



# Modern Applications of the Classical Perspective

## Deterrence, Rational Choice, and Routine Activities or Lifestyle Theories of Crime

This section will discuss the early aggregate studies of deterrence in the late 1960s, then the perceptual studies of the 1970s, and finally the longitudinal and scenario studies of the 1980s and 1990s to the present. Other policy applications, such as increased penalties for drunk driving, white-collar crime, and so on, will also be examined. This section will also discuss the development of rational choice theory in economics and its later application to crime. Finally, it will examine the use of routine activities theory or lifestyle theory as a framework for modern research and applications for reducing criminal activity.

In Section II, we discussed the early development of the Classical and Neoclassical Schools of criminological thought. This theoretical perspective has been the dominant framework used by judges and practitioners in the practice of administering justice and punishment even in current times, but beginning in the late 19th century, criminological researchers dismissed the classical and neoclassical frameworks. Rather, criminological research and theorizing began emphasizing factors other than free will and deterrence. Instead, an emphasis was placed on social, biological, or other factors that go beyond free will and deterrence theory. These theories will be discussed in later sections, but first we will examine the recent rebirth of classical and neoclassical theory and deterrence.

### The Rebirth of Deterrence Theory and Contemporary Research

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As just discussed in Section II, the Classical and Neoclassical School frameworks fell out of favor among scientists and philosophers in the late 19th century, largely due to the introduction of Charles Darwin's ideas about evolution and natural selection. However, virtually all Western criminal systems retained the classical and neoclassical frameworks for their model of justice, particularly the United States. Nevertheless, the ideology of Beccaria's work was largely dismissed by academics and theorists after the presentation of Darwin's theory of evolution in the 1860s. Therefore, the Classical and Neoclassical Schools fell out of favor in terms of criminological theorizing for about 100 years. However, in the 1960s, the Beccarian model of offending experienced a rebirth.

In the late 1960s, several studies using aggregate measures of crime and punishment were published that used a deterrence model for explaining why individuals engage in criminal behavior. These studies revealed a new interest in the deterrent aspects of criminal behavior and further supported the importance of certainty and severity of punishment in deterring individuals from committing crime, particularly homicide. In particular, evidence was presented that showed that increased risk or certainty of punishment was associated with less crime for most serious offenses. Plus, it is a fact that most offenders who are arrested once never get arrested again, which provides some basic support for deterrence.

Many of these studies used statistical formulas to measure the degree of certainty and severity of punishment in given jurisdictions. One measure used the ratio between crimes reported to police and number of arrests in a given jurisdiction. Another measure of certainty of punishment was the ratio of arrests to convictions, or findings of guilt, in criminal cases. Other measures were also employed. Most of the studies showed the same result: The higher the rate of arrest compared to reports of crime, or the higher the conviction rate compared to the arrest rate, the lower the crime rate in the jurisdiction. On the other hand, the scientific evidence for severity, which such studies generally indicated by the lengths of sentences for comparable crimes or similar measures, did not show much impact on crime.

Additional aggregate studies examined the prevalence and influence of capital punishment on the crime rate in given states.<sup>1</sup> The evidence showed that the states with death penalty statutes also had higher murder rates than non-death-penalty states. Furthermore, the studies showed that murderers in death penalty states who were not executed actually served less time than murderers in non-death-penalty states. Thus, the evidence regarding increased sanctions, including capital punishment, was mixed. Still, a review of the early deterrence studies by the National Academy of Sciences concluded that, overall, there was more evidence for a deterrent effect than against it, although the finding was reported in a tone that lacked confidence, perhaps cautious of what future studies would show.<sup>2</sup>

It was not long before critics noted that studies incorporating aggregate (i.e., macro-level) statistics are not adequate indicators or valid measures of the deterrence theoretical framework, largely because the model emphasizes the perceptions of individuals. Using aggregate or group statistics is flawed because different regions may have higher or lower crime rates than others, thereby creating bias in the ratios for certainty or severity of punishment. Furthermore, the group measures produced by these studies provide virtually no information on the degree to which individuals in those regions perceive sanctions as being certain, severe, or swift. Therefore, the emphasis on the unit of analysis in deterrence research shifted from the aggregate level to a more micro, individual level.

The following phase of deterrence research focused on individual perceptions of certainty and severity of sanctions, primarily drawn at one point in time, known as **cross-sectional studies**. A number of cross-sectional studies of individual perceptions of deterrence showed that perceptions of the risk or certainty of punishment were strongly associated with intentions to commit future crimes, but individual perceptions of the severity of punishments were mixed. Furthermore, it readily became evident that it was not clear whether perceptions were causing changes in behavior or whether behavior was causing changes in perception. This led to the next wave of research—longitudinal studies of individual perceptions and deterrence—which measured behavior as well as perceptions of risk and severity over time.<sup>3</sup>

<sup>1</sup>Daniel Glaser and Max S. Zeigler, "Use of the Death Penalty v. Outrage at Murder," *Crime and Delinquency* 20 (1974): 333–38; Charles Tittle, Franklin E. Zimring, and Gordon J. Hawkins, *Deterrence: The Legal Threat in Crime Control* (Chicago: University of Chicago Press, 1973); Johannes Andenaes, *Punishment and Deterrence* (Ann Arbor: University of Michigan Press, 1974); Jack P. Gibbs, *Crime, Punishment and Deterrence* (New York: Elsevier, 1975).

<sup>2</sup>Alfred Blumstein, Jacqueline Cohen, and Daniel Nagin, eds., *Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates* (Washington, DC: National Academy of Sciences, 1978).

<sup>3</sup>Raymond Paternoster et al., "Perceived Risk and Social Control: Do Sanctions Really Deter?," *Law and Society Review* 17 (1983): 457–80; Raymond Paternoster, "The Deterrent Effect of the Perceived Certainty and Severity of Punishment: A Review of the Evidence and Issues," *Justice Quarterly* 4 (1987): 173–217; Charles F. Manski and John V. Pepper, "Deterrence and the Death Penalty: Partial Identification Analysis Using Repeated Cross Sections," *Journal of Quantitative Criminology* 29 (2013): 123–44.

One of the primary concepts revealed by longitudinal research was that behavior was influencing perceptions of the risk and severity of punishment more than perceptions were influencing behavior. This was referred to as the **experiential effect**, which is appropriately named because people's previous experience highly influences their expectations regarding their chances of being caught and suffering the resulting penalties.

A common example is that of people who drive under the influence of alcohol (or other substances). Studies show that if you ask people who have never driven drunk how likely they would be to get caught if they drove home drunk, most predict an unrealistically high chance of getting caught. However, if you ask people who have been arrested for driving drunk—even those who have been arrested several times for this offense—they typically predict that the chance is very low. The reason for this is that these chronic drunk drivers have typically been driving under the influence for many years, mostly without being caught. It is estimated that more than 1 million miles are driven collectively by drunk drivers before one person is arrested.<sup>4</sup> If anything, this is likely a conservative estimate. Thus, people who drive drunk—some of whom do so every day—are not likely to be deterred even when they are arrested more than once because they have done so for years. In fact, perhaps the most notable experts on the deterrence of drunk drivers, H. L. Ross and his colleagues, have concluded that drunk drivers who “perceive a severe punishment if caught, but a near-zero chance of being caught, are being rational in ignoring the threat.”<sup>5</sup> Thus, even the most respected scholars in this area admit that sanctions against drunk driving are nowhere near certain enough, even if they are growing in severity.

Another common example is seen with white-collar criminals. Some researchers have theorized that being caught by authorities for violating government rules enforced by the U.S. Securities and Exchange Commission (SEC) will make these organizations less likely to commit future offenses.<sup>6</sup> However, business organizations have been in violation of established practices for years by the time they get caught, so it is likely that they will continue to ignore the rules in the future more than organizations that have never violated the rules. Thus, the certainty of punishment for white-collar violations is so low—and many would argue that the severity is also quite low—that it is quite rational for businesses and business professionals to take the risk of engaging in white-collar crime.

It is interesting to note that white-collar criminals and drunk drivers are two types of offenders who are considered more likely to be deterred because they are mostly of the middle- to upper-level socioeconomic class. The extant research on deterrence has shown that individuals who have something to lose are the most likely to be deterred by sanctions. This makes sense: Those who are unemployed or poor or both do not have much to lose, and for them, as well as for some minorities, incarceration may not present a significant departure from the deprived lives that they lead.

The fact that official sanctions have limitations in deterring individuals from drunk driving and white-collar crime is not a good indication of the effectiveness of deterrence-based policies. Their usefulness becomes even more questionable when other populations are considered, particularly the offenders in most predatory street crimes (robbery, burglary, etc.), in which offenders typically have nothing to lose because they come from poverty-stricken

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<sup>4</sup>Benjamin Hansen, “Punishment and Deterrence: Evidence from Drunk Driving” (paper presented at the 7th Annual Conference on Empirical Legal Studies, Stanford University, Stanford, CA, April 2013); H. Laurence Ross, *Detering the Drunk Driver: Legal Policy and Social Control* (Lexington, KY: Lexington Books, 1982); H. Laurence Ross, *Confronting Drunk Driving: Social Policy for Saving Lives* (New Haven, CT: Yale University Press, 1992); H. Laurence Ross, “Sobriety Checkpoints, American Style,” *Journal of Criminal Justice* 22 (1994): 437–44; H. Laurence Ross, Richard McCleary, and Gary LaFree, “Can Mandatory Jail Laws Deter Drunk Driving? The Arizona Case,” *Journal of Criminal Law and Criminology* 81 (1990): 156–70.

<sup>5</sup>Ross, “Sobriety Checkpoints,” 164.

<sup>6</sup>See the review in Sally Simpson and Christopher S. Koper, “Detering Corporate Crime,” *Criminology* 30 (1992): 347–76.

areas and are often unemployed. One recent study showed that being arrested had little effect on perceptions of the certainty of punishment; offending actually corresponded with decreases in such perceptions.<sup>7</sup>

Some people don't see incarceration as that much of a step down in life, given the three meals a day, shelter, and relative stability provided by such punishment. This fact epitomizes one of the most notable paradoxes we have in criminology: The individuals we most want to deter are the least likely to be deterred, primarily because they have nothing to fear. In early Enlightenment thought, Thomas Hobbes asserted that, although fear was the tool used to enforce the social contract, people who weren't afraid of punishment could not effectively be deterred. That remains true in modern days.

Along the same lines, studies have consistently shown that for young male offenders—at higher risk, with low emotional or moral inhibitions, low self-control, and high impulsivity—official deterrence is highly ineffective in preventing crimes with immediate payoffs.<sup>8</sup> Thus, many factors go into the extent to which official sanctions can deter. As we have seen, even among those offenders who are in theory the most deterrable, official sanctions have little impact because their experience of not being caught weakens the value of deterrence.

The identification and understanding of the experiential effect had a profound influence on the interpretation of evidence regarding the impact of deterrence. Researchers saw that, to account for such an experiential effect, any estimation of the influence of perceived certainty or severity of punishment must control for previous experiences of engaging in unlawful behavior. The identification of the experiential effect was the primary contribution of the longitudinal studies of deterrence, but such studies faced even further criticism.

Longitudinal studies of deterrence provided a significant improvement over the cross-sectional studies that preceded this advanced methodology. However, such longitudinal studies typically involved designs in which measures of perceptions of certainty and severity of punishment were collected at points in time that were separated by up to a year, including long stretches between when the crime was committed and when the offenders were asked about their perceptions of punishment. Psychological studies have clearly established that perceptions of the likelihood and severity of sanctions vary significantly from day to day, not to mention month to month and year to year.<sup>9</sup> Therefore, in the late 1980s and early 1990s, a new wave of deterrence research evolved, which asked study participants to estimate their likelihood of committing a criminal act in a given situation as well as their immediate

<sup>7</sup>Greg Pogarsky, KiDeuk Kim, and Raymond Paternoster, "Perceptual Change in the National Youth Survey: Lessons for Deterrence Theory and Offender Decision-Making," *Justice Quarterly* 22 (2005): 1–29.

<sup>8</sup>For reviews, see Stephen Brown, Finn Esbensen, and Gilbert Geis, *Criminology*, 8th ed. (Cincinnati, OH: Anderson, 2012); Nancy Finley and Harold Grasmick, "Gender Roles and Social Control," *Sociological Spectrum* 5 (1985): 317–30; Harold Grasmick, Robert Bursik, and Karla Kinsey, "Shame and Embarrassment as Deterrents to Noncompliance with the Law: The Case of an Antilittering Campaign," *Environment and Behavior* 23 (1991): 233–51; Harold Grasmick, Brenda Sims Blackwell, and Robert Bursik, "Changes in the Sex Patterning of Perceived Threats of Sanctions," *Law and Society Review* 27 (1993): 679–705; Pamela Richards and Charles Tittle, "Gender and Perceived Chances of Arrest," *Social Forces* 59 (1981): 1182–99; George Loewenstein, Daniel Nagin, and Raymond Paternoster, "The Effect of Sexual Arousal on Expectations of Sexual Forcefulness," *Journal of Research in Crime and Delinquency* 34 (1997): 209–28; Toni Makkai and John Braithwaite, "The Dialects of Corporate Deterrence," *Journal of Research in Crime and Delinquency* 31 (1994): 347–73; Daniel Nagin and Raymond Paternoster, "Enduring Individual Differences and Rational Choice Theories of Crime," *Law and Society Review* 27 (1993): 467–96; Alex Piquero and Stephen Tibbetts, "Specifying the Direct and Indirect Effects of Low Self-Control and Situational Factors in Offenders' Decision Making: Toward a More Complete Model of Rational Offending," *Justice Quarterly* 13 (1996): 481–510; Raymond Paternoster and Sally Simpson, "Sanction Threats and Appeals to Morality: Testing a Rational Choice Model of Corporate Crime," *Law and Society Review* 30 (1996): 549–83; Daniel Nagin and Greg Pogarsky, "Integrating Celerity, Impulsivity, and Extralegal Sanction Threats into a Model of General Deterrence: Theory and Evidence," *Criminology* 39 (2001): 404–30; and Alex Piquero and Greg Pogarsky, "Beyond Stanford and Warr's Reconceptualization of Deterrence: Personal and Vicarious Experiences, Impulsivity, and Offending Behavior," *Journal of Research in Crime and Delinquency* 39 (2002): 153–86. For a recent review and a different explanation of these conclusions, see Greg Pogarsky, "Identifying 'Deterrable' Offenders: Implications for Research on Deterrence," *Justice Quarterly* 19 (2002): 431–52.

<sup>9</sup>Icek Ajzen and Martin Fishbein, *Understanding Attitudes and Predicting Social Behavior* (Englewood Cliffs, NJ: Prentice Hall, 1980); Martin Fishbein and Icek Ajzen, *Belief, Attitude, Intention, and Behavior* (Reading, MA: Addison-Wesley, 1975); Icek Ajzen and Martin Fishbein, "Attitude-Behavior Relations: A Theoretical Analysis and Review of Empirical Research," *Psychological Bulletin* 84 (1977): 888–918. For a recent review, see Pogarsky et al., "Perceptual Change."

perceptions of the certainty and severity of punishment in the same situation. This wave of research was known as **scenario (vignette) research**.<sup>10</sup>

Scenario research (i.e., vignette design) was created to deal with the limitations of previous methodological strategies for studying the effects of deterrence on criminal offending—specifically, the criticism that individuals' perceptions of the certainty and severity of punishment change drastically from time to time and across different situations. The scenario method dealt with this criticism directly by providing a specific, realistic (albeit hypothetical) situation in which a person engages in a criminal act. Participants in the study are then asked to estimate the chance that they would engage in such activity in the given circumstances and to respond to questions regarding their perceptions of the risk of getting caught (i.e., certainty of punishment) and the degree of severity of punishment they expect.

Another important and valuable aspect of scenario research was that it promoted contemporaneous (i.e., instantaneous) responses about perceptions of risk and the severity of perceived sanctions. In comparison, previous studies (e.g., aggregate, cross-sectional, longitudinal) had always relied on either group or individual measures of perceptions over long periods of time. While some argue that intentions to commit a crime given a hypothetical situation are not accurate measures of what people would do in reality, studies have shown an extremely high correlation between what people report doing in a given scenario and what they would do in real life.<sup>11</sup> A recent review of criticisms of this research method showed that one weakness was that it did not allow respondents to offer their own perceptions of the risk and costs associated with each offense.<sup>12</sup> Despite such criticisms, the scenario method appears to be the most accurate that we have to date to estimate the effects of individuals' perceptions on the likelihood of their engaging in given criminal activity at a given point in time. This is something that the previous waves of deterrence research—aggregate, cross-sectional, and longitudinal studies—could not estimate.

Ultimately, the studies using the scenario method showed that participants were more affected by perceptions of certainty and less so, albeit sometimes significantly, by perceptions of severity. These findings supported previous methods of estimating the effects of *formal* or *official deterrence*, meaning the deterrent effects of three general groups: law enforcement, courts, and corrections (i.e., prisons and probation or parole). Thus, the overall conclusion regarding the effects of official sanctions on individual decision making remained unaltered. However, one of the more interesting aspects of the scenario research method is that it helped solidify the importance of extralegal variables in deterring criminal behavior, variables that had been neglected by previous methods.

<sup>10</sup>Loewenstein et al., "The Effect of Sexual Arousal"; Nagin and Paternoster, "Enduring Individual Differences"; Piquero and Tibbetts, "Specifying the Direct"; Paternoster and Simpson, "Sanction Threats"; Stephen G. Tibbetts, "Traits and States of Self-Conscious Emotions in Criminal Decision Making," in *Affect and Cognition in Criminal Decision Making*, ed. Jean-Louis Van Gelder, Henk Elffers, Danielle Reynald, and Daniel Nagin (London: Routledge, 2014), 221–38; Ronet Bachman, Raymond Paternoster, and Sally Ward, "The Rationality of Sexual Offending: Testing a Deterrence/Rational Choice Conception of Sexual Assault," *Law and Society Review* 26 (1992): 343–72; Harold Grasmick and Robert Bursik, "Conscience, Significant Others, and Rational Choice: Extending the Deterrence Model," *Law and Society Review* 24 (1990): 837–61; Harold Grasmick and Donald E. Green, "Legal Punishment, Social Disapproval, and Internalization as Inhibitors of Illegal Behavior," *Journal of Criminal Law and Criminology* 71 (1980): 325–35; Stephen Klepper and Daniel Nagin, "The Deterrent Effects of Perceived Certainty and Severity of Punishment Revisited," *Criminology* 27 (1989): 721–46; Stephen Tibbetts and Denise Herz, "Gender Differences in Students' Rational Decisions to Cheat," *Deviant Behavior* 18 (1996): 393–414; Stephen Tibbetts and David Myers, "Low Self-Control, Rational Choice, and Student Test Cheating," *American Journal of Criminal Justice* 23 (1999): 179–200; Stephen Tibbetts, "Shame and Rational Choice in Offending Decisions," *Criminal Justice and Behavior* 24 (1997): 234–55.

<sup>11</sup>Ajzen and Fishbein, *Understanding Attitudes*; Donald Green, "Measures of Illegal Behavior in Individual Behavior in Individual-Level Deterrence Research," *Journal of Research in Crime and Delinquency* 26 (1989): 253–75; Icek Ajzen, "From Intentions to Actions: A Theory of Planned Behavior," in *Action-Control: From Cognition to Behavior*, ed. Julius Kuhl and Jurgen Beckmann (New York: Springer, 1985), 11–39; Icek Ajzen and Martin Fishbein, "The Prediction of Behavioral Intentions in a Choice Situation," *Journal of Experimental Psychology* 5 (1969): 400–416.

