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Chapter 20

Rational Criminals and Intentional Accidents: The Economics of Law and Law Breaking

PART 1 -- THE ECONOMICS OF CRIME

Many years ago, I was living in a part of Manhattan near Columbia University. When I found it necessary to go out at night, I carried with me a four-foot walking stick. My friend Ernest Van den Haag argued that I was making a dangerous mistake; potential muggers would see my behavior as a challenge and swarm all over me. I responded that muggers, like other rational businessmen, would prefer to obtain their income at the lowest possible cost. By carrying a stick, I was not only raising the cost I could inflict on them if I chose to resist, I was also announcing my intention of resisting. They would rationally choose easier prey.

I never did get mugged, which is some evidence for my view. More comes from observing who does get mugged. If muggers are out to prove their machismo, they ought to pick on football players; there is not much glory in mugging little old ladies. If muggers are rational businessmen seeking revenue at the lowest possible cost, on the other hand, mugging little old ladies makes a lot of sense. Little old ladies--and other relatively defenseless people--get mugged. Football players do not. It is said that someone once asked Willie Sutton why he robbed banks. "That's where the money is" was his reply.

The economic approach to crime starts from one simple assumption: criminals are rational. A burglar burgles for the same reason I teach economics--because he finds it a more attractive profession than any other. The obvious conclusion is that the way to reduce burglary--whether as a legislator or a homeowner--is by raising the costs of the burglar's profession or reducing its benefits.

The analysis that helped me decide what to take with me on my evening strolls around Manhattan's Upper West Side can also be applied to a point that comes up in arguments over gun control. Opponents argue that gun control, by disarming potential victims,

makes it more difficult for them to protect themselves. Supporters reply that since criminals are more experienced in violence than victims, the odds in any armed confrontation are with the criminal. This is probably true, but it is almost entirely irrelevant to the argument.

Suppose one little old lady in ten carries a gun. Suppose that one in ten of those, if attacked by a mugger, succeeds in killing the mugger instead of being killed by him--or shooting herself in the foot. On average, the mugger is much more likely to win the encounter than the little old lady. But--also on average--every hundred muggings produce one dead mugger. At those odds, mugging is an unprofitable business--not many little old ladies carry enough money to justify one chance in a hundred of being killed getting it. The number of muggers declines drastically, not because they have all been killed but because they have, rationally, sought safer professions.

When, as children, we learn about different sorts of animals, we imagine them in a strict hierarchy, with the stronger and more ferocious preying on everything below them. That is not how it works. A lion could, no doubt, be fairly confident of defeating a leopard, or a wolf of killing a fox. But a lion that made a habit of preying on leopards would not survive very long; a small chance of being killed and a substantial risk of being injured is too high a price for one dinner. That is why lions hunt zebras instead.

In analyzing conflict, whether between two animals, criminal and victim, competing firms, or warring nations, our natural tendency is to imagine an all-out battle in which all that matters is victory or defeat. That is rarely if ever the case. In the conflict between the mugger and the little old lady, the mugger, on average, wins. But the cost of the conflict--one chance in a hundred of being killed--is high enough so that the mugger prefers to avoid it. In this case as in many others, the problem faced by the potential victim is not how to defeat the aggressor but only how to make aggression unprofitable.

Economics Joke #3: *Two men encountered a hungry bear. One turned to run. "It's hopeless," the other told him, "you can't outrun a bear." "No," he replied "But I might be able to outrun you."*

Economics of the Spaceways

My favorite illustration of this point is a science fiction story by Poul Anderson. The setting is a far future with interstellar travel. There is a potentially profitable trade route connecting two groups of stars. Unfortunately the route runs through the territory of a

nasty little interstellar empire. The nasty little empire (Borthu) has a policy of seizing passing starships, confiscating their cargo, and brainwashing their crews; the crew is then added to Borthu's fleet, which is critically short of trained manpower.

Borthu is a nasty *little* empire; the trading corporations could, if they chose, get together, build warships, and defeat it. But doing so would cost more than the trade route is worth. They could arm their trading ships--but the cost of building and manning an armed ship would more than wipe out the profit the ship would generate. They can win--but, being rational profit maximizers, they won't.

