Katri K. Sieberg

Criminal Dilemmas

Understanding and Preventing Crime

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With 24 Figures

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Studies in Economic Theory

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Titles in the Series

Dedicated to Erik Sieberg

Preface

Crime. This single, simple word can invoke a wide spectrum of emotions, opinions, suggestions, and proposals for action. The importance of this one word is highlighted by the prominence politicians devote to crime fighting policies during elections. The public cannot seem to get enough information about crime. This notion is underscored by the fact that, despite the recent widespread decrease in crime, the public's interest and passion in the topic remains high.

Why does such contradictory behavior in society exist? Why do we see an increase in fear over a phenomenon that is reported to be diminishing? Part of the answer lies in the very individual aspect of crime and victimization; *it could happen to you.* The possibility of becoming a victim sharpens our sense of vulnerability. The barrage of stories about heinous crimes committed in supposedly safe communities can cause people to feel less secure in their own. People lock their doors when they never had to before; and even children's' television programs warn, "never talk to strangers."

Adding to the complexity and fear of the issue is the fact that crime is a particularly personal experience. Even something as trivial as pickpocketing or a bicycle stolen from a garage creates a sense of violation. A mugging can leave, with the physical damage, a sense of insecurity. And it is almost impossible to comprehend the toll and mental anguish accompanying a rape or the sexual abuse of one's child. Accounting for the intense damage that can be inflicted upon the victim, it becomes understandable why even a remote possibility of finding oneself in such circumstances can send people crying for tougher laws, harsher penalties, and more visible action.

But is such response productive? As is the case for most situations charged with panic or high emotion, the initial reactions may not be ideal. The notion that crime is a problem is indisputable, but calls to "lock em up and throw away the key" are not necessarily the most prudent and cost effective proposals, and, furthermore, may not serve as a solution at all. This is a principal problem with our approach to crime. Since the issue is so emotional, it is critical to address the problem logically, in the abstract, with as few appeals to sentiments as possible. Unfortunately, what happens is that politicians, with an eye on popularity, may whip up or manipulate already existent public hysteria to win support for their particular policy proposals. Legislative decisions are not necessarily made on what laws will be more efficient in reducing crime, but, rather, in favor of which laws are tougher on criminals.

Tougher versus more efficient - much of the public tends to equate the two tactics, yet it is worthwhile to take the time to investigate whether or not the tougher laws really are more efficient. Initially, this equation seems intuitive; the existence of a criminal population, despite our laws, indicates that current penalties are insufficient to deter crime. For most of us, the threat of the penalty is more than sufficient to discourage criminal behavior. If some citizens are not deterred, then a natural public reaction is to demand an increase in the penalty. Yet, I show that, surprisingly, in many cases this strategy is counterproductive.

Rather than examining these issues from the perspective of a criminologist, politician, or law enforcement agency, the purpose of this book is to consider selective topics associated with crime and punishment from the perspective of basic concepts found in economics, game theory and political science. Since before Gary Becker's 1968 seminal paper, applying economic analysis to crime, economists have argued that their tools are essential in understanding criminal behavior and in evaluating policy. Nonetheless, prescriptions from economics are followed less frequently than are those from other fields. Indeed, as late as 1996, John DiIulio Jr, protested that "criminal justice is a field that needs to be conquered by economists"[1] but that, so far, insufficient contributions by economists had been made and even fewer had been instituted. This absence is unfortunate because economic analysis contributes significantly to the study of crime and criminal behavior. Some arguments explaining this phenomenon state that while potentially useful, the theory can be so complex that the suggestions arising from economics can be difficult to explain and sell to the public. Taking this problem into account, the concepts employed in this text are simple enough so they can be expressed in terms of common sense.

In particular, economics may be used to examine crime, the prevention of crime, and the effectiveness of punishments. This analysis is done in terms of incentives. In the absence of gains to be made from criminal activity, we would expect to see fewer criminals. Once we recognize that criminals stand to benefit from crime, we can attempt to identify means of reducing this gain, or, similarly, of adding to the cost of committing the crime.