<sup>12</sup>Jeffrey A. Bouffard, "Methodological and Theoretical Implications of Using Subject-Generated Consequences in Tests of Rational Choice Theory," *Justice Quarterly* 19 (2002): 747–71.

These extralegal or informal deterrence variables, which include any factors beyond the formal sanctions of police, courts, and corrections—such as employment, family, friends, or community—are typically known as informal or unofficial sanctions. The scenario research studies helped show that these informal sanctions provided most of the deterrent effect—if there was any. These findings coincided with the advent of a new model of deterrence, which became commonly known as *rational choice theory*.

## Rational Choice Theory

**Rational choice theory** is a perspective that criminologists adapted from economists, who used it to explain a variety of individual decisions regarding a variety of behaviors. This framework emphasizes all the important factors that go into a person's decision to engage or not engage in a particular act. In terms of criminological research, the rational choice model emphasized both official or formal forms of deterrence and also the informal factors that influence individual decisions regarding criminal behavior. This represented a profound advance in the understanding of human behavior. After all, as studies showed, most individuals are more affected by informal factors than they are by official or formal factors.

Although there were several previous attempts to apply the rational choice model to the understanding of criminal activity, the most significant work, which brought rational choice theory into the mainstream of criminological research, was Derek Cornish and Ron Clarke's *The Reasoning Criminal: Rational Choice Perspectives on Offending* in 1986.<sup>13</sup> Furthermore, in 1988, Jack Katz published his work *Seductions of Crime*, which, for the first time, placed an emphasis on the benefits (mostly the inherent physiological pleasure) of committing crime.<sup>14</sup> Before Katz's publication, virtually no attention had been paid to the benefits of offending, let alone the fun that people feel when they engage in criminal behavior. A recent study showed that the publication of Cornish and Clarke's book, as well as the timing of other publications such as Katz's, led to an influx of criminological studies in the late 1980s to mid-1990s based on the rational choice model.<sup>15</sup>

These studies on rational choice showed that while official or formal sanctions tend to have some effect on individuals' decisions to commit crime, they almost always are relatively unimportant compared to extralegal or informal factors.<sup>16</sup> The effects of people's perceptions of how much shame or loss of self-esteem they would experience, even if no one else found out that they committed the crime, was one of the most important variables in determining whether or not they would do so.<sup>17</sup> Additional evidence indicated that females were more influenced by the effects of shame and moral beliefs in this regard than were males.<sup>18</sup> Recent studies have shown that differing

<sup>13</sup>Derek Cornish and Ron Clarke, *The Reasoning Criminal: Rational Choice Perspectives on Offending* (New York: Springer-Verlag, 1986).

<sup>14</sup>Jack Katz, *Seductions of Crime* (New York: Basic Books, 1988).

<sup>15</sup>Stephen Tibbetts and Chris Gibson, "Individual Propensities and Rational Decision-Making: Recent Findings and Promising Approaches," in *Rational Choice and Criminal Behavior*, ed. Alex Piquero and Stephen Tibbetts (New York: Routledge, 2002), 3–24. See recent review by Jean-Louis Van Gelder et al. (eds.), *Affect and Cognition in Criminal Decision Making* (London: Routledge, 2014).

<sup>16</sup>For a recent review, see Pamela Schram and Stephen Tibbetts, *Introduction to Criminology: Why Do They Do It?*, 2nd ed. (Thousand Oaks, CA: Sage, 2018), 96–100.

<sup>17</sup>Grasmick and Bursik, "Conscience"; Pogarsky, "Identifying 'Deterrable' Offenders"; Tibbetts, "Shame and Rational Choice"; Nagin and Paternoster, "Enduring Individual Differences"; Tibbetts and Herz, "Gender Differences"; Tibbetts and Myers, "Low Self-Control"; Harold Grasmick, Brenda Sims Blackwell, and Robert Bursik, "Changes over Time in Gender Differences in Perceived Risk of Sanctions," *Law and Society Review* 27 (1993): 679–705; Harold Grasmick, Robert Bursik, and Bruce Arneklev, "Reduction in Drunk Driving as a Response to Increased Threats of Shame, Embarrassment, and Legal Sanctions," *Criminology* 31 (1993): 41–67; Stephen Tibbetts, "Self-Conscious Emotions and Criminal Offending," *Psychological Reports* 93 (2004): 101–31.

<sup>18</sup>Tibbetts and Herz, "Gender Differences"; Grasmick et al., "Changes in the Sex Patterning"; Finley and Grasmick, "Gender Roles"; Pogarsky et al., "Perceptual Change"; Stephen Tibbetts, "Gender Differences in Students' Rational Decisions to Cheat," *Deviant Behavior* 18 (1997): 393–414.



▲ **Image 3.1** There are both formal and informal elements of deterrence that influence decisions of whether or not to commit criminal behavior.

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levels of certain personality traits, especially self-control and empathy, are likely the reason why males and females differ so much in engaging in criminal activity.<sup>19</sup> Finally, the influence of peers has a profound impact on individual perceptions of the pros and cons of offending, because seeing friends get away with crimes significantly decreases the perceived risk of punishment.<sup>20</sup>

Another area of rational choice research dealt with the influence that an individual's behavior would have on those around her or him. A recent review and test of perceived social disapproval showed that this was one of the most important variables in decisions to commit crime.<sup>21</sup> In addition to self-sanctions, such as feelings of shame and embarrassment, the perception of how loved ones, friends, and employers would respond is perhaps the most important factor that goes into a person's decision to engage in criminal activity. These are the people we deal with every day, and some of them are the source of our livelihoods, so it should not be too surprising that our perceptions of how they will react strongly affect how we behave.

Perhaps the most important finding of rational choice research was that the expected benefits—in particular, the pleasure offenders would get from offending—had one of the most significant effects on their decisions to offend. Many other conclusions have been made regarding the influence of extralegal or informal factors on criminal offending, but the ultimate conclusion that can be made is that these informal deterrent variables typically hold more influence on individual decision making regarding deviant activity than the official or formal factors that were emphasized by traditional Classical School models of behavior.

<sup>19</sup>Nagin and Paternoster, "Enduring Individual Differences"; Grasmick et al., "Changes over Time"; Tibbetts, "Self-Conscious Emotions"; Tibbetts, "Traits and States."

<sup>20</sup>Pogarsky et al., "Perceptual Change."

<sup>21</sup>Pogarsky, "Identifying 'Deterrable' Offenders."

The rational choice model of criminal offending became the modern framework of deterrence. Official authorities acknowledged the influence of extralegal or informal factors, as seen in modern efforts to incorporate the family, employment, and community in rehabilitation efforts. Such efforts are highly consistent with the current understanding of the Classical School and rational choice frameworks—namely, that individuals are more deterred by the perceived impact of their actions on informal aspects of their lives than they are by the formal punishments they might face if they carry out illegal acts.

## Routine Activities Theory

**Routine activities theory**, or **lifestyle theory**, is another contemporary form of the Classical School framework in the sense that it assumes an offender who makes rational decisions. The general model of routine activities theory was originally presented by Lawrence Cohen and Marcus Felson in 1979.<sup>22</sup> This theoretical framework emphasized the presence of three factors that come together in time and place to create a high likelihood of crime and victimization. These three factors are motivated offender(s), suitable target(s), and lack of guardianship. Overall, the theory is appropriately named in the sense that it assumes that most crime occurs in the daily routine of people who happen to see—and then seize—tempting opportunities to commit crime. Studies tend to support this idea, as opposed to the idea that most offenders leave their home knowing they are going to commit a crime; the latter offenders are called hydraulic and are relatively rare compared to the opportunistic type.

Regarding the first factor noted as being important for increasing the likelihood of criminal activity—a motivated offender—routine activities theory does not provide much insight. Rather, the model simply assumes that some individuals tend to be motivated and leaves it at that. Fortunately, we have many other theories that can fill this notable absence. The strength of routine activities theory lies in its elaboration of the other two aspects of a crime-prone environment: suitable targets and lack of guardianship.

Suitable targets can include a variety of situations. For example, a very suitable target can be a vacant house in the suburbs, which the family has left for summer vacation. Data clearly show that burglaries more than double in the summer when many families are on vacation. Other forms of suitable targets range from an unlocked car to a female alone at a shopping mall carrying a lot of cash and credit cards or purchased goods. Other likely targets are bars or other places that serve alcohol. Offenders have traditionally targeted drunk persons because they are less likely to be able to defend themselves, as illustrated by a history of lawbreakers rolling drunks for their wallets that extends back to the early part of the 20th century. This is only a short list of the many types of suitable targets that are available to motivated offenders in everyday life.

The third and final aspect of the routine activities model for increased likelihood of criminal activity is the lack of guardianship. Guardianship is often thought of as a police officer or security guard, which is often the case. There are many other forms of guardianship, however, such as



▲ **Image 3.2** Marcus Felson (1947–), Rutgers University, author of routine activities theory.

SOURCE: Courtesy of Marcus Felson

<sup>22</sup>Lawrence Cohen and Marcus Felson, “Social Change and Crime Rates: A Routine Activities Approach,” *American Sociological Review* 44 (1979): 214–41.



owning a dog to protect a house, which studies demonstrate can be quite effective. Just having a car or house alarm constitutes a form of guardianship. Furthermore, the presence of an adult, neighbor, or teacher can effectively guard an area against crime. In fact, recent studies show that increased lighting in the area can prevent a significant amount of crime, with one study showing a 20% reduction in overall crime in areas randomly chosen to receive improved lighting as compared to control areas that did not.<sup>23</sup> Regardless of the type of guardianship, it is the absence of adequate guardianship that sets the stage for crime; on the other hand, each step taken toward protecting a place or person is likely to deter offenders from choosing the target in relation to others. Locations that have a high convergence of motivated offenders, suitable targets, and lack of guardianship are typically referred to as *hot spots*.<sup>24</sup>

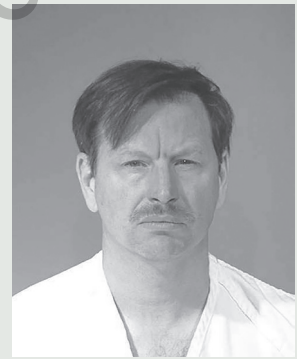
### Case Study: The Green River Killer

Gary Leon Ridgway was convicted and sentenced in 2003 after many decades of acting as the Green River Killer; he had stabbed his first victim at age 16 in 1965. He confessed to killing 71 victims (although he was convicted of only 48), virtually all of them women. He appeared to live separate lives. In one aspect of his life in the Seattle area, he was the father of a son and husband to his third wife. The other side involved picking up women, mostly prostitutes and strippers, who were willing to engage in sexual activity with him in remote locations.

He claimed that he would hide or bury the bodies of the victims he really “liked” because he knew he would want to go back and have sex with them later, which he did on occasion. He would also place various objects, such as a fish, bottle, or sausage, at the crime scene to throw off authorities, because these objects didn’t match the modus operandi they were expecting to help link the crimes together. So he did appear to plan his crimes, at least in terms of manipulating the crime scenes (whether the primary scene, where the killing took place, or the secondary scene, where the body was dumped).

He also notably said, “I would choke them . . . and I was really good at it.” But when asked by an investigator in an official interview where he ranked on a scale of evil from 1 to 5, he said he was a 3. So there appears to be a disconnect between the way he thinks and the way society at large thinks.

Ridgway was caught after DNA from crime scenes was matched to a saliva test he had taken years before, when authorities had suspected him but didn’t have enough evidence to make an arrest. So he continued his killing spree for many years, until they finally obtained further evidence linking him to some of the murders. Ridgway



▲ **Image 3.3** Gary Leon Ridgway, who was a serial killer, confessed to murdering at least 71 victims.

SOURCE: King County Sheriff’s Office, via Wikimedia Commons

(Continued)

<sup>23</sup>David P. Farrington and Brandon C. Welsh, “Improved Street Lighting and Crime Prevention,” *Justice Quarterly* 19 (2002): 313–43; Spiros Kitsinelisa and Georges Zissisa, “A Short Review on Lighting and Security,” *Journal of Applied Security Research* 7 (2012): 341–353.

<sup>24</sup>For further discussion and more recent studies, see Schram and Tibbetts, “Introduction to Criminology,” 100–105.

(Continued)

is now serving 480 years in prison for 48 life sentences, due to a bargain that got him out of the death penalty.

But why did he do it? Obviously, he has some psychological issues. But he passed the psychological test to determine readiness to stand trial, so he was not ruled legally insane. Virtually all his victims easily fit within his lifestyle, as he traveled around in his truck and picked up women in essentially the same area where he worked and lived. He never went far out of his way. In fact, none of his victims seemed to come from outside the Seattle area. And he would almost always dump or bury the bodies within a relatively limited radius in that region—hence his label, “the Green River Killer.”

In one notable instance, he claimed that his son was with him in the truck when he picked up a woman. He had his son stay in the truck while he took the woman a distance away and killed her. But we know that he tended to pick up and kill these women as part of his daily routine, which included working at a truck-painting factory. Thus, this case applies to the routine activities theory and lifestyles perspective covered in this section. Also keep in mind that even at the time when he was apprehended for these murders, he had a relatively stable marriage, which is not atypical for serial killers. They often lead separate lives, and both lives can seem fairly routine despite extreme contradictions.

1. What was the Green River Killer's typical method of operation (MO), or how he carried out most of his killings?
2. How is the Green River Killer's case a good example of routine activities theory?

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**... When asked by an investigator in an official interview where he ranked on a scale of evil from 1 to 5, he said he was a 3.**

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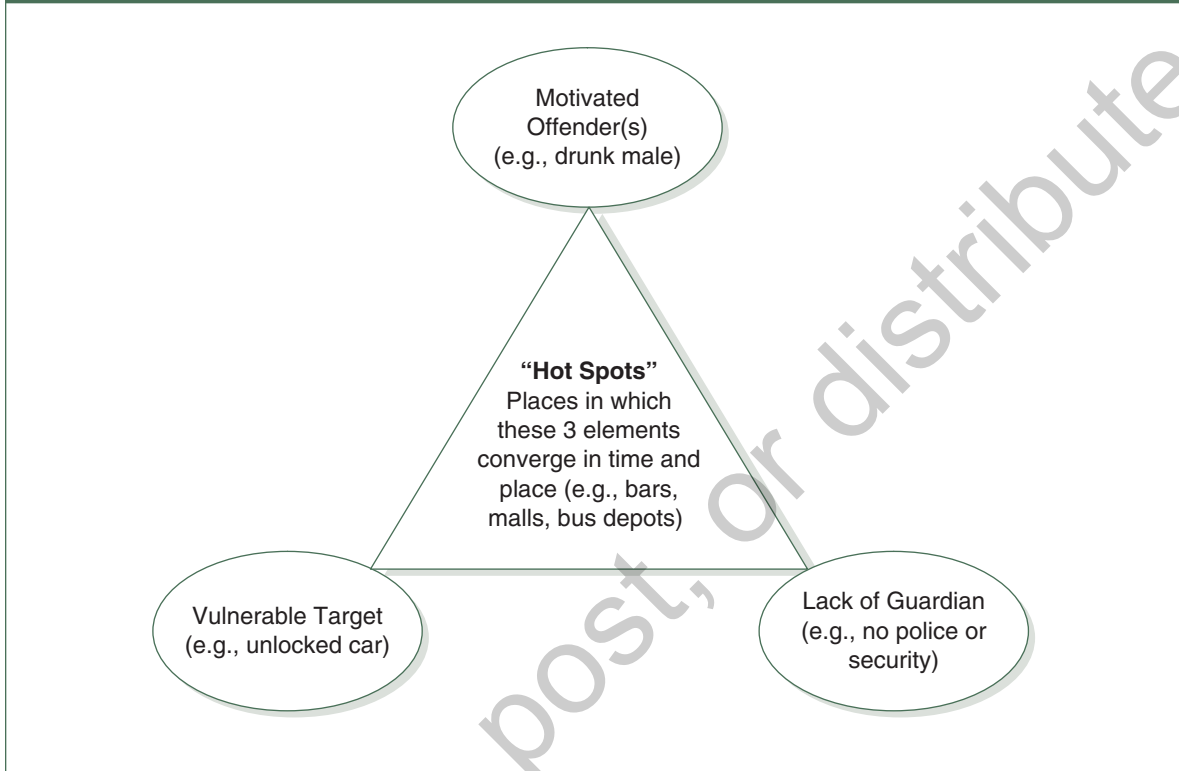
SOURCE: Jeff Jensen and Jonathan Case, *Green River Killer: A True Detective Story* (Milwaukie, OR: Dark Horse Books, 2011).

Perhaps the most supportive evidence for routine activities theory and hot spots was the study of 911 calls for service in Minneapolis, Minnesota.<sup>25</sup> This study examined all serious calls (as well as total calls) to police for a 1-year period. Half of the top 10 places from which police were called were bars or locations where alcohol was served. As mentioned previously, establishments that serve alcohol are often targeted by motivated offenders because of their high proportion of suitable targets. Furthermore, a number of bars tend to have a low level of guardianship in relation to the number of people they serve. Readers of this book may well relate to this situation. Most college towns and cities have certain drinking establishments that are known as being hot spots for crime.

Still, the Minneapolis hot spot study showed other types of establishments that made the top 10 rankings. These included places such as bus depots, convenience stores, run-down motels and hotels, downtown malls, and strip malls. The common theme linking these locations and the bars was the convergence of the three aspects described by routine activities theory as being predictive of criminal activity. Specifically, these places attracted motivated offenders, largely because they have a lot of vulnerable targets and lack sufficient levels of security or guardianship.

<sup>25</sup>Lawrence Sherman, Patrick R. Gartin, and Michael Buerger, “Hot Spots of Predatory Crime: Routine Activities and the Criminology of Place,” *Criminology* 27 (1989): 27–56.

Figure 3.1 • Routine activities theory



The routine activities framework has been applied in many contexts and places, many of them international.<sup>26</sup> Modern applications of routine activities theory include geographic profiling, which uses satellite positioning systems in perhaps the most attractive and marketable aspect of criminological research in contemporary times. Essentially, such research incorporates computer software for a Global Positioning System (GPS) to identify the exact location of every crime that takes place in a given jurisdiction. Such information has been used to solve or predict various crimes, to the point where serial killers have been caught by triangulating the sites where the victims were found to show the most likely place where the killer lived.

