money in my bank account and then call you up to complain that nine of your cattle have gotten into my cornfield.

Driving cattle down the road imposes costs, in time and effort, on me as well as on you. Selling or slaughtering your animal would be a more efficient punishment for your unneighborly behavior since your loss would be at least partially balanced by my gain. The system of private norms, which Ellickson argues is an efficient one,[11] forbids the more efficient punishment.

A plausible explanation is that if punishing you for your trespass benefited me, I would have an incentive to punish you even when you did not deserve it—for the first trespass, not the fifth. And if local norms permit the victim of a trespass to impose such punishments, every time you are missing a cow you may suspect that I have found some excuse to steal it. A system of private norms with efficient punishments might prove quite inefficient, with the reduction in punishment cost more than balanced by the costs of an inefficiently high level of punishment and a high level of defensive expenditure by those who fear that they will be its victims.

The same pattern can be found a thousand years earlier in the system of private enforcement of law described in the Icelandic sagas (Friedman 1979). When a member of one family injured a member of another and the matter could not be peacefully settled, the victim's family was expected to respond forcibly—in serious cases, by killing the offender or one of his kin. They were not expected to steal the offender's property instead. Theft, secret taking, was regarded in saga period Iceland as a serious offense against local norms of behavior.[12] Here again, the rules made imposing punishment costly

[11] For a discussion of in what respects it can be expected to be efficient and why, see Friedman (1992).

[12] For a somewhat bizarre example of the working out of this norm, see *Egil's Saga* (1976, pp. 107–8). Robbery, unlike theft, was not an offense against the norms, although it was, of course, illegal within Iceland. But it does not seem to have been commonly employed as part of feud.

for the one imposing it, who might well get killed in the process, as well as for the one it was imposed on. That made parties reluctant to try to impose punishment unless they had strong reasons to do so.

Consider finally a fictional example of the problem of efficient punishment, now slightly dated:

> In 1993, Vermont passed the first of the organ bank laws. Vermont had always had the death penalty. Now a condemned man could know that his death would save lives. It was no longer true that an execution served no good purpose. Not in Vermont.
>
> Nor, later, in California. Or Washington. Georgia. Pakistan, England, Switzerland, France, Rhodesia. [Niven 1971, p. 53]

Despite the new legislation, transplant organs are still in short supply. The legal system responds to the resulting political pressures. At the end of the story, the prosecution reads the capital charge for which the defendant is being tried:

> The state will prove that the said Warren Lewis Knowles did, in the space of two years, willfully drive through a total of six red traffic lights. During that same period the same Warren Knowles exceeded local speed limits no less than ten times, once by as much as fifteen miles an hour. [P. 58]

All these examples involve the same problem: malincentives of enforcers, public or private. Institutions that, from the perspective of a philosopher-king model of law enforcement, produce an unambiguous improvement by lowering the cost of enforcing the criminal law have the potential, seen from a perspective of rational self-interest, to set off a costly rent-seeking struggle, a war of each against all, with the weapons control over the application of legal rules and the reward the ability to expropriate others and avoid being oneself expropriated.[13]

[13] "But, it might be argued, why would any rational person be careful to forbid the disproportionality of fines but provide no protection against the disproportionality of more severe punishments? Does not the one suggest the existence of the other? Not at all. There is good reason to be concerned that fines, uniquely of all punishments, will be imposed in a measure out of accord with the penal goals of retribution and deterrence. Imprisonment, corporal punishment, and even capital punishment cost a State money; fines are a source of revenue. As we have recognized in the context of other constitutional provisions, it makes sense to scrutinize governmental action more closely when the State stands to benefit" (*Harmelin v Michigan,* SC 1990; opinion of J. Scalia, p. 978).

Law Enforcement and the Risks of Weighted Averages

While I have offered a reason to be cautious about instituting efficient punishments, I have not answered my original puzzle: why we imprison people when we could hang them instead. Hanging provides nobody any benefit, provided that the body is buried intact. So why not hang them all? As long as nobody gets what the criminal loses, why not at least use punishments that minimize the (positive) cost to the rest of us?

To answer that question, I start with a model of the political market due in part to Gary Becker (1983).[14] In that market, the desires of different interest groups are weighted according to their differing ability to solve their internal public-good problem, the problem of raising resources from their members with which to buy favorable political outcomes. The political market then sells outcomes to the highest bidder.

Suppose that the structure of interest groups on the political market is such that costs to criminal defendants are seriously underweighted relative to costs to taxpayers and potential victims. Given that criminal defendants tend to be poor and poor people tend to be poorly organized, that is not a wholly implausible assumption.[15] If it is possible to increase enforcement in a way that imposes large costs on defendants and low costs on everyone else, such a situation might lead to massive overenforcement. Restricting enforcers to forms of punishment that are costly to the taxpayers as well as to convicted defendants is a (costly) precaution against such errors.[16]

A second answer is that it is hard to keep punishments inefficient because of the possibility of out-of-court settlements. This is part of my explanation of why crimes were prosecuted in eighteenth-century (and medieval) England: prosecutors commenced cases in the hope of being paid to drop them (Friedman 1995, pp. 486–88). It is also the explanation of the entrapment of Randy Weaver. Enforcers who can hang someone if they can persuade a court that he is guilty of a serious offense have a potent threat against defendants that can be used to extort out-of-court settlements in money,

[14] For a less technical version of the model, see Friedman (1996, pp. 291–93).

[15] An extreme example of the effect of an uneven weighting of costs and benefits is the comment attributed to a papal envoy during the Albigensian Crusade, responding to a soldier who asked how to distinguish between heretical Albigensians and their orthodox neighbors: ''Kill them all; God will know his own.''

[16] For (casual) evidence of the relevant political weights, consider current debates over the legalization of drugs. The cost of imprisoning several hundred thousand people convicted of violating current drug laws seems to have more weight in the political argument than the cost to those people of being imprisoned.

information, testimony, or other services. The threat still exists if punishment is restricted to imprisonment but is less powerful, both because the cost that enforcers can impose on defendants is less and because the cost to the enforcement system of carrying out the threat is greater.

Conclusion

In this essay, I have suggested an explanation for the failure of modern legal systems to employ an efficient set of punishments. In the process, I have also offered a criticism of the analysis of optimal punishment as it now exists. Most of that analysis takes for granted a philosopher-king model of law enforcement in which only the incentives of the enforcees must be taken into account. Expanding the model to take account of the incentives of the enforcers makes the problem of optimal punishment more difficult, which is an argument against doing it, or at least in favor of solving the easier problem first. But the expansion also provides explanations for features of our legal institutions that seem puzzling under the traditional analysis.

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