CHAPTER 28

Testing Theories of Criminal Decision Making: Some Empirical Questions about Hypothetical Scenarios

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Elsewhere, we have argued that empirical tests of deterrence/rational choice theory should recognize the physiological and psychological conditions in which criminal decision making commonly occurs (Assaad and Exum 2002; Bouffard 2002a, 2002b; Bouffard et al. 2000; Exum 2002). For example, periods of "hot" emotional states may undermine "cold" deliberative processes by making the actor more present-oriented and inwardly focused. Similarly, psychopharmacological agents such as alcohol may short-circuit otherwise rational thought by disrupting the ability to problem-solve and assess risk. Although offending commonly occurs during these hot and altered states-of-mind, empirical tests of criminal decision making are largely based on data from participants in more cool, clear-headed conditions. This, in turn, raises questions about the generalizability of the studies' findings.

Such concerns notwithstanding, in this chapter we critically examine a commonly used method to collect decision making data: the hypothetical scenario method (HSM). We begin by discussing the evolution of the HSM, and then identify two potential criticisms of the technique. First, we consider whether self-reported intentions to offend are valid proxies for real-world criminal behavior. Second, we explore the possibility that researchers are inadvertently influencing perceptions of the costs and benefits of crime by providing participants with a pre-determined list of consequences to consider. We assess the merits of each criticism based on findings from both existing research as well as original datasets collected with these two concerns in mind. Finally, we offer recommendations for future research on criminal decision making.

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DECISION MAKING THEORIES AND THE DEVELOPMENT OF THE HSM

In criminology, deterrence and rational choice theories are the principal frameworks for examining criminal decision making. These theories assert that human beings freely choose whether to engage in crime after considering the consequences of the act. To empirically test this assertion, measures of the formal costs of crime (deterrence theory) or the formal/informal costs and benefits of crime (rational choice theory) are used to predict offending behavior. Initial tests of deterrence theory examined "objective deterrence" by comparing aggregate-level indicators of punishment to aggregate crime rates (e.g., Tittle 1969; Chiricos and Waldo 1970; Logan 1972). In response, some scholars (e.g., Gibbs 1975) argued that the decision to offend is not based on the objective reality of punishment but is instead shaped by the individual's *perceptions* of its certainty and severity. This contention prompted research on "perceptual deterrence" in which individuals' subjective estimates of punishment are used to predict their involvement in crime.

Tests of perceptual deterrence have often utilized cross-sectional surveys. In these studies, participants' perceptions of the punishment are used to predict (prior) self-reported offending (Erickson et al. 1977; Paternoster 1987). To avoid the problems of temporal ordering incumbent with such methods, other studies have used panel designs to determine the impact of current perceptions of consequences on future criminal activities (Saltzman 1982). Yet, despite this methodological advantage, longitudinal studies are nonetheless limited in that they do not easily permit researchers to capture participants' perceptions of punishments *at the moment* they engage in the decision making process. Instead, perceived consequences are recorded at only the baseline and follow-up periods, which commonly have 12–24 month intervals.

To better study participants' thought processes at the moment they decide to engage in (or refrain from) crime, researchers began asking hypothetical offending questions, such as "Would you intentionally inflict physical injury on another person?" (e.g., Grasmick and Bursik 1990; Grasmick and Green 1980). Participants' responses to these questions were then treated as proxies for behavior. Still, other scholars argued that such simple hypothetical questions failed to import adequate context for the decision maker (Klepper and Nagin 1989b). In other words, measurement error may be introduced if different respondents infer unique circumstances surrounding the hypothetical offense they are asked to contemplate, such as the relationship with the victim, the location of the assault, the availability of a weapon, and so forth. In response, Klepper and Nagin (1989b) suggested that detailed hypothetical *scenarios* be provided to respondents to improve the reliability of participants' responses. This, in turn, has given rise to the use of the hypothetical scenario method.