The problem may be approached from the perspective of a businessman. This suggestion may sound absurd, but the analogy is appropriate. A businessman bases his or her decisions on the relative costs and gains associated with different lines of action. If a particular activity is likely to produce high costs with lower revenues, then it will probably be abandoned in favor of a more attractive option. It is fair to assume that many criminals use similar reasoning in their decisions to commit crime and in their choices among criminal actions. If we can devise a means of decreasing the gains to be made from a particular criminal activity relative to the costs involved, then we might be able to divert many potential criminals from this line of action. As a similar consideration, if we know that certain tactics can dissuade criminals from specific crimes, then we might wish to determine what would be the appropriate incentives to force a criminal into less violent actions.

Unfortunately, due to the existence of those who, due to some physical or mental inabilities, cannot avoid criminal activity, we know that an ideal world without crime is impossible. Even the best designed incentives will not affect these people, and, unfortunately, such people are not easily identifiable as being prone to criminal activity until *after* they have committed an act. Facing these circumstances, our task is to understand how we might minimize crime in a cost effective way, so that we can maintain some of our social income for expenses such as health, education, roads, and national defense.

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[1] DiIulio, 1996, 3.

The designated task proposes solving some problem within a budget constraint. This very problem suggests the use of economics. However, as stated, economics results are often ignored in favor of suggestions arising from other fields. Let me elaborate. A serious mistake often made in analyzing the criminal is to treat him or her as sick or irrational. Without question, many criminals do fit into these categories. But, any generalization that applies this criterion to all, or even most, criminals is misleading in two important ways. First, the assumption that offenders are somehow unable to make rational decisions regarding criminal behavior unreasonably limits our proposals to combat crime and can make them counterproductive. If we do not believe that individuals willfully choose to commit crimes, then we are less likely to devise policies that provide disincentives for crime. Instead, policies tend to be reactive - focusing on efforts to arrest and punish the criminal *after* he or she has committed the crime.

This reactive, rather than predictive or deterrent, nature of criminal legislation is exacerbated by a second problem with current criminal analysis. The assumption that all or even most criminal behavior tends to arise due to an illness, social circumstances, poverty, or mental instability creates difficulties in developing predictive policy. Certainly, any of these factors can contribute towards, or even cause, criminal behavior, but we cannot assume that all individuals facing one, or even all, of these problems will commit crimes. Such assumptions would malign a large group of honest, law-abiding people. More seriously, in doing so, our predictive ability is weakened because we cannot predetermine when, where, or by whom, crimes will take place. Instead, we must rely on plans to apprehend criminals in the act or after the fact.

Economic analysis in no way serves as a substitute for established criminological study. Programs that identify and isolate factors that contribute to criminal dispositions are essential in creating policies which can decrease the impact of these factors. Social programs that help the unemployed find work, and efforts to recognize and treat individuals with mental health problems are just two of many projects that help reduce crime in society. However, the contribution of economic and political science teachings are equally as important in developing policy and should not be ignored.

Criminal behavior can be rational economic behavior. I do not commit crimes, and, to my knowledge, people with whom I associate do not do so either. However, we cannot ignore the fact that crime can be a lucrative profession. Consider the decision faced by an inner city youth who can make roughly $6 an hour in a fast food restaurant or who can make $800 a week selling drugs. As needs and wants accumulate, the latter prospect can become more and more attractive. Additionally, as our youth sees friends and family selling drugs to make a living, his or her reluctance to commit crimes may diminish. Clearly, the choices made by the youth are rational cost and benefit calculations, and not the uncontrolled reaction of a sick or irrational being. If this concept is accepted, then we can attempt to devise policies that will alter the costs and benefits such that crime becomes less attractive.

Why use economics, game theory, and political science to analyze crime? These fields correspond closely with the decisions made and the situations confronted by criminals. Economics studies the actions of individuals who are faced with costs, benefits, and risks. Every decision, whether to buy a new TV or to look for a new job, entails some conscious or subconscious calculation of the expected costs and benefits of the action versus those of the status quo. Many criminals make similar evaluations. Since, through economics, we are able to analyze, and sometimes predict, economic behavior, the extension of this methodology to the study of crime could yield insight and answers where previously we had few.