The problem is solved by Nicholas Van Rijn, the head of one of the trading corporations--after he has first persuaded his competitors to offer a fraction of their profits on the route to whoever solves the problem. The solution is to arm one ship in four. Warships carry larger crews than merchant ships. Three times out of four, the empire attacks a trading ship, capturing it and its four-man crew. One time out of four, the trading ship is armed; the empire loses a warship and its twenty-man crew. Every four attacks cost the empire, on net, eight crewmen. Piracy is no longer profitable, so it stops.

The logic of the problem, and the solution, is nicely summed up in Van Rijn's reply to one of his colleagues, who suggests that they should fight even if it costs more than the trade is worth to them.

Revenge and destruction are un-Christian thoughts. Also, they will not pay very well, since it is hard to sell anything to a corpse. The problem is to find some means within our resources to make it *unprofitable* for Borthu to raid us. Not being stupid heads, they will then stop raiding and we can maybe later do business.

--"Margin of Profit," in *Un-man and Other Novellas* by Poul Anderson

Superthief

I once came across a discussion of the economics of crime and crime prevention written from the inside--in several senses. The title was *Secrets of a Superthief* (by Jack Maclean). The author was a skilled burglar specializing in high-income neighborhoods. As he tells it, he ran a class act--when a house contained nothing he thought worth stealing, he would pile up the rejected booty on the kitchen table and steal the control panel from the burglar alarm. Except in such cases, he usually reset burglar alarms on his way out, to make sure no less discriminating thief broke in and messed up the house.

Eventually Superthief made a professional error and found himself taking an unplanned vacation, courtesy of the State of Florida. Being an energetic fellow, he spent his time behind bars polling fellow inmates on their techniques and opinions and writing a book on how not to get burgled. One of Superthief's principal insights is the same as Van Rijn's--the essential objective in any conflict is neither to defeat your enemy nor to make it impossible for him to defeat you but merely to make it no longer in his interest to do whatever it is that you object to.

Superthief argues that making it impossible for a burglar to get into your house is not an option; few doors will stand up to a determined burglar properly equipped. The function of strong doors and locks is not to make burglary impossible but to make it more expensive, by increasing the skill and equipment needed by the burglar as well as the chance that he will be detected before finishing the job.

A less expensive approach is to use what Superthief calls "mind games." Figure 20-1a shows my version of one of his suggested tricks--in the form of a note I used to keep taped to my back door. Both Mrs. Jones and Rommel are wholly imaginary. A potential burglar may suspect that, but he has no way of being sure. Exterminators are common enough in that part of the country, the reference to the back rooms is vague enough to make it uncertain just where he can go without breathing insecticide, and Rommel, presumably a German shepherd or Doberman (can you imagine a poodle named Rommel?), is in the room that, according to Superthief, burglars consider most worth robbing. Superthief's version referred to pet rattlesnakes loose in the house--a better story than mine but less likely to be believed. Superthief gives many other examples of simple and inexpensive mind games--such as leaving a large dog-feeding dish or a jumbo-sized rubber bone lying around the backyard.

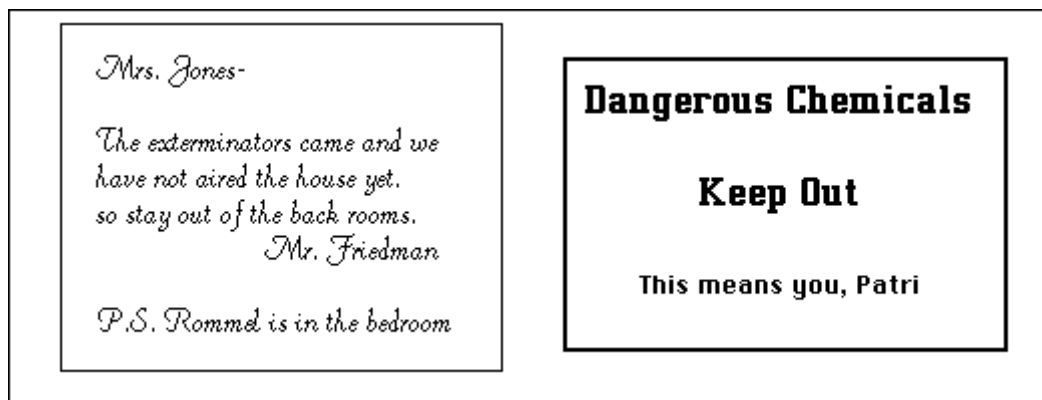


Figure 20-1. **Low-cost burglar repellents.** Fictitious notes to a fictitious cleaning lady and a real son.

