Article

Crime & Delinquency
2018, Vol. 64(12) 1636–1659

DOI: 10.1177/0011128718763136
journals.sagepub.com/home/cad
SAGE

Using Behavioral Economics to Advance Deterrence Research and Improve Crime Policy: Some Illustrative Experiments

Justin T. Pickett[1]

Abstract

Recent experiments show that offender decision making is characterized by the use of cognitive heuristics. Questions remain about what this means for deterrence research and policy. I argue that the primary task is to identify ways to leverage decision-making biases to reduce crime. I outline three avenues for future research on deterrence, and discuss their relevance for crime policy. To illustrate these lines of inquiry and stimulate additional studies, I provide initial experimental results for each topic. I report evidence that (a) pseudocertainty publicity can increase perceived arrest risk and deterrent fear, (b) the availability heuristic can help explain how target characteristics affect situational perceptions of crime benefits and costs, and (c) individuals experience declining sensitivity to increases in sanction severity.

Keywords

rational choice, decision making, cognitive heuristics, support theory, fear

[1]University at Albany, NY, USA

Corresponding Author:
Justin T. Pickett, School of Criminal Justice, University at Albany, State University of New York, 135 Western Avenue, Albany, NY 12222, USA.
Email: jpickett@albany.edu

Over the past four decades, many scholars have suggested that criminal decision making is intuitive, and cognitive heuristics influence the formation and updating of sanction perceptions (E. Johnson & Payne, 1986; Lattimore & Witte, 1986; Pickett & Bushway, 2015; Pogarsky, Roche, & Pickett, 2018). Two recent studies reported experimental evidence confirming this is true (Pogarsky, Roche, & Pickett, 2017; Thomas, Hamilton, & Loughran, 2018). One interpretation is that these heuristic effects are survey artifacts—"somewhat arbitrary responses to probabilistic questions" that result because respondents' true "underlying perceptions of arrest risk . . . are difficult to elicit reliably in surveys" (Thomas et al., 2018, pp. 59, 67).

However, the central lesson from behavioral economics—and from the work of Tversky and Kahneman (1974), Thaler (2015), and others—is that rather than simply representing artifacts of survey design, heuristic effects are genuine biases in judgment processes caused by intuitive reasoning, and frequently occur in the real world. The abundant evidence that intuitive reasoning and cognitive heuristics profoundly affect real-world decisions is the basis for the choice architecture movement, which focuses on designing public policies to "nudge" people to make better decisions (Thaler & Sunstein, 2008).

Instead of dismissing heuristic effects as methodological mishaps, the task for criminologists is to identify ways to leverage these decision-making biases to increase deterrence. In this article, I discuss how this might be accomplished, and provide some initial experiments to illustrate important new directions for deterrence research. I outline three lines of inquiry, which warrant greater attention moving forward. First, studies are needed that examine how the heuristic effects identified in Pogarsky et al. (2017) and Thomas et al. (2018) can be used to nudge people away from crime and enhance deterrence. Second, researchers should test experimentally how the characteristics of criminal targets affect *heuristic* assessments of the costs and benefits of crime. Evidence on this front can inform choice architecture interventions aimed at discouraging offending through environmental modifications (Clarke, 1995). Finally, there is a need for research that examines how intuitive reasoning influences reactions to sanction threats. To provide examples of how researchers might begin to address these issues and some forward momentum, I present initial experimental results for each topic.

Nudging With Information: Unpacking and Pseudocertainty

> *If serious risks are involved, the best nudge might be a private or public warning.* (Sunstein, 2014, p. 586)

> *Since a gaming house might attract more players by means of promotion than by increasing players' chances of winning, is it not possible that a law enforcement agency might deter more offenders by publicity than by increasing offenders' chances of apprehension?* (Zimring & Hawkins, 1973, p. 172)

Sunstein (2016a, p. 124) emphasizes that "disclosure of relevant information counts as a nudge." Indeed, some of the most powerful nudges simply provide information to decision makers, most commonly in the form of advertisements or publicity (Thaler & Sunstein, 2008). Such "educative nudges, or 'boosts,' attempt to inform people . . . so that they can make better choices for themselves" (Sunstein, 2016b, p. 32). Examples include road signs, graphic warnings for cigarettes, publicity campaigns about economic and environmental costs of energy use, flyers detailing other peoples' behavior, and nutrition labels on food packages (Sunstein, 2014). Perhaps the most famous information nudge involved adding information about the gallons-per-mile (in addition to miles-per-gallon) to fuel economy stickers on new cars (Kahneman 2011).

Prior criminological research has found that publicity is at least as important as changes in enforcement levels for explaining the deterrent effects of policy initiatives (S. D. Johnson & Bowers, 2003; Smith, Clarke, & Pease, 2002). Unfortunately, although communication and persuasion are the first and second tasks of any threatening agency (Zimring & Hawkins, 1973, p. 149), they are the least studied dimensions of deterrence (Kennedy, 2009). A few previous experiments have shown that deterrence communciations can affect risk perceptions (Pickett, Loughran, & Bushway, 2016), but they stopped short of testing the persuasiveness of different communication strategies. Recent criminological experiments have found strong evidence of conjunction fallacies and anchoring effects in sanction perceptions (Pogarsky et al., 2017; Thomas et al., 2018). These findings provide clues about how to increase the persuasiveness of deterrence communications. More broadly, insights about framing communications for persuasiveness abound in behavioral economic theories and findings (Kahneman, 2011; Thaler, 2015). Especially relevant are those pertaining to probability judgments, because the certainty (or probability) of apprehension appears to be a much greater deterrent than the celerity or severity of punishment (Apel, 2013; Loughran, Paternoster, Chalfin, & Wilson, 2016; Pratt, Cullen, Blevins, Daigle, & Madensen, 2006).

Arguably, the leading model of subjective probability is Tversky and Koehler's (1994) support theory, which posits that when formulating probability judgments, individuals consider descriptions of events (or hypotheses) rather than the events per se. The perceived strength of the supporting evidence (or support value) for a focal hypothesis (e.g., that Event A will occur)

shapes the resultant probability judgment. The support value is, in large part, a function of the description of the event, which can (a) remind people about the different possible ways an event may come about and (b) increase the salience or call attention to certain possibilities (Rottenstreich & Tversky, 1997; Tversky & Koehler, 1994).

According to Tversky and Koehler (1994), when people judge probabilities, "they do not normally unpack the hypothesis into its exclusive components and add their support, as required by extensionality" (p. 549). This selective judgment process explains conjunction fallacies, in which the probability of one subset of an event (e.g., nuclear attack on the United States by a terrorist group) is judged higher than the overall probability of the event itself (i.e., any nuclear attack; Tversky & Kahneman, 1983). Conjunction fallacies occur because individuals fail to unpack the focal hypothesis (any nuclear attack), and because the added detail provided in the description for the subset of the event (nuclear attack on the United States by a terrorist group) makes that description (or hypothesis) more coherent and plausible, thus increasing its support value (Kahneman, 2011). Unpacking a focal hypothesis for individuals—that is, explicitly asking them about the different ways that an event might come about—generally increases the judged probability that it will occur (Rottenstreich & Tversky, 1997; Tversky & Koehler, 1994).