To understand how political science can contribute to our analysis, one area of the field describes an international arena of anarchy, where - due to the lack of a credible international court or police - appropriately designed power and force are essential resources in enforcing agreements and trade contracts. Compare this with the criminal world - also is a lawless world of anarchy in which the police cannot be used for protection or to enforce agreements. There are distinct differences; but the similarities of the situation allow us to borrow techniques through which we can gain insight into criminal activity.

In particular, appealing to concepts and intuition from political science, we can gain an understanding of why the use of force may be so common among criminals as well as insight into what strategies and mechanisms individual, and groups of, criminals develop to cope with the circumstances they face. Knowledge regarding the framework necessary to support criminal activity can be used in attempts to dismantle that framework and undermine the criminals.

By borrowing concepts from fields such as economics and political science, we can draw analogies between criminal behavior, which we do not understand and for which there is little reliable data and analysis, and phenomena in those fields that have been studied and analyzed. If the analogies are appropriate, then we gain a new perspective on the criminal problem, which can be applied to develop solutions.

Game theory adds additional perspective to the criminal dilemma. Through game theory, we learn that if more than one player is involved in a given decision, the outcome will depend on the interaction of *all players'* strategies. Thus, game theoretic analysis allows us to analyze situations in which a player's ideal is unobtainable and to identify "next-best" outcomes. The following two-player game is an example of this situation.

	A	B
A	-1,5	55, -1
B	3,7	0,0

Fig. 0.1

Players' payoffs depend on a combination of each players' strategies, A or B with those of the other player. The payoffs in each cell represent (the row player)

player 1's payoff, to the left of the comma, and (the column player) player 2's payoff to the right. A glance at the payoffs shows that player 1 would prefer the outcome (A,B) in which he obtains his highest payoff, 55. Unfortunately for player 1, player 2 will never play strategy B if 1 plays A, because doing so would give her her lowest payoff, -1. Player 2 would be much better off playing A if player 1 plays A, because she would then receive a payoff of 5. Thus, the outcome (A,B) is not an equilibrium, because player 2 would deviate from it. However, note that if player 1 blindly plays A in hopes of obtaining the payoff of 55, then player 2 will also play A and player 1 will get his *lowest* payoff, -1.

Once player 1 understands that his payoffs depend on player 2's moves, and vice versa, he can find an equilibrium, an outcome from which neither player would deviate unilaterally. This outcome is (B,A) in which player 1 obtains a payoff of 3 and 2 obtains a payoff of 7. For player 1, this payoff is significantly less than the ideal payoff of 55, however it is better than the payoff of −1 that he would obtain if he played A.

This type of understanding is crucial in creating criminal policy. We seek to eliminate problems, such as illicit drug use and prostitution, by making them illegal. Unfortunately, however, in doing so, we may overlook potential strategies of other players (drug dealers or prostitutes) involved. By doing so, we may find ourselves faced with our worst outcome, as depicted in the example above.

To Commit or not to Commit

The advantage to using concepts such as costs and benefits is that we do not have to isolate the individual likely to commit the crime in order to suggest preventative policies. Instead, the emphasis now is placed on determining what factors can discourage crime in society, *in general*. Once these components are highlighted, attempts can be made to institute them in a manner that criminal activity becomes less attractive.

The use of cost/benefit analysis suggests that one potential for deterring this activity is to raise the expected costs of committing a crime. This tactic can be accomplished in numerous ways. We can increase the probability of arrest and conviction, and we can increase the penalty imposed if arrested. Similarly, we, the general public, can make crime more difficult or expensive to commit by using more security measures: locking doors, using burglar alarms and lights, etc.

This economic form of reasoning has been fruitful in understanding and deterring criminal behavior; however, in some cases even our best efforts have failed to stop crime. Rather than accept these failures as an indication that economics is inappropriate, I contend that, in our evaluation of criminal behavior, we probably overlook certain factors that can influence a criminal's decision.