Figure 20-1b shows another of my precautions. One room in my house had its own lock. A rational thief will assume I am a rational victim and deduce, correctly, that if I have a lock on that door it is because I have things worth stealing behind it. My solution was the sign shown in Figure 20-1b. It was intended to suggest an alternative explanation-- dangerous chemicals in the room and a curious child in the house. The solution is original with me, but I believe Superthief would approve.

Illegal Markets

"(On earth they) even have laws for private matters such as contracts. Really. If a man's word isn't any good, who would contract with him? Doesn't he have reputation?"

--Manny in *The Moon is a Harsh Mistress* by Robert Heinlein

We are used to thinking of markets as public, socially accepted institutions such as the stock market, the wheat market, or a supermarket. But the concept is broader than that. There are markets for political influence in Russia--and in Washington. There are markets for illegal drugs and stolen goods. There are markets for sex, both legal (see Chapter 21) and illegal.

Economics applies to illegal markets as well as to legal ones. When one input to production is eliminated, substitutes become more valuable. Since participants in illegal markets cannot enforce their contracts in court, substitutes such as reputation become more important. The traditional definition of an honest politician is one who stays bought.

Handling information is costly in illegal markets; facts about your employees that you want in order to decide on your future dealings with them are also useful to a prosecutor deciding on his future dealings with you. This is one of the reasons I suspect that accounts of the Mafia as a sort of General Motors of Crime are mythical: large firms require a lot of information flowing up and down the hierarchy. It seems more likely that most crimes are committed by individuals or small firms, with organized crime not a giant corporation but something more like a chamber of commerce or better business bureau for the criminal market.

Such an interpretation flies in the face of what we are usually told, in newspapers and congressional hearings. Before you reject it on that basis, consider the incentives that generate that information. Newspapers want to sell copies and politicians want to get

reelected; downplaying organized crime is a poor way of doing either. Their sources of information are law enforcement officials, who want to prove that they need more money and power to fight organized crime, and criminals testifying in exchange for immunity--with an obvious incentive to say whatever their captors wish to hear. It is interesting, in reading such accounts, to compare descriptions of the power and importance of the Mafia with descriptions of how the witnesses actually ran their criminal enterprises--as independent entrepreneurs, not employees of a criminal superfirm.

Academic studies of the criminal market involve difficulties not present in most other fields of research, but nonetheless some have been done, and they provide some scholarly evidence for my conclusions. A study of illegal gambling in New York, based on records produced by police wiretapping, found that bookies were small independent operators. Not only did they not have much ability to use violence against competitors they even had difficulty enforcing profit-sharing agreements with the subcontractors who brought in their customers.

Inside accounts, or purported inside accounts, provide a more entertaining source of information on organized crime. *The Last Testament of Lucky Luciano* contains a revealing incident. After a gangland war over who was to be *Capo di Tutti Capi*--boss of the Mafia--the winner called together gangland leaders from all over the country. He announced that:

everything would now be combined into a single organization under one rule--his. . . The key was discipline, Maranzano emphasized repeatedly, rigid discipline, with Maranzano himself the supreme arbiter of all disputes, as he would be supreme in everything. That discipline ... would be strictly enforced.

In less than five months he was dead.

My own conjecture is that what the Mafia really is, at least in part, is a substitute for the court system; its function is to legitimize the use of force within the criminal community. Suppose you are engaged in some criminal enterprise and one of your associates pockets your share of the take. Your obvious response is to have him killed--murder is one of the products sold on the market you are operating in. The problem with that is that if your partner gets killed and it becomes known that you are responsible, other participants in the illegal marketplace will become reluctant to do business with you.

The solution is to go to some organization with a reputation, within the criminal market, for fairness. You present the evidence of your partner's guilt, invite him to defend himself, and then ask the court to rule that he is the guilty party. If it does so--and he refuses to pay you appropriate damages--you hire someone to kill him; since everyone

now knows that he was in the wrong, the only people afraid to do business with you will be those planning to swindle you.

Drugs, Law Enforcement, and Violence

It is widely believed that illegal drugs are responsible for much of the violence in U.S. cities. This raises an interesting question: does stricter enforcement of drug laws increase or decrease violence?