Because the reasoning used to formulate probability judgments "is selective rather than exhaustive" (Tversky & Koehler, 1994, p. 549), when potential offenders weigh criminal opportunities, many will fail to consider (or unpack) the different possible ways that police could apprehend them if they choose to offend. This is probably the explanation for the conjunction fallacies in perceived arrest risk found by Pogarsky et al. (2017). Despite such selective reasoning, both offenders and nonoffenders tend to overestimate the probability of arrest for most crimes (Apel, 2013; Pickett & Roche, 2016). Nonetheless, it may still be possible to further increase perceived arrest risk and nudge potential offenders toward conformity simply by unpacking the arrest hypothesis. Specifically, using deterrence communications—signs, billboards, radio announcements, television commercials, and so on—that specify the different possible ways that police could identify and arrest offenders should increase perceived arrest risk. In turn, higher perceived risk should translate into greater emotional fear of arrest, the most proximate cause of deterrence (Pickett, Roche, & Pogarsky, 2018). Therefore, the first set of hypotheses that I test are as follows:

Hypothesis 1a: Exposing individuals to deterrence communications that unpack arrest risk will cause them to perceive a higher probability of arrest.

Hypothesis 1b: Exposing individuals to deterrence communications that unpack arrest risk will cause them to report greater emotional fear of arrest.

Support theory also illuminates how it might be possible to use deterrence communications to increase judgments of apprehension risk through specific cognitive heuristics (Rottenstreich & Tversky, 1997). When judging probabilities, people "tend to form a global impression that is based primarily on the most representative or available cases," which results in a support level that reflects "a subjective impression mediated by judgmental heuristics, such as representativeness, availability, or anchoring" (Tversky & Koehler, 1994, p. 549). Perhaps the most promising of these heuristics for deterrence communications is anchoring, because anchoring effects are ubiquitous and tend to be very large (Kahneman, 2011). Indeed, there is strong experimental evidence that anchoring heavily influences perceptions of arrest risk (Pogarsky et al., 2017; Thomas et al., 2018). Anchoring occurs whenever a specific number (or "anchor") that is considered before making a numerical judgment (e.g., about a price, probability, or date) affects that judgment, causing it to remain close to the anchor (Tversky & Kahneman, 1974). Accordingly, any description (or hypothesis) for an event, or a subset of an event, that includes an anchor, should influence its support value and the subsequent probability judgment. This occurs because anchors can prime (selectively activate) related thoughts or trigger a deliberative but insufficient process of adjustment from the anchor (Epley & Gilovich, 2006; Kahneman, 2011).

The implication for deterrence policy is that using communications (signs, advertisements) that include some high number, especially a high stated apprehension risk, should increase perceived sanction certainty. Of course, it is important to eschew any deception in such communications. One possibility, which avoids deception, is to use deterrence communications that provide a description (hypothesis) for the most risky subset of the event, with the hope that this description influences global probability judgments for the overall event. Such a "pseudocertainty effect . . . exploits the increased impact of certainty at one stage to increase the impact of an outcome" (E. Johnson & Payne, 1986, p. 178). As but one example, because of anchoring, providing information about the high probability of receiving a ticket conditional on running a red light that *has a traffic camera* may increase global judgments of the overall ticket risk for running a red light. Similarly, E. Johnson and Payne (1986) explain that because the conditional probability of punishment for burglary is higher than the probability of arrest, "publicizing the fact that all convicted burglars receive prison sentences might be quite persuasive" (p. 178). Accordingly, the second set of hypotheses I test in this study are as follows:

Hypothesis 2a: Exposing individuals to "pseudocertainty" communications that describe a high conditional probability of arrest for a crime under specific circumstances will cause them to perceive a higher probability of arrest for the crime overall.

Hypothesis 2b: Exposing individuals to "pseudocertainty" communications that describe a high conditional probability of arrest for a crime under specific circumstances will cause them to be more fearful of arrest for the crime overall.

Target Characteristics and Situational Perceptions: Availability and Representativeness

Scholars have known for a long time that situational characteristics have a strong effect on offenders' perceptions of the benefits and costs of offending (Clarke, 1995; Clarke & Cornish, 1985). Numerous studies have shown that situational crime-prevention efforts, including target hardening (e.g., steering locks, bulletproof screens) and increased guardianship (e.g., alarm systems, guards, police patrols), can significantly reduce offending (Guerette & Bowers, 2009). Researchers have also examined how offenders formulate perceptions of the costs and benefits of crime within criminal situations (Clarke, 1995). For example, Carroll and Weaver (1986) found that shoplifters based their deterrence-related perceptions on such situational characteristics as the presence of mirrors, the height of aisles, and the size of targets.

The most common method used to study situational perceptions has been to interview offenders after the fact and ask them to recall how they selected targets (Cromwell, Olson, & Avary, 1991; Jacobs & Cherbonneau, 2016; Jacques, Allen, & Wright, 2014; Walsh, 1978; Wright & Decker, 1994). Although tremendously useful, this method makes it difficult to establish causality or test theoretical predictions about how situational characteristics affect perceptions. Accordingly, one promising direction for future research in this area is to use experimental designs that randomize the characteristics of criminal targets. Wright, Logie, and Decker's (1995) seminal experiment on residential burglary provides one example. These authors randomized the features of the residential setting in pictures to test their effects on target attractiveness. Advances in computer technology and virtual reality now allow for the creation of interactive scenarios (van Gelder et al., 2017). Insights from research in behavioral economics can help identity which situational characteristics may influence deterrence perceptions, and why. Researchers can then randomly vary these situational characteristics in experiments.

For instance, many of the mental shortcuts identified in behavioral economic studies are likely relevant to understanding situational deterrence

perceptions. And, importantly, situationally-based heuristic effects on criminal judgment may be independent of the objective risks or benefits of crime, which most often are the focus of situational crime prevention efforts (Guerette & Bowers, 2009). Two shortcuts that seem especially relevant are the availability heuristic—where the fluency of bringing an idea to mind, either by recalling or imagining it, determines its salience and impact on judgments (Tversky & Kahneman, 1973)—and the representativeness heuristic—in which judgments are based on how well something resembles a relevant mental stereotype (Tversky & Kahneman, 1974). If the prototypical victim in an offender's mind has a certain gait (Book, Costello, & Camilleri, 2013; Grayson & Stein, 1981), the representativeness heuristic might lead the offender to perceive someone as an easy target simply because of the way he or she is walking. Similarly, among thieves, the availability heuristic should lead to lower perceived criminal risk whenever the visible features of a target (e.g., small size) make it easier to imagine taking, carrying, and/or concealing it.