<sup>26</sup>Anthony A. Braga, Andrew V. Papachristos, and David M. Hureau, "The Effects of Hot Spots Policing on Crime: An Updated Systematic Review and Meta-Analysis," *Justice Quarterly* 29 (2012): 1–31; Jon Gunnar Bernburg and Thorolfur Thorlindsson, "Routine Activities in Social Context: A Closer Look at the Role of Opportunity in Deviant Behavior," *Justice Quarterly* 18 (2001): 543–67. See also Richard Bennett, "Routine Activity: A Cross-National Assessment of a Criminological Perspective," *Social Forces* 70 (1991): 147–63; James Hawdon, "Deviant Lifestyles: The Social Control of Routine Activities," *Youth and Society* 28 (1996): 162–88; James L. Massey, Marvin Krohn, and Lisa Bonati, "Property Crime and the Routine Activities of Individuals," *Journal of Research in Crime and Delinquency* 26 (1989): 378–400; Terrance Miethe, Mark Stafford, and J. Scott Long, "Social Differences in Criminological Victimization: A Test of Routine Activities/Lifestyles Theories," *American Sociological Review* 52 (1987): 184–94; Elizabeth Mustaine and Richard Tewksbury, "Predicting Risks of Larceny Theft Victimization: A Routine Activity Analysis Using Refined Lifestyle Measures," *Criminology* 36 (1998): 829–57; D. Wayne Osgood et al., "Routine Activities and Individual Deviant Behavior," *American Sociological Review* 61 (1996): 635–55; Dennis Roncek and Pamela Maier, "Bars, Blocks, and Crimes Revisited: Linking the Theory of Routine Activities to the Empiricism of Hot Spots," *Criminology* 29 (1991): 725–53; and Robert Sampson and John Wooldredge, "Linking the Micro- and Macro-Level Dimensions of Lifestyle-Routine Activity and Opportunity Models of Predatory Victimization," *Journal of Quantitative Criminology* 3 (1987): 371–93.



▲ **Image 3.4** Crimes tend to be concentrated in certain places and certain times and thus are not typically random events. The places that have a high concentration of crimes are referred to as hot spots.

SOURCE: © istockphoto.com / mrtom-uk

scientific findings in this section. Here, we will concentrate on some of the most important policies. First, we look at the policy of broken windows, which has many assumptions similar to those of the routine activities and rational choice theories. The broken windows perspective emphasizes the need for police to crack down on minor offenses to reduce major crimes.<sup>28</sup> Although many cities (e.g., New York and Los Angeles) have claimed reductions in serious crimes by using this theory, crime was reduced by the same amount across most U.S. cities during the same time (the late 1990s to mid-2000s).

Relatedly, regarding the effectiveness of targeting hot spots of crime—which is based primarily on routine activities theory—according to a 2017 article by David Weisburd, David Farrington, and Charlotte Gill, the most recent systematic reviews and meta-analyses studies have concluded that policing strategies that place focused emphasis on hot spots appear to be effective in reducing crime in those areas.<sup>29</sup> It is also notable that this same extensive recent review of the extant literature found little evidence for displacement of crime out of areas when they are targeted by focused policing efforts.<sup>30</sup> Thus, there appears to be strong support for police strategies in focusing on problematic hot spots in communities. Research by Cory Haberman in 2017 has promoted advancing the examination of spatial crime areas by examining the overlapping nature of hot spots of different crime types.<sup>31</sup>

Some theorists have proposed a theoretical model based on individuals' lifestyles, which has a large overlap with routine activities theory, as shown in studies previously reviewed.<sup>27</sup> It only makes sense that a person who lives a more risky lifestyle, for example, by frequenting bars or living in a high-crime area, will be at more risk because she or he is close to various hot spots as identified by routine activities theory. Although some criminologists label this phenomenon a lifestyle perspective, it is virtually synonymous with the routine activities model because such lifestyles incorporate the same conceptual and causal factors in routine activities.

## Policy Implications

There are numerous policy implications that can be derived from the theories and scientific

<sup>27</sup>Hawdon, "Deviant Lifestyles"; Sampson and Wooldredge, "Linking the Micro"; Brown et al., *Criminology*.

<sup>28</sup>James Q. Wilson and George Kelling, "Broken Windows: The Police and Neighborhood Safety," *Atlantic Monthly* (March 1982): 29–38.

<sup>29</sup>David Weisburd, David P. Farrington, and Charlotte Gill, "What Works in Crime Prevention and Rehabilitation: An Assessment of Systematic Reviews," *Criminology & Public Policy* 16 (2017): 415–49.

<sup>30</sup>*Ibid.*

<sup>31</sup>Cory R. Haberman, "Overlapping Hot Spots? Examination of the Spatial Heterogeneity of Hot Spots of Different Crime Types," *Criminology & Public Policy* 16 (2017): 633–60.

Additionally, a study by Robert Apel and Julie Horney in 2017, based on a routine activities theoretical framework, examined the influence of employment and criminal behavior among a national sample of 717 males.<sup>32</sup> The findings of this study indicated that employment significantly reduced criminal behavior but only when individuals reported a strong level of commitment to their jobs. The authors concluded that for such individuals who had high levels of commitment to their job, their employment reduced the unstructured leisure time that would offer offenders the situational inducements or opportunities to commit crime. This certainly supports the routine activities theoretical framework; when individuals are not simply wandering about, but rather are at work, they are less likely to offend because they are not presented with attractive opportunities to commit street crimes.

Other policies derived from the theories in this section include the *three strikes, you're out* policy, which assumes that offenders will make a rational choice not to commit future offenses because they could go to prison for life if they commit three felonies; the negatives certainly outweigh the expected benefits for the third crime. Remember Beccaria's view that for deterrence to be extremely effective, punishment must be swift, certain, and severe. Where does the three-strikes policy fall in this equation? The bottom line is that it is much more severe than it is swift or certain. Given Beccaria's philosophy (see Section II), this policy will probably not work because it is not certain or swift. However, it is severe in the sense that a person can be sentenced to life if she or he commits three felony offenses over time.

A controversial three-strikes law was passed by voter initiative in California, and other states have adopted similar types of laws.<sup>33</sup> It sends third-time felons to prison for the rest of their lives regardless of the nature of that third felony. California first requires convictions for two *strikeable* felonies: crimes like murder, rape, aggravated assault, burglary, drug offenses, and so on. Then, any third felony can trigger a life sentence. The stories about people going to prison for the rest of their lives for stealing pieces of pizza or shoplifting DVDs, while rare, are quite true.

The question we are concerned with here is, does the three-strikes policy work? As a specific deterrent, the answer is clearly yes; offenders who are in prison for the rest of their lives cannot commit more crimes on the streets. In that regard, three-strikes works very well. Some people feel, however, that laws like three-strikes need to have a general deterrent effect to be considered successful, meaning that this law should deter everyone from engaging in multiple crimes. So is three-strikes a general deterrent? Unfortunately, there are no easy answers to this question because laws vary from state to state, the laws are used at different rates across the counties in a given state, and so forth.

There is at least some consensus in the literature, however. One study from California suggests that three-strikes has reduced crime,<sup>34</sup> but the remaining studies show that three-strikes either has had no effect on crime or has actually increased crime.<sup>35</sup> How could three-strikes increase crime? The authors attributed the increase in homicide following the enactment of three-strikes laws to the possibility that third-strikers have an incentive to kill victims and any witnesses in an effort to avoid apprehension. Although this argument is tentative, it may be true.<sup>36</sup>

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<sup>32</sup>Robert Apel and Julie Horney, "How and Why Does Work Matter? Employment Conditions, Routine Activities, and Crime among Adult Male Offenders," *Criminology* 55 (2017): 307–43.

<sup>33</sup>David Shichor and Dale K. Sechrest, eds., *Three Strikes and You're Out: Vengeance as Social Policy* (Thousand Oaks, CA: Sage, 1996).

<sup>34</sup>Joanna M. Shepherd, "Fear of the First Strike: The Full Deterrent Effect of California's Two- and Three-Strikes Legislation," *Journal of Legal Studies* 31 (2002): 159–201.

<sup>35</sup>See Lisa Stolzenberg and Stewart J. D'Alessio, "Three Strikes and You're Out: The Impact of California's New Mandatory Sentencing Law on Serious Crime Rates," *Crime and Delinquency* 43 (1997): 457–69; Mike Males and Dan Macallair, "Striking Out: The Failure of California's 'Three-Strikes and You're Out' Law," *Stanford Law and Policy Review* 11 (1999): 65–72.

<sup>36</sup>Steven N. Durlauf and Daniel S. Nagin, "Imprisonment and Crime: Can Both Be Reduced?," *Criminology and Public Policy* 10 (2011): 13–54; Thomas B. Marvell and Carlisle E. Moody, "The Lethal Effects of Three-Strikes Laws," *Journal of Legal Studies* 30 (2001): 89–106. See also Tomislav Kovandzic, John J. Sloan III, and Lynne M. Vieraitis, "Unintended Consequences of Politically Popular Sentencing Policy: The Homicide-Promoting Effects of 'Three Strikes' in U.S. Cities (1980–1999)," *Criminology and Public Policy* 1 (2002): 399–424. For a review of empirical evaluations of three-strikes laws, see John Worrall, "The Effect of Three-Strikes Legislation on Serious Crime in California," *Journal of Criminal Justice* 32 (2004): 283–96.

This is just one of the many policy implications that can be derived from this section. We expect that readers of this book will come up with many more policy implications, but it is vital to examine the empirical literature to determine these policies' usefulness in reducing criminal activity. Other policy implications of the theories and findings described in this section will be discussed in the final section of this book.

In a strategy that is also strongly based on the rational choice model, a number of judges have started using shaming strategies to deter offenders from recidivating.<sup>37</sup> They have ordered everything from publicly posting pictures of men arrested for soliciting prostitutes to forcing offenders to walk down main streets of towns wearing signs that announce that they've committed crimes. These are just two examples of an increasing trend that emphasizes the informal or community factors required to deter crime. Unfortunately, to date, there have been virtually no empirical evaluations of the effectiveness of such shaming penalties, although studies of expected shame for doing an act consistently show a deterrent effect.<sup>38</sup>

## Conclusion

This section reviewed the more recent forms of classical and deterrence theory, such as rational choice theory, which emphasizes the effects of informal sanctions (e.g., family, friends, employment) and the benefits and costs of offending, and a framework called routine activities theory, which explains why victimization tends to occur far more often in certain locations (i.e., hot spots) due to the convergence of three key elements in time and place—motivated offender(s), vulnerable target(s), and lack of guardianship—which create attractive opportunities for crime as individuals go about their everyday activities. The common element across all of these perspectives is the underlying assumption that individuals are rational beings who have free will and thus choose their behavior based on assessment of a given situation, such as by weighing possible risks versus potential payoffs. Although the studies examined in this section lend support to many of the assumptions and propositions of the classical framework, it is also clear that there is a lot more involved in explaining criminal human behavior than the individual decision making that goes on before a person engages in rule violation. After all, human beings, especially chronic offenders, are often not rational and often do things spontaneously without considering the potential risks beforehand. So, despite the use of the classical and neoclassical models in most systems of justice in the modern world, such theoretical models of criminal activity largely fell out of favor among experts in the mid-19th century, when an entirely new paradigm of human behavior became dominant. This new perspective became known as the Positive School, and we will discuss the origin and development of this paradigm in the following section.

## SECTION SUMMARY

- After 100 years of neglect by criminologists, the classical and deterrence models experienced a rebirth in the late 1960s.
- The seminal studies in the late 1960s and early 1970s were largely based on aggregate and group rates of crime as well as group rates of certainty and severity of punishment, which showed that levels of actual punishment and especially certainty of punishment were associated with lower levels of crime.

<sup>37</sup>Alex Piquero and Stephen Tibbetts, eds., *Rational Choice and Criminal Behavior* (New York: Routledge, 2002).

<sup>38</sup>Tibbetts, "Gender Differences."

- A subsequent wave of deterrence research, cross-sectional surveys, which were collected at one time, supported previous findings that perceptions of certainty of punishment had a strong, inverse association with offending, whereas findings regarding severity were mixed.
- Longitudinal studies showed that much of the observed association between perceived levels of punishment and offending could be explained by the experiential effect, which is the phenomenon whereby behavior, rather than deterrence, affects perceptions (i.e., as opposed to perceptions affecting behavior).
- Scenario studies addressed the experiential effect by supplying a specific context—that is, through presenting a detailed vignette and then asking what subjects would do in that specific circumstance and what their perceptions of the event were.
- Rational choice theory emphasizes not only the formal and official aspects of criminal sanctions but also the informal or unofficial aspects, such as family and community.
- Whereas traditional classical deterrence theory ignored the benefits of offending, rational choice theory emphasizes them, such as the thrill offending produces, as well as the social benefits of committing crime.
- Routine activities theory provides a theoretical model that explains why certain places have far more crime than others and why some locations have hundreds of calls to police each year, whereas others have none.
- Lifestyle theories of crime reveal that the way people live may predispose them to both crime and victimization.
- Routine activities theory and the lifestyle perspective are becoming key in one of the most modern approaches to predicting and reducing crime and victimization. Specifically, GPS and other forms of geographical mapping of crime events have contributed to an elevated level of research and attention given to these theoretical models, due to their importance in specifically documenting where crime occurs and, in some cases, predicting where future crimes will occur.
- All of the theoretical models and studies reviewed in this section were based on classical and deterrence models, which assume that individuals consider the potential benefits and costs of punishment and then make their decisions about whether or not to engage in a criminal act.

## KEY TERMS

cross-sectional studies 86

rational choice theory 90

scenario (vignette) research 89

experiential effect 87

routine activities theory  
(lifestyle theory) 92

## DISCUSSION QUESTIONS

1. Do you think it was good that the deterrence model was reborn, or do you think it should have been left for dead? Explain why you feel this way.
2. Considering the aggregate level of research in deterrence studies, do you find such studies valid? Explain why or why not.
3. In comparing longitudinal studies to scenario (vignette) studies, which do you think offers the most valid method for examining individual perceptions regarding the costs and benefits of committing offenses? Explain why you feel this way.

4. Can you relate to the experiential effect? If you can't, do you know someone whose behavior seems to resemble that which results from this phenomenon? Make sure to articulate what the experiential effect is.
5. With rational choice theory in mind, consider whether you would rather be subject to formal sanctions if none of your family, friends, or employers found out that you had engaged in shoplifting, or face the informal sanctions but receive no formal punishment (other than being arrested) for such a crime. Explain your decision.
6. As a teenager, did you or family or friends get a rush out of doing things that were deviant or wrong? If so, did that feeling seem to outweigh any legal or informal consequences that might have deterred you or people you knew?
7. With routine activities theory in mind, consider which places, residences, or areas of your hometown fit the idea that certain places have more crime than others (i.e., are hot spots)? Explain how you, friends, or others (including police) in your community deal with such areas. Does it work?
8. Which of the three elements of routine activities theory do you feel is the most important to address in efforts to reduce crime in the hot spots?
9. What lifestyle characteristics lead to the highest offending or victimizing rates? List at least five factors that lead to such propensities.
10. Find at least one study that uses mapping and geographical (GPS) data, and report the conclusions of that study. Do the findings and conclusions fit the routine activities theoretical framework? Why or why not?
11. What types of policy strategies derived from rational choice and routine activities theories do you think would be most effective? Least effective?

## WEB RESOURCES

### *Modern Testing of Deterrence*

<http://politics.oxfordre.com/view/10.1093/acrefore/9780190228637.001.0001/acrefore-9780190228637-e-313>  
<https://marisluste.files.wordpress.com/2010/11/deterrence-theory.pdf>

### *Rational Choice Theory*

[http://www.academia.edu/12541099/An\\_Evaluation\\_of\\_the\\_Rational\\_Choice\\_Theory\\_in\\_Criminology](http://www.academia.edu/12541099/An_Evaluation_of_the_Rational_Choice_Theory_in_Criminology)  
<http://www.answers.com/topic/rational-choice-theory-criminology>

### *Routine Activities and Lifestyle Theory*

<http://www.popcenter.org/learning/pam/help/theory.cfm>



## READING /// 4

In this reading, Anthony Braga and David Weisburd present a review and analysis of various programs that emphasized reducing crime activity in the following areas: gang- or group-involved violence, repeat offenders, and the drug market. They carried out a systematic review to examine the evidence found from such strategies of focused deterrence, applying an advanced form of statistical analysis, called a meta-analysis, to combine the findings from numerous studies. Their findings contribute to our knowledge of the effectiveness of focused deterrence strategies for dealing with crime, especially in certain situations.

- What do the authors mean by “focused deterrence” strategies?
- What was the overall finding of this study regarding these strategies for reducing crime?
- What are some of the concerns or issues with some of the studies used in this meta-analysis?

# ***The Effects of Focused Deterrence Strategies on Crime***

## **A Systematic Review and Meta-Analysis of the Empirical Evidence**

Anthony A. Braga and David L. Weisburd

### **Introduction**

Deterrence theory posits that crimes can be prevented when the costs of committing the crime are perceived by the offender to outweigh the benefits (Gibbs 1975; Zimring and Hawkins 1973). Most discussions of the deterrence mechanism distinguish between “general” and “special” deterrence (Cook 1980). General deterrence is

the idea that the general population is dissuaded from committing crime when it sees that punishment necessarily follows the commission of a crime. Special deterrence involves punishment administered to criminals with the intent to discourage them from committing crimes in the future. Much of the literature evaluating deterrence focuses on the effect of changing certainty, swiftness, and severity of punishment associated with certain acts on the

SOURCE: Anthony A. Braga and David L. Weisburd, “The Effects of Focused Deterrence Strategies on Crime: A Systematic Review and Meta-analysis of the Empirical Evidence,” *Journal of Research in Crime and Delinquency* 49 (2012): 323–58. Copyright © 2012 SAGE Publications, Inc. Used by permission of SAGE Publications, Inc.

prevalence of those crimes (see, e.g., Apel and Nagin 2011; Blumstein, Cohen, and Nagin 1978; Cook 1980; Nagin 1998; Paternoster 1987).

In recent years, scholars have begun to argue that police interventions provide an effective approach for gaining both special and general deterrence against crime. A series of experimental and quasi-experimental studies has shown that the police can be effective in preventing crime (Braga 2001, 2005; Skogan and Frydl 2004; Weisburd and Eck 2004) and that such crime prevention benefits are not offset by displacement of crime to areas near to police interventions (Braga 2001; Weisburd et al. 2006). Durlauf and Nagin have drawn from this literature to argue that “(i)ncreasing the visibility of the police by hiring more officers and by allocating existing officers in ways that heighten the perceived risk of apprehension consistently seem to have substantial marginal deterrent effects” (2011:14). Indeed, they conclude that crime prevention in the United States would be improved by “shifting resources from imprisonment to policing” (2011:9–10).

A recent innovation in policing that capitalizes on the growing evidence of the effectiveness of police deterrence strategies is the “focused deterrence” framework, often referred to as “pulling-levers policing” (Kennedy 1997, 2008). Pioneered in Boston as a problem-oriented policing project to halt serious gang violence during the 1990s (Kennedy, Piehl, and Braga 1996), the focused deterrence framework has been applied in many U.S. cities through federally sponsored violence prevention programs such as the Strategic Alternatives to Community Safety Initiative and Project Safe Neighborhoods (Dalton 2002). Focused deterrence strategies honor core deterrence ideas, such as increasing risks faced by offenders, while finding new and creative ways of deploying traditional and nontraditional law enforcement tools to do so, such as directly communicating incentives and disincentives to targeted offenders (Kennedy 1997, 2008). The basic principles of the focused deterrence approach have also been applied to overt drug market problems (Kennedy 2009) and repeat offending by substance-abusing probationers (Hawken and Kleiman 2009) with positive crime control gains reported.