Increased enforcement raises the street price of drugs. If users commit crimes to pay for drugs, and if the demand for drugs is inelastic, as the usual portrayal of addicts suggests, the result should be increased expenditure on drugs funded by increased amounts of drug related crime. Whether or not demand is inelastic at current prices, it seems clear that complete legalization of drugs would greatly decrease such crime. Almost all of the current price of illegal drugs is due to the fact that they are illegal. A heroin addict who kept his expenditure on heroin constant while prices fell twenty or thirty fold would not last long.

A second explanation for violence is that it is a form of rent seeking. On this account, criminal firms have local monopolies which they must defend against the competition of rival firms. The greater the monopoly profit, the more will be spent trying to capture or defend turf. Increased enforcement effort increases the cost of doing business, decreasing monopoly profit, so increased enforcement should result in less violence.

A third possibility is that violence is simply a consequence of insecure property rights. Drug sellers have lots of portable wealth in the form of money and drugs, and do not have the option of calling the police if someone steals it. The result is violence by drug dealers defending their property and by other people trying to steal it. That fits the account in *The Cocaine Kids*, written by a sociologist with contacts in that market. A similar pattern appears in descriptions of the prohibition era, with bootleggers hijacking trucks full of booze belonging to their competitors.

The amount of such violence should be roughly proportional to the amount of wealth to be stolen or defended, which depends on the total value of drugs sold. If demand is inelastic, the increased price due to increased enforcement effort will produce a less than proportional decrease in quantity demanded, so total revenue will rise, resulting in increased violence. If demand is elastic, increased enforcement should lead to less revenue and less violence.

We have three different explanations for drug related violence. One implies that marginal increases in enforcement will decrease violence, two that they will increase violence if

demand is inelastic, decrease it if demand is elastic. All imply that legalizing drugs would eliminate drug related crime.

PART 2 -- THE COST OF CRIME

What Is Wrong with Robbery Anyway?

We take it for granted that certain activities, such as robbery, theft, and murder, are bad things that ought to be prevented. From the standpoint of economic efficiency, it is not immediately obvious why. Theft appears to be merely a transfer; I lose \$100 and the thief gains \$100. From the standpoint of efficiency, that looks like a wash--costs measured in dollars just balance benefits in dollars. If so, what is wrong with theft?

If that were all that happened, theft would indeed be neutral from the standpoint of efficiency. It is not. Theft is not costless; the thief must spend money, time, and effort buying tools, casing the house, breaking in, and so forth. How much time and effort? To answer that question, we do not have to find actual thieves and interrogate them. Economic theory tells us what the cost will be--at least for the marginal thief. In equilibrium, on the thieves' market as on other competitive markets, marginal cost equals average cost equals price. The analysis goes as follows:

Suppose that anyone who wished to become a thief could steal \$100 at a net cost, including operating expenses, value of time, and risk of being caught, of only \$50. Revenue is greater than cost, so economic profit is positive; firms enter the industry. If stealing pays better than alternative occupations, people will leave those occupations to become thieves.

As more people become thieves, the marginal return from theft falls. Many of the most valuable and easily stolen objects have already been stolen. Every diamond necklace has three jewel thieves pursuing it. A thief breaks into a house only to discover that Superthief has stolen all the valuable jewelry--and reset the alarm. Just as in other industries, increased output drives down the return, although not for quite the same reason. The "price" that a thief gets for his work, the amount he can steal for each hour of his own time that he spends stealing, falls.

How far does it fall? As long as stealing pays better than alternative occupations, people will leave those occupations to become thieves. Equilibrium is reached when, for the marginal thief, his new profession is only infinitesimally better than his old--and for the next person who considers becoming a thief and decides not to, it is infinitesimally worse. In equilibrium, the marginal thief is giving up a job that paid him, say, \$6/hour in

order to make, net of expenses of his new profession such as lawyer's fees and occasional unpaid vacations, \$6.01/hour.

So in equilibrium, theft is not a transfer but a net cost. The marginal thief who steals \$100 spends about \$100 in time and money to do so. His costs and his return almost exactly cancel, leaving the cost to the victim as a net loss.

What about a thief who is unusually talented at stealing or unusually incompetent at alternative professions, making theft a particularly attractive profession for him? When he steals \$100, he does so at a cost of only \$50, leaving him \$50 ahead. Since the victim ends up \$100 behind, the result is still a net loss, although not by as much as in the case of the marginal thief.

If all thieves are marginal thieves--if, in other words, there is not much variation among potential thieves in their comparative advantage for thievery--the net cost of theft, including costs and benefits to both thieves and victims, is about equal to the amount stolen. If thieves vary widely, the net cost is still positive, but less than the amount stolen.