In this study, I provide one example of how behavioral economic insights might be used to inform an experimental research program examining how target characteristics affect perceptions of the benefits and costs of crime. I focused on the crime of purse-snatching. Theoretically, because of the availability heuristic, purse size should affect perceived criminal benefits by influencing how easy it is to imagine the purse has many valuable contents. On the other hand, purse size may also influence the ease of imagining transporting and concealing it after the crime. Therefore, the third set of hypotheses that I test are as follows:

Hypothesis 3a: Individuals will perceive that larger purses contain more valuable contents than smaller purses.
Hypothesis 3b: Individuals will perceive that larger purses are more difficult to steal than smaller purses.

Intuitive Reasoning and Reactions to Sanction Threats: Declining Sensitivity

Perhaps the most frequent justification given by legislators for increasing the severity of criminal punishments is to enhance deterrence (Kleck, Sever, Li, & Gertz, 2005). Yet perceptual deterrence research consistently finds that perceived sanction severity has very little deterrent value, especially in comparison with the perceived certainty of punishment (Apel, 2013; Pratt et al., 2006). One problem is that although researchers have evaluated potential offenders' perceptions of the severity of different types of sanctions (May & Wood, 2010), few studies have examined whether more severe punishments

are, in fact, more frightening. Increased fear should result in lower offending (Pickett et al., 2018), but it remains unclear how the severity of sanctions, formal or informal, relates to fear.

Under traditional notions of rationality, individuals should view increases in sanction severity as increasingly painful, resulting in greater fear and deterrence. However, decision-making models that assume intuitive reasoning, such as the prospect theory, suggest diminishing sensitivity to losses (Kahneman & Tversky, 1979). Here, the pain (or negative value) of losing something (such as freedom, money, etc.) increases with the total amount lost but does so at a declining rate. As Thaler (2015) puts it, "the difference between losing $10 and $20 feels much bigger than the difference between losing $1,300 and $1,310" (p. 32).

Given the evidence of intuitive reasoning in criminal decision making (Pogarsky et al., 2017), an important research question is whether there is also declining sensitivity to sanction costs (Pogarsky et al., 2018). Some existing evidence suggests that this may be the case (Klepper & Nagin, 1989). Wichard and Felson (2016), for example, found that offenders were more likely to resist arrest if they possessed illegal contraband or were on probation or parole. Thus, these offenders preferred a gamble with a low probability of escape and a high probability of more severe punishment (for resisting, plus the original offense), over accepting the smaller punishment for the original offense with certainty. This type of risk-seeking behavior is indicative of declining sensitivity to losses (Kahneman, 2011; Thaler, 2015).

Declining sensitivity to sanction costs implies diminishing returns to increases in punishment severity, and the possibility of thresholds (varying by crime type and across offenders) after which harsher punishments will fail to promote greater fear or enhance deterrence (Klepper & Nagin, 1989; Pogarsky et al., 2018). Therefore, a key task for deterrence researchers moving forward is to examine individuals' cognitive and emotional reactions to specific sanction threats to determine whether there is declining sensitivity, and if so, whether it exists for both formal and informal sanctions. In this study, I provide an example of how this might be done. I test the following hypothesis:

> **Hypothesis 4:** Individuals' fear of serving time in prison will increase with sentence length, but do so at a declining rate.

Experimental Subjects

The participants in the experiments were undergraduate students taking introductory-level criminology courses at a public university. Most prior criminological experiments examining the perceived costs and benefits of offending

have used college student samples (Loughran, Paternoster, & Weiss, 2012; McGloin & Thomas, 2016; Nagin & Pogarsky, 2003; Paternoster, Jaynes, & Wilson, 2017; Thomas et al., 2018; van Gelder & De Vries, 2014). In the present study, sampling college students ensured all participants had Internet access and computer literacy, both of which were necessary for completing the online questionnaire. Using an online questionnaire made it possible to employ treatments with video, audio, and picture stimuli. In total, 265 students participated in the study, representing a 90% response rate. The participants were diverse in terms of sex (52% male, 48% female), race/ethnicity (51% non-Hispanic White, 49% non-White), and college standing (51% freshmen, 28% sophomores, 15% juniors, and 5% seniors). Participants' ages ranged from 18 to 36, with an average age of 20.

Participants used a web link to access the online questionnaire, which included experiments testing the four sets of hypotheses listed earlier. Experiment 1 tested the first two sets of hypotheses, Experiment 2 tested the third set, and Experiment 3 tested the fourth set. Similar to other studies that have included multiple experiments in a single survey (Pogarsky et al., 2017), I performed random assignment separately for each experiment. Independent randomization ensures that combining separate experiments into a single survey "cannot result in a faulty inference of experimental main effects" (Mutz, 2011, p. 94).

Experiment 1: Nudging Through Information

Materials and Procedure

Participants watched one of three versions of a video in which a police officer discussed law enforcement efforts to reduce drunk driving.[1] The video was intended to approximate the type of short television announcement that a local police department could use in conjunction with a crackdown on drunk drivers. Table 1 presents the transcripts and web links to the three videos. The first version served as the control, with the officer just announcing the crackdown. In the second, the officer unpacked the different possible ways that drunk drivers could be caught. In the third version, the officer pointed out the high chance of arrest for drunk driving *conditional* on encountering a police checkpoint. A manipulation check followed the video and asked for the officer's name. Only nine of the 265 participants failed this check. Per experimental best practices (Aronow, Baron, & Pinson, 2016; Montomery, Nyhan, & Torres, 2016), these participants are included in the sample, but the results are the same when they are excluded.

After watching the video, participants read the following hypothetical scenario, which described an opportunity to drive drunk:

Table 1. Transcripts and Web Links for Experimental DUI Video Advertisements (Experiment 1).

Control video	Unpacking video	Pseudocertainty video
Transcripts		
The police take drinking and driving very seriously. Officers are always on the lookout for drunk drivers and are increasingly using strategically placed checkpoints to make sure drivers are not under the influence of alcohol or other drugs. This is officer Taylor reminding you not to drink and drive. It is too risky.	The police take drinking and driving very seriously. Officers are always on the lookout for drunk drivers and are increasingly using strategically placed checkpoints to make sure drivers are not under the influence of alcohol or other drugs. But checkpoints are only one way that drunk drivers get caught. Many drunk drivers are caught when they get into accidents, even minor accidents. More commonly, drunk drivers are pulled over for running a red light, running a stop sign, failing to yield the right of way, improperly changing lanes, speeding, or even driving suspiciously slow. Other times drunk drivers are pulled over for swerving, or simply because they have a taillight out or an expired inspection sticker. This is officer Taylor reminding you not to drink and drive. It is too risky.	The police take drinking and driving very seriously. Officers are always on the lookout for drunk drivers and are increasingly using strategically placed checkpoints to make sure drivers are not under the influence of alcohol or other drugs. Drunk drivers face nearly a 100% chance of being arrested if they run into a checkpoint. This is officer Taylor reminding you not to drink and drive. It is too risky.
Web Links		
https://vimeo.com/201012329	https://vimeo.com/201011410	https://vimeo.com/201015565

Note. The password for viewing the videos is DUI. DUI = driving under the influence.