The evaluation of the best-known focused deterrence strategy, Boston’s Operation Ceasefire (Braga et al. 2001; Piehl et al. 2003), has been greeted with both a healthy dose of skepticism (Fagan 2002; Rosenfeld, Fornango, and

Baumer 2005) and some support (Cook and Ludwig 2006; Morgan and Winship 2007). The National Academy of Sciences’ recent report on firearms data and research concluded that the Ceasefire quasi-experimental evaluation was “compelling” in associating the intervention with a 63 percent reduction in youth homicide in Boston (Wellford, Pepper, and Petrie 2005:10); however, the report also stated that the lack of a randomized controlled trial left some doubt over how much of the decline was due to Ceasefire relative to other rival causal factors.

## Method

Our examination of the effects of focused deterrence strategies on crime followed the systematic review protocols and conventions of the Campbell Collaboration. It is important to note here that, given limited space, this article focuses on our examination of the crime reduction benefits associated with focused deterrence strategies. We encourage readers interested in a broader range of program operation and evaluation issues to consult our Campbell review (Braga and Weisburd 2011).

Meta-analysis is a method of systematic reviewing and was designed to synthesize empirical relationships across studies, such as the effects of a specific crime prevention intervention on criminal offending behavior (Wilson 2001). Meta-analysis uses specialized statistical methods to analyze the relationships between findings and study features (Lipsey and Wilson 1993; Wilson 2001). The “effect size statistic” is the index used to represent the findings of each study in the overall meta-analysis of study findings and represents the strength and direction (positive or negative) of the relationship observed in a particular study (e.g., the size of the treatment effect found). The “mean effect size” represents the average effect of treatment on the outcome of interest across all eligible studies in a particular area and is estimated by calculating a mean that is weighted by the precision of the effect size for each individual study.

## Criteria for Inclusion and Exclusion of Studies in the Review

To be eligible for this review, interventions had to be considered a focused deterrence strategy as described above. Only studies that used comparison group designs involving before and after measures were eligible for the main

analyses of this review. The comparison group study had to be either a randomized controlled trial or a quasi-experimental evaluation with comparison groups (Campbell and Stanley 1966; Cook and Campbell 1979). The units of analysis could be areas, such as cities, neighborhoods, or police beats, or individuals. Eligible studies had to measure the effects of the focused deterrence intervention on officially recorded levels of crime at places or crime by individuals. Appropriate crime measures included crime incident reports, citizen emergency calls for service, and arrest data. Particular attention was paid to studies that measured crime displacement effects and diffusion of crime control benefit effects (Clarke and Weisburd 1994; Reppetto 1976). The review considered all forms of displacement and diffusion reported by the studies.

### Search Strategies for Identification of Studies

Several strategies were used to perform an exhaustive search for literature fitting the eligibility criteria. First, a keyword search<sup>1</sup> was performed on 15 online abstract databases.<sup>2</sup> Second, we reviewed the bibliographies of past narrative and empirical reviews of literature that examined the effectiveness of focused deterrence programs (Kennedy 2008; Skogan and Frydl 2004; Wellford et al. 2005). Third, we performed forward searches for works that have cited seminal focused deterrence studies (Braga et al. 2001; Kennedy et al. 1996; McGarrell et al. 2006). Fourth, we searched bibliographies of narrative reviews of police crime prevention efforts (Braga 2008a; Sherman 2002; Weisburd and Eck 2004) and past completed Campbell systematic reviews of police crime prevention efforts (Braga 2007; Mazerolle, Soole, and Rombouts 2007; Weisburd et al. 2008). Fifth, we performed hand searches of leading journals in the field.<sup>3</sup> These searches were all completed between May 2010 and September 2010.

After finishing the above searches and reviewing the studies as described later, we e-mailed the list of studies meeting our eligibility criteria in September 2010 to leading criminology and criminal justice scholars knowledgeable in the area of focused deterrence strategies. These 90 scholars were defined as those who authored at least one study that appeared on our inclusion list, anyone involved with the National Academy of Sciences reviews of police research (Skogan and Frydl 2004) and firearms research

(Wellford et al. 2005), and other leading scholars identified by the authors (available upon request). This helped us identify unpublished studies that did not appear in conventional databases or other reviews. Finally, we consulted with an information retrieval specialist at the outset of our review and at points along the way in order to ensure that we used appropriate search strategies to identify the studies meeting the criteria of this review.<sup>4</sup>

### Statistical Procedures and Conventions

As a preliminary examination of the effects of focused deterrence strategies on crime, we used a vote counting procedure. In this rudimentary approach, each study metaphorically casts a vote for or against the effectiveness of treatment. In our closer examination of program effects, meta-analyses were used to determine the size, direction, and statistical significance of the overall impact of focused deterrence strategies on crime by weighting program effect sizes based on the variance of the effect size and the study sample size (Lipsey and Wilson 2001). We used the standardized mean difference effect size (also known as Cohen's *d*; see Cohen 1988; Rosenthal 1994) and employed the Effect Size Calculator, developed by David B. Wilson and available on the Campbell Collaboration's Web site, to calculate standardized mean difference effect sizes for reported outcomes in each study. We then used Biostat's Comprehensive Meta Analysis Version 2.2 to conduct the meta-analysis of effect sizes.

One problem in conducting meta-analyses in crime and justice is that investigators often do not prioritize outcomes examined. This is common in studies in the social sciences in which authors view good practice as demanding that all relevant outcomes be reported. However, the lack of prioritization of outcomes in a study raises the question of how to derive an overall effect of treatment. For example, the reporting of one significant result may reflect a type of "creaming" in which the authors focus on one significant finding and ignore the less positive results of other outcomes. But authors commonly view the presentation of multiple findings as a method for identifying the specific contexts in which the treatment is effective. When the number of such comparisons is small and therefore unlikely to affect the error rates for specific comparisons such an approach is often valid.

We analyze the studies using three approaches. The first is conservative in the sense that it combines all reported outcomes reported into an overall average effect size statistic. The second represents the largest effect reported in the studies and gives an upper bound to our findings. It is important to note that in some of the studies with more than one outcome reported, the largest outcome reflected what authors thought would be the most direct program effect. Finally, we present the smallest effect size for each study. This approach is the most conservative and likely underestimates the effect of focused deterrence on crime. We use it here primarily to provide a lower bound to our findings.

## Findings

Search strategies in the systematic review process generate a large number of citations and abstracts for potentially relevant studies that must be closely screened to determine whether the studies meet the eligibility criteria (Farrington and Petrosino 2001). The screening process yields a much smaller pool of eligible studies for inclusion in the review. The four search strategies produced 2,473 distinct abstracts. The contents of these abstracts were reviewed for any suggestion of an evaluation of focused deterrence interventions. About 93 distinct abstracts were selected for closer review and the full-text reports, journal articles, and books for these abstracts were acquired and carefully assessed to determine whether the interventions involved focused deterrence strategies and whether the studies used randomized controlled trial designs or non-randomized quasi-experimental designs. Eleven eligible studies were identified and included in this review:

1. Operation Ceasefire in Boston, Massachusetts (Braga et al. 2001)
2. Indianapolis Violence Reduction Partnership in Indianapolis, Indiana (McGarrell et al. 2006)
3. Operation Peacekeeper in Stockton, California (Braga 2008b)
4. Project Safe Neighborhoods in Lowell, Massachusetts (Braga et al. 2008)
5. Cincinnati Initiative to Reduce Violence in Cincinnati, Ohio (Engel, Corsaro, and Skubak Tillyer 2010)
6. Operation Ceasefire in Newark, New Jersey (Boyle et al. 2010)
7. Operation Ceasefire in Los Angeles, California (Tita et al. 2004)
8. Project Safe Neighborhoods in Chicago, Illinois (Papachristos, Mearns, and Fagan 2007)
9. Drug Market Intervention in Nashville, Tennessee (Corsaro and McGarrell 2009)
10. Drug Market Intervention in Rockford, Illinois (Corsaro, Brunson, and McGarrell Forthcoming)
11. Hawaii Opportunity with Probation Enforcement in Honolulu, Hawaii (Hawken and Kleiman 2009)

The 11 selected studies examined focused deterrence interventions that were implemented in small, medium, and large U.S. cities. Four of the eligible evaluations (Cincinnati, Honolulu, Nashville, and Newark) were not published at the time the review of abstracts was completed.<sup>5</sup> All 11 evaluations were released after 2000 and 8 were completed after 2007. Six studies evaluated the crime reduction effects of focused deterrence strategies on serious violence generated by street gangs or criminally active street groups (Boston, Cincinnati, Indianapolis, Los Angeles, Lowell, and Stockton). Two studies evaluated strategies focused on reducing crime driven by street-level drug markets (Nashville and Rockford), and three evaluated crime reduction strategies that were focused on individual repeat offenders (Chicago, Honolulu, and Newark).

Ten eligible studies used quasi-experimental designs to analyze the impact of focused deterrence strategies on crime. Seven evaluations used quasi-experimental designs with nonequivalent comparison groups (Boston, Cincinnati, Indianapolis, Lowell, Nashville, Rockford, and Stockton). The comparison units used in these evaluations were selected based on naturally occurring conditions, such as other cities or within-city areas that did not receive treatment, rather than through careful matching or randomization procedures to ensure comparability with treatment units. Two evaluations used quasi-experimental designs with near-equivalent comparison groups created through matching techniques (Chicago and Newark). The Los Angeles evaluation used a quasi-experimental design that included both nonequivalent and near-equivalent comparison groups; for the Los Angeles study, we included

only the effects from the more rigorous matched comparison group analysis in our meta-analysis. Only one randomized controlled trial, the evaluation of the HOPE program in Honolulu, was identified.

Three studies examined possible immediate spatial crime displacement and diffusion of crime control benefits that may have been generated by the focused deterrence interventions (Los Angeles, Nashville, and Newark). The Los Angeles study also examined the criminal behavior of rival gangs socially connected to the targeted gang. Only one study noted potential threats to the integrity of the treatment. Tita et al. (2004) reported that the Los Angeles intervention was not fully implemented as planned. The implementation of the Ceasefire program in the Boyle Heights neighborhood of Los Angeles was negatively affected by the well-known Ramparts LAPD police corruption scandal and a lack of ownership of the intervention by the participating agencies.

The basic findings of our review are very positive. Of the 11 eligible studies, 10 reported strong and statistically significant crime reductions associated with the approach. Nonetheless, we are concerned with the lack of rigorous randomized experimental evaluations of this promising approach. While the biases in quasi-experimental research are not clear (e.g., Campbell and Boruch 1975; Wilkinson and Task Force on Statistical Inference 1999), recent reviews in crime and justice suggest that weaker research designs often lead to more positive outcomes (e.g., see Weisburd, Lum, and Petrosino 2001; Welsh et al. 2011). This does not mean that nonexperimental studies cannot be of high quality, but only that there is evidence that nonexperimental designs in crime and justice are likely to overstate outcomes as contrasted with randomized experiments. In his review of situational crime prevention evaluations, Guerette (2009) finds that the conclusions of randomized evaluations were generally consistent with the majority conclusion of the nonrandomized evaluations. While our vote counting review is consistent with Guerette's (2009) conclusion, our calculated effect sizes reveal that less rigorous focused deterrence evaluation designs were associated with stronger reported effects. As such, we think that caution should be used in drawing conclusions regarding population effect sizes for the pulling levers intervention.

At the same time, the effects observed in the studies reviewed were often very large, and such effect sizes are

evidenced as well in those studies using strong comparison groups (e.g., Papachristos et al. 2007) and in the sole randomized controlled trial (Hawken and Kleiman 2009). Our review provides strong empirical evidence for the crime prevention effectiveness of focused deterrence strategies. Even if we assume that the effects observed contain some degree of upward bias, it appears that the overall impact of such programs is noteworthy. These findings are certainly encouraging and point to the promises of this approach.

We certainly believe that the positive outcomes of the present studies indicate that additional experimental evaluations, however difficult and costly, are warranted. The potential barriers are real, especially in regard to identifying valid treatment and comparison areas. But existing evidence is strong enough to warrant a large investment in multisite experiments (Weisburd and Taxman 2000). Such experiments could solve the problem of small numbers of places in single jurisdictions and would also allow for examination of variation in effectiveness across contexts.

Despite our concerns over the lack of randomized experiments, we believe that the findings of eligible focused deterrence evaluations fit well within existing research suggesting that deterrence-based strategies, if applied correctly, can reduce crime (Apel and Nagin 2011). The focused deterrence approach seems to have the desirable characteristic of altering offenders' perceptions of sanction risk. Our findings are also supported by the growing body of scientific evidence that suggests police departments, and their partners, can be effective in controlling specific crime problems when they engage a variety of partners, and tailor an array of tactics to address underlying criminogenic conditions and dynamics (Braga 2008a; Weisburd and Eck 2004). Indeed, our study suggests that Durlauf and Nagin (2011) are correct in their conclusion that imprisonment and crime can both be reduced through the noteworthy marginal deterrent effects generated by allocating police officers, and their criminal justice partners, in ways that heighten the perceived risk of apprehension.

While the results of this review are very supportive of deterrence principles, we believe that other complementary crime control mechanisms are at work in the focused deterrence strategies described here that need to be highlighted and better understood (see Weisburd 2011). In Durlauf and Nagin's (2011) article, the focus is on the

possibilities for increasing perceived risk and deterrence by increasing police presence. Although this conclusion is warranted by the data and represents an important component of the causal mechanisms that have increased the effectiveness of focused deterrence strategies, we believe it misses an important part of the story. In the focused deterrence approach, the emphasis is not only on increasing the risk of offending but also on decreasing opportunity structures for violence, deflecting offenders away from crime, increasing the collective efficacy of communities, and increasing the legitimacy of police actions. Indeed, we suspect that the large effects we observe come precisely from the multifaceted ways in which this program influences criminals.

In closing, we think it is important to recognize that focused deterrence strategies are a very recent addition to the existing scholarly literature on crime control and prevention strategies. While the evaluation evidence needs to be strengthened and the theoretical underpinnings of the approach need further refinement, we believe that jurisdictions suffering from gang violence, overt drug markets, and repeat offender problems should add focused deterrence strategies to their existing portfolio of prevention and control interventions. The existing evidence suggests these new approaches to crime prevention and control generate noteworthy crime reductions.

## Notes

1. The following search terms were used: focused deterrence, deterring violent offenders, pulling levers AND police, problem-oriented policing, police AND repeat offenders, police AND gangs, police AND guns, gang violence prevention, strategic gang enforcement, crackdowns AND gangs, enforcement swamping, and drug market intervention.

2. The following 15 databases were searched: Criminal Justice Periodical Index, Sociological Abstracts, Social Science Abstracts (SocialSciAbs), Social Science Citation Index, Arts and Humanities Search (AHSearch), Criminal Justice Abstracts, National Criminal Justice Reference Service (NCJRS) Abstracts, Educational Resources Information Clearinghouse (ERIC), Legal Resource Index, Dissertation Abstracts, Government Publications Office, Monthly Catalog (GPO Monthly), Google Scholar, Online Computer Library Center (OCLC) SearchFirst, CINCH data search, and C2 SPECTR (The Campbell Collaboration Social, Psychological, Educational and Criminological Trials Register).

3. These journals were: *Criminology*, *Criminology & Public Policy*, *Justice Quarterly*, *Journal of Research in Crime and Delinquency*, *Journal of Criminal Justice*, *Police Quarterly*, *Policing*, *Police Practice and Research*, *British Journal of Criminology*, *Journal of Quantitative Criminology*, *Crime & Delinquency*, *Journal of Criminal Law and Criminology*, and *Policing and Society*. Hand searches covered 1979 to 2010.

4. Ms. Phyllis Schultze of the Gottfredson Library at the Rutgers University School of Criminal Justice executed the initial abstract search and was consulted throughout on our search strategies.

5. During the development of this report, the Newark study was accepted for publication at *Justice Research and Policy* and the Nashville study was accepted for publication at *Evaluation Review*.

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## REVIEW QUESTIONS

1. What do the authors mean by "focused deterrence" strategies?
2. What was the overall finding of this study regarding these strategies for reducing crime?
3. What are some of the concerns or issues with some of the studies used in this meta-analysis?

## READING // 5

This article uses the scenario design or vignettes to test the compatibility of rational choice theory with what has become the most researched and discussed theory of the past two decades: low self-control theory. Briefly mentioned in the introduction to this section, low self-control theory is a rather simple model that assumes (like other control theories, which we will cover in Section VIII) that all individuals are born with a propensity for crime and that children develop self-control through socialization and discipline. However, some children's parents do not do a good job at monitoring or training their children, so these children never develop self-control and, thus, engage in crime when opportunities present themselves. Alex Piquero and Stephen Tibbetts review other studies that have successfully merged rational choice theory with the low self-control model and then present a test of individuals' perceptions regarding two offenses that most college students are familiar with: drunk driving and shoplifting.

While reading this study, readers should consider the following points:

- The key elements of the low self-control personality and the part they play in rational decision making of individuals in criminality
- The key concepts of the rational choice framework that go beyond traditional deterrence concepts
- The findings for both traditional deterrence variables and more informal and personal or emotional sanctioning factors
- The findings that the authors claim are the "most interesting"

SOURCE: Alex R. Piquero and Stephen G. Tibbetts, "Specifying the Direct and Indirect Effects of Low Self-Control and Situational Factors in Decision Making: Toward a More Complete Model of Rational Offending," *Justice Quarterly* 13 (3): 481–510. Copyright © 1996 Routledge. Reprinted with permission from Taylor and Francis.

# ***Specifying the Direct and Indirect Effects of Low Self-Control and Situational Factors in Offenders' Decision Making***

## **Toward a More Complete Model of Rational Offending**

Alex R. Piquero and Stephen G. Tibbetts

It has been argued that criminology is in a state of theoretical paralysis (Wellford 1989:119) and that its theoretical developments have stagnated (Gibbs 1987). Recently, however, theorizing in criminology has undergone two important advances. One of these was proposed by Michael Gottfredson and Travis Hirschi (1990) in *A General Theory of Crime*. Their theory concerns individual differences, or propensities, that predispose an individual toward offending; their central concept is that of low self-control. The other theoretical advancement is the rational choice perspective (Cornish and Clarke 1986, 1987). This framework emphasizes the contextual and situational factors involved in decisions to offend, as well as the “choice-structuring” properties of offenses (Cornish and Clarke 1987:935).

Low self-control is established early and remains relatively stable throughout life. This is a characteristic of individuals who are more likely than others to engage in imprudent behaviors such as smoking, drinking, or gambling and commit criminal offenses such as shoplifting or assault. Gottfredson and Hirschi (1990:89) characterize low self-control as composed of elements such as immediate gratification, risk taking, orientation to the present, acts involving little skill or planning, and self-centeredness.

The rational choice framework focuses on situational inducements and impediments to offending (Cornish and Clarke 1986, 1987; Nagin and Paternoster 1993) such as the perceived costs (e.g., threat of sanctions) and benefits (e.g., pleasure) of crime. The rational choice model is consistent with a deterrence framework, especially in its focus on the perceived costs associated with committing an offense. It also includes the importance of examining an offender's perception of the benefits of offending and of informal and/or internal threats of sanction, which is

absent from the traditional deterrence framework (Piliavin et al. 1986). Therefore the rational choice framework provides one way of looking at the influence of situational factors on offending. By the same token, this perspective is not confined to the situational determinants of (perceived) opportunity. Rational choice also examines how motivation is conditioned by situational influences and opportunities to commit crime.