In a typical HSM study, the researcher presents participants with a vignette describing a hypothetical offense and asks participants to indicate their likelihood of engaging in the behavior. Participants are also queried about their perceptions of the certainty and severity of a set of potential consequences of interest to the researcher (e.g., Klepper and Nagin 1989b), which are then used to predict the participants' self-reported likelihood of offending. In some HSM studies, the researcher manipulates (often experimentally) various circumstances that are presented to the respondent within the scenario itself (e.g., Paternoster and Simpson 1996). For instance, two versions of the offending scenario may be offered to randomly assigned participants, one suggesting that the probability of punishment is low, while the other suggesting that the probability is high. Self-reported offending probabilities are compared across these conditions to determine how the certainty/severity of punishment influences offending.

EMPIRICAL SUPPORT GENERATED FROM THE HSM

Over the past two decades, more than 30 published studies of illegal/imprudent decision making have used the HSM. The technique has been used to investigate such behaviors as academic cheating (Tibbetts 1999), drunk driving (Bouffard 2007), physical assault (Exum 2002), sexual assault (Bachman et al. 1992), and white collar crime (Piquero et al. 2005). Generally speaking, such studies find that offenders are dissuaded/persuaded to offend on the basis of their subjective assessments of the costs/benefits of crime.

Three consequences have been frequently shown to have significant deterrent effects: *formal legal sanctions* (Bachman et al. 1992; Higgins et al. 2005; Klepper and Nagin 1989b; Nagin and Pogarsky 2001; Paternoster and Simpson 1996; Pogarsky 2002; Pogarsky and Piquero 2004; Strelan and Boeckmann 2006), *feelings of immorality* (Bachman et al. 1992, Carmichael and Piquero 2004; Exum 2002; Nagin and Paternoster 1994; Paternoster and Simpson 1996; Piquero and Tibbetts 1996; Strelan and Boeckmann 2006; Tibbetts 1999; Tibbetts and Herz 1996; Tibbetts and Myers 1999), and *negative emotional states* (Higgins et al. 2005; Nagin and Paternoster 1993; Piquero and Tibbetts 1996; Tibbetts 1999; Tibbetts and Herz 1996; Tibbetts and Myers 1999; Wolfe et al. 2007). Other informal sanctions – such as family, peer, school and/or professional problems – have also been found to have significant deterrent effects when examined individually (Bachman et al. 1992; Higgins et al. 2005) or as part of a global measure of informal costs (Carmichael and Piquero 2004; Loewenstein et al. 1997; Nagin and Paternoster 1993; 1994; Paternoster and Simpson 1996; Pogarsky and Piquero 2004). Regarding the benefits of crime, both perceived fun/thrill (Carmichael and Piquero 2004; Loewenstein et al. 1997; Nagin and Paternoster 1993; 1994; Paternoster and Simpson 1996; Piquero and Tibbetts 1996; Tibbetts 1999; Tibbetts and Myers 1999), and the utility of the criminal act (Exum 2002; Nagin and Paternoster 1993; Paternoster and Simpson 1996) have been found to increase the probability of offending. Thus, based on the wealth of HSM studies published to date, considerable evidence supports the basic assumptions of deterrence and rational choice theory.

CRITICISMS OF THE HSM

Despite the methodological advantages of the HSM and the empirical support it has generated for deterrence/rational choice theory, this line of research is subject to various criticisms. For example (and as noted earlier), most HSM studies of decision making do not consider the impact of hot and altered states-of-mind. Additionally, there is some concern regarding how well the samples typically used in HSM studies (university students) represent the population of offenders or even the general population as a whole (see Decker et al. 1993, and Bouffard et al. 2008 for some exceptions). In this chapter, however, we focus on two additional criticisms: one concerning the HSM's dependent variable and another concerning its independent variables. First, we examine whether self-reported "intentions to offend" are valid indicators of future behavior. Next, we examine whether the implementation of the HSM imposes too much artificial structure on the decision process, thereby biasing what we know about the decision to offend.

CRITICISM #1: ARE INTENTIONS TO OFFEND PROXIES FOR ACTUAL CRIMINAL BEHAVIOR?

Recall that the dependent variable in HSM studies is not actual behavior but is instead the self-reported intent to behave. The practice of using intentions as proxies for real-world behavior is grounded in the theory of reasoned action (Ajzen and Fishbein 1980; Fishbein and Ajzen 1975), and through its subsequent elaboration, the theory of planned behavior (Ajzen 1991). Both theories were developed to predict and explain human behavior. Both theories assume that human beings are rational and make behavioral decisions on the basis of the information that is available. Both theories assume that the results of hypothetical decisions would be similar to the results of real-world situations, so long as the circumstances surrounding each decision are similar. Finally, both theories emphasize the role of behavioral "intention" (see Fig. 28.1), which is an indicator of how much energy and effort individuals are willing to exhaust in the pursuit of the behavior (Ajzen 1991).