> Imagine that you drove by yourself one Friday night to meet some friends at a bar. By the end of the night, you've had enough alcoholic drinks that you are sure your blood alcohol level is above the legal limit. Your house is several miles away, and most of the drive is on city streets.

They were then asked to estimate the "percent chance (or chances out of 100)" that they would be arrested if they decided to drive drunk. I also

measured their emotional fear of arrest, because recent research has found that fear has effects on criminal choice independent of perceived arrest risk (Pickett et al., 2018). The survey question asked, "If you decided to drive home drunk, how afraid or unafraid would you be of getting arrested?" Response options ranged from 1 = *very unafraid* to 7 = *very afraid*. Similar to Pickett et al. (2018), I find that perceived arrest risk and fear are positively but moderately correlated ($r = .259$, $p < .001$).

Findings

Figure 1 presents the average perceived arrest risk for the three groups. Contrasting Hypothesis 1a, participants watching the control and unpacking videos perceived similar arrest risk. However, consistent with Hypothesis 2a, perceived arrest risk was much higher (16 and 19 percentage points higher, respectively) among participants who watched the pseudocertainty video, compared with those who watched the control and unpacking videos. An ANOVA for perceived arrest risk with advertisement type as the independent variable is significant ($F = 10.08$, $p < .001$). Pairwise comparisons using a Bonferroni-corrected alpha level of .017 to account for multiple testing reveal that the differences in perceived arrest risk between the pseudocertainty group and both the control and unpacking groups are statistically significant ($t = 3.78$, $p < .001$ and $t = 4.12$, $p < .001$, respectively).

Figure 1 also shows the percentage of participants in each group who said they would be fearful (coded 0 = *other*, 1 = *afraid or very afraid*) of arrest in the scenario. Similar to the findings for perceived risk, there is greater fearfulness in the pseudocertainty group than in the control and unpacking groups. However, these differences are not statistically significant. The pseudocertainty advertisement may indirectly effect fear through perceived arrest risk (Pickett et al., 2018), even absent a significant total effect (Hayes, 2013). Using the KHB method (Karlson, Holm, & Breen, 2012) to test for this possibility, I find that the pseudocertainty video has a statistically significant indirect effect through perceived arrest risk on fearfulness ($b = .305$, $p < .01$).[2]

Discussion

The findings from Experiment 1 provide support for Hypothesis 2 but not Hypothesis 1. I find no evidence that unpacking the different ways police can apprehend offenders significantly alters risk perceptions or fear. By contrast, the results indicate that viewing video advertisements that describe a subset of a criminal event with high apprehension risk directly increases perceived arrest risk and indirectly increases fearfulness for the event overall. These effects likely occur through the anchoring heuristic. The pseudocertainty

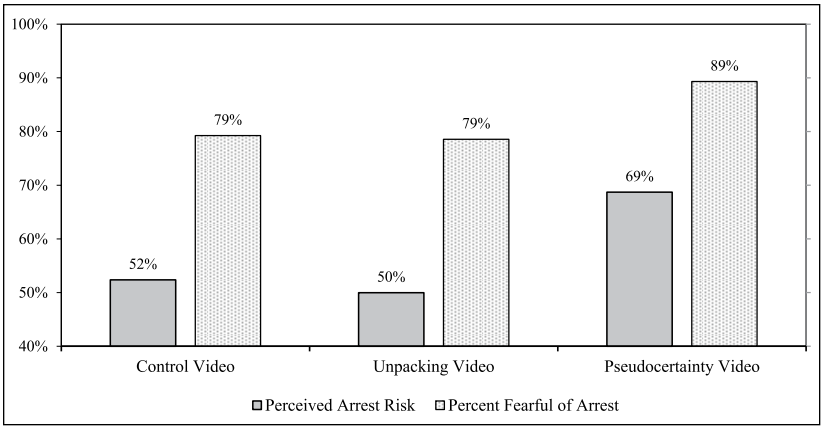


Figure 1. Perceived arrest risk and fear of arrest, by advertisement type.
Note. Respondents were defined as fearful if they said they would be "afraid" or "very afraid" of getting arrested.

video may have larger effects if the participants were actually drunk, because intoxication increases intuitive reasoning and the size of anchoring effects (Epley & Gilovich, 2006). The effects might also be larger if the video was viewed repeatedly over time, as it might be if it was employed in a real campaign against drunk driving.

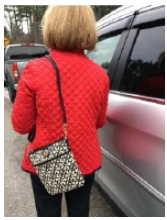
Experiment 2: Heuristic Assessments of Criminal Targets

Materials and Procedure

This experiment was designed to illustrate a research program that could illuminate how offenders formulate perceptions of criminal targets heuristically in hope of identifying ways to reduce offending by altering crime choice architecture. Participants were shown one of six pictures of women holding either a small or large purse. Table 2 shows the six pictures; there are three sets of comparable small and large purses. The small and large purses were matched as closely as possible, and two of the three matches were sets of the same style from the same manufacturer. Each matching set of purses (small and large) was held by the same woman in an identical position and setting.

The theoretical assumption underlying the experiment was that the mere size of a purse may influence the fluency with which individuals can imagine either that it holds valuable contents or could be taken, transported, and concealed.

Table 2. Photographs of Potential Victims Holding Small and Large Purses (Experiment 2).

Small purses	Large purses
1A. 	1B. 
2A. 	2B. 
3A. 	3B. 

Resultant perceptions of benefits or costs would necessarily constitute heuristic judgments; the purse contents are unknown, and there is no need to carry or conceal an entire purse (once out of sight, an offender could discard the purse and keep valuable contents). I first asked participants to estimate the total value in dollars of all of the contents inside the purse. Next, I measured their perceptions of the difficulty of stealing the purse (1 = *very easy*, 6 = *very hard*): "How easy or hard would it be for someone to snatch away and steal this purse?"

