

Each chapter to follow examines a theoretical perspective that has been developed to explain criminal, delinquent, or some other form of deviant behavior. Within each perspective, there may be more than one actual theory. For example, in the chapter on strain theory (Chapter 5), we discuss a number of different theories that share a common assumption. For each theory, we discuss its intellectual history, the content of the theory including its hypotheses and definitions of concepts, the measurement of concepts, analytical issues, and the directions that future research on theory should take. In some cases, this format may vary slightly to more effectively and efficiently present the relevant information. At the end of the chapters, we assess the current state of research support for the theories in light of our critical assessment of relevant methodological issues.

### Discussion Questions

1. Why is theory testing particularly challenging for researchers studying crime?
2. What differentiates the explanations that individuals tend to generate about some phenomenon from theory?
3. How do researchers decide whether to use qualitative or quantitative research methods in their tests of criminological theory?
4. What are some of the major challenges researchers face in drawing representative samples? Discuss those challenges in the context of studying, say, sex offenders.
5. What is the difference between correlation and causation? Can you think of an example in which two variables are correlated but do not necessarily have a causal relationship?

## RATIONAL CHOICE AND DETERRENCE THEORIES

### Introduction

Even young children learn to avoid touching hot stoves because the consequences can be quite unpleasant. It is common sense that people's behavior is guided by the expected consequences of their actions. The idea that people's behavior, including criminal behavior, is influenced by the potential consequences of their actions forms the basis of the one of the earliest theories of crime—deterrence theory (and its modern counterpart, rational choice theory). From this perspective, the likelihood of an individual committing a crime will depend on the relative balance of risks and rewards. Crime can be *deterred* if the negative consequences for criminal behavior outweigh the expected rewards that follow from the crime. The likelihood of shoplifting an MP3 player, therefore, will depend on whether a person believes he or she is likely to get caught and fears the punishment that would follow more than he or she desires an MP3 player that could not otherwise be afforded. Of course, the notions that an individual's behavior is rational and that punishments can deter crime, although straightforward in principle, are not so simple in practice. In the next section we discuss the roots of this explanation of crime.

### Intellectual History of Deterrence and Rational Choice Theories

To understand the roots of deterrence and rational choice theories (and criminology as a discipline), we must turn the clock back several centuries. For hundreds of years until the seventeenth and eighteenth centuries, religious views dominated thinking about crime (see Vold, Bernard, and Snipes 1998, for a discussion). From this perspective, crime was viewed as a sin against God. This meant that the state was not just punishing crime but punishing sin. Beginning in the 1600s, some philosophers began to adopt more naturalistic views of behavior. In particular, Thomas Hobbes argued that people are rational and will pursue their own interests, regardless of how their behavior affects other people. If all individuals do this, then chaos follows as each person tries to look out for himself. In this situation, a person's belongings are only his until a bigger, stronger person comes along and takes them. The solution to this problem is what Hobbes called the "social contract," which is an agreement to sacrifice some of an individual's freedom to do as one pleases in exchange for living in a safe and orderly society.

policy implications of the certainty and severity of punishment no doubt account for much of the perspective's popularity. Still, the discussion in this chapter has shown that such policy effects are anything but straightforward. They often depend on a variety of factors and are inconsistent. Perhaps most disturbing is that policies with short-term deterrent effects may lead to completely unintended long-term consequences. If part of the deterrent effect of punishment comes from fear of social stigma, then what happens when the experience of criminal punishment becomes commonplace (Nagin 1998), as it has for too many disadvantaged inner-city minority men? The increasing use of imprisonment for less and less serious offenders has potentially weakened the overall deterrent effect of punishment for a significant segment of potential criminals. Thus, along with the other issues discussed, raises serious questions about the desirability of deterrence-based policies.

#### *Discussion Questions*

1. Are people rational? What does this tell us about their propensity to commit crime?
2. Given the mixed or limited effects of deterrence-based policy interventions on crime rates, why do you think this perspective is so popular among the public and officials?
3. How could we improve the theory to better account for individual differences in risk perception and the importance of nonlegal factors (e.g., socioeconomic status, race, ethnicity, age)?
4. Why does crime occur according to routine activities and opportunity theories?
5. How are rational choice and routine activities theories similar, and how do they differ?

## TRAIT THEORIES

### Introduction

Media images of criminals—from hockey-masked murderers to cannibalistic geniuses—can lead one to believe that criminals are somehow fundamentally different from noncriminals. Although most theories in this book assume that all individuals are basically similar and will be driven, free, or choose to commit crime under certain conditions, the biological and psychological “trait” theories discussed in this chapter assume there are basic differences that distinguish criminals from noncriminals.

### Intellectual History of Trait Theories

The view of the criminal outlined in the previous chapter suggests that people choose to act in a certain way of their own “free will,” based on classical views of human nature. This conception of the criminal was dominant until the beginning of the nineteenth century, when positivism began to emerge. Positivism assumes that forces beyond the individual's control influence behavior, which is referred to as determinism. Positivists also believed in the use of the scientific method, which emphasized observation in advancing science. When scientific methods began to be used to explain human behavior, it also seemed reasonable to use scientific methods to explain criminal behavior.

The earliest positivist theorists of crime focused on biological explanations. For example, phrenologists such as Franz Joseph Gall examined the shape of a person's skull to predict criminality (Siegel 2006). The most famous of the early biologists was Cesare Lombroso, an Italian physician studying the physical characteristics of prisoners. Using Darwinian concepts, Lombroso argued that criminals were physically inferior to noncriminals and were what he called “atavistic anomalies,” or essentially physical throwbacks to pre-homo sapiens species. Lombroso is considered to be the “father of criminology.” Ironically, though, the biological determinism of Lombroso and others led early sociologists studying crime to reject biological explanations to the point they were considered taboo for much of the twentieth century (Jeffery 1979). In the 1970s, more nuanced, less deterministic biologically based theories began to emerge. Many of these modern biosocial theories now explicitly recognize that both biology and the social environment are important for understanding criminal behavior.

Alternative explanations are an issue in both aggregate- and individual-level deterrence studies. In aggregate-level studies, one important alternative explanation is incapacitation. Incapacitation refers to when an offender is incapable of committing a crime regardless of his or her intentions. Prison sentences certainly incapacitate offenders (at least with respect to committing crimes against nonprisoners). Therefore, aggregate studies such as those examining the deterrent effect of adding police must consider the possibility that more offenders are incapacitated by arrest and imprisonment rather than deferred (for research on incapacitation, see Greenberg 1975, 1982; Greenberg and Larkin 1998). Yet including estimates of incapacitation effects in macro-level deterrence studies is problematic because it requires assumptions about the number of offenses that would be prevented through the incapacitation of each offender (Gibbs 1986). Without accurate estimates of incapacitation effects, the deterrent effects of punishment will be misleading.

For individual-level deterrence studies, a number of alternative explanations must be considered, especially *informal* sanctions. Deterrence theories suggest that the fear of formal sanctions through punishment by the state is the primary consideration of the potential criminal. Numerous studies find, however, that the fear of shame, embarrassment, job loss, damage to family relationships, and loss of friendships may be a stronger determinant of criminal behavior than fear of arrest (Anderson, Chiricos, and Waldo 1977; Layton, MacKenzie, and De Li 2002; Peete, Milner, and Welch 1994; Thomas and Bishop 1984). Related to this is the effect of laws on the moral condemnation of crime. People could perceive that society considers an act wrong when actions are made illegal and respond to that rather than to the fear of arrest itself. Because of this, one must consider the degree of moral commitment individuals have to the law. In other words, most people obey the law because they believe it is the right thing to do. In this case, it is the moral authority of the law, rather than the threat of punishment, that operates to "deter" a person from committing crime. Such potential effects must be ruled out before one can conclude that fear of punishment (or lack of fear) is the driving force behind criminal behavior (see Burkett and Ward 1993; Erickson and Gibbs 1978; Grasmick and Bursik 1990).

### Summary Critique of Analytical Strategy

As discussed, studies of deterrence have often employed cross-sectional research designs to test deterrence arguments, but such designs are inherently limited because they cannot reliably determine cause and effect. Cross-sectional designs are also unable to disentangle reciprocal effects, sometimes leading to seemingly incongruous findings such as the conclusion that more police equals more crime. Longitudinal designs are needed to assess the effects of most policy interventions, and recent research has begun to employ more sophisticated pooled cross-sectional time series models (Levitt 1998; Marvell and Moody 1995). More research using such sophisticated research methods is desirable in studies of policy effects.