Predicting human behavior with these theories is reportedly very easy, because "...barring unforeseen events, a person will usually act in accordance with his or her intention" (Ajzen and Fishbein 1980: 5). Thus, the most effective way to forecast future behavior is to ask individuals their subjective probability of performing the act. *Explaining* human behavior is far more difficult and, however, requires an understanding of the factors that influence

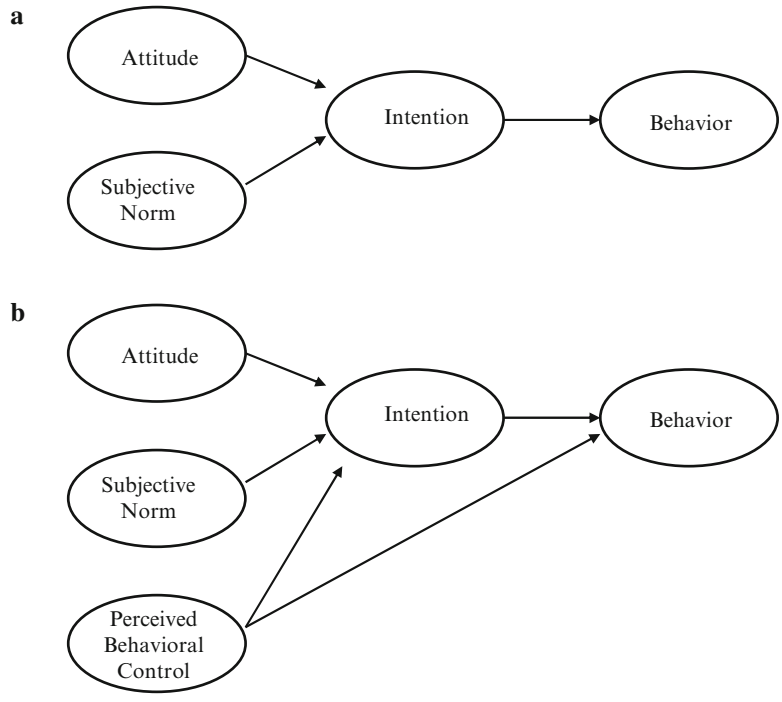

FIGURE 28.1. The theory of reasoned action (**a**), and the Theory of Planned Behavior (**b**). Figures A and B are based on the theoretical path models found elsewhere in Ajzen (1991), Ajzen and Fishbein (1980), Armitage and Conner (2001), Armitage et al., (1999), Beck and Ajzen (1991), Fishbein and Ajzen (1975), and Madden, Ellen and Ajzen (1992). For simplicity, additional exogenous variables, correlations among exogenous variables, and feedback loops are not shown.

intentions to perform. These factors include the person's attitude regarding behavior performance (either favorable or unfavorable), subjective norms, and – in the theory of planned behavior – perceived behavioral control (Ajzen 1991). An in-depth discussion of these theories is beyond the scope of this chapter. Instead, we focus on the ability of self-reported intentions to empirically predict actual behavior.

Although the theory of reasoned action and the theory of planned behavior both assert there is a strong, positive correlation between intentions (I) and behaviors (B), both theories also recognize that additional factors can influence the magnitude of this IB relationship. For example, the degree to which intentions and behaviors correspond in their "levels of specificity" will influence the correlation between the two (Fishbein and Ajzen 1975: 369). Stated more simply, if you want to predict if a person will run on the treadmill at the gym tomorrow morning at 10:00 AM, you should ask them "How likely are you to run on the treadmill at the gym tomorrow morning at 10:00 AM?" rather than "How likely are you to exercise?."