So far we have ignored the costs of defense against theft. These include both private costs--locks, burglar alarms, security guards, and the like--and the public costs of police, courts, and prisons. My guess is that such costs are much larger than the net gains of theft to the inframarginal thieves, making the total cost of theft more, not less, than the value of all goods stolen.

Theft is inefficient for the same reason as other forms of rent seeking. Both thieves and victims are competing for possession of the same objects--all of which initially belong to the victims. Expenditures by a thief either result in his getting the loot instead of some other thief or in his getting the loot instead of its owner keeping it. Defensive expenditures by the victims are rent seeking as well--the function of a burglar alarm is to make sure that the property remains in the hands of its original owner.

If property rights are insecure, some individuals have an incentive to spend resources trying to get property transferred to them, while some have an incentive to spend resources keeping property from being transferred away from them. That is true whether the transfer is private or public. Not earning taxable income or not buying taxed goods are (costly) ways of defending yourself against taxation, just as installing a burglar alarm is a (costly) way of protecting against theft. Making campaign donations to a candidate who promises to provide special benefits to you and your friends is an expenditure on transferring property in your direction almost precisely analogous to a burglar's expenditure on tools.

PART 3: EFFICIENT CRIMES AND THE EFFICIENT LEVEL OF CRIME

I have spent 20 hours searching art galleries to find a painting I particularly like and then bought it for \$100. A thief who steals it injures me by considerably more than \$100. The thief himself will be lucky to get \$50 for it; even if he finds the right gallery and the right buyer--one who does not recognize the painting and does recognize its quality--he will get what the gallery pays for paintings, not what it charges for them.

In such a situation, the value to the thief of what he steals is much less than its value to the victim. That is why in many societies, including our own, there are well-established procedures by which thieves sell things back to their owners. Kidnappers provide an extreme example. They steal something--a person--whose only value to them is what they can get by selling it back to (representatives of) its "owner." Such institutions make theft more efficient but also more profitable, and thus more common.

This divergence between value to victim and value to thief suggests another way of looking at the inefficiency of theft. If you have something that is worth more to me than to you, I have no need to steal it; I can buy it from you. Goods that a thief is willing to steal but would not be willing to buy must be worth more to their present owner than to the potential thief. So the additional transfers that become possible as a result of theft are inefficient ones--transfers of a good to someone who values it less than its present owner.

There are exceptions--"efficient crimes." You are lost in the woods and starving. You come upon an empty, locked cabin. You break in, feed yourself, and use the telephone to summon help. The value to you of using the cabin was greater than the cost you imposed on its owner; you will be glad to replace both his food and his lock. Your "crime" transferred a resource--temporary control of the cabin--to someone to whom it was worth more than its value to the initial owner. You could only do it by a crime, not by purchase, because the owner was not there to sell it to you.

A less exotic example is speeding when you are in a hurry; there are times when getting somewhere quickly is sufficiently important to justify doing so at 80 miles per hour. One way the law might deal with such situations would be to make it illegal to drive faster than 70 miles per hour except when there is an important reason to do so. That is how we handle the problem of the lost hunter--he is excused from criminal liability under the doctrine of necessity. But treating the speeder in the same way requires information about how good his reason for speeding was which it is unlikely to have.

An alternative is to impose a penalty large enough so that only those who really have a good reason to drive faster will find it worth breaking the law and paying the penalty. Seen in this way, a speeding law is a Pigouvian tax, like the emission fee discussed in Chapter 18. If air polluters must pay an emission fee equal to the damage done by the pollution, they will pollute--and pay--only when the value of what is being produced is greater than the cost, including the cost of the pollution. If speeding imposes costs on other drivers, we can use traffic tickets to force motorists to take account of those costs in deciding how fast to drive.

The suggests a simple rule for setting punishments: "The amount of the punishment should equal the damage done by the crime." That way, only efficient crimes will be committed--crimes for which the value to the criminal is greater than the amount of damage done.

Criminals are not always caught; a potential offender with one chance in ten of being caught and convicted will discount the punishment accordingly. In order to assure that only efficient crimes occur, the punishment must be scaled up enough to compensate--multiplied by ten if the criminal is risk neutral.

This raises an interesting problem. The same deterrence might be provided by a certainty of a \$1,000 fine, a 50 percent probability of a \$2,000 fine, a 10 percent chance of a \$10,000 fine, or one chance in a hundred of being hanged. How should we decide which to use?