At the individual level, research has begun to move past the early cross-sectional studies of risk perception. Longitudinal studies of risk perception and crime are also desirable. Yet the typical time lag in such research—one year—may be too long to capture risk perceptions that appear to be more dynamic over time. In addition, more research on how criminal decisions come to be made as they are happening would be useful (Clarke and Cornish 1985:160). Such examinations would likely entail field research rather than the more typical survey methods employed in most individual-level deterrence research.

More studies also need to take into consideration the possibility that deterrent effects are nonlinear. It seems likely that threshold or ceiling effects could operate for certainty and severity of punishment. It also seems likely that certainty and severity of punishment depend on one another (Mendes 2004). Finally, more studies must consider alternative explanations. Until alternative explanations are ruled out, support for deterrence and rational choice arguments is suggestive, at best.

### Directions for Future Research

Although there is some support for "deterrent-like" effects (Nagin 1998), the evidence is mixed, particularly with respect to deterrence-based policy interventions. It seems clear that the rational choice view of offenders is unrealistic if considered in the economic terms of utility maximization (De Haan and Vos 2003). At the same time, offenders (like people more generally) are not irrational, and they respond predictably to situations. More research is necessary on how individuals develop their perceptions of risk and when the risk of formal punishment operates to deter crime, especially net of other factors. Studies show that many factors other than the fear of punishment are important influences on the behavior of criminals. A serious gap in deterrence research is the failure to consider that the choice to commit a crime is based on both the perceived risk of punishment *and* the expected rewards. Too few studies seriously consider the reward side of the equation. Some research, however, suggests that rewards are stronger influences on behavior than expected punishments (Piquero and Rengert 1999). This also underscores a neglected potential link between deterrence theories and social learning theories of crime (see Chapter 6), which argue that crime is more likely when it is rewarded (Akers 1990). The deterrence model is also limited because it assumes that the motivations to commit crime are constant over time. Recent research suggests, however, that motivations for crime vary over time (Tittle and Botchkovar 2005; Uggen and Thompson 2003). The effects of threats of punishment may also differ according to a person's motivation or propensity to commit crime (Wright, Caspi, Moffitt, and Paternoster 2004). Future research needs to take motivation, as well as the alternative explanations discussed here, into consideration.

Perhaps the greatest strength (and weakness) of deterrence and rational choice theories is their policy relevance. The seemingly straightforward

problem, it could be that what the researcher is saying is the outcome is actually the cause. For example, we noted earlier that states with the death penalty often have higher homicide rates than states without it. This would suggest that the death penalty leads to increases in homicide. The more likely scenario is that states that have instituted (or retained) the death penalty are those that have high homicide rates to begin with. This would mean that homicide causes the death penalty to be instituted rather than the death penalty leading to changes in homicide rates. Both reciprocal effects and reverse causation raise questions of research design, which we discuss next.

### Research Design

As discussed in Chapter 1, to test theories of crime, it is necessary to choose a method for collecting the data. The first consideration is usually whether individual- or group-level data will be used. Studies of deterrence have used both individual and aggregate data. Aggregate data are often used to study the deterrent effects of policies. Recall that studies have compared the crime rates of cities with more police officers per capita to those with fewer. If deterrence works, cities with more police officers per capita should have lower crime rates, all else being equal (it rarely is).

A number of researchers have suggested that individual-level data are necessary to test deterrence arguments (see, e.g., Gibbs 1986) because deterrence is something that happens in the potential offender's head. Recent studies of deterrence such as the studies of risk perception discussed earlier have been much more likely to employ individual-level data.

Another important consideration is whether to use cross-sectional data (collected at one point in time) or longitudinal data (collected over time). Both individual-level and aggregate studies have relied mainly on cross-sectional data. For example, the cross-state comparisons of the homicide rates in states with or without the death penalty are cross-sectional. Yet, such studies are limited because they cannot tell which factor is the cause and which is the effect. Studies of the deterrent effect of the death penalty have also employed longitudinal designs. One type of longitudinal study of the death penalty is an interrupted time series design. Here, one examines homicide rates in a particular jurisdiction before and after the death penalty is instituted or repealed. If the death penalty has a deterrent effect, one would expect homicide rates to decline in that jurisdiction during the time that capital punishment is a legal sentencing option. The accumulated evidence does not support this. One reason for this finding may be that the time lag used in longitudinal research may be too long to detect any effects of the death penalty. Longitudinal studies typically use periods of one year between observations. Some have suggested that the deterrent effects of an execution may be much shorter and would be missed in such a design (Chamlin, Grasmick, Bursik, and Cochran 1992). A few studies have used shorter time lags, but the results of these "immediate impact" studies are not encouraging. In fact, some show that homicide actually increases in the immediate aftermath of a publicized execution (Cochran and Chamlin 2000; Cochran et al. 1994).

Studies of risk perception have employed three types of research designs—cross-sectional surveys, scenario-based studies, and panel studies (Nagin 1998). In cross-sectional surveys, respondents are questioned about their perceptions of the certainty and severity of sanctions and about either their prior offending behavior or their future intentions to offend. In scenario-based studies individuals are questioned about their perceptions of the risks of committing a crime based on a detailed description of a scenario, including the risks of punishment, which the researchers systematically vary across individuals (Nagin 1998). The likelihood of a particular crime being committed should vary with the perceived certainty and/or severity of sanctions, and studies find that it typically does. Yet, both types of studies are potentially problematic. The scenario-based studies are limited because they do not measure actual offending and scenarios often refer to relatively minor kinds of crime such as intentions to drink and drive (e.g., Pogarsky and Piquero 2003). Cross-sectional risk perception surveys are also limited because they cannot assess cause and effect. This is especially problematic in research on risk perceptions. If risk perceptions work in the way that deterrence theory suggests, then one would expect a person would perceive the risk of punishment and respond accordingly, either by committing the crime or not. Yet, it could be that people's perceptions of risk respond to whether they were apprehended or not. So if they commit a crime and don't get caught, it may reduce their perceived level of punishment risk, raising the potential for reciprocal effects. Such situations require longitudinal designs to determine causality (see also Minor and Harry 1982).

Some risk perception studies have employed panel survey designs, in which a sample is repeatedly surveyed on both risk perceptions and criminal behavior. This allows the researcher to disentangle which came first—the choice of whether to commit a crime or the risk perception. Paternoster (1988) uses a three-wave panel model of 265 high school students to test deterrence. Survey questions regarding theft and marijuana use were administered in the fall of the students' tenth-, eleventh-, and twelfth-grade years. Paternoster did find some effects of perceived certainty of punishment on marijuana use and theft but noted that other effects such as peer and parental influences were often stronger. Nagin (1998) claims that panel studies of risk perception are least likely to show "deterrent-like" effects of certainty or severity of punishment. Minor and Harry (1982) conducted a two-wave panel study of 488 undergraduate students in 1978 employing a three-month lag between surveys, rather than the standard one-year gap. They find that risk perceptions are unstable over time. Therefore, one explanation for the lack of support for deterrence in longitudinal risk perception studies may be that too long of a lag was used.

### Potential Alternative Explanations

In testing a theory, it is also necessary to rule out alternative explanations before researchers can claim that one variable is the cause of another.

lost money. So, the first question to address is whether all people can be considered potential offenders. If not, samples from the general population, who might not actively consider crime under any circumstances, could be misleading. Unfortunately, most research has been conducted on subjects who might not really be potential offenders because they have so much to lose (jobs, family, friends) from committing crime, irrespective of the potential for formal punishment (Foglia 1997).

Perhaps to properly test deterrence theory, studies must identify "potential" criminals. Piliavin et al. (1986) address this issue by drawing a relatively unique sample from three different sources: subjects with prior prison records, drug users, and teenage high school dropouts. Crime is likely to be a viable option these individuals might consider. Similarly, Foglia (1997) employs a sample of 298 teenagers from low-income, high-crime inner-city high schools in a Northeastern city. Her study finds no deterrent effect of the perceived risk of arrest, which she attributes to the fact that these youth likely had little to lose by being arrested. Rather, they were influenced by their peers' behavior, their own norms, and their parents. It thus appears that for this population, informal sanctions constitute a more viable threat than formal sanctions through arrest.

Another issue related to sampling is whether to choose adults or juveniles. Many (if not most) studies discussed in this book rely on juvenile samples because teenagers are congregated in schools and because a disproportionate amount of crime is committed by juveniles. Yet, if teenagers have not fully developed their ability to make rational choices, then such samples could be problematic. These samples also might not generalize to adults because the juvenile justice system has different punishments than the adult system does. Therefore, risk calculations among teenagers might be different than adults.

Another question is whether risk perceptions vary across individuals (Gibbs 1986). If such variation is random, this is not particularly problematic. A much more serious problem arises, however, if groups systematically vary along these dimensions. It could be that women are inherently more risk averse than men. Or risk perceptions might systematically vary by racial and ethnic groups. If true, the best solution is to test deterrence arguments using samples with varying characteristics to determine how consistent such processes are across different populations.