Findings

Participants' estimates of the value of purse contents were highly skewed and kurtosed (skewness = 10.48, kurtosis = 136.84), which reflected the influence

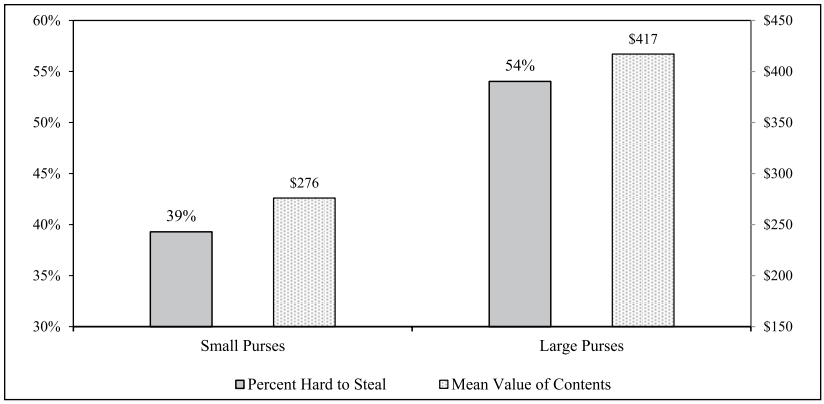


Figure 2. Perceived difficulty of stealing purse and estimated value of purse contents, by purse size.
Note. Hard to steal is measured as 0 = *very easy, easy, or somewhat easy*, and 1 = *somewhat hard, hard*, or *very hard*. The measure of estimated value of contents was winsorized at the 5th and 95th percentiles.

of a few extreme outliers. For the analysis, I winsorized value estimates at the 5th and 95th percentile, to pull in the tails of the distribution (Barnett & Lewis, 1994; Wilcox, 2012).However, using the natural log-transformation of the original variable produced substantively identical results[3] Figure 2 presents the winsorized value estimates by purse size. The average estimated value of large purses is much larger than that for small purses. Using a Bonferroni-corrected alpha level of .025 to account for the two outcomes in Experiment 2, the difference is statistically significant (difference = US$141, $t = 2.50$, $p = .013$).

Figure 2 also shows that the percentage of participants perceiving that the purse would be difficult to steal (coded 0 = *very easy, easy, or somewhat easy*, 1 = *somewhat hard, hard, or very hard*) also varies substantially by purse size. On average, large purses are perceived as more difficult to steal than small purses, and this difference is statistically significant (difference = 15 percentage points, $z = 2.40$, $p = .017$) using a Bonferroni-corrected alpha level of .025 to corrected for multiple testing.[4]

Discussion

Experiment 2 provides evidence that seemingly irrelevant visible characteristics of a criminal target, such as the size of a purse, can dramatically affect the perceived benefits and risks of crime. Behavioral economic

theory suggests this likely occurs because these characteristics influence the fluency with which potential offenders can picture a high-value loot and imagine easily concealing and transporting that loot. In the present experiment, it is not clear whether larger purses would be preferred as targets, given that they were perceived not only to contain more valuable contents but also to be harder to steal. The important takeaway, however, is that research is needed that tests such possibilities and also explores how the visible characteristics of other potential targets may influence deterrence-related perceptions. Future experiments should also test how different situational factors may affect broader judgments about target congruence, including vulnerability, gratifiability (satisfaction potential), and antagonism (antagonizing attributes; Finkelhor & Asdigian, 1996; SooHyun & Wilcox, 2017).

Experiment 3: Declining Sensitivity to Sanction Severity

Materials and Procedure

When the objective of punishment is deterrence (instead of incapacitation), the key question is whether increased sentence severity results in greater fearfulness among potential offenders (Pickett et al., 2018). In this experiment, I asked participants how fearful they would be to serve one of five sentences—6 months, 1 year, 2 years, 4 years, or 8 years—in state prison as an inmate. The sentence length was randomized. A prospective power analysis indicated that to have 80% statistical power to detect a medium size effect for a five-group ANOVA would require 39 participants in each group. In the experiment, all five groups surpassed this minimum sample size. The following survey question was used to measure fearfulness (1 = *very unafraid*, 7 = *very afraid*): "In terms of emotional fear, how afraid or unafraid would you be to serve this much time in state prison?"

Results

Table 3 shows the mean level of fear and percentage fearful (coded 0 = *other*, 1 = *afraid or very afraid*), by sentence length. Contrasting typical sentencing assumptions, longer sentences fail to produce greater fear. This finding is suggestive of declining sensitivity. An ANOVA for fear measured continuously with sentence length as the independent variable is statistically insignificant ($F = 1.66$, $p = .160$).[5] Interestingly, on average, participants reported being slightly less afraid of serving prison time (Table 3) than of being arrested for driving under the influence (DUI; Figure 1). One explanation is

Table 3. Mean Fear Level and Percentage Fearful of Serving Time in State Prison, by Sentence Length (Experiment 3).

Variables	*M*[a]	*SD*	Percentage fearful[b]
6 months	6.26	0.89	78
1 year	5.80	1.32	63
2 years	6.00	1.05	67
4 years	5.83	1.15	65
8 years	6.19	1.23	81

[a]Fear was measured 1 = *very unafraid*, 2 = *unafraid*, 3 = *somewhat unafraid*, 4 = *neither afraid nor unafraid*, 5 = *somewhat afraid*, 6 = *afraid*, 7 = *very afraid*.
[b]Respondents answering "afraid" or "very afraid" were coded 1, all others were coded 0.

that rather than merely reflecting anxieties about the arrest itself, fear of arrest also encompasses anxieties about any resulting informal and formal sanctions, including incarceration (Pickett et al., 2018).

In the only previous study to explore sanction fear, Pickett et al. (2018) found sex differences in fearfulness, with males being significantly less afraid of arrest than females. Accordingly, I explore whether sentence length has different effects on fear for males and females. The disaggregated results are presented in Figure 3. For neither males nor females does increased sentence length produce greater levels of fearfulness. However, in every case, males report being substantially less afraid of serving time in prison than females. The average difference between males and females in fear of prison is large and statistically significant (difference = 23 percentage points, $z = 4.22$, $p < .001$).[6]

Discussion

The findings indicate that longer sentence lengths fail to increase fear of imprisonment. Rather, levels of fear appear to be similar across sentences of very different lengths. For example, participants reported being about as afraid of serving 6 months in prison as 8 years. This suggests that (a) there is declining sensitivity to sanction costs, and (b) at least for the undergraduate students in this experiment, the threshold after which higher levels of sanction severity stop producing marked increases in fear occurred at or before the lowest sentence (6 months). The implication is that using more severe punishments may often fail to enhance sanction fear, which is consistent with the large body of research suggesting that the severity of formal sanctions has little deterrent value (Apel, 2013; Pratt et al., 2006). This finding is also consistent with recent evidence that progressively harsher sanctions fail to

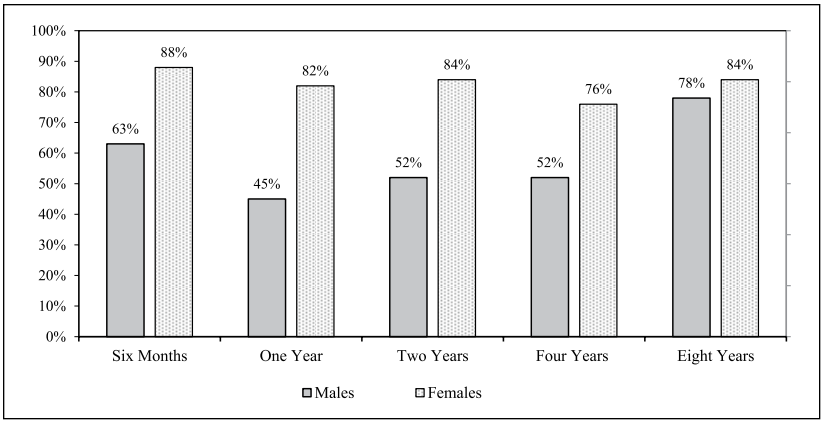


Figure 3. Percentage fearful of serving time in state prison, by sentence length and sex.