The problem is one we solved back in Chapter 9: choosing the mix of inputs to produce an output. The output is deterrence, the inputs are probability and punishment. The solution is to generate a total cost curve for deterrence by finding, for each level of deterrence, the least costly punishment/probability pair that produces it.

The cost of catching criminals is higher the more you are trying to catch, so enforcement cost rises with probability. On the other hand, fines are a more efficient punishment than execution or imprisonment, since someone gets what the criminal loses, and it is easier to collect small fines than large ones. So punishment cost tends to increase with the size of punishment. Somewhere between one extreme (catching 100 percent of the criminals and making them give back what they stole) and the other (catching only one criminal and boiling him in oil), there an optimal combination.

We now have a simple rule for deterring all inefficient offenses: impose an expected punishment equal to the damage done, using the least costly combination of probability and punishment that does so. But deterring all inefficient crimes may not be the efficient thing to do. A crime that produces a net cost of ten dollars is inefficient, but it is not worth deterring it if doing so requires a hundred dollars in additional enforcement and punishment costs. The efficient level of crime, taking account of enforcement costs, may leave some inefficient crimes undeterred--because it is not worth the cost of deterring them. Less obviously, the efficient level might deter some efficient crimes--because by deterring them we save ourselves the cost of punishing them.

Why Not Hang Them All: The Efficiency of Inefficient Punishment

Our discussion of punishment costs raises an interesting puzzle: why does our legal system make so much use of imprisonment, when more efficient punishments are

available? Suppose a convicted criminal is indifferent between a certainty of ten years in jail and one chance in six of execution. Instead of giving him a ten year sentence, we roll a die: 1-5 we turn him loose, 6 we hang him. The criminal is, on average, no worse off than before, deterrence is unaffected, and we save a lot of money on prisons. We can save still more by throwing away the die, cutting the police budget, catching a sixth as many offenders as before, and hanging all of them.

Execution is more efficient than imprisonment, but a fine is better still. Why not have a system of punishment designed to squeeze as much money out of convicted criminals as possible, then provide any additional punishment in less efficient ways? We could, for example, offer criminals the option of buying shorter sentences or lower probabilities of execution. And if we are going to imprison people, why not get something out of them by using them as some form of slave labor? If we must execute criminals, why not let their bodies forfeit to the state to help ease the shortage of organs for organ transplants? If one has no scruples about how criminals are treated, there are quite a lot of ways of decreasing the net cost of punishment.

The problem with an efficient punishment is that somebody collects it. Suppose we had a legal system which did a very good job of squeezing money out of convicted criminals, say by auctioning them off as slaves for a price of a few hundred thousand dollars each—not an unreasonable price for a slave in a modern society. It would then be in the interest of whomever was running the law enforcement system to convict lots of people—whether or not they were guilty. The result would be a society where large amounts were spent by people either trying to appropriate other people's human capital by convicting them of something or trying to keep their own human capital from being appropriated—rent seeking with large stakes and large costs.

This is not a wholly imaginary problem. One way of looking at current problems with punitive damages, product design liability, class actions, fraud on the market claims, and the like, is as just such a rent seeking struggle. Plaintiffs sue not to improve products but to transfer money from producers to themselves, and producers defend themselves by not producing products that some jury somewhere might think were defective—with the result that the U.S. no longer produces small airplanes and has a hard time finding a firm willing to manufacture vaccines. Similar problems arise with civil forfeiture, under which police departments can seize property on the claim that it has been used in connection with illegal activities—not necessarily by the owner. There have been allegations of serious corruption in connection with civil forfeiture, including one case in which law enforcement officials apparently killed a landowner while trespassing on his property looking for marijuana plants—after first checking on the (multi-million dollar) value of the land. The economic analysis of crime must take into account the rational self-interested behavior of everyone involved—including the police.

PART 4: PRIVATE OR PUBLIC ENFORCEMENT OF LAW?

If someone breaks your arm, you call the police, but if he breaks a window or a contract, you call a lawyer. In the one case, law is enforced by the government and its agents, in the other by the victim and his agents. In our system, the division between public and private enforcement roughly corresponds to the division between criminal and civil law. The form is in many ways different, but the substance is similar. In both cases it is alleged that someone has done something he should not have, and in both something unpleasant happens to the convicted defendant--whether we call it a punishment or a damage payment.