Additionally, the magnitude of the IB correlation is dependent upon the stability of the intention (Fishben and Ajzen 1975). If intentions change between the time they were measured and when behaviors are recorded, the IB correlation will naturally be impacted. Furthermore, the IB correlation is influenced by the actor's volitional control over the act (see Ajzen 1991). If an actor lacks the ability to complete the behavior or must rely upon the cooperation of others to successfully complete the task, the IB relationship may begin to breakdown. From a statistical standpoint, even the base rate of the predicted behavior can also influence the IB correlation. When the target behavior occurs extremely often or extremely infrequently, a few instances of incongruence between intentions and behavior can substantially weaken their statistical correlation. For behaviors with a more moderate base rate, however, occasional incongruence will have more negligible impacts (Fishbein and Ajzen 1975).

Despite the various methodological/statistical concerns that can plague the IB correlation, the relationship between the two remains quite strong (Ajzen 1988; Ajzen and Fishbein 1980; Armitage and Conner 2001; Sheppard et al. 1988). In a meta-analytic review of 87 studies examining the theory of reasoned action, the average IB correlation was 0.53 but had a 95% confidence interval ranging from 0.15 to 0.92 (Sheppard et al. 1988). Upon closer examination, IB correlations were found to be slightly higher when the measure of intention captured one's likelihood of *attempting* the behavior (e.g., trying to lose weight) rather than one's expectation of *accomplishing* the behavior (e.g., actually losing weight). Similarly, these correlations were slightly higher when the measure of behavior captured a specific *action* (e.g., taking diet pills) versus a specific *goal* (e.g., losing weight).

It is worth noting, however, that many of these IB correlations are based on studies examining conventional activities such as eating at a restaurant, voting, watching television, and going to church. When studying conventional behavior, participants generally have little reason to conceal their intentions to engage in the behavior or their actual involvement in the behavior. Yet, when the targeted behavior is imprudent/illegal, participants' level of social desirability may motivate them (consciously or unconsciously) to underreport their intentions and/or behaviors, thereby weakening the IB correlation.

To examine the role of social desirability on the IB relationship, Beck and Ajzen (1991) used the theory of planned behavior as the basis for studying three dishonest acts: cheating on a test/exam, shoplifting, and lying. During the baseline phase of the study, self-reported intentions to engage in these behaviors were collected from a sample of 146 college students. Approximately 6 months later, 34 participants completed a follow-up questionnaire and

self-reported their dishonest acts. The IB correlations were 0.65, 0.48, and 0.30, respectively, and suggest little impact of social desirability. However, with such small sample sizes, these correlations are likely to be volatile and should be interpreted cautiously. In a similar study (with a larger sample size), Armitage et al. (1999) found the IB correlation for cannabis use to be 0.47. At first glance, this finding suggests that intentions can predict illegal behaviors at least reasonably well. However, rather than measuring cannabis use as a dichotomy (used vs. did not use), Armitage et al. provided participants with a seven-point Likert scale to rate statements such as "I used cannabis in the last week". The end result is an IB correlation that is fundamentally difficult to interpret.

In sum, while the extant research suggests at least a moderately strong IB relationship for *conventional* behaviors, much less is known about the accuracy of self-reported intentions to engage in *deviant* activities. To examine this issue further, we present findings from an original study that sought to compare participants' intentions to engage in music piracy with their actual attempts to download music files illegally (Exum et al. 2007).

STUDY #1

Sample, Materials and Procedure

A sample of 240 university students completed a survey addressing various aspects of digital technology usage. As part of the survey, all participants received a hypothetical scenario; however, unlike the vignettes used in traditional HSM studies, this study used a bogus newspaper article to describe a hypothetical offending opportunity (music piracy). Note that participants were led to believe the article was real and had recently appeared in the local newspaper. Pilot testing revealed that the article was seen as highly authentic.

The fictitious article described a (real) doctoral student in the university's Public Policy program (henceforth referred to as "John Doe," our research confederate), who is reportedly emailing illegal music files for free to anyone with an email account ending in ".edu." In the article, Doe acknowledges that distributing/downloading copyright protected files is illegal, but in an attempt to avoid punishment, he has raised a yet-to-be resolved legal challenge against the university's access to student e-mail accounts. Doe states that he will continue to distribute illegal files until a court finally orders him to stop. The article included Doe's email address as well as the date of the pending court case, which was reported to be approximately 2 months from the time of the study. This provided participants with an 8-week window of opportunity to contact Doe and request illegal files.