Rational choice emphasizes would-be offenders' subjective perceptions of the expected rewards and costs associated with offending. From this perspective, a crime-specific focus is necessary because the costs and benefits of one crime may be quite different from those of another. This point suggests the importance of examining the choice-structuring properties of particular offenses (Cornish and Clarke 1987:935). Furthermore, the rational choice perspective suggests explanations in terms of those characteristics which promote or hinder gratification of needs, such as low self-control, shame, moral beliefs, threat of formal sanctions, or the pleasure of offending.

Situational factors and individual propensities are related to each other in a way suggested by Harold Grasmick and his colleagues. Grasmick et al. (1993b) noted that situational circumstances and individual characteristics may influence the extent to which low self-control affects criminal behavior. Thus the effect of low self-control depends on the situation; that is, low self-control may condition criminal behavior. Nagin and Paternoster (1993) have examined the compatibility of these perspectives. Using scenario data from a sample of college undergraduates, they found support for the underlying propensity (low self-control) argument advocated by Gottfredson and Hirschi, as well as some support for the effect of situational factors. Attractiveness of the crime target, ease of committing the crime with minimal risk,

and perceptions of the costs and benefits of committing the crime were all related significantly to offending decisions. Their analysis, however, consisted solely of examining the direct effects of exogenous variables on the dependent variable (intentions to deviate).

Our analysis builds on Nagin and Paternoster's (1993) paper. We focus on specifying low self-control in an explicit causal model while taking into account the situational factors associated with offending decisions. We believe that low self-control has a direct effect on intentions to deviate, but we also argue that low self-control has indirect effects on these intentions, which operate through a variety of situational factors. These indirect effects are an important step in understanding criminals' decision-making processes.

Whereas Gottfredson and Hirschi distinguish between crime and criminality, Birkbeck and LaFree (1993) argue that theories of crime (situational explanations) should be united with theories of criminality (stable propensities). In this paper, following suggestions emanating from the work of Birkbeck and LaFree (1993) and Nagin and Paternoster (1993), we merge theories of crime (situational factors measured by subjective perceptions) and theories of criminality (low self-control) into a more highly specified causal model of rational offending. We argue that offenders are rational decision makers who are affected by various factors. These factors include not only an individual propensity to offend (i.e., low self-control) but also situational inducements (such as the pleasure of committing the crime) and situational impediments to crime (e.g., sanction threats, shame).

## Previous Research

### Perceived Sanction Threats and Perceived Pleasure

Deterrence concepts have been modified and expanded (Cornish and Clarke 1986, 1987; Paternoster 1989; Piliavin et al. 1986; Stafford and Warr 1993; Williams and Hawkins 1986), and recent research conducted within the rational choice framework (Bachman, Paternoster, and Ward 1992; Klepper and Nagin 1989b; Nagin and Paternoster 1993), using factorial vignette surveys, has found support for perceptions of certainty and its negative effect on delinquent behavior. Given

the consistency with which sanctions may deter certain individuals who commit certain crimes (Bachman et al. 1992; Klepper and Nagin 1989b; Nagin and Paternoster 1993; Smith and Gartin 1989), we contend that these factors are quite important in a general model of rational offending.

The rational choice framework has focused strongly on the pleasure of offending (Bachman et al. 1992; Nagin and Paternoster 1993; Piliavin et al. 1986). Most researchers have found that the perceived benefits of criminal offending are important in a would-be offender's calculations, perhaps even more important than the estimated costs (Nagin and Paternoster 1993:482). The anticipated rewards or gains from offending may be more important than the potential costs to these individuals because the former are more immediate and more characteristic of risk taking and short-term gratification (Gottfredson and Hirschi 1990). Jack Katz (1988) argues that there are "seductions of crime," which result from the thrills and pleasures provided by committing criminal acts. Other research, however, suggests that seductions are influenced by several background factors including age, gender, and the strain associated with inadequate economic opportunities (McCarthy 1995). Almost all previous empirical tests of deterrence models neglected this beneficial dimension of offending; the few studies that have examined this construct find support for perceived pleasure (Nagin and Paternoster 1993; Piliavin et al. 1986).<sup>1</sup>

### Shame

Thomas Scheff (1988) labeled shame as an important factor for social control. Scheff's work was followed closely by John Braithwaite's (1989) *Crime, Shame, and Reintegration*, which caused an immediate increase in the attention given to shame in criminology. Early theorizing on shame, however, tended to focus on acts of shaming by others (e.g., disintegrative/reintegrative shaming) rather than on the internal emotion of shame felt by the individual. Therefore those theorists implied that to experience shame, one must be shamed by a social audience. This assumption is not supported by the psychological literature on shame; in fact, the early researchers in this area acknowledged that most experiences of shame are not preceded by an act of shaming (H. Lewis 1971; Piers

and Singer 1953). Experiences of shame are the result of a global, internal evaluation of the self in which the actor temporarily loses some of his or her self-esteem (M. Lewis 1992). Although acts of shaming by others may elicit shame in an individual, such an act need not occur to cause the person to feel that emotion (M. Lewis 1992; Piers and Singer 1953). In other words, individuals can be shamed without the presence of an audience (see Grasmick and Bursik 1990).

Despite the lack of criminological theory on the phenomenological nature of shame, researchers recently have attempted to measure the subjective experiences of shame within a rational choice framework. In these studies (Grasmick and Bursik 1990; Grasmick, Bursik, and Kinsey 1991; Grasmick et al. 1993b; Nagin and Paternoster 1993) respondents have been asked to describe the shame they felt, or would feel, if they had committed, or intended to commit, specific criminal offenses such as drunk driving, littering, date rape, tax evasion, or petty theft. Shame was found to have a strong inhibitory effect on the commission of all these offenses. Furthermore, for some of the offenses, shame had the strongest effect of all the variables specified in the model, including formal sanctions (Grasmick and Bursik 1990). Thus, a deterrent effect of shame seems to be strongly evident in the criminological literature.

### Low Self-Control

Gottfredson and Hirschi (1990:90) contend that individuals with low self-control will tend to engage in criminal and analogous acts. Their ideas, which have met with some opposition (Akers 1991; Barlow 1991; Polk 1991), have generated a number of empirical studies (Benson and Moore 1992; Brownfield and Sorenson 1993; Gibbs and Giever 1995; Grasmick et al. 1993b; Keane, Maxim, and Teevan 1993; Nagin and Paternoster 1993; Polakowski 1994; Wood, Pfefferbaum, and Arneklev 1993). Although these studies generally support low self-control, some examination of this work is necessary. First, Grasmick et al. (1993b) developed a psychometric scale that measured low self-control, based on the criteria outlined by Gottfredson and Hirschi. The findings of their study, which examined only direct effects, indicated that low self-control was related strongly to offending (force and fraud). Keane et al. (1993) examined the relationship

between low self-control and drinking and driving. Employing a behavioral measure of self-control (use of seat belts), they found that for both males and females, low self-control was an important predictor of driving under the influence of alcohol.

Gottfredson and Hirschi (1990:90) also believe that low self-control may manifest itself in various imprudent behaviors such as smoking, drinking, and gambling. Using the same data and measures as found in Grasmick et al. (1993b), Arneklev et al. (1993) tested this proposition. The results were mixed; on one hand, the low self-control index had a direct effect on an individual's participation in various imprudent behaviors. Yet one component of that index (risk taking) was more strongly predictive than the scale as a whole. Furthermore, smoking appeared to be unaffected by low self-control.<sup>2</sup> Similarly, Wood et al. (1993) argued that although low self-control was a significant predictor of imprudent behaviors and some forms of delinquency, their results suggested that the low self-control measure, as well as the different dependent variables, should be disaggregated.

Gibbs and Giever (1995) examined the manifestations of low self-control on a sample of college undergraduates by creating an attitudinal measure of low self-control and examining its impact on two noncriminal behaviors, cutting class and alcohol consumption. They found that low self-control was the strongest predictor of these behaviors. Their study, however, did not include factors other than self-control, such as moral beliefs or perceived threat of sanctions.

### Moral Beliefs and Prior Offending

In addition to the variables discussed above, we included two other variables in the model specification: moral beliefs and prior offending. Moral beliefs are necessary in the study of any rational choice framework because such beliefs impede criminal behavior; theorists have stressed the importance of internalized moral constraints (Bachman et al. 1992; Bishop 1984; Grasmick and Bursik 1990; Paternoster et al. 1983; Tittle 1977, 1980). We also included prior offending as a control variable because it could capture the influence of other sources of stable criminality (Nagin and Paternoster 1991, 1993).

## Proposed Model

The proposed model assumes that a rational human actor with low self-control encounters situational factors which push him or her toward crime (pleasure of the offense) and/or away from crime (moral beliefs, perceived risk of sanctions, and situational shame). When the push toward crime is greater than the push away from crime, an individual is more likely to choose crime. This idea is summarized by Gottfredson and Hirschi (1990:89) when they observe that a major characteristic of those with low self-control is the tendency to respond to tangible stimuli in the immediate environment and to have a concrete “here and now” orientation (also see Hirschi and Gottfredson 1993).

Although our theoretical model relies heavily on the most recent statement of control theory outlined by Gottfredson and Hirschi, it is not meant to downplay the importance of earlier control theorists, particularly Walter Reckless (1961; also see Toby 1957). In his seminal piece, Reckless noted that inner containment consists mainly of self-control, while outer containment represents the structural buffer in the person's immediate social world which is able to hold him or her within bounds (Reckless 1961:44–45). Expanding upon the idea of outer containment, one could easily infer that sanctions, pleasure, and shame are structural buffers in an individual's immediate social world. Moreover, Block and Flynn (1956:61) state that “there are many variables in the personality of the delinquent and the delinquency-producing situation itself which the investigators may not readily discern and which themselves may constitute the critical factors involved in the delinquent act.” Conceivably, then, one could argue that our theoretical model is a refinement, an extension, and an empirical test of Reckless's theory and of Block and Flynn's assertions (also see A. Cohen 1955).

## Methods

We collected data through a self-administered questionnaire that presented respondents with a realistic scenario describing in detail the conditions in which an actor commits a crime. The respondents were told only that the actor committed the act, not whether he or she approved of the act. Thus we focus not on the hypothetical actor's perceptions or approval of the act, but rather on the

respondent's perceptions and approval. The questions were designed to measure respondents' perceptions of the costs and benefits of committing the offense described in the scenario, to estimate the probability that they would commit that offense, and to estimate the chance that their committing the offense would result in arrest and in exposure without arrest.

The scenario method differs from conventional data collection in perceptual social control/deterrence research in that it uses hypothetical, third-person scenarios of offending to elicit the dependent variable. This strategy has been used successfully in recent research on rational choice (Bachman et al. 1992; Klepper and Nagin 1989a, 1989b; Nagin and Paternoster 1993). The primary weakness of this approach is that an expressed intention to offend is not synonymous with actual offending. Fishbein and Ajzen (1975), however, argue that a person's intention to perform a particular behavior should be highly correlated with the actual performance of that behavior.<sup>3</sup> This proposition is supported empirically by Green (1989), whose two-wave panel design revealed a high correlation ( $r = .85$ ) between intentions and actual performance of deviant behavior. In addition, Kim and Hunter's (1993) recent meta-analysis produced a strong relationship between attitude, intention, and behavior. In all, the scenario method is the best approach available because of its advantages, its realistic nature, and the specificity of the scenarios.<sup>4</sup>

The realistic and specific nature of the scenarios allows us to examine the effect of situational factors on both the intentions to offend and the anticipated risks and rewards of these behaviors. Without these contextual specifications, the respondents would impute their own details; such a situation would “undoubtedly vary across respondents and affect their responses” (Nagin and Paternoster 1993:474). Also, individuals may vary in their definition of illegal behavior. If these differences in definition vary systematically with responses measuring variables of interest, analysis of the effects of such variables on actual behavior may be misrepresented (Nagin and Paternoster 1993).

Another, perhaps more important advantage of the scenario method is its capacity to capture the “instantaneous” relationship between independent variables and the respondent's intentions to offend (Grasmick and Bursik 1990). Previous cross-sectional and panel studies

on deterrence used measures of past behavior or behavior within waves to measure the dependent variable (e.g., Bishop 1984). Because perceptions of risk are unstable over time, however, this lagged type of measurement is not appropriate. These designs would tend to find lagged effects for independent variables that remained stable over time, such as moral beliefs, but no lagged effects for independent variables that are not stable, such as perceived threats of sanction (Grasmick and Bursik 1990). Therefore, because the scenario method permits the examination of “instantaneous” relationships, it is preferable to traditional designs.<sup>5</sup>

## Sample and Scenario Design

Respondents were undergraduates at a major East Coast university, enrolled in several large introductory criminal justice courses in the fall 1993 semester. A total of 349 males and 293 females (642 in all) completed the questionnaire. Although participation was voluntary, only 4 percent of potential respondents refused to participate; given this small amount, analysis and conclusions appear not to be threatened by response bias. The respondents ranged in age from 17 to 35; the median age was 19. Because we selected introductory classes that fulfill general core requirements for the university curriculum, a substantial majority of students (69 percent) were not criminal justice majors and were currently in their freshman and sophomore years. In addition, questionnaires were administered during the second week of the semester. Therefore it is very unlikely that responses were biased by students' knowledge of deterrence or correctional concerns.<sup>6</sup> Listwise deletion of missing cases resulted in a sample of 604.

## The Scenarios

Under an adaptation of the factorial survey methodology developed by Rossi and Anderson (1982), each student was given two scenarios—drunk driving and shoplifting—to which to respond. All of the scenarios were framed in settings familiar to these college student respondents. Selected scenario conditions were varied experimentally across persons. Respondents were asked to estimate the probability that they would commit the act specified in the scenario, to predict the chance that their commission of the offense would result in arrest, and to answer

questions designed to measure their perceptions of the costs and benefits of committing the offense described in the scenario. In the present analysis, then, all respondents receive the opportunity to commit the same crimes in the same setting.<sup>7</sup>

## Measurement of Variables

### Intentions to Deviate

Separate models are estimated for each type of offense. The dependent variable is the respondent's estimate of the chance that he or she will do what the character did in the scenario. We measured intentions to offend on a scale from 0 (no chance at all) to 10 (100 percent chance). Responses were solicited for both the drunk driving (INTENTDD) and the shoplifting (INTENTSH) scenarios.

### Shame

Shame is measured by two items following each scenario, which ask the respondent (1) “what is the chance” and (2) “how much of a problem” would loss of self-esteem be if he or she were to do what the actor in the scenario did, even if no one else found out. Responses to both of these items were measured on an 11-point scale (0 = no chance/no problem to 10 = 100 percent chance/very big problem). We computed shame (SHAME) by multiplying the responses of the two items; higher scores reflect a higher likelihood that the individual would feel shame if he or she were to commit the specified act.

### Low Self-Control

We operationalized low self-control with a psychometric scale borrowed from Grasmick et al. (1993b), which includes 24 items intended to measure the six elements of low self-control.<sup>8</sup> We coded these items on a five-point Likert-type scale (1 = never to 5 = very often) and created a composite measure of self-control (SELFCONT) by summing the responses across 24 items. High scores on the scale indicate low self-control. This instrument was used in two previous studies (Grasmick et al. 1993b; Nagin and Paternoster 1993), both of which provided strong reliability and validity support for the scale. The high estimated reliability coefficient ( $\alpha = .84$ ) gave us

confidence in the internal consistency of the scale. Furthermore, the factor loadings provided by a principal-components factor analysis were comparable to those reported by Grasmick et al. (1993b).

## Perceived External Sanctions

Respondents were asked to estimate the chance of arrest ( $Pf$ : risk of formal discovery) and the chance that others would find out if they were not arrested ( $Pi$ : risk of informal discovery). To measure the perceptions of the implications of discovery, we asked respondents to estimate the probability that discovery by arrest or informal exposure would result in dismissal from the university ( $Pdf$ ,  $Pdi$ ), loss of respect by close friends ( $Pff$ ,  $Pfi$ ), loss of respect by parents and relatives ( $Ppf$ ,  $Ppi$ ), and diminished job prospects ( $Pjf$ ,  $Pji$ ). Each of these perceptual measures is intended to measure the risks of informal sanctions that may threaten an individual's "stake in conformity," or bonding to the moral order. To measure the perceived risk of formal sanctions, we asked respondents to estimate the risk of jail ( $Pjaf$ ). The drunk-driving scenario was followed by an additional item measuring the perceived chance of losing one's driver's license ( $Pjf$ ) if an arrest was made. All responses were measured on an 11-point scale (0 = no chance at all to 10 = 100 percent chance).

These measures of risk probably would have little effect on intentions unless associated with perceptions of some cost (Grasmick and Bursik 1990). Thus we asked respondents to estimate the perceived severity of each sanction. Specifically, we asked each subject to estimate "how much of a problem" each sanction would pose for them. All responses were measured on an 11-point scale (0 = no problem at all to 10 = a very big problem). To create the composite scale of perceived external sanctions, we multiplied each risk-perception response by the corresponding severity-perception response. Then we summed these separately for drunk driving and for shoplifting (PEREXSAN); higher scores on the scale correspond to a high degree of perceived risk and cost of performing the act in question for that individual. We used the following formula:

$$\text{PEREXSAN} = Pi [(Pdi) (Sd) + (Pfi) (Sf) + (Ppi) (Sp) + (Pji) (Sj)] + Pf [(Pdf) (Sd) + (Pff) (Sf) + (Ppf) (Sp) + (Pjf) (Sj) + (Plf) (SI) + (Pjaf) (Sja)]$$

where  $Sd$  equals the perceived severity of sanction  $d$  (dismissal from university) and all other variables are as defined previously.

## Moral Beliefs

To measure the perceived immorality of the behavior, we asked respondents to estimate how morally wrong they thought the incident would be if they were to commit drunk driving and shoplifting (MORALS). Response options varied on an 11-point scale (0 = not morally wrong at all to 10 = very morally wrong). Although some may contend that our respondents may not regard the behaviors under study as criminal or morally wrong, the mean moral value was 7.80 against drunk driving and 7.57 against shoplifting. These findings indicate that most of our respondents perceive even these behaviors as morally wrong.

## Perceived Pleasure

To measure perceived pleasure, a single item asked respondents to estimate "how much fun or kick" it would be to commit drunk driving and shoplifting under the conditions specified in the scenarios (PLEASURE). Responses varied on an 11-point scale (0 = no fun or kick at all to 10 = a great deal of fun or kick).

## Prior Offending

In addition to the variables discussed above, we included prior offending as a control in the model. We did so to capture the influence of sources of stable criminality extraneous to that of persistent individual differences due to personality traits included in the model (such as low self-control). To measure prior offending (PRIOROFF), we included two items (one for each scenario offense) that asked the respondents how many times in the past year they had driven while drunk and how many times they had shoplifted.<sup>9</sup>

## Hypotheses

In this paper we postulate and examine three hypotheses:

$H_1$ : Low self-control has both direct and indirect effects via situational factors on intentions to deviate;

H<sub>2</sub>: Situational characteristics have both direct and indirect effects on intentions to deviate and on other situational variables;

H<sub>3</sub>: The model uniting the effects of low self-control and situational characteristics of crime will provide a good fit to the data.<sup>10</sup>

### Analysis of Shoplifting

According to Hypothesis 1, low self-control will have a direct effect on intentions to deviate and indirect effects on intentions to deviate through situational factors. Significant maximum-likelihood estimates for shoplifting may be found in Table 1 and Figure 1. Of the four paths estimated for low self-control, three are significant. Low self-control has a direct positive effect ( $b = .153, t = 4.438$ ) on intentions to shoplift and a direct positive effect ( $b = .178, t = 4.502$ ) on perceived pleasure, an indication that the higher one scores on the low self-control scale, the more likely one is to intend to shoplift and to perceive pleasure from shoplifting. Low self-control has a direct negative effect ( $b = -.102, t = -2.889$ ) on shame, indicating that the higher one scores on the low self-control scale, the less likely one is to experience shame due to shoplifting. The only insignificant effect is the effect of low self-control on perceived risk of sanctions.