Both forms of enforcement have advantages and disadvantages. One problem with private enforcement is that there is little incentive to sue someone who has no money to pay damages. One problem with public enforcement is illustrated by the following immoral tale.

You are a police officer. You have got the goods on me: sufficient evidence for a conviction. The resulting punishment would be equivalent, to me, to a \$20,000 fine. Perhaps the punishment is a \$20,000 fine; perhaps it is a period of imprisonment that I would pay \$20,000 to avoid. For the purposes of the story, we will assume the former.

Arresting me will improve your professional reputation, slightly increasing your chances of future promotion. That is worth \$1,000 to you in increased future income. Seen from the viewpoint of *Dragnet*, the rest of the story is clear; you arrest me and I am convicted. Seen from the viewpoint of this book, the result is equally clear. You have something--the collected evidence against me--that is worth \$1,000 to you and \$20,000 to me. Somewhere between \$1,000 and \$20,000, there ought to exist a transaction in our mutual benefit. I pay you \$5,000, and you burn the evidence.

This is a satisfactory outcome for us but not a very effective way of enforcing the law. In this respect, the public enforcement system is not *incentive compatible*. The system requires you to do something--arrest me--in order for it to work, and the system makes it in your interest to do something else. The system, of course, can and will try to control the problem--for example, by punishing police officers who are caught accepting bribes. But the fact that it must devote some of its limited resources to catching police officers instead of catching criminals is itself a defect.

Another way to solve the problem is to pay you, not a wage, but the value of the fines collected from the criminals you convict. Now burning the evidence costs you \$20,000, so that is the lowest bribe you will accept. Since \$20,000 is also the cost to me of being convicted, there is little point in my offering you that much to let me off--save perhaps as a way of saving the time and expense of standing trial. If I do bribe you, no damage has been done; I have still paid \$20,000 and you have still received it. We have merely eliminated the middleman.

This may sound like an odd and corrupt system, but it how civil law is presently enforced. What we call bribery in criminal law is called an out-of-court settlement in civil law. The only addition to my scheme needed in order to make it correspond to ordinary civil law is to make the claim against the criminal the property of his victim; the police officer--now a private entrepreneur rather than a government employee--buys the claim from the victim before hunting down the criminal.

Elements of such a system existed in the U.S. in the last century, reflected in the "Wanted Dead or Alive: \$200 Reward" posters familiar in films and books. The policemen of that system were called bounty hunters. Other elements existed in England in the 18th century, when prosecution of crimes was almost entirely private, usually by the victim. A complete system of private enforcement existed in Iceland in the early Middle Ages. Not only was killing treated as a civil offense, but the enforcement of court verdicts, including the job of hunting down convicted defendants who refused to pay and were consequently declared outlaws, was left to the plaintiffs and their friends. Odd as it may seem, the system appears to have worked fairly well; the society of which it was a part was one of the most interesting and in some ways one of the most attractive then existing. It was the source of the original *sagas*--historical novels and histories written in the thirteenth and fourteenth centuries and in many cases still in print today, in English translations.

Economics Joke #4: Incentive Incompatibility.

Jose robbed a bank and fled south across the Rio Grande, with the Texas Rangers in hot pursuit. They caught up with him in a small Mexican town; since Jose knew no English and none of them spoke Spanish, they found a local resident willing to act as translator, and began their questioning.

"Where did you hide the money?"

"The Gringos want to know where you hid the money."

"Tell the Gringos I will never tell them."

"Jose says he will never tell you."

The rangers all cock their pistols and point them at Jose.

"Tell him that if he does not tell us where he hid the money, we will shoot him."

"The Gringos say that if you do not tell them, they will shoot you."

Jose begins to shake with fear.

"Tell the Gringos that I hid the money by the bridge over the river."

"Jose says that he is not afraid to die."

PART 5: ACCIDENT LAW

The economic analysis of accidents starts with the observation that they are not entirely accidental. I do not choose to run my automobile into a pedestrian, but I do choose what kind of car I drive, how often and at what speed I drive it, and how often to have my brakes checked. How can I be induced to make the right choices--when some of the costs are borne by other people?

The simplest approach is direct regulation--of how cars must be built, how many miles people may drive and at what speed, how often their brakes must be checked. This solution runs into problems that we have already discussed in other contexts. To write efficient rules, the legislature requires detailed information about individual tastes and abilities that it has no way of getting. Much of the behavior you wish to regulate is unobservable--how does the policeman know how much attention I was paying to the road and how much to the radio?