After reading the bogus newspaper article, participants were asked to complete a series of questions modeled after those commonly used in tests of rational choice theory, including one that asked participants to report their likelihood of contacting Doe and requesting illegal music files. Unbeknownst to participants (but with approval from the University's Institutional Review Board), the questionnaires contained hidden identifiers that could be used to identify the students by name. With these names in hand, participants' self-reported intentions to offend could be linked to any emails they sent to Doe. Approximately 4 weeks after the last surveys were administered, all participants were contacted again in order to be debriefed to the true nature of the study. (Note that no illegal music files were distributed as part of this study.)

TABLE 28.1. Self-reported intentions to offend, by all participants and current music downloaders only

Self-reported intention to offend	Total sample ($N = 240$)	Active downloaders ($N = 142$)
0–No chance	68.8%	64.1%
10	11.7%	14.1%
20	4.2%	5.6%
30	3.3%	2.8%
40	2.1%	2.1%
50	3.3%	3.5%
60	0.4%	0.0%
70	0.4%	0.7%
80	2.9%	3.5%
90	0.8%	1.4%
100–Definitely would	2.1%	2.1%
Mean value (SD)	11.21 (23.44)	12.68 (24.75)

Findings

Table 28.1 summarizes participants' self-reported intentions to offend. Results are shown for the entire sample ($n = 240$) and for those who indicated they downloaded music files on an on-going basis ($n = 142$). Regardless of the group, intentions to request pirated music from Doe are highly skewed, with approximately two-thirds of participants reporting "no chance." Among those expressing a nonzero probability of offending, most indicated that there was less than a 50% chance of requesting illegal files. Approximately, 8% of participants reported a greater than 50% change of offending, with five participants reporting they "definitely would" contact Doe.

The values in Table 28.1 summarize participants' intentions. In actuality, *none* of the participants emailed Doe to request music files. The absence of attempted music piracy does not appear to be (fully) attributable to the participants' skepticism over the authenticity of the newspaper article. As mentioned earlier, pilot testing suggested the article was highly believable. Additionally, one participant in the study found the article believable enough to email the investigators a complaint about Doe's blatant disrespect for the law. Finally, although none of the research participants contacted Doe to request illegal copies of music, Doe did receive one email request from a student who did not take part in the study. We can only speculate that this person learned about the newspaper article from a participant in the study.

Conclusion

Approximately 60% of the sample stated they would not contact Doe, and no one from that 60% actually did. At the same time, those participants who self-reported *some* likelihood of contacting Doe (any non-zero probability), those reporting a *strong*-likelihood (values greater than 50%) and even those who were *certain* they would contact Doe (value of 100%) also refrained. Collectively, these findings suggest that self-reported intentions to refrain from crime are more accurate predictors of behavior than are self-reported intentions to engage in crime. In other words, the self-reported intentions to offend have strong specificity

(all negatives were true) but weak sensitivity (all positives were false). Given that the focus of HSM studies is on offending rather than abstention, the findings from the current study raise questions about how well self-reported intentions to offend approximate real-world deviance.

CRITICISM #2: ARE RESEARCHERS BIASING PARTICIPANTS' VIEWS OF CONSEQUENCES?

The rational choice perspective implicitly recognizes that decision making is both inherently natural and highly individualized. When faced with a criminal opportunity, potential offenders are presumed by their human nature to deduce a series of risks and rewards to contemplate (Bentham 1789/1970). Furthermore, these costs and benefits are assumed to vary from person-to-person in their number, kind and intensity (Bentham 1789/1970; Brezina 2002). However, in their attempts to model the hedonic calculus, rational choice scholars have generally allowed criminal decision making to be neither natural nor individualized.

When using the HSM, rational choice scholars have traditionally asked participants to consider a common set of consequences predetermined by the researcher (e.g., Paternoster and Simpson 1996; Pogarsky and Piquero 2004) rather than permitting participants to deduce their own set of personally relevant costs and benefits. Although participants are typically given the freedom to differentially rate the certainty and severity of these consequences, they generally have little-to-no opportunity to amend the list of costs and benefits to make them more personally-relevant (but see Wolfe et al. 2007). As a result, only those consequences provided by researchers are included in statistical models of decision making. There is evidence to suggest that forcing such artificial structure on the otherwise natural and individualized decision process impacts the research findings.