### Model Specification and Causal Ordering

In testing a theory, it is also important to consider the nature of the relationship between the concepts. This refers to issues of model specification and causal ordering. Most theoretical treatments of deterrence theory suggest there is an unconditional linear negative relationship between certainty and severity of punishment and the likelihood of crime (i.e., as one variable goes up, the other goes down). Although it is tempting to think of deterrence in terms of linear relationships, the reality is likely more complex. For example, there may be threshold effects for certainty of punishment. A threshold effect refers to a

situation in which a variable only has an effect on an outcome once it reaches a certain threshold. In other words, the certainty of punishment may need to reach a certain level before it is effective in deterring crime. If the actual risk of apprehension is below this threshold, then the threat of punishment would have no effect. Deterrence may also have ceiling effects, such that above a certain severity level, additional increases in severity may produce minimal impact. An example of a ceiling effect is in the toxicity of certain drugs—once the lethal dose of arsenic is reached, additional amounts won't make the person any more dead. It could be that the punishments for many crimes are already so severe that any additional increases in severity will have no additional marginal deterrent effect (Cook 1980:231–233). This may be the case with the death penalty. The death penalty, in reality, is only an incremental increase in punishment beyond spending the rest of one's life in prison. So, capital punishment only affects potential offenders willing to commit a homicide in the face of a sentence of life in prison but unwilling to risk execution.

The distinct possibility also exists that deterrent effects are conditional, meaning that the effect of one variable on the likelihood of crime depends on others. The effect of punishment severity on rational choices to commit crime likely depends on the corresponding level of certainty of apprehension. An extremely severe punishment in a situation in which the potential offender thinks getting caught is highly unlikely will be less of an effective deterrent than an equally severe punishment when risk of punishment is more certain. Thus, certainty and severity effects are likely conditional upon one another, although most deterrence research considers them separately.

Causal ordering (i.e., which is the cause and which is the effect when two variables are correlated) is another important issue in deterrence research. Recall that one area of research has examined the relationship between various policies and crime. Such research raises difficult causal order issues. For example, conventional wisdom suggests that more police means less crime. Thus, one could simply measure the number of police and the amount of crime and should find that in places where there are more police there is less crime. But such research often finds the opposite—places with more police often have more crime. The difficulty is that jurisdictions will often hire more police officers in response to rising crime rates. As a result, more police is the effect of higher crime. Another real possibility is that more police will mean higher reported crime because there are more people to report crime to, and the police may also observe more crime. Such a relationship is known as a reciprocal one (i.e., crime and increased police presence are both causes and effects), and it presents thorny methodological issues for a variety of areas of research on deterrence (Nagin 1978, 1998). We discuss the issue of reciprocal relationships further in Chapters 3, 5, and 6.

Related to reciprocal effects is the issue of reverse causation. Reverse causation is when the suspected cause is actually the outcome. Cook (1980) notes that one must be concerned about reverse causation when studying policy effects such as those often used to test the implications of deterrence research. If the policy being examined was implemented in response to a



opportunity for crime (e.g., thefts of personal belongings left unattended while a student goes to find a book in the library stacks). Similarly, a question arises as to whether all crimes are equally influenced by opportunity. It would seem that some crimes arise from chance circumstances whereas others arise from careful creation of opportunity. Certainly, evidence suggests that sex offenders actively try to create situations where they are alone with potential victims to increase their opportunities to offend. Alternatively, homicides that occur as the result of an argument fit less clearly within an opportunity model.

### Summary Critique of Measurement Strategy

The evidence that deterrence-based policy interventions reduce crime is mixed at best. Some studies find "deterrent-like effects" (Nagin 1998), whereas many others do not. For example, increased punishments for DUI seem to have limited effects (Ross 1984, 1986), whereas DUI interlock ignition devices, which physically prevent drunk driving by forcing the driver to blow into a machine, seem to be more effective (Fulkerson 2003; Morse and Elliot 1992). In contrast, studies of the death penalty do not show consistent deterrent effects (Donohue and Wolfers 2006). Other ecological studies of deterrence produce mixed results. Studies of police interventions, for example, sometimes find deterrent effects (Braga et al. 1999; Kovandzic and Sloan 2002; Sherman and Rogan 1995; Smith 2001), sometimes find no effects (Novak et al. 1999), and sometimes find that the deterrent effects are contingent on specific aspects of police activity, vary by location (Fritsch, Caeti, and Taylor 1999; Kennedy 1998), or have short-term effects that extinguish over time (Sherman et al. 1995).

Research also concludes that certainty is generally a more effective deterrent than severity when considered separately. Yet certainty and severity are likely related to one another (Gibbs 1986). The effect of a particular sanction level likely depends on the certainty of its application. Research does not suggest strong support for specific deterrence. Offenders do not seem to be deterred by being punished. In fact, some offenders are more likely to engage in crime after being punished.

Of course, the strength or weakness of policy interventions does not exclusively determine the value of deterrence and rational choice theories of crime. The approach could still be valid, even if it does not lead to policies to reduce crime. As we noted, the theory suggests that individuals rationally consider risks when determining whether to commit crime. Research has also considered whether risk perceptions influence the likelihood of criminal activities. The evidence suggests that risk perceptions vary across individuals in ways that are not accounted for in rational choice models. Likewise, people do not appear to be economically rational actors, although they appear to act predictably. Given this limited rationality, Akers and Sellers (2004) argue that there is minimal value added by a rational choice perspective because many other theories of crime (such as social learning theory, discussed in Chapter 6) also assume that offenders will act in reasonably predictable ways.

It is also possible that decisions made in an artificial research setting do not occur in the same way as in the real world. For one, the presence of alcohol or drugs may lead to less than optimal decisions being reached (Clarke and Cornish 1985). Clarke and Cornish also note that decisions made as part of a group will be different than those for individuals acting alone. This point is crucial because many crimes are committed in groups. Decisions must be made rapidly in many cases, under considerable and varying levels of uncertainty, with varying levels of information, by actors who differ in the way they process information as well as the kinds of information they rely on to make decisions. Certainly, more research is needed on decisions to commit crime in "real-world" settings (e.g., Tunnell 1992).

Research on routine activities and opportunity theories is generally supportive, although the measures employed to tap concepts are often too general and measures of the motivated offender concept are rarely included in studies. More recent individual-level studies tend to support the opportunity approach, yet some find that when measures from alternative theories—such as social learning—are included in models, the influence of routine activities variables is weaker (Bernburg and Thorlindson 2001). Similarly, Jensen and Brownfield (1986) note that criminal victimizations often occur during criminal activity. It may also be that criminal activities structure future routine activities. If a youth gets suspended from school for fighting, for example, he or she is much more likely to have spare time on his or her hands to engage in delinquent acts.

### Analytical Issues

In this section we consider how studies have been designed to test rational choice theories. We also consider issues related to causal modeling and causal ordering of variables suggested by rational choice theories. Finally, we consider potential alternative explanations that must be ruled out. (Note: Space limitations preclude the discussion of routine activity and opportunity theories in this section. This is not meant to imply that such issues do not arise in research on those theories).

### Sample Selection

Decisions on how to design a study to test a theory are just as important as the concepts to be measured. Several key questions must be addressed. First, who should be studied? At first glance, it might appear that deterrence and rational choice theories could be tested on all kinds of research subjects. After all, the theories claim to apply to everyone. Again, the assumption is that all potential offenders consider the relative risks and rewards of criminal action. If this were true, then it would not matter who was included in the study. Yet, this assumption may not be realistic. First, one must consider whether everyone is a potential offender in a meaningful sense. Some people may not actively consider the possibility of committing a crime, even if the opportunity presents itself. We sometimes hear news stories of people who turn in

et al. (1996) highlight the importance of unsupervised time for teens (absence of guardians) as a factor in delinquency. They argue that the very periods or activities that decrease guardianship also increase motivation for crime as well. Osgood et al. find support for these ideas using five waves of the Monitoring the Future (MTF) study, a nationally representative sample of 18- to 26-year-olds who were high school seniors from 1977 to 1981. Similarly, Osgood and Anderson (2004) argue that the time kids spend unsupervised and socializing with each other is conducive to delinquency. They claim that neighborhood rates of monitoring provide a contextual effect on delinquency above and beyond the individual parent effect. They test this in a hierarchical linear model of 4,359 students in 36 schools across 10 cities. They find that unstructured socializing has a strong impact on delinquency at the individual and school levels and that there was a contextual effect of parental monitoring. This study highlights the importance of social context in determining routine activities (see also Bernburg and Thorlindson 2001; Miethe and Meier 1994).