Note. Respondents were defined as fearful if they said they would be "afraid" or "very afraid" of serving time.

produce greater reductions in future offending than less severe punishments (Mears & Cochran, 2018).

Of course, another possibility is that even if individuals' initial levels of fearfulness are similar across punishments of varying severity, subsequent *changes* (increases or decreases) in sanction severity may nonetheless produce changes in their levels of fear. This seems most plausible for crimes where respondents know about both the initial level of punishment severity and subsequent changes in it. Such an effect of *change* in severity on fear would be consistent with the evidence of coherent arbitrariness—Arbitrary initial perceptions sometimes vary over time in logical ways (Ariely, Loewenstein, & Prelec, 2003; Thomas et al., 2018). Exploring this possibility seems like a particularly promising avenue for future research.

Conclusion

Nagin's (1998) conjecture that crime deterrence requires the existence of a policy–perceptions linkage—"absent some linkage between policy and perceptions . . . behavior is immune to policy manipulation" (p. 18)—has occupied researchers' attention for the past two decades (Pogarsky & Loughran, 2016). Several studies have tested what Pogarsky and Loughran (2016) have labeled the "strong-form Nagin conjecture"[7] (p. 784), examining whether absolute levels of objective and perceived sanction risk are related. These

investigations have consistently returned null results (Kleck & Barnes, 2013, 2014; Kleck et al., 2005; Lochner, 2007). However, scholars disagree about how to interpret this evidence (Kleck, 2016; Pickett & Roche, 2016), and many question its meaningfulness altogether (Braga & Apel, 2016; Nagin, 2016).

Some scholars have argued that crime deterrence only requires a "weak-form Nagin conjecture," in which "*changes* in one's levels of perceived risk still reflect reality," even if absolute levels of objective and perceived risk are unrelated (Pogarsky & Loughran, 2016, p. 785).[8] This perspective is probably the dominant view in our field right now (Loughran et al., 2016; Piquero, Paternoster, Pogarsky, & Loughran, 2011; Thomas et al., 2018). It is supported by evidence of "coherent arbitrariness," in which arbitrary initial preferences and perceptions are updated over time in an orderly and logical fashion (Ariely et al., 2003; Thomas et al., 2018).

However, it is also important to recognize that beyond changing levels of objective risk, it may also be possible to enhance deterrence through other mechanisms. Deterrence requires that policymakers have the ability to manipulate relevant perceptions (of risk, benefits, or both) and emotions, but it does not necessitate that this manipulation occurs through any specific mechanism. More than 50 years ago, Wilkins (1965) emphasized this point: "It may be possible to change behavior in desired directions, not only by changing situations, but by changing *beliefs* about situations" (p. 119; see also Andenaes, 1966). And it is here where insights from behavioral economics may be most useful for efforts to enhance deterrence, either through publicity or environmental design (choice architecture). To illustrate, even if the level of objective risk remains unchanged, because of the availability heuristic, enhancing the visibility of enforcement (e.g., by using bright colored and conspicuously placed parking tickets) may increase perceived risk (Dur & Vollaard, 2017; Jolls, Sunstein, & Thaler, 1998).

The challenge facing criminologists is to initiate research programs that focus on advancing knowledge about how intuitive reasoning and cognitive heuristics influence deterrence-related perceptions and feelings, both within and outside of specific situations. In Pogarsky and Loughran's (2016) words, "the way forward . . . is to improve understanding of the contextual, situational, and idiosyncratic aspects of sanction risk perception" (p. 787). Similar to marketing research, studies are needed that test the persuasiveness of alternative strategies for communicating sanction threats. As Kennedy (2009) put it, "we should be as systematic about public safety as we are about soap" (p. 141). Research is also needed that tests how situational characteristics influence heuristic assessments of the benefits and costs of crime. Not least, there is a need for studies that examine how individuals actually react, both

cognitively and emotionally, to increases (or decreases) in the severity of formal and informal sanctions.

In the present study, I presented some initial experimental results for each of the above lines of inquiry to stimulate additional research. Although not without limitations, the findings herein show there is great promise and much left to learn from testing behavioral economic principles as they pertain to offender decision making and crime policy (Pogarsky et al., 2018). Offenders, like all humans, have limited reasoning capabilities (Clarke & Cornish, 1985; Lattimore & Witte, 1986), and, thus, often formulate judgments using intuitive reasoning processes and cognitive heuristics (Pogarsky et al., 2017; Thomas et al., 2018). As a result, their decisions are susceptible to biases. The good news is that these biases are predictable and can be leveraged to improve criminal justice policies and situational crime prevention (Thaler, 2015; Thaler & Sunstein, 2008). Deterrence communications and "crime choice architecture" interventions could be employed to enhance the effectiveness of changes in sanction risk. However, they might also be used as policy alternatives to changing objective risk in some circumstances.

Acknowledgments

The author thanks Paul Taylor for his help with creating the videos used in the experiment, and Theodore Wilson and Sean Patrick Roche for their helpful comments on an earlier draft of the manuscript.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. The officer in the video was a graduate student who had previously served as a police officer.
2. All of the results in the driving under the influence (DUI) experiment are robust to the measurement of fear; substantively identical findings are obtained using the original 7-point fear measure.
3. Using the untransformed variable yielded nonsignificant findings because of the heavy influence of outliers.
4. The difference in perceived difficulty does not stem from the size of the purse straps—it emerges in all three of the matches, and the second match has identical

purse straps. The findings are also robust to how the outcome is measured—substantively identical findings emerge using the original 6-point ordinal measure of perceived difficulty (difference = .389, $t = 3.12$, $p < .01$).