As early as the 1920s, researchers have known that the same question written in either open- or closed-ended format can produce vastly different results (Converse 1987). Perhaps, the most methodologically rigorous examples of studies comparing fixed choice (closed-ended) and free elicitation (open-ended) questions are the Schuman and Presser (1979) split-ballot experiments. Cross-sectional samples from Detroit and from the general US population were asked either open- or closed-ended questions about the job feature they valued most, the most important problem facing the country, and the quality that is most important for children to learn. Respectively, "importance of the work" (59.1%), "crime" (34.9%) and "thinking for themselves" (61.5%) were endorsed most often by participants completing closed-ended questions. In contrast, these same responses had endorsement rates of only 21.3%, 15.7%, and 4.6% (respectively) when the questions were left open-ended. Furthermore, the response sets for closed-ended questions commonly failed to include the opinions of a sizeable minority – or perhaps even the majority – of the sample. For example, among those completing the open-ended job quality question, 50.3% of the sample endorsed "novel" characteristics that did not correspond to any of the response options listed in the closed-ended question.

Thus, prior empirical research shows that survey results are influenced by the question format (e.g., open- versus closed-ended). This methodological artifact appears to stem from the distinct thought processes associated with each question type. From a cognitive standpoint, the difference between open- and closed-ended questions is a matter of recall versus recognition (respectively). Whereas recall techniques provide participants with an outlet for the responses that are most salient to them, recognition techniques tend to activate the

participants' memory in order to determine the "best" response (Schwarz and Hippler 1991). In other words, closed-ended questions force participants to remember opinions they may had forgotten or thought too trivial to mention. This then has the effect of increasing participants' endorsements of opinions that are relatively inconsequential. In contrast, open-ended questions tend to capture the stronger opinions that are actively present in conscious thought (see also Schwarz and Oyserman 2001).

If open- versus closed-ended questions can produce vastly different results in the participants' endorsement rates, then does the typical HSM practice of providing participants with a predetermined set of costs and benefits (rather than allowing respondents to freely elicit their own) artificially inflate the empirical support for these specific consequences? There is indirect evidence from existing studies that suggest so. For example, Bouffard (2002a, 2007, Bouffard et al. 2008) presented participants with a hypothetical offending scenario and then asked them to freely elicit all the costs and benefits they might experience by engaging in the criminal act. Findings from this research reveal that many of the consequences commonly included in traditional HSM studies are mentioned infrequently during free elicitation. Furthermore, many consequences the participants did endorse are costs/benefits that traditional HSM studies have failed to present to participants.

Such research offers indirect evidence to suggest that findings obtained through HSM studies substantially differ from those obtained through the free elicitation technique (particularly in terms of the types of consequences which are deemed relevant to the decision when each technique is used). With some support for the notion that free elicitation may provide a more accurate assessment of the consequences that each individual actually considers, we now turn to a further examination of potential bias introduced when the traditional HSM is used. Specifically, we compared whether and to what extent the HSM and free elicitation methodologies produce differing results with respect to the endorsement of consequences and their ability to shape decision making.

STUDY #2

Sample, Materials and Procedure

A sample of 208 undergraduate students completed a self-report survey containing a hypothetical shoplifting scenario. After reading the scenario, participants were asked to rate their likelihood of taking some batteries without paying for them. The survey also included one of two different sets of questions designed to assess the perceived consequences associated with shoplifting. We refer to these two techniques as the "researcher-generated consequence" (RGC) and the "subject-generated consequence" (SGC) methods. Students were randomly assigned to receive one of these versions of the survey.

In the RGC method, the survey included a predetermined set of consequences for participants to assess. The list of RGCs was based on the types of costs and benefits traditionally included in prior rational choice research (e.g., Exum 2002; Loewenstein et al. 1997; Nagin and Pogarsky 2001; Piquero and Tibbetts 1996). They included seven negative outcomes associated with shoplifting: "Legal problems (such as getting arrested)," "Immorality (feeling that it is morally wrong to steal things)," "Emotional costs (such as you feel guilty or shame)," "Family Problems (such as your parents getting mad)," "Social Problems (such as your reputation is ruined)," "School Problems (such as being expelled)," and "Professional Problems

(such as getting fired from a job)." Also included were four benefits: "Have fun or get a kind of 'sneaky thrill'," "Feeling good about myself (such as pride)," "Friends would think I was 'cool'," and "Have the batteries that I need" (i.e., a measure of the crime's utility). Participants rated their perceived certainty and severity of each consequence using a continuous 0- to 100-point scale.