Therefore, low self-control not only has a direct effect on intentions to shoplift; it also indirectly affects

intentions to shoplift through situational variables (pleasure and shame). These results are consistent with Gottfredson and Hirschi’s (1990:95) idea that individuals with low self-control will be less likely to consider the consequences of offending.

Hypothesis 2 indicates that situational characteristics should have direct effects on intentions to shoplift and indirect effects on intentions to shoplift which operate through other situational factors. With the exception of perceived sanctions, both shame ( $b = -.214, t = -5.372$ ) and perceived pleasure ( $b = .220, t = 6.270$ ) have the expected effects on intentions to shoplift. The null results for perceived sanctions are not surprising: Shoplifting is a very common crime and one that can be committed with relative impunity; thus an individual’s perception of being caught would likely not be salient.

As for the other effects, shame ( $b = .434, t = 9.745$ ) has a positive effect on perceived sanctions, indicating that the more likely one is to perceive shame, the more likely one is to perceive the threat of sanctions as salient. Even though perceived sanctions do not affect intentions to shoplift, they affect perceived pleasure in a rather interesting manner: Perceived sanctions have a positive effect ( $b = .153, t = 3.398$ ) on perceived pleasure, in keeping with Katz’s (1988) notion of “sneaky thrills.” It appears that among our respondents, the more one perceives the risk of sanctions as high, the more pleasure one perceives

**Table 1 • Significant Full-Information Maximum-Likelihood Estimates for Intentions to Shoplift (N = 604)**

Dependent Variables	Independent Variables					
	Shame	Perceived Sanctions	Perceived Pleasure	Moral Beliefs	Prior Offending	Low Self-Control
Intentions to Shoplift	-.214	a	.220	-.186	.176	.153
Shame	— <sup>b</sup>	—	-.173	.483	— <sup>a</sup>	-.102
Perceived Sanctions	.434	—	— <sup>b</sup>	.117	— <sup>a</sup>	— <sup>a</sup>
Perceived Pleasure	— <sup>b</sup>	.153	— <sup>b</sup>	-.267	.169	.178

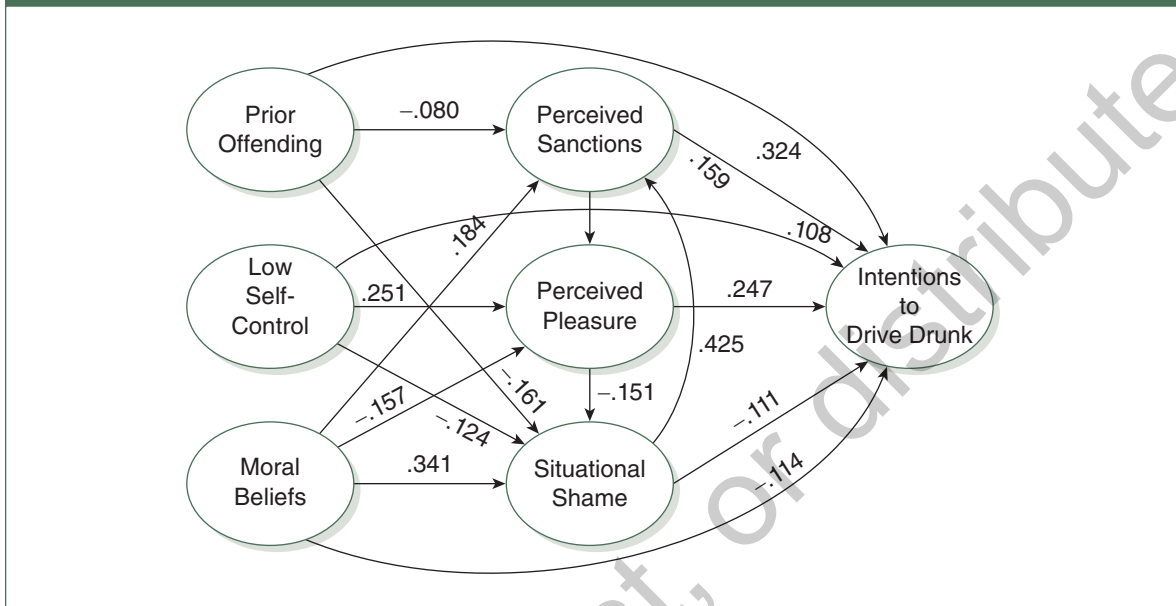
NOTE: LISREL shows the effects of columns on rows.

a. Path estimated but not significant.

b. Path not established.



Figure 1



from shoplifting. Finally, perceived pleasure has a negative effect on shame ( $b = -.173, t = -4.468$ ): The more one perceives pleasure from shoplifting, the less likely one is to feel shame.

Other effects include those of the other two exogenous variables, prior offending and moral beliefs. Prior offending has positive effects on intentions to shoplift ( $b = .176, t = 5.322$ ) and on perceived pleasure ( $b = .169, t = 4.421$ ), indicating that the more times respondents have shoplifted in the past, the more likely they are to intend to shoplift and to perceive pleasure from shoplifting. Prior behavior does not exert an effect on perceived sanctions. Moral beliefs are the only exogenous variable to be significant and consistent with all effects as predicted. Moral beliefs have the predicted negative effects on intentions to shoplift ( $b = -.186, t = -4.669$ ) and on perceived pleasure ( $b = -.267, t = -6.287$ ), indicating that the stronger one's moral beliefs against shoplifting, the less likely one is to intend to shoplift or to perceive pleasure from shoplifting. Likewise, moral beliefs have the predicted positive effects on shame ( $b = .483, t = 13.599$ ) and on perceived sanctions ( $b = .117, t = 2.691$ ), indicating that the stronger one's moral

beliefs, the more likely one is to perceive shame and sanctions as important.

To test the third hypothesis, we constructed a model that united the effects of low self-control and of situational characteristics. To determine whether the proposed model fit the data adequately, we examined the chi-square statistic of the model. Because chi-square is sensitive to sample size and to departures from normality in the data, there are alternative methods for assessing the goodness of fit of a model; one such method is the ratio of chi-square to degrees of freedom. Smith and Patterson (1985) suggest that values of 5 or less indicate an adequate fit. For this model the value is 1.01 ( $4.05/4$ ), indicating an adequate fit to the data.

### Analysis of Drunk Driving

The significant maximum-likelihood estimates for drunk driving are shown in Table 2 and Figure 2. For low self-control, three of the four effects are significant. Low self-control has direct positive effects on intentions to drive drunk ( $b = .108, t = 3.167$ ) and on perceived pleasure ( $b = .251, t = 6.308$ ), indicating that the higher one

scores on the low self-control scale, the more likely one is to intend to drive drunk and to perceive pleasure from drunk driving. Low self-control exerts a negative effect on shame ( $b = -.124, t = -3.257$ ), indicating that persons with low self-control are less likely to feel shame. As in the analysis of shoplifting, the effect of low self-control on perceived sanctions is insignificant.

All three situational factors have the expected effects on intentions to drive drunk. Shame ( $b = -.111, t = -2.796$ ) and perceived sanctions ( $b = -.159, t = -4.219$ ) exert the expected negative effects on intentions to drink and drive, indicating that the more one perceives sanction threats and shame as important, the less likely one is to intend to drive drunk.<sup>11</sup> Perceived

**Table 2 • Significant Full-Information Maximum-Likelihood Estimate for Intention to Drive Drunk (N = 604)**

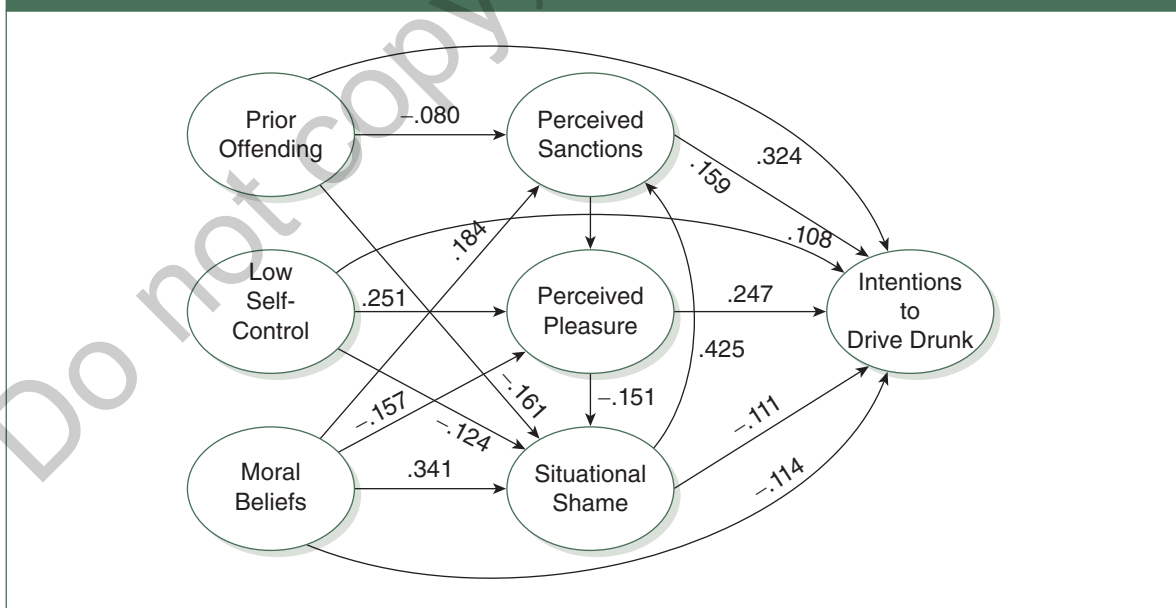
Dependent Variables	Independent Variables					
	Shame	Perceived Sanctions	Perceived Pleasure	Moral Beliefs	Prior Offending	Low Self-Control
Intentions to Drive Drunk	-.111	-.159	.247	-.114	.324	.108
Shame	— <sup>b</sup>	— <sup>b</sup>	-.151	.341	-.161	-.124
Perceived Sanctions	.425	— <sup>b</sup>	— <sup>b</sup>	.184	-.080	— <sup>a</sup>
Perceived Pleasure	— <sup>b</sup>	— <sup>a</sup>	— <sup>b</sup>	-.157	— <sup>a</sup>	.251

NOTE: LISREL shows the effects of columns on rows.

a. Path estimated but not significant.

b. Path not established.

**Figure 2**



pleasure has the expected positive effect ( $b = .247$ ,  $t = 7.313$ ) on intentions to drive drunk, indicating that the more pleasure one perceives from drunk driving, the more likely one is to intend to drive drunk. Other effects for perceived pleasure include a negative effect on shame ( $b = -.151$ ,  $t = -4.057$ ), indicating that the more pleasure one obtains from drinking and driving, the less likely one is to lose self-esteem. Shame has a positive effect ( $b = .425$ ,  $t = 11.123$ ) on perceived sanctions, indicating that the more one perceives shame as salient, the more likely one is to perceive sanction threats as also important.

Effects of the other two exogenous variables (prior offending and moral beliefs) are largely as expected. Prior offending has a negative effect on shame ( $b = -.161$ ,  $t = -4.498$ ) and on perceived sanctions ( $b = -.080$ ,  $t = -2.295$ ), indicating that the more one has driven drunk in the past, the less likely one is to feel shame and to perceive sanctions as important. In addition, prior offending has a positive effect on intentions to drive drunk ( $b = .324$ ,  $t = 9.946$ ), which indicates that the more one has driven drunk in the past, the more likely one is to intend to drive drunk. Prior offending has no effect on the perceived pleasure of drunk driving.

All four moral belief effects are significant. Moral beliefs have negative effects on intentions to drink and drive ( $b = -.114$ ,  $t = -3.177$ ) and on perceived pleasure ( $b = -.157$ ,  $t = -3.959$ ), indicating that the stronger one's moral beliefs are against drunk driving, the less likely one is to intend to drive drunk and the less likely one is to derive pleasure from drinking and driving. Moral beliefs also have positive effects on shame ( $b = .341$ ,  $t = 9.269$ ) and on perceived sanctions ( $b = .184$ ,  $t = 4.925$ ), indicating that the stronger one's moral beliefs are, the more likely one is to experience shame and to perceive sanctions as important.

Results concerning Hypothesis 3 in regard to drinking and driving are similar to those for shoplifting. To determine whether the model constructed for drunk driving fit the data adequately, we performed the same two tests as we conducted for shoplifting. The first test examined the ratio of chi-square to degrees of freedom. Values of less than 5 indicate an adequate fit to the data: our value was .33 (1.00/3).

## Conclusion

Building on the early work of Nagin and Paternoster (1993), we set out here to combine two different paths in

theoretical criminology into a more complete model of offending. One path attributes crime to individual differences that are established early in life, specifically in low self-control. According to the second path, crime is the result of situational factors associated with criminal offending, such as the perceived costs and benefits of crime. As observed by Nagin and Paternoster (1993:489), these two paths have been explored separately rather than in conjunction. On the basis of our analysis, we find support for a model that integrates these two paths. The model holds after controlling for several important factors and performs well in two different tests designed to measure the fit of the model to the data.

Aside from delineating and testing a more complete model of rational offending, this paper represents the first attempt to examine the indirect effects of low self-control. This attempt is especially important because previous research in low self-control examined only the direct effects of low self-control and rational choice characteristics (Grasmick et al. 1993b; Nagin and Paternoster 1993). Of all our findings, the indirect effects of low self-control were the most interesting. In fact, these effects were more complex than we had imagined originally. We found that low self-control had similar effects on shame and perceived pleasure across offenses, but exerted no effect on perceived sanctions in either scenario. Modeling indirect effects of low self-control is a difficult task, which we undertook with almost no previous theoretical guidance. Such effects probably depend on the offense, but currently we have too little information about the indirect effects of low self-control on offending. Additional theoretical work and further modeling of the total effects are priorities in self-control research.

The model we have presented here may be extended in the following ways. First, we would like to see future studies examine a wide array of criminal and deviant behaviors, such as drug use, sexual assault, burglary, and robbery. Insofar as Gottfredson and Hirschi are correct, low self-control should be related to all types of criminal and deviant behaviors. Second, many variables could be interchanged with and/or added to our list of situational variables. We contend that because different offenses require different situational characteristics and circumstances, these mediating factors may change in type—but they will be situational factors nonetheless. For example, an examination of marijuana use may require inclusion of a situational variable such as the ease of obtaining

marijuana, whereas an examination of breaking and entering would require situational characteristics such as the lack of capable guardians, lack of a security system, and the time of day or night. Still other examples of situational variables would include peer delinquency and peer associations. Because delinquency is overwhelmingly a group phenomenon (Reiss 1986), inclusion of such a measure has the potential to enhance the predictability of our model. This discussion should make apparent that although situational characteristics may vary in type depending on the crime, the framework of the model will remain the same: Time-stable variables such as low self-control will always precede and influence the situational variables.

## Notes

1. Some may argue that the pleasure associated with offending is only part of the story, and that often the more important situational factors are the amount of time and energy saved (as in drunk driving) and the value of goods stolen (as in shoplifting). Because of the lack of significant findings from Nagin and Paternoster's (1993) vignettes of these conditions, we did not vary these situational characteristics.
2. This result may be due to the average age of the sample (46.5 years). It could be that these individuals began to smoke before the effects of smoking were known to be undesirable (Arneklev et al. 1993).
3. Fishbein and Ajzen (1975) identify three criteria for maximizing the correspondence between intentions and actual behavior. The first of these criteria is the degree to which the intentions are measured with the same specificity as the behavior that is being predicted. The scenarios presented here include highly specific circumstances. The second criterion is the stability of the expressed intention. In view of the realistic and specific conditions of the scenarios, there is no compelling reason to question the stability of these intentions. The final criterion is the degree to which the respondent can willfully carry out the intention.
4. Our scenarios were designed after those used by Nagin and Paternoster (1993) in regard to detail and contextual specificity. We achieved specificity by presenting details of the circumstance of the offense, such as naming the bar where the actor is drinking or the type of item the actor is shoplifting. The scenario approach has been used as well in research on death penalty juries (Bohm 1991).
5. We systematically varied the location of the intention questions for both the drunk driving and the shoplifting scenarios. In approximately half of these scenarios, the dependent variable item was placed directly after the scenario; other perceptual items (e.g., moral beliefs, perceived certainty) followed (this position was coded 0). In the other half, the dependent variable was located at the end of the battery of perceptual items (this position was coded 1). We adopted this procedure to examine for possible differences due to responses on the dependent variable item affecting the responses on the subsequent perceptual items. For instance, if the dependent variable item is placed directly after the scenario, the respondents may base their perceptions on their previous response to the dependent variable item. In contrast if the dependent variable item is placed after the perceptual items, respondents may respond differently to the dependent variable item if they have thought carefully about their perceptions regarding the offense. Bivariate correlations showed that the location of the dependent variable item did not have a significant effect on respondents' intentions to commit drunk driving or to shoplift ( $r = .06$  and  $-.05$ , respectively). Therefore, we did not include this variable in the multivariate analyses.
6. The use of convenience samples in deterrence research is questionable and has drawn some criticism (Jensen, Erickson, and Gibbs 1978; Williams and Hawkins 1986). The major objection is that of representativeness. Large public universities, however, contain a moderate number of marginal offenders (Matza 1964), particularly for the kinds of offenses that are the focus of this study. In our data, 44 percent of respondents admit to having committed drunk driving in the past year (17 percent committed shoplifting in the past year). Furthermore, a Bureau of Justice Statistics Report (R. Cohen 1992) reveals that the rate of arrest for driving while under the influence of alcohol (DUI) is highest for persons between ages 21 and 24. Those in the 18–20 age range have the second-highest arrest rate for DUI. Also, a survey of 1,287 university students conducted in 1991 revealed that almost one-half were regular users of alcohol; 45 percent of these reported consuming four or more drinks at a time, and more than half reported driving within an hour after consuming their last drink (Kuhn 1992). When subjects in our sample were asked the likelihood of drinking and driving under the conditions of the scenario presented to them, only 33 percent reported “no chance.” Shoplifting also has been shown to be quite common among young adults (Empey and Stafford 1991); self-reports show that shoplifting is about as common as drinking (Elliott et al. 1983; Hindelang, Hirschi, and Weis 1981). When subjects in our sample were asked the likelihood of committing shoplifting under the conditions of the scenario presented to them, only 37 percent reported “no chance.” In addition, arrests for theft reported by the university police department totaled 1,267 for 1992; an overwhelming number of these crimes were committed by students. Given this information, one can conclude that

college student populations contain frequent offenders in situations involving drunk driving and shoplifting; thus college samples are appealing for studies such as this.