One advantage of the routine activities and opportunity approach is that it leads fairly straightforwardly to potential strategies for crime reduction by reducing the *opportunities* for crime. If predatory crimes occur in given situations with predictable characteristics, then it may be possible to reduce crime using this knowledge. Many studies have examined the possibility of situational crime prevention. Although space precludes a thorough discussion of this research, it appears that crime prevention measures can be effective at preventing some kinds of crimes (without displacement). For more on situational crime prevention, see Brantingham, Brantingham, and Taylor (2005); Clarke (1983, 1992, 1995, 1997); Felson (1998); Lab (1997); and Newman, Clarke, and Shoham (1997).

### Measuring Crime

Many studies testing deterrence and rational choice theories have employed the number of crimes known to the police and arrest rates. However, Gibbs (1986) is sharply critical of employing "official" crime rates to test these theories for two reasons: (1) Not all crimes are reported to the police, and (2) official statistics may not accurately reflect the relative numbers of different kinds of crimes being committed because certain kinds of crimes are more likely to be reported than others.

Some also claim the relationship between crime and punishment found in studies of deterrence is a statistical artifact because the variables being correlated have a common term—crime. The crime rate is typically expressed as  $C/P$  (where  $P$  = population and  $C$  = crime). The certainty of punishment is usually expressed as  $S/C$  ( $S$  = number of sanctions and  $C$  = crime). Since crime is a common term in both formulas, the correlation between crime and punishment rates could be a statistical artifact. Gibbs and Firebaugh (1990) disprove the artifact argument but suggest that measurement error could still underlie this correlation. Recent research has shown, however, that even when measurement error is large, as in the case of official crime measures, the

practical impact of this error is small and unlikely to influence substantive conclusions regarding deterrent effects (Levitt 1998; Pudney, Deadman, and Pyle 2000).

A second limitation of using official crime rates is the aggregated nature of crime categories reported (Cook 1980; Gibbs 1986). All types of burglaries are lumped together, for example. As noted earlier, the same factors may not explain residential and business burglaries (Cook 1980). Official data are therefore limited because they do not allow distinctions to be made within broad offense categories. Another example of this limitation is the use of general homicide estimates in death penalty research when not all homicides are death penalty eligible (Gibbs 1986). Because of such limitations, Gibbs claims only self-reported data offer valid measures for evaluating deterrence. Indeed, perceptual studies of deterrence are much more likely to employ self-report data, yet many studies still use official crime data to test deterrence arguments.

Another important question is whether all kinds of crime are equally driven by rational considerations. The economically rational components of burglary or theft certainly seem more apparent than taking revenge on the man with whom one's wife is cheating. Yet, Clarke and Cornish (1985) argue that both expressive and economic goals can be considered in rational terms. Thus, all types of crimes appear to be eligible. One could still question whether drug use is rational. Likewise, it would seem that white-collar crimes are most likely to be guided by rational considerations, although some studies suggest that white-collar offenders are not effectively deterred by sanctions (Weisburd et al. 1995).

Finally, some deterrence studies use intended crime rather than actual crime measures. Pogarsky and Piquero (2003) ask subjects to estimate the likelihood they would drive while intoxicated on a scale from 0 to 100 based on scenarios with varying sanction risks. But the stated intention to engage in a behavior is not the same as actually engaging in it. Similarly, some studies consider minor kinds of deviance such as cheating. Nagin and Pogarsky (2003) conducted a randomized experiment that measured the likelihood of cheating on a task to earn a nominal reward in a university research setting. It could be, however, that rational calculations are more likely to influence relatively minor acts of deviance such as cheating on a test than more serious criminal behaviors such as homicide, which may be driven by strong emotions. Using intentions to engage in a behavior or minor deviant acts can artificially inflate perceived support for deterrence theory.

With respect to routine activities and opportunity theories, it is not clear whether they are expected to apply to all crime types or only predatory crimes (those involving the meeting of an offender and a victim). If an offender and victim are required to meet, then this would limit the scope of the theory to crimes of interpersonal victimization. This may appear more limiting than it is in reality because even minor crimes such as pick-pocketing are interpersonal, although not necessarily violent. But the theory also seems to apply to instances where the property of the victim is left unintended, creating an

incarcerated and drug-using adults and teenage high school dropouts. Piliavin et al. found support for reward but not risk aspects of rational choice. Similarly, Piquero and Rengert (1999) found that active burglars responded to risks but their perceptions of the potential rewards were stronger influences on their behavior. More research is needed to determine whether this is true for all potential offenders.

### Routine Activities and Opportunity

Routine activities and opportunity theories focus on the factors that converge to produce predatory criminal victimization, including motivated offenders, a lack of capable guardians (reduced guardianship), suitable or attractive targets, exposure, and proximity. Many studies have used routine activities and opportunity concepts, taking one of two approaches. The first is to consider variation in crime or victimization rates. As described earlier, Cohen and Felson (1979) used the theory to determine whether the dramatic increase in U.S. crime rates since 1960 was linked to changes in the routine activity structure of American society, such as increases in labor force participation among married females, an increase in the number of single person households, and a sizable rise in the proportion of households unattended at 8:00 a.m. They hypothesized that these changes affected the daily routine activities of millions of residents, increasing target suitability and decreasing guardian presence, two necessary elements for victimization. Using victimization evidence to support their contentions, they calculated a household activity ratio and compared it to five index offenses. In a national-level analysis from 1947 to 1974, they found that nonhousehold activities vary directly with homicide, burglary, rape, aggravated assault, and robbery. Similarly, Cohen, Felson, and Land (1980) find that national crime rates for robbery, burglary, and auto theft from 1947 to 1972 are related to routine activities.

Other research has used smaller units of aggregation such as standard metropolitan statistical areas (SMSAs). Messner and Blau (1987), focusing on leisure activities and using index offenses for 1980 and 1981 (murder, rape, robbery, aggravated assault, burglary, larceny, and motor vehicle theft) as the dependent variable, generally find support for routine activities theory in a sample of 124 SMSAs. Other research has considered variation in crime across smaller areas within cities. Roncek and Maier (1991) examine whether areas with bars and taverns have more crime. They examine 4,937 residential blocks in Cleveland, using three-year crime averages in city blocks from 1979 to 1981. They find that crime is substantially higher in blocks with bars, even controlling for socioeconomic variables that might also affect crime. In contrast, in a pooled analysis of 584 cities in 1960, 1970, and 1980, Miethe, Hughes, and McDowall (1991) find greater support for social disorganization (see Chapter 4) than routine activities but note that neither is a strong predictor of crime. Models including variables derived from both perspectives only explained about 20% of the variation in homicide, robbery, and burglary rates across cities.

Although macro-level studies generally find results consistent with routine activities theory, some researchers argue that individual-level data are necessary to test the theory since differences in routine activities, and therefore opportunities for victimization, occur across individuals (Birkbeck and LaFree 1993). Several individual-level tests have used information from the National Crime Victimization Survey (NCVS), a nationally representative annual survey. Cohen and Cantor (1980) used 1975–1976 NCVS data to examine whether the risk of larceny victimization varied by age, race, gender, and economic activities. And, as we mentioned earlier, Cohen et al. (1981) used 1974 and 1977 NCVS data to consider how victimization patterns vary by dimensions of social stratification such as race, income, and age. Results of these early studies are generally consistent with the theoretical predictions of routine activities theory.

Other individual-level studies document mixed support. Miethe, Stafford, and Long (1987) examined individual-level data on routine activities for 107,678 residents in 13 cities in 1975. They find that routine activities explain property crime victimization reasonably well but not violent crime victimization. Massey, Krohn, and Bonati (1989) used data from six neighborhoods in Atlanta in 1979 to compute three types of property victimization measures at the individual level. Their results provide some support for the theory. In contrast, Sampson and Wooldredge (1987) document minimal support for routine activities using the British Crime Survey (BCS), finding instead that neighborhood social structure is a better determinant of victimization.

Noting the mixed results of prior individual-level studies, Kennedy and Forde (1990) use the Canadian Urban Victimization Survey (CUVS) to examine whether routine activities holds for violent as well as property victimization and whether structural differences in people's living environments account for victimization patterns rather than routine activities. The CUVS contains data unavailable in the NCVS or BCS. The data were collected from seven large cities via a telephone survey. The final sample included 74,463 respondents. The study includes demographic variables such as measures of sex, age, income, and marital status as well as both daytime and evening activities and information from the areas where the respondent lived such as percentage of one-person households, unemployment, divorce, low-income families, and population density. Kennedy and Forde (1990) use logistic regression to estimate the dichotomous (yes/no) outcome of victimization. They find that routine activities predict breaking and entering but not vehicle theft. They find some support for the routine activity perspective across property and violent victimization, even when the demographic nature of the areas was taken into account. They argue that these results contradict Miethe et al. and suggest that even violent victimization depends on patterned exposure.