In the SGC method, the survey did not provide participants with a set of traditionally-examined consequences, but instead presented a series of blank lines and the following instructions:

> Please fill in as many of the following blank lines as possible with a list of the negative ("bad") things that might happen to you if you took the batteries under the circumstances in the story.

A similar set of blank lines and instructions were included that asked participants to list ". . .the positive ('good') things that might happen to you if you took the batteries." After listing their self-generated costs and benefits, participants rated the certainty and severity of each consequence using the same 0–100 metric as in the RGC method. We then reviewed and coded the subject-generated costs and benefits into thematic groups that could be matched (where possible) to the traditionally-presented consequences used in the RGC method. This allowed us to compare the endorsement rates of identical consequences across the two experimental groups.

Findings

By design, SGC participants are asked to list only those consequences with a nonzero certainty value. We therefore examined whether the types and number of consequences listed by the SGC group differed from those endorsed by the RGC group. Note that "endorsed RGCs" are defined as those consequences that received a nonzero certainty rating by RGC participants. Table 28.2 summarizes the findings.

As seen in the table, the method through which costs and benefits are assessed greatly influences the type and number of consequences endorsed. With the exception of "legal problems," traditional costs and benefits were significantly more likely to be endorsed by the RGC group than the SGC group. For example, virtually all of RGC participants (99%) endorsed immorality, whereas only 2.9% of the SGC group did so. Furthermore, as shown at the bottom of the table, RGC participants endorsed an average of 6.18 (out of 7) traditional costs and 2.12 (out of 4) traditional benefits. In contrast, SGC participants endorsed just 1.88 and 0.78, respectively. These findings therefore indicate that when participants are given a set of consequences to evaluate, they are more likely to view these consequences as possible outcomes than when they are allowed to report their own set of relevant consequences.

Additional analyses (not shown) revealed that the certainty and severity of traditionally examined costs are perceived rather equivocally across RGC and SGC participants. However, certainty ratings for the four traditional benefits were typically (and significantly) higher among the SGC group. Thus, when SGC participants endorse a benefit they tend to do so with greater conviction. Similar results were found when comparing severity scores across experimental conditions. Finally, through a series of regression analyses we find greater support for the traditionally examined consequences when examining RGC participants. When data from SGC participants are analyzed, the traditional consequences matter very little. Instead, "novel" benefits identified by SGC participants (e.g., save money, save time, have the item, nobody is hurt) were the best overall predictors of offending intentions.

TABLE 28.2. Endorsement of traditional consequences, by experimental condition[a]

	RGC Group ($N = 105$)	SGC Group ($N = 103$)	
Traditional costs: percentage endorsing. . .			
Legal problems	95.2%	94.2%	
Immorality	99.0%	2.9%	***
Emotional costs	99.0%	52.4%	***
Family problems	93.3%	9.7%	***
Social problems	79.0%	24.3%	***
School problems	70.5%	1.0%	***
Professional problems	81.9%	3.9%	***
Traditional benefits: percentage endorsing. . .			
Fun/Sneaky thrill	63.8%	9.7%	***
Feeling good about self	30.5%	3.9%	***
Friends think I was cool	39.0%	3.9%	***
Have batteries	79.0%	60.2%	**
Mean (SD) number of endorsements among. . .			
Traditional costs (SD)	6.18 (1.33)	1.88 (0.89)	***
Traditional benefits (SD)	2.12 (1.43)	0.78 (0.67)	***

[a]Asterisks signify statistically significant differences in the rate of endorsement across experimental conditions.
$^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$

Conclusion

This study's results do not question the fundamental assumptions of rational choice theory (that offending is rooted in hedonism and is related to anticipated pains and pleasures); however, they do question whether the traditional HSM accurately captures the number and types of pains and pleasures that matter, particularly as these relate to the factors included in statistical models of the hedonic calculus. Future research comparing the RGC and SGC method is needed in order to determine if our findings can be replicated among larger samples and using other offense types. In so doing, researchers will be better able to assess the nature of any methodological artifacts within the typical HSM procedures for testing rational choice theory. While these results await replication and extension to other offenses, and among larger and more diverse samples, we nevertheless believe our research begs for caution in the assessment of the extant rational choice literature. Quite simply, the factors we *think* influence criminal decision making may not be the factors that *actually* influence such decisions.