5. Substantively identical results emerge using the binary indicator of fearfulness shown in Table 3 ($\chi^2 = 7.63$, $p = .11$).
6. The same finding emerges using the original 7-point measure of fear (difference = .70, $t = 5.23$, $p < .001$). In Experiment 1, males were also less afraid than females of being arrested for DUI, but the difference was not statistically significant.
7. The term *Nagin conjecture* is somewhat of a misnomer. Nagin (1998) is only one of several scholars who have emphasized the necessity of a policy–perceptions linkage (e.g., Andenaes, 1966; Zimring & Hawkins, 1973).
8. Zimring and Hawkins (1973) were the first to make this argument, emphasizing that a critical question for deterrence is whether "people are insensitive to *shifts* in punishment" (p. 144).

References

Andenaes, J. (1966). The general preventive effects of punishment. *University of Pennsylvania Law Review*, *114*, 949-983.

Apel, R. (2013). Sanctions, perceptions, and crime: Implications for criminal deterrence. *Journal of Quantitative Criminology*, *29*, 67-101.

Ariely, D., Loewenstein, G., & Prelec, D. (2003). "Coherent arbitrariness": Stable demand curves without stable preferences. *Quarterly Journal of Economics*, *118*, 73-106.

Aronow, P. M., Baron, J., & Pinson, L. (2016). *A note on dropping experimental subjects who fail a manipulation check*. Retrieved from https://ssrn.com/abstract=2683588

Barnett, V., & Lewis, T. (1994). *Outliers in statistical data* (3rd ed.). New York, NY: John Wiley.

Book, A., Costello, K., & Camilleri, J. A. (2013). Psychology and victim selection: The use of gait as a cue to vulnerability. *Journal of Interpersonal Violence*, *28*, 2368-2383.

Braga, A. A., & Apel, R. (2016). And we wonder why criminology is sometimes considered irrelevant in real-world policy conversations. *Criminology & Public Policy*, *15*, 813-829.

Carroll, J., & Weaver, F. (1986). Shoplifters' perceptions of crime opportunities: A process-tracing study. In D. B. Cornish & R. V. Clarke (Eds.), *The reasoning criminal: Rational choice perspectives on offending*. New Brunswick, NJ: Transaction Publishers, pp. 19-38.

Clarke, R. V. (1995). Situational crime prevention. *Crime and Justice*, *19*, 91-150.

Clarke, R. V., & Cornish, D. B. (1985). Modeling offenders' decisions: A framework for research and policy. *Crime and Justice*, *6*, 147-185.

Cromwell, P. F., Olson, J. N., & Avary, D. W. (1991). How residential burglars choose targets: An ethnographic analysis. *Security Journal*, *2*, 195-199.

Dur, R., & Vollaard, B. (2017). *Salience of law enforcement: A field experiment* (Cesifo Working Paper No. 6499). Retrieved from http://dx.doi.org/10.2139/ssrn.2898880

Epley, N., & Gilovich, T. (2006). The anchoring-and-adjustment heuristic: Why the adjustments are insufficient. *Psychological Science*, *17*, 311-318.

Finkelhor, D., & Asdigian, N. L. (1996). Risk factors for youth victimization: Beyond a lifestyles/routine activities theory approach. *Violence and Victims*, *11*, 3-19.

Grayson, B., & Stein, M. I. (1981). Attracting assault: Victims' nonverbal cues. *Journal of Communication*, *31*, 68-75.

Guerette, R. T., & Bowers, K. J. (2009). Assessing the extent of crime displacement and diffusion of benefits: A review of situational crime prevention evaluations. *Criminology*, *47*, 1331-1368.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Jacobs, B. A., & Cherbonneau, M. (2016). Managing victim confrontation: Auto theft and informal sanction threats. *Justice Quarterly*, *33*, 21-44.

Jacques, S., Allen, A., & Wright, R. (2014). Drug dealers' rational choice on which customers to rip-off. *International Journal of Drug Policy*, *25*, 251-256.

Johnson, E., & Payne, J. (1986). The decision to commit a crime: An information processing analysis. In D. B. Cornish & R. V. Clarke (Eds.), *The reasoning criminal: Rational choice perspectives on offending*. New Brunswick, NJ: Transaction Publishers, pp. 170-185.

Johnson, S. D., & Bowers, K. J. (2003). Opportunity is in the eye of the beholder: The role of publicity in crime prevention. *Criminology & Public Policy*, *2*, 497-524.

Jolls, C., Sunstein, C. R., & Thaler, R. (1998). A behavioral approach to law and economics. *Stanford Law Review*, *50*, 1471-1550.

Kahneman, D. (2011). *Thinking fast and slow*. New York, NY: Farrar, Straus and Giroux.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*, 263-292.

Karlson, K. B., Holm, A., & Breen, R. (2012). Comparing regression coefficients between same sample nested models using logit and probit: A new method. *Sociological Methodology*, *42*, 286-313.

Kennedy, D. M. (2009). *Deterrence and crime prevention: Reconsidering the prospect of the sanction*. New York, NY: Routledge.

Kleck, G. (2016). Objective risks and individual perceptions of those risks. *Criminology & Public Policy*, *15*, 767-775.

Kleck, G., & Barnes, J. C. (2013). Deterrence and macro-level perceptions of punishment risks: Is there a "collective wisdom"? *Crime & Delinquency*, *59*, 1006-1035.

Kleck, G., & Barnes, J. C. (2014). Do more police lead to more crime deterrence? *Crime & Delinquency*, *60*, 716-738.

Kleck, G., Sever, B., Li, S., & Gertz, M. (2005). The missing link in general deterrence research. *Criminology*, *43*, 623-660.

Klepper, S., & Nagin, D. S. (1989). Tax compliance and perceptions of the risks of detection and criminal prosecution. *Law & Society Review*, *23*, 209-240.

Lattimore, P., & Witte, A. (1986). Models of decision making under uncertainty: The criminal choice. In D. B. Cornish & R. V. Clarke (Eds.), *The reasoning criminal: Rational choice perspectives on offending*. New Brunswick, NJ: Transaction Publishers, pp. 129-155.

Lochner, L. (2007). Individuals perceptions of the criminal justice system. *American Economic Review*, *97*, 444-460.

Loughran, T. A., Paternoster, R., Chalfin, A., & Wilson, T. (2016). Can rational choice be considered a general theory of crime? Evidence from individual-level panel data. *Criminology*, *54*, 86-112.

Loughran, T. A., Paternoster, R., & Weiss, D. (2012). Hyperbolic time discounting, offender time preferences and deterrence. *Journal of Quantitative Criminology*, *28*, 607-628.

May, D. C., & Wood, P. B. (2010). *Ranking correctional punishments: Views from offenders, practitioners, and the public*. Durham, NC: Carolina Academic Press.

McGloin, J. M., & Thomas, K. J. (2016). Incentives for collective deviance: Group size and changes in perceived risk, cost, and reward. *Criminology*, *54*, 459-486.