A major limitation of most studies of routine activities and opportunity theories is the failure to measure variation in motivation. Early research assumed the supply of motivated offenders was relatively constant. Recent studies have begun to consider variation in motivation. For example, Osgood



deterred by sanctions. One reason for this may be that those with a present orientation invest less in social bonds and therefore have less to lose from crime (Nagin and Paternoster 1994). Similarly, Gibbs (1986) argues that perceptions of risk likely vary by age, race, socioeconomic status, and gender, and evidence suggests this may be the case (Grasmick, Sims-Blackwell, and Bursik 1993; Sims-Blackwell 2000). In sum, research suggests that the perception of risk is related to the likelihood of offending but that all offenders do not perceive risk similarly.

### Rational Choice

Recall that the deterrence and rational choice perspective assumes the potential offender weighs the potential costs and benefits of crime and decides on a course of action in light of these costs and benefits. This view of the offender is controversial. In this section, we discuss what it means to act rationally and the degree to which offenders (or people more generally) act rationally.

Whether individuals are rational depends very much on the way that rationality is defined. Most people act in predictable ways. Imagine how difficult driving in traffic would be if people did not engage in reasonably predictable behavior. Similarly, few people act in ways that most others would consider irrational; those that talk to themselves or hear voices are often referred to as mental health professionals. In this sense, people are "rational." Yet the term rational means something more in the context of rational choice theories of economics or crime. From this perspective, individuals will make decisions based on the expected utility of their actions. This conception of rationality is considerably more controversial because it implies that potential offenders have realistic perceptions of sanction severity and probability and they rationally calculate behavior rather than acting on impulse (Jacob 1979).

One component of this economically rational view is that individuals must possess accurate information to make informed choices about the relative costs and benefits of actions. As we have seen, such an assumption is likely unjustified. Cook (1980) notes that it is not necessary for individuals to possess full and accurate information as long as people rationally weigh the costs and benefits of behavioral options with the information available to them. This is often called "limited rationality." Yet, even this view of the offender suggests that costs and benefits of behavioral choices are consciously weighed and a "correct" choice is made based on available information. This view may be inaccurate for several reasons. First, not everyone is equally able to weigh costs and benefits of actions (Clarke and Cornish 1985). Some will be better able to make "smart" choices with respect to crime, just as some people get better deals when shopping for cars. The economic rational choice view also assumes that criminals and noncriminals will think similarly, yet research suggests they may not (Clarke and Cornish 1985:161). And second, people make predictable errors in decision making (see Cook 1980 for a discussion). Individuals often ignore events they believe have a low probability

of occurrence. This is especially relevant for deterrent effects of punishment if arrest is perceived to be relatively rare. Sometimes rare events will be overweighed because they are vivid. For example, flying in an airplane is statistically safer than riding in a car, but many fear plane travel because plane crashes are highly publicized. Other complexities in people's decision making are not well accounted for by a rational choice view. Piquero and Pogarsky (2002) find that being punished seems to encourage offending for some rather than discouraging it, which the authors refer to as an "emboldening effect." Such an effect may be the result of the gambler's fallacy (I would have to be really unlucky to get caught again). To add even greater complexity, Pogarsky and Piquero (2003) suggest such effects operate only for some types of offenders.

Another question is the extent to which people *consciously* weigh their options. Simon (1957) claims people have rules of thumb so that not every decision must be reevaluated each time. For example, some people have developed rules of thumb that prohibit robbery under any circumstances. Or people may act on impulse according to their rules of thumb. So the choice to drink alcohol may be based on a rational calculation of the costs and benefits, even if the behavior of the intoxicated individual is not rational per se.

The rational choice model also implies that decisions to commit crimes are offense-specific. A potential offender may conclude that committing a burglary is a good idea but that robbery is not. Along these lines, Clarke and Cornish (1985) claim we need separate models of decision making for each crime. This claim suggests the need to develop and presumably test relatively narrow models of criminal behavior. As such, a model of decisions on whether to commit a burglary may be too broad. We may need different decision models for commercial and residential burglaries. Such model specificity could become cumbersome when considering the sheer number of different kinds of crime in which offenders could engage. This approach also suggests a degree of offender specialization, which may not reflect reality. Gottfredson and Hirschi (1990) and others suggest that criminals do not specialize. They maintain that today's burglar is tomorrow's convenience store robber.

There also may be multiple decision points in the commission of a crime (Clarke and Cornish 1985). The first is willingness to engage in any crime. The second is the decision to commit a particular offense. It is quite possible that rational choice may be more applicable to the decision to engage in a particular offense than the willingness to engage in crime at all. Individual experiences or circumstances may drive only some to be in a position where commission of a crime is a realistic course of action. Yet current views of rational choice imply that we all are potential offenders and weigh the consequences and rewards of criminal behavior.

Finally, most research focuses on punishment risk. The rational choice model suggests that the potential criminal weighs both the risks of punishment and the expected rewards. Piliavin, Thornton, Gartner, and Matsueda (1986), however, argue that most previous deterrence research does not take reward aspects into account. Using a relatively unique sample of previously

no influence on future criminality (Weisburd, Waring, and Chayet 1995), that being punished can actually lead to increased offending (Spohn and Holleran 2002), or that specific deterrence varies based on individual characteristics (Dejong 1997). One study is particularly discouraging for specific deterrence. Weisburd et al. examined the effect of imprisonment on 742 white-collar offenders sentenced in federal court from 1976 to 1978. In the 126-month (10.5-year) follow-up period, there were no significant differences in the likelihood of recidivism for those receiving prison sentences compared to those receiving probation. Presumably white-collar criminals would be most likely to consider their previous experience with punishment in deciding whether to engage in further criminality. This study suggests little support for such a view and casts doubt on the validity of specific deterrent effects.

### Risk Perception

Recall that our definition of deterrence refers to an individual who considers criminal activity but refrains from it because "he or she perceives some risk of legal punishment and fears the consequence" (Gibbs 1986:325-326). This definition does not refer to the objective properties of punishment (i.e., how long the real possible jail time would be) but how the offender subjectively perceives them. In measuring the effects of deterrence on crime, therefore, it is necessary to consider how offenders perceive the risk of punishment (also called perceptual deterrence).

A number of studies have considered whether the perceived risk of sanctions deters criminal behavior (Erickson and Gibbs 1978; Jensen, Erickson, and Gibbs 1978; Klepper and Nagin 1989; Minor and Harry 1982; Paternoster; Saltzman, Waldo, and Chiricos 1983a, 1983b; Williams and Hawkins 1986). Cross-sectional and scenario-based studies find that increasing the perceived risk of punishment reduces the likelihood of crime (Nagin 1998). Longitudinal studies have been less likely to find deterrent effects of risk perception. Research also suggests that perceived certainty of punishment is a more effective deterrent than perceived severity (Nagin 1998).

One important issue is the extent to which the perception of risk is accurately tied to the objective risk of punishment. Research finds that people do not accurately perceive their objective risk of punishment (Cook 1980). In fact, some argue that noncriminals dramatically overestimate their punishment risk, whereas offenders may have accurately low perceptions of risk. One recent study challenges this claim. In a telephone survey of 1,500 residents of large urban counties, Kleck, Sever, Li, and Gertz (2005) found that criminals are not more aware of actual punishment risks than noncriminals. Cook argues that deterrence may still operate effectively even if subjective perceptions of risk of punishment are not accurate but are systematically related to criminal justice activities.

Related to the accuracy of information is what kind of information the potential offender uses to evaluate punishment risk. Cook (1980) notes there

are several potential sources of information about the threat of punishment—the media, visibility of law enforcement, personal experience or observation, word of mouth, rumor, and observation of other criminal activity in an area. He also notes deterrence and rational choice theories generally assume that apprehension of criminals will influence other criminals, but it is more likely that each individual apprehension has a large impact on the perceptions of a few offenders and none on everyone else. Our earlier discussion of Stafford and Warr's (1993) reconceptualization of deterrence theory has implications for this issue. If both personal and vicarious experiences with punishment and avoidance are relevant for risk perceptions, then tests of deterrence theory need to be more nuanced. Stafford and Warr argue:

[F]or example, tests based on survey data would need to include, at a minimum, measures of (a) person's perceptions of their own certainty and severity of legal punishment for crimes, (b) persons' perceptions of the certainty and severity of legal punishment for others (presumably those within their immediate social network), (c) self-reported criminal behavior, including self-reports of direct experience with punishment and punishment avoidance, and (d) estimates of peers' criminal behavior, including their experiences with punishment and punishment avoidance. (p. 133)

Several studies have used Stafford and Warr's (1993) expanded model of deterrence (Jacobs 1996; Paternoster and Piquero 1995; Piquero and Paternoster 1998; Piquero and Pogarsky 2002). Piquero and Paternoster examined people's intentions to drink and drive using a 1989 phone survey of 1,686 respondents. They note that drinking and driving is a good offense to examine because people are likely to have both personal and vicarious experiences. Piquero and Paternoster's results support Stafford and Warr's model. They found that respondents' expressed intentions to drink and drive were influenced by their own and other people's experiences with punishment and avoiding punishment. These deterrent effects of risk perception also remained after controlling for moral beliefs and peer drinking and driving.