FUTURE DIRECTIONS

In his Sutherland Address to the American Society of Criminology, Nagin (2007) stated that much can be learned about the causes of crime through increased attention to the role of choice in criminological theorizing. Given the central role of choice as the foundation for the modern criminal justice system, Nagin argued that insufficient theoretical attention to the concept fosters an important disconnect between theory and practice. Finally, Nagin proposed that the benefits of increased attention to the notion of choice are there for the taking, if only a new

generation of young researchers will "pick this low-hanging fruit" (p 262). We agree that our understanding of crime and crime-control policy will be greatly enhanced as more scholars consider the role of choice in offending. We also believe, however, that the techniques used to study decision making – especially the use of hypothetical scenarios – should be critically evaluated in order to better assess the validity of choice-based research.

The HSM has become one of the most common ways to assess criminal decision making. The technique has many advantages, including its ability to: (1) provide all participants with a common context in which to consider (hypothetical) offending, (2) avoid the type of mis-specified temporal order that plagues cross sectional studies, and (3) collect subjective perceptions of consequences concurrent with the decision to offend/abstain. Despite these advantages, important criticisms of the HSM remain. In particular, there remains a need to fully understand the relation between intentions and actual offending, as well as the impact of possible question presentation effects on participants' responses.

Additional research is needed to assess the IB correlation for *unconventional* activities. This will require researchers to design studies that capture not only participants' self-reported intentions to offend but also their actual offending behavior. However, it is important that the measure of actual behavior closely corresponds to the hypothetical behavior under which participants expressed their intentions. In other words, it is insufficient compare participants' hypothetical likelihood to shoplift inexpensive batteries out of necessity (a commonly used hypothetical scenario) to real-world acts of stealing expensive merchandise for utilitarian gains, because such a comparison lacks the necessary "level of specificity" (Fishbein and Ajzen 1975: 369).

Collecting hypothetical and real-world behaviors with specificity presents certain ethical challenges. For example, researchers will need to make participants believe they have the opportunity to engage in a criminal act (such as that described in our fictitious newspaper article), and then record the participants' behavioral responses to this opportunity (e.g., emails sent to John Doe). At the same time, researchers have an ethical obligation to ensure that their research does not foster real-world illegal activity (no illegal music files were sent in our study), and also fully inform participants about the true purpose of the research (i.e., debrief them). With careful planning and appropriate human subjects protection, this type of research can be approved by Institutional Review Boards.

Additional research is also needed to examine question presentation effects on participants' responses. As we have described here, supplying participants with a list of consequences to consider (rather than allowing them to self-identify consequences) may undermine the participants' natural decision making process. Free elicitation is arguably the best way to record such consequences, but such highly individualized, qualitative data can be cumbersome to code/analyze. Some scholars have instead adopted a "blended" approach by presenting a standard set of researcher-generated consequences but then asking participants to self-generate additional consequences that are relevant to them (e.g., Higgins et al. 2005; Wolfe et al. 2007). Unfortunately, participants typically fail to utilize the "other" option (Converse 1987; Schuman and Presser 1981). We therefore suggest an alternative strategy – one in which participants freely elicit consequences in a pilot study and then these very same consequences are compiled into a list that can be presented to participants in a subsequent study.

Research examining criminal decision making has evolved from early tests of the objective qualities of punishments, to cross-sectional (and panel) studies of the perceived consequences of actual crime, to studies of perceived consequences of hypothetical crime. Each evolutionary stage comes with its own advantages and disadvantages. A more thorough

examination of the hypothetical scenario method is needed in order to better understand the role of choice in offending, and to better inform crime control policy. We hope the criticisms raised here and the research findings we presented will help to shape the ongoing evolution of the hypothetical scenario method.

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