Mears, D. P., & Cochran, J. C. (2018). Progressively tougher sanctioning and recidivism: Assessing the effects of different types of sanctions. *Journal of Research in Crime & Delinquency*, 55, 194-241.

Montomery, J. M., Nyhan, B., & Torres, M. (2016). *How conditioning on post-treatment variables can ruin your experiment and what to do about it*. Retrieved from http://www.dartmouth.edu/~nyhan/post-treatment-bias.pdf

Mutz, D. C. (2011). *Population-based survey experiments*. Princeton, NJ: Princeton University Press.

Nagin, D. S. (1998). Criminal deterrence research at the outset of the twenty-first century. *Crime and Justice*, *23*, 1-42.

Nagin, D. S. (2016). What we've got here is failure to communicate. *Criminology & Public Policy*, *15*, 753-765.

Nagin, D. S., & Pogarsky, G. (2003). An experimental investigation of deterrence: Cheating, self-serving bias, and impulsivity. *Criminology*, *41*, 167-193.

Paternoster, R., Jaynes, C. M., & Wilson, T. (2017). Rational choice theory and interest in the "fortune of others." *Journal of Research in Crime & Delinquency*, 54, 847-868.

Pickett, J. T., & Bushway, S. (2015). Dispositional sources of sanction perceptions: Emotionality, cognitive style, intolerance of ambiguity, and self-efficacy. *Law and Human Behavior*, *39*, 624-640.

Pickett, J. T., Loughran, T. A., & Bushway, S. D. (2016). Consequences of legal risk communication for sanction perception updating and white-collar criminality. *Journal of Experimental Criminology*, *12*, 75-104.

Pickett, J. T., & Roche, S. P. (2016). Arrested development: Misguided directions in deterrence theory and policy. *Criminology & Public Policy*, *15*, 727-751.

Pickett, J. T., Roche, S. P., & Pogarsky, G. (2018). Toward a bifurcated theory of emotional deterrence. *Criminology*, 56, 27-58.

Piquero, A. R., Paternoster, R., Pogarsky, G., & Loughran, T. A. (2011). Elaborating the individual difference component in deterrence theory. *Annual Review of Law and Social Science*, *7*, 335-360.

Pogarsky, G., & Loughran, T. A. (2016). The policy-to-perceptions link in deterrence: Time to retire the clearance rate. *Criminology & Public Policy*, *15*, 777-790.

Pogarsky, G., Roche, S. P., & Pickett, J. T. (2017). Heuristics and biases, rational choice, and sanction perceptions. *Criminology*, *55*, 85-111.

Pogarsky, G., Roche, S. P., & Pickett, J. T. (2018). Offender decision making in criminology: Contributions from behavioral economics. *Annual Review of Criminology*, *1*, 4.1-4.22.

Pratt, T. C., Cullen, F. T., Blevins, K. R., Daigle, L. E., & Madensen, T. D. (2006). The empirical status of deterrence theory: A meta-analysis. In F. T. Cullen, J. P. Wright & K. R. Blevins (Eds.), *Taking stock: The status of criminological theory* (pp. 367-395). New Brunswick, NJ: Transaction Publishers.

Rottenstreich, Y., & Tversky, A. (1997). Unpacking, repacking, and anchoring: Advances in support theory. *Psychological Review*, *104*, 406-415.

Smith, M. J., Clarke, R. V., & Pease, K. (2002). Anticipatory benefits in crime prevention. In N. Tilley (Ed.), *Analysis for crime prevention* (pp. 71-88), Monsey, NY: Criminal Justice Press.

SooHyun, O., & Wilcox, P. (2017). Routine activity theory, target congruence, and school context: A multilevel analysis of teacher victimization. *Victims & Offenders*. Advance online publication. doi:10.1080/15564886.2017.1329174

Sunstein, C. R. (2014). Nudging: A very short guide. *Journal of Consumer Policy*, *37*, 583-588.

Sunstein, C R. (2016a). People prefer system 2 nudges (kind of). Duke Law Journal, 66, 121-68.

Sunstein, C. R. (2016b). *Ethics of influence: Government in the age of behavioral science*. New York, NY: Cambridge University Press.

Thaler, R. H. (2015). *Misbehaving: The making of behavioral economics*. New York, NY: W.W. Norton.

Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. New York, NY: Penguin Books.

Thomas, K. J., Hamilton, B. C., & Loughran, T. A. (2018). Testing the transitivity of reported risk perceptions: Evidence of coherent arbitrariness. *Criminology*, 56, 59-86.

Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, *5*, 207-232.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, *185*, 1124-1131.

Tversky, A., & Kahneman, D. (1983). Extensional versus intuitive reasoning: The conjunction fallacy in probability judgments. *Psychological Review*, *90*, 293-315.

Tversky, A., & Koehler, D. J. (1994). Support theory: A nonextensional representation of subjective probability. *Psychological Review*, *10*, 547-567.

van Gelder, J.-L., & De Vries, R. E. (2014). Rational misbehavior? Evaluating an integrated dual-process model of criminal decision making. *Journal of Quantitative Criminology*, *30*, 1-27.

van Gelder, J.-L., Nee, G., Otte, M., Demetriou, A., van Sintemaartensdijk, I., & van Prooijen, J.-W. (2017). Virtual burglary: Exploring the potential of virtual reality to study burglary in action. *Journal of Research in Crime & Delinquency*, *54*, 29-62.

Walsh, D. P. (1978). *Shoplifting: Controlling a major crime*. London, England: Macmillan.

Wichard, C., & Felson, R. B. (2016). Are suspects who resist arrest defiant, desperate, or disoriented? *Journal of Research in Crime & Delinquency*, *53*, 564-591.

Wilcox, R. (2012). *Introduction to robust estimation & hypothesis testing* (3rd ed.). San Diego, CA: Academic Press.

Wilkins, L. T. (1965). *Social deviance: Social policy, action, and research*. Englewood Cliffs, NJ: Tavistock.

Wright, R. T., & Decker, S. H. (1994). *Burglars on the job: Streetlife and residential break-ins*. Boston, MA: Northeastern University Press.

Wright, R. T., Logie, R. H., & Decker, S. H. (1995). Criminal expertise and offender decision making: An experimental study of the target selection process in residential burglary. *Journal of Research in Crime & Delinquency*, *32*, 39-53.

Zimring, F. E., & Hawkins, G. J. (1973). *Deterrence: The legal threat in crime control*. Chicago, IL: The University of Chicago Press.

Author Biography

Justin T. Pickett, PhD, is an associate professor in the School of Criminal Justice at the State University of New York at Albany. He received his PhD in criminology in 2011 from the College of Criminology and Criminal Justice at Florida State University. He is the 2015 recipient of the American Society of Criminology's Ruth Shonle Cavan Young Scholar Award. His research interests include public opinion, survey research methods, theories of punishment, and police-community relations.