Another important issue is whether individuals differ in their risk perceptions. Deterrence and rational choice theories generally assume that everyone will perceive risk in the same way, but this is likely an unrealistic assumption. Cook (1980) argues that individuals differ in their subjective view of risk and reward because they will differ in their willingness to accept risks, their preferences for law-abiding behavior, and how they evaluate profit (e.g., \$50 may be a lot of money to one person but not much to another). As an example, some people are more risk averse, or less willing to take risks, than are others. Risk averse people may be more influenced by the threat of sanctions than are others. Research suggests that offenders are particularly likely to be impulsive or risk-seeking (see, for example, low self-control theory in Chapter 7). Therefore, offenders may be the least likely to see risks as serious impediments to action. Similarly, some individuals are more present-oriented whereas others are more future-oriented (Nagin and Pogarsky 2001, 2003). It appears that those who are more present-oriented are less likely to be

1970, such as the so-called three strikes laws enacted in many states in recent years. Three strikes laws enhance penalties as the number of prior offenses increase. Analogous to baseball, an offender would strike out (be sentenced to life in prison) upon conviction for a third serious offense. Yet research on the effects of three strikes laws has generally found no deterrent effects (Kovandzic, Sloan, and Vieraitis 2002, 2004; Worrall 2004; Zimring, Hawkins, and Kamin 2001). Other policies aimed at increasing the severity of punishments have been instituted, including increases in specific penalties for drunk driving and drug use/sale. As we discuss later, the results do not suggest strong support for deterrent effects of increasing severity.

In response to widespread concern over the harm caused by drunk drivers, many states have implemented increases in the penalties for these offenses, including license suspension for first offenses, revocation for repeat offenders, and stiffer fines and jail terms. Although a few studies indicate these changes deterred drunk driving and reduced accidents (see Briscoe 2004:980 for a discussion), the majority fail to show reductions following changes in the laws (Briscoe 2004; Ross 1984, 1986). For example, Ross, McCleary, and LaFree (1990) examined the effect of mandatory jail time for offenders in Arizona. The law apparently had no deterrent effect on drunk driving. The authors suggest two reasons for this failure. The first is that the law allowed alternative sentences for offenders with a reasonably low blood-alcohol content, where no injury occurred. The second is that drivers likely perceived the certainty of arrest as being very low. Therefore, increases in the severity of punishment had no impact because drivers did not think they would get caught. More recently, Briscoe analyzed the impact of stiffer penalties for drunk driving on the rate of road accidents in New South Wales, Australia, from 1994 to 2001. She found that the rate of accidents actually *increased* following changes in the law. Thus, the evidence does not suggest that stiffer penalties reduce drunk driving. Ironically, drunk driving fatalities have declined in recent years, but this is likely due to increased social stigma (Grasmick, Bursik, and Arneklev 1993).

A variety of reasons can explain why increasing the severity of prescribed punishments may not have a deterrent effect. One is that lawmakers cannot control actual changes in the severity of punishment. Police officers, judges, juries, and correctional officials all have discretion over the imposition of actual punishments (Nagin 1998). They can therefore use this discretion to limit the impact of punishments they perceive to be excessive. Increases in the severity of punishment may also have perverse effects on crime. Increasing punishment severity for one kind of crime may simply result in the substitution of another kind of crime. So, harsher sentences for robbery may reduce robbery but increase burglaries and theft. Another potentially perverse effect is that increases in punishment severity may increase the incentive to kill witnesses or police. A suspect facing life in prison would have much more incentive to violently resist police or kill witnesses.

As we have noted, if deterrence theory is correct that increasing the severity of punishments should deter crime, then threat of the ultimate

punishment—the death penalty—should have a strong deterrent effect on homicide. Three types of studies have examined the deterrent effect of the death penalty. The first compares homicide rates in states with the death penalty (currently 38) to those without it. Generally, this type of study shows no support for deterrence theory (see Cook 1980; Donohue and Wolfers 2006; Gibbs 1986; Nagin 1998 for discussions). In fact, states with the death penalty often have *higher* homicide rates, perhaps because these states institute the death penalty in response to greater levels of violence. The second type of death penalty study is time series analysis, which compares homicide rates over time in comparison to the number of executions. A famous early study is Ehrlich's (1975) national time series analysis of executions and homicide from 1932 to 1970. Ehrlich showed that each execution prevented about eight homicides. The study was highly controversial and has been criticized on methodological grounds (Blumstein, Cohen, and Nagin 1978; Cook 1980). Some research suggests that the finding of deterrent effects depends on the years included in the study (Levitt 2001). Although a few studies do find a deterrent effect of the death penalty on homicide (e.g., Lott and Landes 1999), the evidence does not suggest that the death penalty is an effective deterrent to homicide. Levitt (2001) concludes that even if there is a deterrent effect, it is likely to have little impact on homicide overall because there are so few executions compared to the number of homicides in any given year (see also Donohue and Wolfers 2006).

Some have suggested that executions may have a short-term impact on homicide that is not captured in the annual homicide figures used in time series studies. Some studies, therefore, have considered the immediate impact of executions on homicides in the weeks and months following a publicized execution. Most studies do not show that homicides go down in the periods shortly after an execution (Cochran and Chamlin, 2000; Cochran, Chamlin, and Seth 1994; Stolzenberg and D'Alessio 2004), although one study does (Stack 1998). In fact, some studies find that homicides actually increase in the periods immediately following executions, producing a "brutalization" effect (Cochran et al. 1994). In short, the literature on the deterrent effects of increasing punishment severity indicates that overall it is not an effective strategy for general deterrence.

### Specific Deterrence

Policies such as police crackdowns or changes in the law are usually aimed at general deterrence—reducing crime by increasing the likelihood or severity of punishment, causing would-be offenders to avoid crime. Theorists also focus on specific deterrence, where the punished offender refrains from future crime for fear of again suffering the punishment they endured for the first offense. Although this idea seems reasonable, the evidence for specific deterrence is decidedly mixed. Some studies find that experience with the criminal justice system reduces future offending (Shapiro and Votey 1984; Smith and Gartin 1989). Others find that the experience of being punished has

arrests on crime, controlling for other factors. Using a different approach, Loflin and McDowall (1982) conduct a longitudinal study of Detroit from 1926 to 1977, comparing the number of police and index crimes per 100,000. They find no relationship between crime and number of police. It could be that larger variations in police strength may be necessary before they have an impact on crime rates. Finally, in their study of 252 Northern areas in 1970, Huff and Stahura (1980) do find that police employment and crime are related but *positively* (opposite of the direction predicted by rational choice theory).

A few studies have documented more support for what Nagin (1998) refers to as "deterrent-like" effects of the police on crime. Levitt (1997) examines the relationship between crime and police employment for 59 cities with 250,000 or more residents from 1970 to 1992, finding that increases in police employment significantly reduce violent crime, and to a lesser degree property crime, in these cities. Nagin notes that Marvell and Moody (1996), using essentially the same data (but different statistical techniques), also conclude there is a deterrent-like effect of the number of police per capita on crime.

In a review of this literature, Nagin (1998) concludes the evidence suggests that the *activities* of the police (e.g., community policing, proactive policing), rather than their sheer numbers, are far more likely to influence crime rates (see also Sampson and Cohen 1988; Sherman 1990). One possible explanation for this is that greater police presence makes the reporting of crime easier, which would lead to a positive relationship between the number of police and reported crime. Or police forces may increase in response to changes in the crime rate rather than the reverse. Therefore, it is not uncommon for high crime cities also to have the highest numbers of police per capita. As we discuss in the analytical section, this presents a challenge when designing studies to capture the effects of police presence on crime that can only be resolved using certain statistical techniques.

