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Updating the Deterrence Doctrine

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UPDATING THE DETERRENCE DOCTRINE*

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I. INTRODUCTION

Common sense can explain the deterrence doctrine: most individuals prefer to avoid prison and thus are discouraged from engaging in criminal behavior, especially that behavior likely to be detected and punished. Even citizens alarmed by the amount of crime committed in the United States must acknowledge that the threat of punishment deters most individuals, most of the time.

The practical problem facing contemporary deterrence researchers, law makers and other social policy makers is to develop the correct "formula" for using the threat of punishment to deter those individuals who are relatively resistant to legal threats, i.e., those individuals who commit common or predatory crime. One commentator has aptly phrased this problem by stating: "The crucial question is not simply whether negative sanctions deter, but rather under what conditions are negative sanctions likely to be effective."[1]

Commentators, with some exceptions,[2] criticize the deterrence research literature as being largely "atheoretical and divorced from a body of ideas that predicts the conditions under which legal

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[1] Tittle, *Crime Rates and Legal Sanctions*, 16 SOC. PROBS. 409, 411 (1969).

[2] Notable exceptions include the following: C.R. TITTLE, SANCTIONS AND SOCIAL DEVIANCE (1980); Minor, *A Deterrence—Control Theory of Crime*, in THEORY IN CRIMINOLOGY 117-38 (R. Meier ed. 1977).

threats inhibit criminality."[3] Most recently, theoretical attempts to re-conceptualize the deterrence principle have focused on subsuming the principle within more general social control perspectives.[4] Such attempts lead to the inevitable conclusion that extralegal factors are just as important as legal threats to control criminal or deviant behavior. Of course, these insights have little value for law and policy makers who can only use legal threats as a mechanism of crime control. What is still clearly needed from the social science community is an adequate explanation for how legal threats can be used effectively to control crime.

The intent of this paper is to bring general deterrence research[5] closer to theory regarding how the threat of punishment regulates perceptions of crime opportunities. Specifically, this paper's central purpose is to cast deterrence research findings in theoretical terms,[6] making them relevant for developing laws and social programs that can be effective in reducing the incidence and prevalence of predatory crime.[7]

II. THE DETERRENCE RESEARCH LITERATURE

A. OVERVIEW

Essentially, the deterrence doctrine is premised on the notion that criminal sanctions are the "penalty" or "cost" a convicted offender pays for crime.[8] Variations in perspectives and in measurement techniques notwithstanding, all deterrence research and theory is based on implicit or explicit assumptions about normative systems that value rewards and disvalue punishments.[9] Deterrence research and theory also makes assumptions about the ability and

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[3] Short & Meier, *Criminology and the Study of Deviance*, in THE STATE OF SOCIOLOGY 182 (J. Short ed. 1981).

[4] *See* Williams, *Deterrence and Social Control: Rethinking the Relationship*, 13 J. CRIM. JUST. 141, 148 (1985).

[5] Conventionally, general deterrence refers to using legal threats to discourage crime by members of the general population, whereas specific deterrence refers to using legal sanctions to reduce the likelihood of recidivistic behavior.

[6] Chen & Rossi, *Evaluating with Sense: The Theory Driven Approach*, 7 EVALUATION REV. 283, 285 (1983).

[7] *See* J.Q. WILSON, THINKING ABOUT CRIME (rev. ed. 1985). Wilson, an observer of crime and other urban problems, argues that policy analysis should guide the development of crime control programs. *Id.* at 48-56. He argues that the more valid theories of crime causation yield no policy relevant variables. *Id.* at 207-09. The position taken here is akin to Wilson's, in that we argue policies must be theory driven, for policies to work in controlling socially intolerable behaviors.

[8] As discussed in the following section of this paper, this premise is a serious flaw in present deterrence theories. *See supra* text accompanying notes 33-40.