For example, despite increased police presence and recent increases in mandatory sentences for crime, we continue to see gang members committing serious offenses. Does this behavior indicate that these people are irrational or unaffected by deterrent efforts? Not necessarily; this assumption ignores crucial factors that affect gang members.

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What are these factors? The police and the courts insist upon obedience to certain rules. But the gangs do likewise. Frequently the two sets of rules are in conflict with one another. A member's decision regarding the costs and benefits to criminal activity must include not only the probability of arrest and punishment if caught committing a crime, but also the probability of detection and penalty from the gang if caught avoiding the assigned crime.[2] If the drawbacks to the latter are greater, then the member would be better off fulfilling his or her duties and committing the crime. Thus, by taking a fuller account of the factors that influence decisions, we realize that what may appear to be irrational behavior could, instead, be rational, calculating activity.

Economic, political science, and game theoretic tools can incorporate these factors into an analysis. Ironically, one of the tools used frequently in this book is known as the Prisoner's Dilemma. The game is aptly named, for it is useful in combating, as well as analyzing, criminal activity. Most of us have seen the tactics involved in the game used in television shows or movies. Two criminals are apprehended for a crime that they have committed together. The police separate them so that they cannot communicate and give each of them the same proposal: If both refuse to confess, they will be charged with a petty crime and will serve 3 years in prison. If one confesses while the other does not, then the confessor is free and the other receives a sentence of 10 years. If both confess, they both receive 5 years in prison. Each offender ranks the outcomes as follows:

I confess/he doesn't: 0 years in prison = **4** Best option
Neither of us confess: 3 years in prison = **3**
Both of us confess: 5 years in prison = **2**
He confesses/I don't: 10 years in prison = **1** Worst option

Both players know their best options, and both are aware that they have to consider not only their own decisions, but also those of the other player. A convenient way to capture all of this information is to represent the decision problem in a matrix:

	Confess	Don't Confess
Confess	2,2	4,1
Don't Confess	1,4	3,3

Fig. 0.2

For simplicity, I refer to the players as Row and Column. The cells represent the terms of the offer given above. For instance, if both Row and Column confess, then this outcome is found in the cell on the table corresponding with Confess/Confess. In this cell, Row's payoff, to the left of the comma, is 2 and Column's payoff, to the right, is also 2. So if both players confess, they both receive their second lowest

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[2] The issue of membership duties is addressed in Chapter 5.

payoff. Moving along the same line in the table, if Row confesses but Column does not then Row receives 4, his best outcome, while Column receives 1, his worst. On the next line of the table, if Row does not confess, but Column does, then Row receives a payoff of 1, his worst payoff, while Column receives his best, 4. If neither confesses, they both receive their second highest payoff, 3.

Comparing payoffs between the strategies, it becomes clear that because they cannot coordinate strategies, each player is always better off confessing, regardless of what the other player does. To demonstrate this assertion, compare the payoffs for the Row player. If Column confesses, then Row has two choices, either to confess or not. The strategy of confess will yield a payoff of rank 2 (or 5 years in prison), whereas not doing so will yield rank 1 (or 10 years in prison) for Row, the worst payoff. So if the Column player chooses to confess, then Row would be better off doing so also.

Now if Column chooses not to confess, compare Row's payoffs from the two strategies again. If Row confesses, then he receives a payoff rank of 4 (no prison time). If he does not do so, then he receives 3 (3 years in prison). No time in prison is preferable to 3 years behind bars, so, once again, Row is better off confessing. Since Column's payoffs are symmetrical, both players have an incentive to confess, which is what the police want, and both receive their second worst payoff. Despite the fact that both players *together* would be better off cooperating with one another by refusing to confess (receiving 3 years in prison), the incentives built into the system are such that each is better off *individually* confessing, and earning 5 years behind bars.