One of the earliest studies of police activities considered variation in routine police patrol. Conventional wisdom suggested that having police officers drive around on routine patrol deterred crime. The Kansas City Preventative Patrol experiment (Kelling et al. 1974) set out to test this notion by dividing the city into three kinds of patrol beats. One group had standard amounts of routine patrol, the second group had double the amount of routine patrol, and the third had no routine patrol. Presumably the double patrol beats would have higher certainty of arrest, and therefore lower crime, than the standard or no-patrol beats. After nearly a year, they found no appreciable differences in crime or fear of crime across the three types of beats, suggesting that random patrol was not a deterrent.

Another police intervention to increase the certainty of punishment is the use of roadblocks or random stops to reduce drunk driving. Studies suggest these enforcement efforts produce a short-term reduction in drunk driving (see Briscoe 2004; Ross 1984 for overviews). Unfortunately, the reductions do not last. This phenomenon is known as extinction, where a policy intervention has an initial impact on crime that declines over time (see also Sherman et al. 1995 for an example of extinction effects in law enforcement crackdowns

on crack houses). Some suggest the reason for extinction effects is that people initially overestimate the increased certainty of punishment due to the publicity of the intervention but over time adjust their perception of certainty as the reality of the low odds of detection become clear (Nagin 1998). Extinction effects are common in criminal justice policy interventions.

Another potential limitation of police-based policies on deterrence is the possibility of displacement, where crime is shifted from one place to another by enforcement efforts. An example of displacement would be when drug dealers move away from areas where police crackdowns are focused. Such displacement could be problematic because it means that crime is not deterred, just moved from one place to another. Some research has considered this issue and has found that crime displacement is less common than one might expect (see Barr and Pease 1990; Cornish and Clarke 1987; Green 1995; Sherman 1990 for discussions). Moreover, it appears there can be a diffusion of beneficial crime-control effects in some cases. Recent research finds that focusing police resources on high crime areas (so-called hot spots) does not displace crime to immediate areas, but rather leads to a diffusion of crime control benefits in areas immediately surrounding targeted sites (Weisburd et al. 2006).

Another example of targeted police activities to deter crime through increased certainty is pro-arrest policies for domestic violence. The idea is that domestic violence can be deterred if potential offenders believe there is an increased certainty of arrest. Sherman and Berk (1984) set out to test this idea in Minneapolis using an innovative experiment. During the study, police officers were randomly assigned one of three options in responding to a domestic violence call: Provide counseling to the parties to diffuse the conflict; make an arrest; or force the aggressor to leave for six hours (presumably to become sober in many cases). Sherman and Berk found that subsequent calls for domestic violence were significantly lower for arrestees compared to the other two groups. As a consequence, many police departments instituted pro-arrest policies for domestic violence. Subsequent studies, however, failed to replicate these findings and suggested that arrest only deterred offenders who were employed and might actually *increase* the likelihood of offending for others (see Berk et al. 1992 for a discussion). This may result because those without jobs have little to lose by being arrested and would likely become angry about being arrested and potentially take it out on the very person the arrest is supposed to protect. This illustrates an important issue in deterrence research. The same penalties may not deter equally in all cases. We discuss this issue further later. In sum, the evidence in support of certainty effects is mixed. Increasing the certainty of punishment seems to work in some cases, but often reductions are short-term or limited to certain kinds of offenders.

### Severity

From the time of Beccaria, it has been argued that more severe punishments should constitute more effective deterrents. Such arguments commonly have been used to support demands for increasingly harsh punishments since



**Table 2.1** Hypotheses Based on Rational Choice and Routine Activities Theories  
*Deterrence/Rational Choice Theory*

1. Increasing the certainty of punishment should reduce crime rates (general deterrence).
2. Increasing the severity of punishments should reduce crime rates (general deterrence).
3. The use of the death penalty should deter homicide (general deterrence).
4. Punishment should prevent future crime by convicted criminals (specific deterrence).

*Routine Activities Theory*

5. Crime rates will be higher when routine activities take more people away from home.
6. Crime is more likely when motivated offenders and suitable targets meet in the absence of capable guardians.
7. Crime is a function of opportunity.
8. Crime can be prevented by reducing opportunities.

The celerity or swiftness of punishment has rarely been tested but appears to be unrelated to the likelihood of punishment (Nagin and Pogarsky 2001). This is probably due to the nature of our criminal justice system. It might be that immediate consequences, such as having one's hand cut off in the marketplace for getting caught stealing an apple, would make punishments more effective deterrents. In the United States, constitutional safeguards on due process prevent such quick action because of the potential for error and vigilante justice. Therefore, punishments typically follow weeks, months, or years after a criminal act rather than minutes. Changing the celerity of punishments in the absence of substantial (and improbable) changes in the constitution is unlikely to make punishments swift enough to impact the decision to commit a crime. Therefore, we do not discuss celerity of deterrence.

As noted earlier, there are two kinds of deterrence, general and specific. From the standpoint of general deterrence, one would expect that the more certain and severe the punishments are, the more likely they are to lead to lower crime rates in society. Specific deterrence refers to the effect of having been punished on the convicted offender. One would expect that increases in the severity of punishment would reduce the likelihood of future crime by the offender due to greater fear of punishment.

Routine activities theory also provides a number of hypotheses that can be tested. The theory suggests that opportunities for offenders and victims to meet will be structured by the daily activities that people engage in, particularly those that take them away from home. Therefore, one could hypothesize that crime rates will vary with the amount of time people spend away from home. Similarly, at the individual level, victimization is more likely when motivated offenders and potential victims meet in the absence of capable guardians. This suggests that crime is a function of opportunity. The corollary to this view is that crime can be prevented by reducing opportunities. A substantial research literature has assessed the ways in which crime can be prevented in individual situations.

These hypotheses provide a starting point for discussing the measurement issues in research on deterrence, rational choice, and routine activities theories. The next step in theory testing is to specify clearly the concepts to be measured. Here, we discuss some key concepts, how they have been measured, and whether the measurement strategies adequately capture the underlying constructs in these perspectives. Specifically, we consider deterrence, certainty, severity, risk perception, rational choice, routine activities, and crime.

**Deterrence**

One key issue in deterrence and rational choice research is how deterrence is defined. It is important to make a distinction between absolute and marginal deterrence. Absolute deterrence refers to the existence of legal punishments for crimes generally. Few would argue that crime rates would be unaffected if there were no legal mechanism for punishment of offenders. Indeed, Gibbs (1986) claims that in the absence of a government-run criminal justice system, a private system of protection and punishment would rapidly develop. To say that legal punishments have some absolute deterrent effect is not very helpful, however. Since very few advocate the abolition of legal punishments, the real question is to what extent *changes* in legal punishments improve upon having any legal sanctions. The incremental reductions in crime that result from incremental changes in laws and punishment refer to marginal deterrence. As we will see in the context of our discussion of research on the certainty and severity of punishment, the evidence in support of marginal deterrence is considerably less encouraging than many lawmakers and citizens imagine.

**Certainty**

Studies that have considered certainty of punishment generally focus on the number of police or on changes in police activities such as crackdowns on drunk driving or drug sales (Cohen, Gorr, and Singh 2003; Sherman 1990), changes in patrol patterns (Kelling, Pate, Diekmann, and Brown 1974), or pro-arrest policies for domestic violence (Berk, Campbell, Klap, and Western 1992; Sherman and Berk 1984). Each of these interventions is based on the idea that the increased presence of police or changes in police activities will increase the certainty of arrest, thereby deterring crime. As we will see, the evidence for this assertion is mixed at best.

The idea that more police equals less crime is a popular one. A number of studies have examined whether greater police presence is associated with less crime. For example, Greenberg, Kessler, and Logan (1979) estimate a multi-wave panel model of the relationship between crime rates and arrest rates for a sample of 98 U.S. cities with 25,000 or more residents from 1964 to 1970. They find no meaningful relationship between crime rates and arrest rates, concluding there is no support for the existence of a deterrent effect (they note that criminals may simply be unaware of marginal changes in the likelihood of detection or punishment). Similarly, Greenberg and Kessler (1982) analyze the relationship between crime rates and arrest rates, finding little effect of



deterrence" refers to the negative reactions of others when they find out about the arrest and conviction of the offender. Such negative consequences can include the loss of jobs or friendships, divorce, and social stigma. Yet, some question whether such an expansion reshapes deterrence into another theory that resembles other traditional theories of crime (Akers and Sellers 2004).