7. We varied the level of risk of exposure (informal and formal) in both the shoplifting and the drunk driving scenarios. Preliminary analysis revealed no effect for these scenario-varied conditions; as a result, they were not estimated in the LISREL equations. Furthermore, we used gender as a control variable in preliminary analyses. After controlling for low self-control, the effect of gender was not significant in predicting intentions to either shoplift or drive drunk. In addition, gender had no significant effect on the other exogenous variables. Thus we did not examine gender in the LISREL models. These results confirm Gottfredson and Hirschi's (1990:144–49) predictions concerning gender, low self-control, and crime and they are consistent with previous research regarding similarity between males and females in offending behavior regarding shoplifting and drunk driving (Grasmick, Bursik, and Arneklev 1993a; Hindelang et al. 1981; Keane et al. 1993; Nagin and Paternoster 1993; Yu, Essex, and Williford 1992).

8. Persons interested in obtaining a copy of the low self-control scale can write to us or consult Grasmick et al. (1993b) or Nagin and Paternoster (1993).

9. In the models that follow, when we investigate intentions to drive drunk, we use a past behavior measure: the number of times in the past year the respondent has driven drunk. Similarly, when we examine intentions to shoplift, we use a past behavior measure of respondent's previous shoplifting. An anonymous reviewer observed correctly that a situational variable from the perspective of rational choice theory may be a dispositional variable from the perspective of self-control theory, such that one can use the drunk driving (past behavior) variables to predict shoplifting and can use the shoplifting (past behavior) variables to predict drunk driving. Insofar as dispositions rather than situations are at work, the results should be largely the same in either case. For the sake of brevity and because it is not the focus of the present analysis, we did not examine this issue here. We plan on assessing this issue, however, in future work with these data.

10. To examine the validity of this hypothesis, the LISREL computer program provides a chi-square statistic that estimates the goodness of fit of the model.

11. This is the only effect for perceived sanctions and differs from the results for shoplifting. The sanction effects for drunk driving appear to be direct—not indirect, as they were for shoplifting—perhaps because of recent moral campaigns targeting drunk driving and because of the harshness of penalties that are reported by the media. This result is consistent with recent research concerning perceived sanctions on drunk driving (Grasmick et al. 1993a; Nagin and Paternoster 1993).

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## REVIEW QUESTIONS

1. What are some of the elements of the low self-control personality?
2. What do Piquero and Tibbetts say are some of the key concepts of the rational choice framework that go beyond traditional deterrence concepts? Which of these concepts were most supported by their own findings?
3. What finding do Piquero and Tibbetts claim is the "most interesting"?

## READING /// 6

Previous studies on the spatial distribution of victimization have shown the importance of examining the geographic areas where crime is concentrated. This study by Jordana K. Gallison and Martin A. Andersen provides another example in their analysis of crime along the "O-Train" system in Ottawa, the capital city of Canada. The primary focus of their examination is to determine whether the train system is influencing the level of crime in the areas near its route.

While reading this article, one should consider the following topics:

- In addition to routine activities theory, the theoretical perspectives of Burgess, as well Shaw and McKay, which are introduced here as part of the framework for the current study, and will be discussed at length in a later section (Section VII)
- Findings from previous studies regarding journey-to-crime characteristics, crime displacement, and negative perceptions or fear related to public transit
- Findings of the current study regarding why certain stations seemed to be correlated with crime clustering, and why others are not
- The results regarding which independent variables appear to have consistent or varying influence in predicting commercial burglary, robbery, and/or vehicle theft

SOURCE: Crime and Public Transportation: A Case Study of Ottawa's O-Train System, Jordana K. Gallison and Martin A. Andersen. *Canadian Journal of Criminology and Criminal Justice*, Vol. 59, No. 1, January 2017. Reprinted with permission from University of Toronto Press ([www.utpjournals.com](http://www.utpjournals.com)).

# **Crime and Public Transportation**

## **A Case Study of Ottawa's O-Train System**

Jordana K. Gallison and Martin A. Andresen

A critical aspect of the built environment to consider in relation to crime is the role of public transportation. Public transportation systems play a pivotal role in the development and sustainability of crime throughout large metropolitan cities. Complex networks of stations, trains, and platforms provide both targets and opportunities for motivated offenders to seize. Common types of crime committed in transit systems include, but are not limited to, vandalism, graffiti, theft, robbery, physical assault, and sexual assault (Smith and Clarke 2000). Such crimes can take place at boarding points; walking to, from, and between transit stations; and on board different modes of transport (Kruger and Landman 2007).

It has been argued that mass forms of public transit systems tend to attract and generate crime due to their standardized spatial and temporal settings (Brantingham, Brantingham, and Wong 1991). Offenders are drawn to commit crime based on a system's ability to triangulate opportunities and targets with little to no security and/or passenger intervention. This notion reflects the theoretical argument of Cohen and Felson's (1979) routine activity theory. Their argument, that crime occurs based on the convergence of a motivated offender, a suitable target, and a lack of a capable guardian, provides strong support that transit systems act as both crime generators and crime attractors (Cohen and Felson 1979).

Public transit systems cluster a substantially large number of people together, providing an opportunity structure for offenders to take advantage of. Predictable commuting times can give offenders a framework for offending. Offenders can become aware of departure and arrival times at busy stations (Brantingham et al. 1991). As passengers board buses and trains at set time intervals and stations, there is an influx of targets to choose from (Smith and Cornish 2006). However, the volume and frequency of such offences may vary among mode of transport (i.e., bus or train), location of the station (urban centre versus suburban station), and time and day of week

(weekday versus weekend). Furthermore, most passengers on transit systems represent an ideal target for motivated offenders to victimize. Passengers tend to be tired and preoccupied, and they carry an assortment of bags that contain a large variety of valuable objects (Myhre and Rosso 1996).

It is important to recognize that transit-related crime is not limited to a transit station alone. Transit-generated crime can exceed the physical boundaries of a station and extend to the nearby environment. Neighbouring residential homes and commercial businesses may become vulnerable to an increase in crime due to the opening of a transit route. Many studies have begun to recognize the need to examine nearby transit surroundings in relation to crime (Plano 1993; Poister 1996; Loukaitou-Sideris, Liggett, and Iseki 2002; Billings, Leland, and Swindell 2011; Sedelmaier 2014). Some studies have suggested that a transit station can generate crime up to 750 metres away (Robinson and Giordano 2012; Gallison 2014).

It is critical to examine the nearby land use of a major transportation route to fully understand the potential risks of crime occurring in surrounding neighbourhoods. Public transport systems reflect two elements of land use: first, the nature of the land use, which indicates where activities are taking place, and second, the density of that land use, which indicates its intensity and concentration (Rodrigue, Comtois, and Slack 2009). Central areas of cities have higher levels of land-use density and mixed land use than peripheral areas. Thus, it can be argued that central areas will display higher levels of crime.

Early studies on the spatial distribution of crime have demonstrated the importance of considering the areas in which crime concentrates. The theoretical work of Burgess (1925) and, later, Shaw and McKay (1942) demonstrated attempts to study spatial patterns of crime at an urban level. Their work characterized neighbourhoods with higher levels of crime as places that have high residential turnover, high rates of social assistance, low rental



rates, and low rates of home ownership. Further, central business districts (CBDs) have higher levels of recorded crime compared to their suburban counterparts farther away. Moreover, the location of major forms of mass transportation systems is dictated by the level of concentration of human activity, and in CBDs, the concentration is higher than in residential areas. Stations may be placed in areas that experience high traffic volume because they help boost the local economy while facilitating a network for people to travel along within a city, but stations may also be established first, with land development following. Thus, transit crime can be created and exacerbated where it interacts with pre-existing conditions that make crime ideal, such as the aforementioned socio-demographic factors: high residential turnover, high rates of social assistance, low rental rates, low rates of home ownership, and so forth.

The works of Burgess (1925) and Shaw and McKay (1942) are vital to consider in relation to the study of transit crime as they can help provide a greater understanding of why major transportation systems are vulnerable to crime and/or an increase in crime. Despite some land uses that can generate crime and disorder, even among highly facilitative land use types, some will have combinations of location characteristics that will be more attractive to potential offenders (Kinney et al. 2008). The importance of location indicates that, within a city, there will be a mixture of both high- and low-crime areas (Knight and Trygg 1977; Kinney et al. 2008; Andresen and Linning 2012). The immediate surroundings of a transit station tend to encourage a high concentration of commercial businesses, such as liquor stores, convenience stores, ATMs, and restaurants, to boost profits. Therefore, there will be some land uses that have higher crime rates, but not all units in that category will experience crime. It is best to view land uses as a selection filter that helps make the patterning of crime in an urban context more understandable (Kinney et al. 2008). Thus, it is important to recognize that not all high-risk land uses will facilitate crime; a combination of land-use types as well as other factors such as public transportation may be more detrimental, thus producing crime.

In addition, land use may help provide clues as to why offenders seek out particular transit stations to commit crime compared to other stations found along the same route. Transit stations and hubs have the ability to

accumulate a high concentration of individuals who use public transit to travel. Offenders can seize this opportunity to commit crime as a population of potential targets is brought together in both time and space. Instead of searching for targets individually at different hunting grounds, offenders can select a target from those that inadvertently gather at a transit station, thus providing a “one-stop shop.” Land use can also help us understand how individuals may use public transportation systems to travel to commit crime, searching for vulnerable areas that may have fewer protective factors in place to prevent crime from occurring.

Journey-to-crime literature suggests that crime trips tend to be short (Brantingham and Brantingham 1981; Snook 2004; Townsley and Sidebottom 2010; Andresen, Frank, and Felson 2014). Motivated offenders may seek out ways to commit crime by choosing targets close to an anchor point, most commonly their home and place of employment (Rengert 2004). The notion of an offender choosing targets close to their anchor points reflects Zipf’s (1965) theory of least effort. Zipf (1965) stated that people would naturally choose the path of least resistance (effort). By providing a new means to travel in a short time, offenders may be drawn to commit crime in and near transit stations as it allows them to exert little effort to seize such opportunities. New routes can lead offenders to seek out more alluring targets as they become more familiar with the local area (Sedelmaier 2003). Belanger (1999) found that most repeat offenders committed crimes within 10 stops of their home, suggesting that public transit time can be as important a factor as distance in the journey to commit crime. Therefore, a transit system may become a new tactic of connecting an offender with a victim by allowing the offender to travel substantial distances in little time (Billings et al. 2011; Sedelmaier 2014).

Crime displacement is the relocation of crime from one place, time, target, offence, or tactic to another as a result of some crime-prevention initiative. Crime displacement is often viewed as a negative consequence of crime prevention efforts as it may increase crime in other areas and/or transfer risk to other groups. Anti-transit critics frequently state that inner-city crime will be displaced to suburban neighbourhoods if a public transit route is located there. However, Rengert (2004) found the opposite in the study of journeys to crime: offenders were more likely to travel away from a suburb to a city centre to

commit crime. To date, there is a lack of research to empirically support the claim that public transportation can displace crime to suburban neighbourhoods (Billings et al. 2011; Gallison 2014). Adverse perceptions of public transit and crime have created both fear and resentment among the general public. Negative perceptions of mass transit systems can threaten the long-term viability of a metropolitan city (Poister 1996). Such perceptions and fears can adversely impact the economy, the environment, and the social welfare of a population. Thus, it is important to undertake spatial analysis of transit crime to more fully understand the spatial patterns of transit crime. In this paper, we ask whether the presence of an O-Train station predicts crime in the surrounding area. And, if so, which crime? And how much can be done to prevent and/or mitigate this effect?

## The O-Train

The O-Train is a recent development in the expansion of Ottawa's public transportation system; it accommodates passengers travelling to various parts of downtown Ottawa. The light rail transit system travels northbound and southbound, mostly isolated from road traffic.

However, the O-Train shares the railway track with other trains (OC Transpo 2015). Legally, the O-Train is considered a mainline railway despite being used for local public transport purposes. Many argue that the services provided by the O-Train are more like those of an urban railway than a metro or tramway (*ibid.*).

The O-Train was implemented in 2001, a significant milestone serving as the city's first form of light rail transit (OC Transpo 2015), using a pre-existing rail corridor for the new rapid transit route. The O-Train operates along eight kilometres of track, helping commuting passengers cross the many waterways (such as the Ottawa River, Dow's Lake, and Rideau Canal) found within the city (*ibid.*). The line hosts five stations: Bayview (terminus), Carling, Carleton (university), Confederation, and Greenboro (terminus). For the average commuter, travel time is approximately 12 minutes from Bayview to Greenboro stations (*ibid.*). Both terminus stations also serve as transfer points to Ottawa's bus system. In the first quarter of 2013, it was reported that average weekday ridership was approximately 14,300 passengers (*ibid.*).

## Data and Methods

The current research focuses on each station of the O-Train light rail transit system. Based on previous literature exploring the criminogenic effect of public transportation on local levels of crime, it was hypothesized that a similar criminogenic effect may be present in neighbourhoods surrounding the O-Train. The following discussion examines local levels of crime using a spatial perspective to determine whether the O-Train system can influence the number of crimes reported to the police in the city of Ottawa. Spatial analysis offers a new perspective in determining the effect that public transit systems can have on different types, counts, and rates of crime (Poister 1996; Loukaitou-Sideris et al. 2002; Sedelmaier 2003).

Ottawa is the capital city of Canada and located along the Ottawa River in southeastern Ontario. Ottawa is on the border of Ontario and Quebec, 192 kilometres west of Montreal and 352 kilometres northeast of Toronto. According to Statistics Canada's 2006 community profiles, Ottawa is the fourth-largest city in the country, based on population; in 2006, Ottawa had a population of approximately 812,000 persons, an increase of almost 5% over the previous census of 2001 (Statistics Canada 2007). The Ottawa census metropolitan area (CMA), which excludes the portion of Ottawa-Gatineau in the province of Quebec, is considered the sixth-largest metropolitan area in Canada, based on population: 926,000 in 2009, an increase of almost 6% over 2005 (Gannon 2006; Dauvergne and Turner 2010).

Total crime in the Ottawa CMA has steadily decreased, from 6,326 per 100,000 persons in 2003 to 5,775 per 100,000 persons in 2006 and 4,558 per 100,000 persons in 2009 (Wallace 2004; Silver 2007; Dauvergne and Turner 2010). As of 2006, the crime rate in the Ottawa CMA was greater than the crime rate in the Toronto CMA (5,020 per 100,000 persons), less than the crime rate in the Montreal CMA (6,912 per 100,000 persons), and approximately one half of the crime rate in the Vancouver CMA (10,609 per 100,000 persons) (Silver 2007).

In addition to being the political centre of Canada and the home of the federal Parliament Buildings, Ottawa has two major universities: the University of Ottawa and Carleton University. The University of Ottawa is located in downtown Ottawa, whereas Carleton University is located just south of downtown, among Dow's Lake, the Rideau River, and Bronson Avenue.

## Crime and Socio-economic Data

The aim of the current research was to determine whether the O-Train is related to the level of crime in the neighbourhoods near its route. Neighbourhoods were measured using dissemination areas, defined by Statistics Canada. Dissemination areas are geographically smaller than census tracts, equivalent in size to a census block group in the U.S. census, approximately 400 to 700 persons, and composed of one or more blocks; before the 2001 census, these census boundaries were called enumeration areas. There are 1,275 dissemination areas in the city of Ottawa.

Crime-incident data were obtained from the Ottawa Police Service and covered a time period from January 2006 to December 2006—the most recent corresponding census data available. Data for three types of crime were publicly available: commercial break and enter (commercial burglary), robbery, and theft of vehicle. Data were geocoded to the street network for Ottawa and then aggregated to the dissemination-area level. The geocoding for these data generated a success rate of 96%. This is well above the minimum acceptable success rate of 85% set by Ratcliffe (2004), although the analyses in that paper were performed with little concern for spatial bias.

Census data were obtained from Statistics Canada and provided the boundaries of each dissemination area located in Ottawa. Data were also obtained from the city of Ottawa: the x-y coordinates of the O-Train stations as well as the location of the route. Together, the data helped us visually identify which dissemination areas in Ottawa were displaying higher levels of crime as well as determine whether the dissemination areas with higher levels of reported crime were located near an O-Train station. The study used 11 independent variables from the Canadian census to empirically test whether crime could be attributed to something other than the presence of the O-Train in Ottawa: residential population, young males, never married, single parents, renter-occupied dwellings, residential mobility, unemployment, education, visible minorities (a measure of ethnic heterogeneity), average income, and average value of dwelling. We also used three variables related to our study: University of Ottawa, Carleton University, and last, the presence of an O-Train station.

These socio-economic variables are often employed in studies of the geography of crime in the context of social disorganization theory and routine activity theory (Shaw

and McKay 1931, 1942; Cohen and Felson 1979; Felson and Cohen 1980, 1981). Generally speaking, these 11 variables can be classified as population characteristics, socio-economic status, and dwelling characteristics. We measured population characteristics using the percentage of the population that was young (males aged 15 to 24), persons never married, lone-parent families, visible minorities, and people who had recently moved (within the past five years). We measured socio-economic status using the percentage of the population aged 20 years and older who had obtained a post-secondary education (completed certificate, diploma, or degree), the unemployment rate for those 15 and older participating in the labour force, and the average household income in thousands of dollars. And finally, we assessed the dwelling characteristics of a dissemination area by considering renter-occupied dwellings and average dwelling value.

Previous research has shown that being located within a central business district and distance from a CBD affect crime (Schmid 1960a, 1960b; Brown 1982). Because of this fact, we included a variable (distance to downtown) that identified the dissemination areas within the Ottawa CBD and distance from the CBD, measured in kilometres and calculated using the Euclidean distance between the centroid of the downtown area and the centroids of all dissemination areas. Descriptive statistics and correlations for the independent variables are presented in Tables 1 and 2.

## Statistical Analyses

The analyses below begin by calculating the local Moran's *I* to demonstrate the spatial relationship between crime rates and public transportation. It is also known as a LISA, or local indicator of spatial association (Anselin 1995). Local Moran's *I* assesses the local variation of spatial autocorrelation (Fox et al. 2012). In other words, this technique determines whether spatial clustering occurs at the local level for each spatial unit under analysis. Local Moran's *I* can indicate in a statistical manner which regions have similar and dissimilar values surrounding them (Chainey and Ratcliffe 2005). This is a beneficial technique to use in crime mapping as it can add robustness to determining whether certain areas can be defined as hot spots. Values for local Moran's *I* range from  $-1$  (perfect negative spatial autocorrelation) to  $+1$  (perfect positive spatial autocorrelation).

**Table 1** • Descriptive statistics for independent variables at the dissemination-area level

	Minimum	Maximum	<i>M</i>	<i>SD</i>
Commercial burglary count	0.00	42	3.01	4.40
Robbery count	0.00	20	0.56	1.53
Theft of vehicle count	0.00	62	2.09	4.44
Population	207	8,157	638.29	460.28
Young males, %	0.99	32.79	10.19	3.62
Never married, %	9.57	77.00	29.61	11.32
Single parents, %	0.00	23.90	4.26	3.23
Renter-occupied dwellings, %	0.00	100.00	27.31	30.97
Residential mobility, %	0.00	99.25	37.09	17.27
Unemployment rate	0.00	18.76	3.18	2.40
Education, % post-secondary	0.00	79.85	51.26	9.59
Visible minorities, %	0.00	100.00	17.55	14.95
Average income, \$ (2006)	0.00	167,398	43,147	16,449
Average value of dwelling, \$ (2006)	0.00	1,449,152	280,586	120,460
Distance to downtown, km	0.10	42.00	11.54	7.84

From these values, four types of local clusters can be identified: High–High, Low–Low, Low–High, and High–Low. High–High and Low–Low represent local positive spatial autocorrelation—that is, high-crime-rate areas that are contiguous with other high-crime-rate areas and low-crime-rate areas that are contiguous with other low-crime-rate areas, respectively. Low–High and High–Low represent local negative spatial autocorrelation: low-crime-rate areas that are contiguous with high-crime-rate areas and high-crime-rate areas that are contiguous with low-crime-rate areas, respectively. There are also other areas that are classified as having neither positive nor negative local spatial autocorrelation. These various forms of local spatial clusters can then be used in a modelling framework (Andresen 2011) as the outcome variable.