The game creates a negative message - cooperation is impossible. However, if the game is repeated, then other possibilities besides the "trap" emerge. To develop intuition, consider a cheapskate who is considering whether or not to tip his waitress. If he does not intend to return to the restaurant, then he can leave without giving a tip, and he will not have to worry about encountering her in the future. But if he does intend to return, then his decision regarding the tip becomes more important. If he neglects to tip the waitress and she serves him again, then he risks lousy service in the future (at best!) If he does tip her, then she may be more likely to provide him with good, or even improved service. The waitress faces similar concerns. If she provides a customer with slow or otherwise undesirable service, then the customer has the option of retaliating by withholding her tip. Thus, repeated interaction can affect strategies. If people are aware that there is some possibility that they might interact with one another in the future, then they might be more reluctant to betray one another, for fear of retaliation. Thus, cooperation with one another can be achieved.

With this knowledge, it becomes clear that the Prisoner's Dilemma game can used for more purposes than outsmarting felons. The logic found in the model is appropriate to apply to a wide range of concerns, ranging from pollution control, or cooperation in business deals, to international arms reduction treaties. In each case, mutual cooperation is necessary, but monitoring of one another's activities can range from difficult to impossible. Players risk the trap, but can avoid it with repeated interaction.

This same intuition and analysis can be applied to criminal activity. In many crimes, such as drug dealing and prostitution, cooperation between the criminal and the customer is necessary. However, because the activities are criminal, neither party (criminal nor customer) can appeal to the authorities in situations where he or she has met the terms of an agreement but the other has cheated (refused payment, refused goods, or refused services). In this case, the players may find themselves in a Prisoner's Dilemma. This type of reasoning plays an important role in my analysis of prostitution, drug dealing, and gang activity.

Appealing to the intuition from the model, an understanding emerges of the likely actions of the players. More specifically, predictions can be made as to when we should expect to see cooperation, and what alternative mechanisms may be developed in cases when cooperation is unlikely in the absence of enforcement. So, by the use of this simple tool, a large amount of information emerges about problems that were previously difficult to understand.

In fact, one of the surprises in this analysis is how these tools apply to a variety of topics. The reader will find that the same models have applications in subjects as diverse as prostitution, drug dealing, and extortion. The abstract power of this analysis is manifested by the way the same tools illuminate issues in different problems and allow us to develop similar insights. Thus, the field of crime develops from a collection of subjects that appeared only weakly related to a more coherent, cohesive topic in which intuition from one section can be applied to analyze another.

This brief summary of contributions from economics, political science, and game theory demonstrates that these fields do, indeed, provide tools that are critical in any analysis of crime. These are the kinds of models I use in the book. In the first chapter, cost benefit analyses, combined with evaluation of incentives behind criminal activity are used to compare prison sentencing to the use of alternative sentencing for nonviolent criminals. In the second chapter, similar tools are applied to understand drawbacks to the private prison industry. The third and fourth chapters address the difficult issues of prostitution and drugs. These chapters employ a combination of economics, game theory, and political science to explore situations, similar to the game in figure 0.1, in which the social ideal may be impossible to obtain. Chapter 5 explores the strategies, goals, and constraints of gangs and of their members. In Chapter 6, the emotional subject of gun control is analyzed. Arguments regarding the potential problems and benefits to open and concealed weapons laws are considered through an economic and game theoretic framework. The common theme in each of these chapters is that the tools of economics, game theory, and political science extend our understanding, and thereby our means of contending with, criminal dilemmas.

The analysis was done in the abstract, with little appeal to emotion. Subsequently, some of the proposals offered here may be unappealing, or even unacceptable to some people. I found this personally to be the case. Yet, having scrutinized the competing strategies, the proposals given in this book are the ones which appear theoretically most likely to minimize the total cost of crime.

The social cost of crime is overwhelming. The price includes the loss, pain, and suffering of the victims; funding for the police, court costs, and the cost of incarceration. To reduce this loss, we cannot afford to yield to emotions; we need straightforward and logical policy. The fields of economics, political science, and game theory can contribute significantly towards the development of this type of policy.

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