Another recent development is Stafford and Warr's (1993) reconceptualization of deterrence theory. In most discussions of deterrence theory, general and specific deterrence are considered to be separate. General deterrence refers to the idea that others are deterred from committing crime when they see an offender being punished. Specific deterrence refers to the idea that the punished offender will be deterred from committing another crime because he or she fears suffering punishment again. Stafford and Warr argue that separating general and specific deterrence is inappropriate because they operate together: "[P]eople are likely to have a mixture of indirect and direct experience with punishment and [what they call] punishment avoidance" (p. 126). Stafford and Warr argue that general deterrence refers to indirect experience with punishment and punishment avoidance, whereas specific deterrence refers to direct experience with punishment and punishment avoidance. One advantage of their approach is that both general and specific deterrence can operate on the same person or population. Their reconceptualization also suggests more active involvement in the deterrence process by the potential offender. In the previous conceptions of deterrence theory, the potential offender simply weighed the rewards versus the consequences as they were presented (whether accurately or not). Punishment avoidance suggests that potential offenders actively manipulate the risks of punishments by trying to avoid getting caught (Jacobs 1996; Paternoster and Piquero 1995; Piquero and Paternoster 1998; Piquero and Pogarsky 2002). Other theoretical developments are consistent with the rational view of the offender. In the next section, we discuss one of the most prominent—routine activities theory.

### Routine Activities Theory

The routine activities perspective arose from Hawley's (1950) theory of human ecology. Hawley identified three important temporal components of community structure—rhythm (the regular periodicity with which events occur), tempo (the number of events per unit of time), and timing (the coordination among different activities that are more or less interdependent, such as the coordination of an offender's movements with that of a victim). These ideas formed the basis of the theory, which states that crime can be understood in terms of the "routine activities" of everyday life—that is, in terms of what we do, where we go, and with whom we interact on a daily basis (Cohen and Felson 1979). Routine activities theory does not examine why individuals are inclined to commit crimes, but takes that inclination as given and examines how the organization of activities in space helps people translate criminal inclinations into action.

According to Cohen and Felson (1979), three things must be present for victimization to occur: (1) a motivated offender (one who plans to commit a crime), (2) a suitable target (potential victim), and (3) an absence of capable guardians (those who might thwart the victimization). A crime is more likely to happen when a potential offender is able to find a suitable target for victimization in an area with few or no bystanders to intervene, such as in a dark alley or secluded area. Routine activities theory focuses on how everyday life assembles these elements in time and space and predicts that potential victims are likely to become actual victims when all three converge. Cohen and Felson use these concepts to explain macro-level changes in crime rates in recent decades. They note several changes in daily activities that have led to higher crime: First, more people work outside the home, which increases the likelihood of exposure to would-be criminals in public places such as parking garages or bus stops and reduces the guardianship of one's home and personal goods, and second, the number of portable goods that are easier to steal has increased.

In addition to explaining variation in crime rates, routine activities theory explains individual differences in the likelihood of crime or victimization. Osgood et al. (1996) use routine activities theory to explain individual differences in delinquent behavior. They note that much delinquency occurs during unstructured, unsupervised periods—times when capable guardians are absent. They found that routine activities are associated with a wide range of delinquent and deviant behaviors and explain a substantial portion of the age, sex, and social class correlations with delinquency.

Cohen, Kluegel, and Land (1981) use routine activities concepts to develop a more formal opportunity theory of victimization (for recent discussions, see Bernburg and Thorlindson 2001; Felson 1998; Miethe and Meier 1994; Wilcox, Land, and Hunt 2003). They argue that predatory criminal victimization is a function of guardianship, exposure, proximity, and target attractiveness. Exposure and residential proximity to populations of motivated offenders are expected to increase victimization risk, as will higher target attractiveness and lower guardianship of potential victims or targets. We discuss research on opportunities and crime in further detail later.

### Concepts and Measurement Issues

An important first step in testing a theory is to identify hypotheses. Table 2.1 lists some hypotheses that have been or could be examined for deterrence, rational choice, and routine activities theories. Several hypotheses can be derived from these perspectives. For instance, one would expect that increasing the certainty of punishment should reduce crime. In addition, more severe punishments are expected to be associated with lower crime. From the standpoint of the theory, it also makes sense that the most severe punishments are likely to be the most effective deterrents. The death penalty is widely considered to be the most severe punishment. Therefore, one hypothesis that has been tested is that the use of the death penalty should reduce the likelihood of homicide.

Cesare Beccaria (1996 [1764]) applied some of these ideas to crime. His writings, along with those of Jeremy Bentham, formed the foundation for what later came to be known as classical criminology. Both argued that people possess free will to choose their behavior and will seek to maximize their own pleasure and avoid pain. From this view, because people are rational, they will weigh the costs and benefits of courses of action, including crime. Crime occurs because some people believe that the expected benefits of crime outweigh the potential consequences, or that crime is easier than law-abiding behavior. Anyone who has worked long hours at a minimum wage job will tell you that it would be much quicker to rob a convenience store. Therefore to reduce crime, the punishment for unlawful behavior must outweigh the potential gain or reward from it. Beccaria also posited that the more swift, certain, and severe a punishment was, the more likely it would be to deter crime. These ideas form the basis of the deterrence doctrine. Beccaria also noted that punishments should be proportional to the crime to prevent criminals from committing more serious offenses. So, for example, if the punishment for both purse snatching and homicide is execution, the criminal who wishes to avoid capture might as well kill his or her victim to eliminate any witnesses. From this view, all similar crimes are equal and should be punished equally, regardless of the individual circumstances under which they were committed. The idea that individual circumstances were irrelevant was later modified in the neoclassical school to consider personal factors such as age and mental competence. Classical criminology had a major impact on thinkers of the time, and the criminal justice systems of both the United States and France were founded on classical criminological principles (Vold et al. 1998). Many of these criminal justice policies survive today, and the efficacy of these deterrence-based policies will be discussed later. The notion that people freely chose their behavior was challenged with the development of determinism, which stated that people's behavior is influenced by outside forces. As a consequence, deterrence-based theories of crime gave way to biological, psychological, and sociological explanations, which we discuss in subsequent chapters.

### Modern Deterrence and Rational Choice Theories

Despite its initial decline, in the 1970s deterrence reemerged as a popular theory of crime (for early discussions, see Chiricos and Waldo 1970; Gibbs 1968, 1975; Tittle 1969, 1975, 1980; Zimring 1971; Zimring and Hawkins 1968). One reason for this was the perceived failure of rehabilitation programs, which relied on deterministic views of criminals (Clarke and Cornish 1985). The modern notion of deterrence is largely consistent with that of Beccaria and Bentham: "Deterrence refers to any instance in which an individual contemplates a criminal act but refrains entirely from or curtails the commission of such an act because he or she perceives some risk of legal punishment and fears the consequence" (Gibbs 1986:325-326). Thus, crime is a function of personal choice following the weighing of potential risks of

punishment versus the relative rewards to be gained from the act. As in the classical view, the certainty and severity of punishment are key elements that affect the likelihood of crime commission. Gibbs (1986:324), however, objects to the notion that deterrence can be summarized adequately with a single statement that crime is a function of the certainty, severity, and celerity of punishment, arguing that deterrence doctrine cannot be reduced to one simple proposition and, instead, has three premises and two corollaries:

Premise I: A direct relationship obtains between the objective properties of punishment and their perceptual properties.

Premise II: A direct relationship obtains between the perceptual properties of punishment and deterrence.

Premise III: An inverse relationship obtains between deterrence and some kind of crime rate.

Corollary I: An inverse relationship obtains between the perceptual properties of punishments and some kind of crime rate.

Corollary II: An inverse relationship obtains between the objective properties of punishments and some kind of crime rate.

This statement of deterrence theory moves beyond the prior conception in important ways. First, it expands the properties of punishment that could be relevant beyond simply certainty, severity, and swiftness. In other words, other properties of punishment may be relevant for deterring crime. And second, it explicitly deals with perception. Because deterrence is a function of the thought processes of the individual, it forces one to recognize the distinction between objective properties of punishments and the way they are perceived by the offender.

Implicit within both the classical view of criminals and modern deterrence theory is the idea that criminals are rational actors. In other words, people rationally weigh the costs and benefits of their actions in deciding whether or not to commit crime. Such a view is consistent with the rational choice perspective in economics. In fact, both traditions arose from the same sources (see Akers and Sellers 2004). Rational choice theories of economics argue that people's behavior is a function of their "expected utility." "The expected utility principle simply states that people will make rational decisions based on the extent to which they expect the choice to maximize their profits or benefits and minimize the costs or losses" (Akers and Sellers 2004:26). Thus, all behavior, including crime, is a function of whether the offender perceives that the benefits outweigh the costs or risks (Clarke and Cornish 1985; Cornish and Clarke 1986). The degree to which individuals, especially criminals, are rational actors consistent with economic rational choice theories is the subject of substantial debate.

In recent years, important extensions have been made to deterrence and rational choice theories of crime. For example, several authors have suggested that deterrence can be expanded beyond the formal sanctions applied through the law (Paternoster 1985; Zimring and Hawkins 1973). "Informal