And even if the legislature could calculate and enforce optimal behavior, why would they want to? Why not use the power to do something more useful--such as writing regulations that disadvantage foreign cars, in exchange for political support from domestic auto makers?

A better solution is to charge by results: If I cause an accident I must pay the cost. Externalities are internalized; I have an incentive to engage in an efficient level of accident prevention on every margin. If I pay too much attention to the radio, or the conversation with my passenger, I pay for any resulting accidents. The court does not know I am driving carelessly--but I do. We have switched from safety regulation to civil liability for damages.

This produces new problems. Driving becomes a lottery with large negative prizes. Risk averse have an incentive to insure themselves--and, by doing so, reduce their incentive to take precautions. Many drivers will be judgment-proof, unable to pay the cost of a major accident. That can be solved by requiring drivers to be insured, but again with negative effects on incentives.

There is another and deeper problem. Accidents depend on your decisions as well as mine, on how carefully you cross the street as well as how fast I drive. Ideally both of us should take all cost-justified precautions. But if I must make good your damages, you have no incentive to take precautions.

One response is a negligence rules: damages are owed by the party that failed to take appropriate precautions. But here again we run into information problems; many of the precautions, and many of the costs and benefits, are unobservable. How can the court know whether the value to me of taking that particular trip was greater than the cost, in risk of accident, that it imposed on other drivers?

A different approach is to make each party fully liable for the entire cost of the accident--not to the other party but to the state. If each party must separately pay the full cost, each has the efficient incentive to avoid the accident. The damage award has been converted into a fine.

This solution brings new problems. If both parties face fines for their role in the accident, that is a good reason not to report it. By converting damages into fines we have gone from a private to a public system of law, and must provide some public mechanism to report damages and institute cases.

Bureaucrat-god judges, like bureaucrat god regulators and bureaucrat god legislators, are in short supply. We are left with a choice among imperfect solutions, private and public, criminal and civil. In law as in many other areas, economics does a great deal to clarify the problem but does not, by itself, generate any simple answer. Not only are the theoretical problems sometimes hard ones, but a solution requires us to combine theory with facts: real world tastes and production functions. We cannot decide how to divide the job among the courts, private bargaining, enforcement by victims, enforcement by police, enforcement by some police of restrictions on other police, enforcement by the rational self-interest of victims and offenders, direct regulation, and other alternatives without knowing a good deal about the technology of fact finding by courts, bargaining by individuals, and other complicated facts about the real world.

To Think About

Two Bedouins got into an argument over which one had the slower camel, and agreed to a ten dinar bet on whose camel would take longer getting to the next oasis. An hour later they were still sitting their camels side by side in the desert, neither willing to move a step for fear of losing the bet.

A wise man came by, and asked them why they were sitting still on the camels in the hot sun. They got down and explained the problem. The wise man whispered two words to them. The men leaped on the camels and rode off for the oasis as fast as they could go.

What were the two words?

FOR FURTHER READING

My analysis of private enforcement is in "Efficient Institutions for the Private Enforcement of Law," *Journal of Legal Studies* (June, 1984). My book *The Machinery of Freedom*, contains a discussion of how a fully private system of courts, police, and laws might work and a description of the Icelandic system. A more detailed account of optimal punishment is in my "Should the Characteristics of Victims and Criminals Count? *Payne v Tennessee* and Two Views of Efficient Punishment," *Boston College Law Review* XXXIV No. 4, pp.731-769 (July 1993). My essay "Economic Analysis of Law" in *The New Palgrave: A Dictionary of Economic Theory and Doctrine*, John Eatwell, Murray Milgate and Peter Newman, eds. (Macmillan, 1987) gives a general overview of the subject and further references.

The Last Testament of Lucky Luciano, by Martin A. Gosch and Richard Hammer (Boston: Little, Brown: 1974), claims to be based on information given to Gosch by Luciano. *The Cocaine Kids: The Inside Story of a Teenage Drug Ring*, by Terry Williams (Addison Wesley 1989), provides a more recent view of an illegal market.

"Fact, fancy, and organized crime", by Peter Reuter and Jonathan B. Rubinstein, *The Public Interest* 53 (Fall 1978) pp. 45-67, provides evidence and arguments that support my view of organized crime, including the results of the study of bookmaking mentioned in this chapter.