## Results

The results demonstrated that local spatial autocorrelation existed in the current research. Results for LISA examining commercial burglary demonstrated that three of the O-Train stations were located in areas considered High–High. One possible reason is that the O-Train stations are situated in areas with commercial land use and are more likely to experience higher levels of reported burglary. However, caution should be exercised in this interpretation because we do not have longitudinal data. The O-Train route travels through downtown Ottawa, where many people live and travel into and out of to go to work and school. The High–High classification could also be attributed to the mixed land

**Table 2 • Correlations for independent variables**

Population											
Young males, %	-.00										
Never married, %	-.06*	.71**									
Single parents, %	.01	.16**	.21**								
Renter-occupied dwellings, %	.06*	.48**	.74**	.38**							
Residential mobility, %	.24**	.35**	.51**	.16**	.59**						
Unemployment rate	.02	.29**	.31**	.21**	.33**	.23**					
Education, % post-secondary	-.02	.09*	.12**	-.19**	-.11**	.23**	.05				
Visible minorities, %	.21**	.24**	.19**	.38**	.38**	.35**	.23**	-.15**			
Average income, \$ (2006)	.01	-.30**	-.36**	-.34**	-.44**	-.19**	-.17**	.33**	-.29**		
Average dwelling value, \$ (2006)	-.00	-.19**	-.20**	-.31**	-.29**	-.15**	-.09*	.25**	-.25**	.73**	
Distance to downtown, km	.06*	-.22**	-.57*	-.24**	-.54**	-.32**	-.18**	.07*	-.28**	.11**	-.01
	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

X1 = Population; X2 = Young Males; X3 = Never Married; X4 = Single Parents; X5 = Renter-Occupied Dwellings; X6 = Residential Mobility; X7 = Unemployment; X8 = Education; X9 = Visible Minorities; X10 = Average Income; X11 = Average Dwelling Value.

use that the downtown portion of Ottawa exhibits. The role of land use has been known to impact crime patterns (see Kinney et al. [2008] for a further discussion of land use), and thus further analysis should be conducted to determine whether the O-Train is the sole factor causing the higher levels of break and enters shown in the areas under analysis. This is undertaken in Figure 1 below in an inferential context.

The results for LISA examining robbery illustrated varying results in regard to the spatial autocorrelation, but there were no local crime clusters associated with robbery along the O-Train system. Bayview is located close to areas with High-High and Low-High local crime clusters, but nothing that could be attributed to the O-Train. All O-Train stations are located in areas classified as statistically insignificant. This is somewhat surprising due to the fact that the Carleton station is

located at Carleton University, where there are many students who use public transportation while attending school and who carry a variety of small but valuable items while travelling. Further analyses should be conducted to determine why robbery does not appear to be a significant issue at this station, such as the presence of numerous capable guardians or the type of station design.

The lack of statistically significant local clustering at Confederation and Greenboro stations is also surprising if public transportation is considered a generator or attractor of criminal activity. Both stations are located at or near the end of the O-Train route and are transfer points to other parts of Ottawa's public transportation system; therefore, they are potentially rife with opportunities for robbery because of all the transferring transit patrons. Both Confederation and Greenboro connect to Ottawa's

Figure 1 • LISA output, commercial burglary

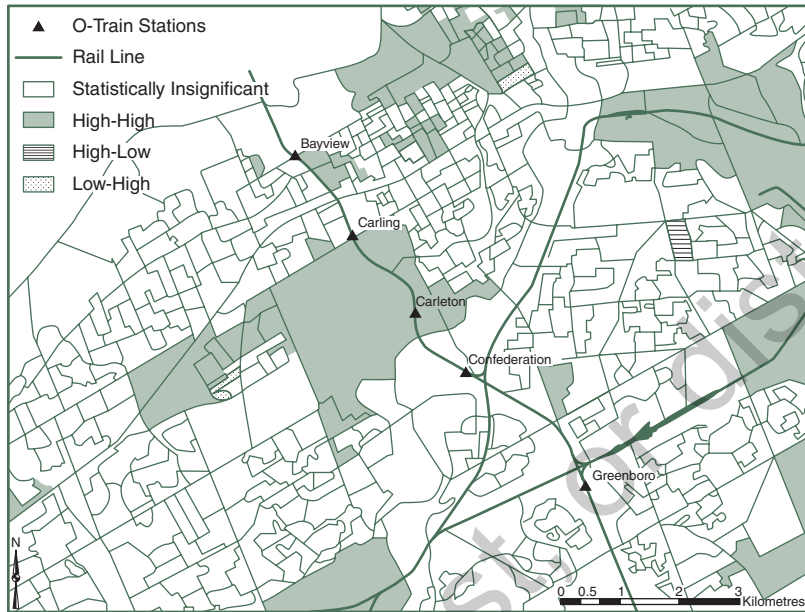


Figure 2 • LISA output, robbery

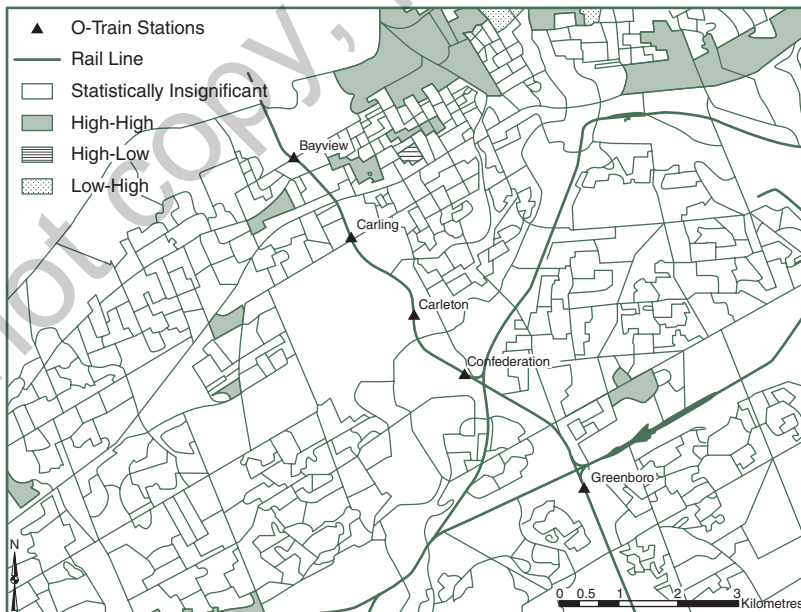
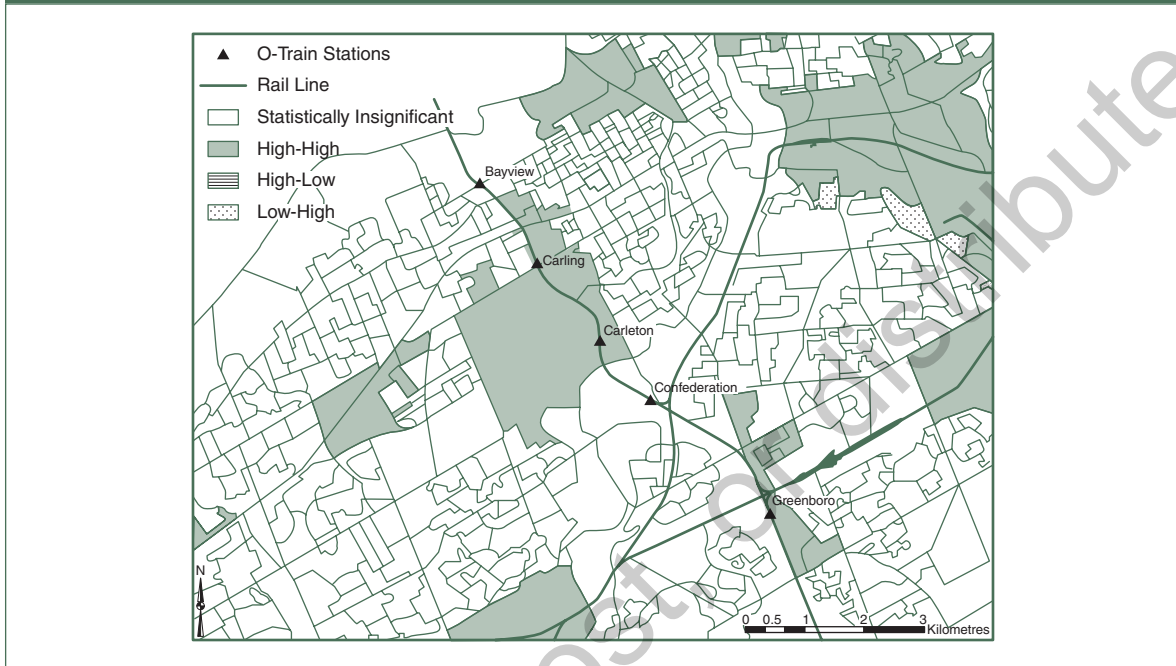


Figure 3 • LISA output, theft of vehicle



bus service, and offenders may be more tempted to commit robbery at these stations because it is easier for them to travel to other parts of the city without being apprehended. (See Figure 2.)

The results for LISA examining theft of vehicle show that almost all stations on the O-Train system are located in areas or close to areas classified as High-High. Bayview station was found not to be significant; however, three stations (Carling, Carleton, and Greenboro) are located in statistically significant local crime clusters. This is not particularly surprising given that these stations host park-and-ride lots and are located in downtown Ottawa, so there would be a wide variety of vehicles for an offender to choose from. (See Figure 3.)

Overall, the results demonstrate that the O-Train may play a role in the amount of crime reported in the dissemination areas located in Ottawa. Despite the route having only five stations, the dissemination areas that are within the city's geographical boundaries are more likely to experience higher levels of crime; this indicates that the O-Train may serve as either a crime generator or a crime attractor, particularly for commercial burglary and theft

of vehicle. Moreover, based on the fact that the O-Train stations are not always located in local crime clusters (High-High, for example), depending on the crime type under analysis, it is possible that these stations attract particular types of crime. Such a claim, however, can only be substantiated with longitudinal data, which were not available.

Although the LISA results are instructive for the identification of local crime clusters in and around the O-Train stations, particularly when local crime clusters are not present, further inferential analyses are necessary to identify the factors that lead to local crime clusters, particularly High-High (a Low-Low local crime cluster is not considered to be problematic). To better identify the factors that lead to the development of High-High local crime clusters, the discussion will now turn to the results of the logistic regressions. We discuss only the variables remaining after statistical testing. Moreover, statistically insignificant variables were removed from the analyses.

The results for commercial burglary show that six of the independent variables remained in the final model: average income, distance from the CBD, average dwelling

value, never married, rentals, and University of Ottawa. Average income was found to have a negative estimated parameter, as would be expected by theory (particularly social disorganization theory), but the magnitude of this parameter was rather small and is the equivalent of a statistically insignificant relationship. Distance from the CBD also had a negative estimated parameter, as would be expected, but the magnitude of this estimated parameter was greater. Average dwelling value had a statistical significance level that was marginal and a positive estimated parameter indicating the importance of target attractiveness for commercial burglary; however, as with average income, the magnitude of this relationship was effectively zero.

Never married, representing places with more people who are likely to have routine activities away from the home, had a small, positive impact on the probability of a High–High local crime cluster, and rentals had a very small and negative impact on the probability of a High–High local crime cluster. The largest-magnitude impact on the probability of a High–High local crime cluster was the presence of the University of Ottawa, with a 4.39 times greater probability. However, this is likely due to the fact that the University of Ottawa is mostly located in the CBD of Ottawa, whose estimated parameter, although statistically insignificant, is similar in magnitude to the estimated parameter for the University of Ottawa. Most notable, in the context of the current research, is that the O-Train is not a statistically significant predictor of High–High local crime clusters in the context of commercial burglary.

The results for robbery, are similar to those for commercial burglary in that the O-Train was not a statistically significant predictor of High–High local crime clusters. However, this should come as no surprise given that none of the O-Train stations were located in any of the High–High local crime clusters. Angel (1968) expected that robberies would occur in places that had a moderate level of pedestrian traffic: high enough to have targets, but not too many to have people who may intervene in a criminal event. Clarke, Belanger, and Eastmanx (1996), however, found that more robberies occurred at places with lower levels of population density. Thus, although one may suspect that the presence of an O-Train station in an area would increase robbery, our result is consistent with previous research.

The final model for robbery also retained six independent variables after individual and joint statistical significance testing. Distance from the CBD had its expected

negative estimated parameter, but average dwelling value was also negative and statistically significant. This indicates that commercial burglary and robbery local crime clusters are located in different areas of the city, also evident from the maps of the LISA output. The presence of single parents increases the probability of a High–High local crime cluster, as does the increased presence of never-married persons and visible minorities. The presence of young males, however, decreases the probability of a High–High local crime cluster. Aside from the negative result for young males, these results all match expectations, particularly those of social disorganization theory— young males are the most criminogenic subpopulation and are expected to be positively associated with criminal activity (Hirschi and Gottfredson 1983; Boyd 2000).

The results for theft of vehicle are more interesting in the context of the O-Train. Average income, distance from the CBD, and visible minorities have expected negative estimated parameters. The magnitudes of the odds ratios for average income and visible minorities are rather low, similar to the results for robbery, but the impact of the distance from the CBD is of a much greater magnitude. This latter result, for this and the other crime types, is indicative of the fact that crime is so highly concentrated in the city of Ottawa (Andresen and Linning 2012; LaRue and Andresen 2015). Of most interest here, however, is the statistically significant result for the O-Train in the context of theft of vehicle. This estimated parameter is not only statistically significant and positive, but it is of a high magnitude, considering the odds ratio. The presence of an O-Train station increases the probability of a High–High local theft of vehicle crime cluster by almost seven times. This result is most obvious for the Carleton and Greenboro O-Train stations. Carleton station is located at Carleton University, which has car parks for faculty staff and students, all of which present many opportunities for vehicle-based crime. Greenboro, as mentioned above, is a transfer station that provides access to other parts of Ottawa's public transportation system, and the presence of automobiles represents opportunities similar to those for Carleton station.

## Discussion and Conclusions

The aim of the current study was to determine whether neighbourhoods around the O-Train stations in the city of Ottawa, measured using dissemination areas, demonstrated



higher levels of reported crime after controlling for several socio-economic and socio-demographic factors. Exploration of Ottawa's five O-Train stations across two offence types (commercial burglary and theft of vehicle) showed high levels of crime clustering in those areas with an O-Train station located within it or nearby. The findings of the current research highlight the importance of considering the criminal implications of the presence and operation of mass public transit systems. Strategic planning must be included in preparation for handling mass populations of commuters, which include both victims and offenders. More policing must be deployed routinely to patrol O-Train stations and nearby areas to deter motivated offenders from seeking out vulnerable targets, such as vehicles left for the day by individuals commuting to work or school using the O-Train. Such suggestions should be incorporated into the Ottawa Police Service's strategy to combat crime in and around mass forms of public transportation in the city (e.g., O-Train, bus loops, train stations, and so on).

However, as shown in the LISA output maps and the regression results, the impact is not the same across all crime types. After considering their High-High local crime clusters, robbery, in particular, was not a problem for the O-Train, and commercial burglary was not statistically related to the O-Train stations; however, theft of vehicle High-High local crime clusters were statistically related to O-Train stations, and with a high magnitude.

By employing geo-spatial measures to study the relationship between public transportation and crime, a greater understanding emerges that would not be apparent if other statistical measures were used. In the current research, local Moran's *I* (LISA) was the most appropriate geospatial measure used to understand the phenomenon of crime along the O-Train route. Unlike the other techniques used, LISA gave a visual representation of spatial autocorrelation, and it demonstrated the effect that the O-Train could have on particular crime types located near the stations and in nearby neighbourhoods.

There are some limitations associated with the current research. Like many studies of crime, this study includes only criminal incidents reported to the police. The dark figure of crime, which describes the amount of crime that occurs but is not reported, could alter the results. More crime may have taken place within the

parameters of the study but not reported. Consequently, crime that was reported but was deemed not to have occurred might also be excluded. This exclusion reflects the discretion used by the police to determine whether a criminal offence took place or not.

Further, the study used three types of offences and excluded other, more common types of crime associated with public transportation systems. Including more offence categories may have yielded a different outcome. However, our results show that a public transportation system does not necessarily have to be positively related to crime. Thus, we are able to show the importance of not aggregating individual crime types when investigating the relationship between crime and public transportation. Future studies on the relationship between crime and public transportation should include a wide array of offence categories to gain more insight into the phenomenon of transit crime. Last, future studies should use longitudinal data to best witness changes over an extended period rather than the shorter time frame that a cross-sectional study provides.

Mass transit exists in a complex environment of temporal and spatial patterns. In a criminological context, the transit environment contains a multitude of targets that are stationary and unguarded, providing ample opportunities for motivated offenders (Smith and Clarke 2000). However, the risk of victimization could decrease if key stakeholders developed an effective plan to prevent and reduce crime from occurring in such environments using some form of patrol (Barclay et al. 1996) or environmental design (La Vigne 1996).

Local police must take precautionary measures to deal with established and potential criminal hot spots. If a station is placed in a pre-existing or potential hot spot, local police must take responsibility for securing and patrolling it and its surroundings to disrupt the opportunity structure for committing crime. The Ottawa Police Service could consider adopting a specialized police force to handle transit crime and disorder. For example, the city of Vancouver has established such a police force, Transit Police, that aims to deter potential criminals from committing crime by routinely patrolling SkyTrain stations (TransLink 2014). The presence of a uniformed officer can help ease commuters' fears of and concerns about crime, deter offenders, and provide on-site support for problems. City officials may also need to revise the

procedures for allocating land use and issuing permits and licences to help prevent crime from occurring as a result of the potential negative interaction between some land use types and mass forms of public transportation. In addition, mixed land use, consisting of commercial businesses and residential homes, should be promoted to help enable legitimate activities to occur in the vicinity of a transit route.

As demonstrated in previous literature, there is a continual need to study the relationship between offender mobility and mass forms of public transportation. Various land uses, general crime rates, and strategic planning need to be taken into consideration when implementing routes for commuters travelling to and from work, school, and home. By employing geographic measures, one can understand the movement of mobile populations and the opportunities that arise from transit environments at a macro-, meso-, and micro-level.

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## REVIEW QUESTIONS

1. What are some specific reasons why public transit offers a good case study of routine activities theory? If you were to design such a study, which elements would you look for that this study did not?
2. In this study, what are some of the characteristics that may explain why the Confederation and Greenboro stations had different results than the other hubs or stations?
3. Which independent variables had the most influence on predicting crime clustering? Which independent factors contributed most to crime being concentrated in certain locations or stations?