[9] *See* J.Q. WILSON, *supra* note 7, at 252-53.

motivation of the social actor to calculate the costs and benefits of crime.[10] Furthermore, criminal sanctions, which are established by legislatures, must be communicated by the media and imposed by the courts. Thus, the deterrence doctrine is further based on the assumption that individuals are actually aware of criminal sanctions.[11] Finally, the deterrence doctrine assumes that the social actor is discouraged from committing crime when the perceived threat of punishment, or the cost of crime, exceeds any benefit associated with the commission of an illegal act.[12]

The United States witnessed an unprecendented wave of sentencing reform legislation in the 1970s, arguably due to the demise of the rehabilitative justification for prison sentences, a perceived increase in predatory crime and a growing awareness of disparity in criminal sanctions.[13] As a result of this sentencing reform movement, many states legislated the deterrence doctrine into practice based on the central premise that stiff punishments can help reduce the extent of common or predatory crime.[14] Considerable controversy, however, surrounds the effectiveness of deterrence oriented sentencing laws. Some evaluation researchers contend that the justification for deterrence based punishments should not be based exclusively on existing empirical evidence supporting the effectiveness of the deterrence doctrine.[15] Supporters of the deterrence doctrine, however, contend that the jury is still out: only when the main elements of the deterrence calculus can be conceptualized and appropriately measured can society assess the utility of using punishment and threats of punishment to effect the crime problem.[16]

In search of empirically sound methods for crime control, some of the nation's leading social scientists have investigated the effectiveness of deterrence oriented punishments. A comprehensive review of the relevant research literature[17] indicates that researchers

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[10] *See* F. ZIMRING & G. HAWKINS, DETERRENCE: THE LEGAL THREAT IN CRIME CONTROL 224-31 (1973).

[11] *See id.* at 141-49, 296.

[12] *See id.* at 245-48.

[13] *See* J. HAGAN, CRIME, CRIMINAL BEHAVIOR, AND ITS CONTROL 306-15 (1985).

[14] *See, e.g.,* J. WRIGHT, P. ROSSI & K. DALY, UNDER THE GUN: WEAPONS, CRIME, AND VIOLENCE IN AMERICA 273-308 (1983).

[15] *See* J. GIBBS, NORMS, DEVIANCE, AND SOCIAL CONTROL: CONCEPTUAL MATTERS (1981); H. ROSS, DETERRING THE DRINKING DRIVER 109 (1982); Heumann & Loftin, *Mandatory Sentencing and the Abolition of Plea Bargaining: the Michigan Felony Firearm Statute,* 13 LAW & SOC'Y REV. 393 (1979); Loftin & McDowall, *The Deterrent Effects of the Florida Felony Firearms Law,* 75 J. CRIM. L. & CRIMINOLOGY 250 (1984).

[16] *See, e.g.,* J.Q. WILSON, *supra* note 7, at 117-44.

[17] Deterrence research has been conducted by academicians within the disciplines of political science, sociology, and psychology. See DiChiara & Galliher, *Thirty Years of De-*

have raised three main questions concerning the deterrence doctrine. First, what is the salience of punishment certainty, severity, and celerity? Second, what is the appropriate unit of analysis for deterrence research? Third, what is the role of financial gain in the deterrence calculus? The theoretical as well as epistemological insights that result from the debates surrounding these questions are crucial for developing deterrence based and theory driven crime control programs.

B.   THE MULTIPLE DIMENSIONS OF PUNISHMENT

The first question concerning the effectiveness of punishment as a deterrent has centered on determining the importance of punishment severity, certainty and celerity in the deterrence calculus. Research measuring the certainty of punishment as a deterrent effect, as well as research measuring the strength of the various dimensions of punishment on criminal decisions,[18] suggest that punishment certainty has the greater influence on behavior.[19]

Zimring and Hawkins, writing one of the most fully articulated theoretical statements on deterrence, explain these findings regarding the importance of punishment certainty.[20] They recognize that deterrence is a future oriented principle.[21] Social actors, possessing a consciousness that reaches into the future, operate in the present time and are somewhat influenced by prior experiences.[22] Although the future oriented social actor can imagine the effects of punishment (unless the actor has experienced prison), it is his (her) perception of the odds of getting convicted and punished for a crime that will have the greatest influence in determining his (her) decision whether or not to commit a crime.[23] Empirically, the proposition that punishment certainty is the most crucial dimension for

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terrence Research, 8 CONTEMP. CRISES 243 (1984), for a discussion of the contributions from the distinct disciplines.

[18] *See* Anderson, Harris & Miller, *Models of Deterrence Theory*, 12 SOC. SCI. RES. 236, 248 (1983); Gibbs, *Crime, Punishment, and Deterrence*, 48 SW. SOC. SCI. Q. 515 (1968); Hollinger & Clark, *Deterrence in the Workplace: Perceived Certainty, Perceived Severity, and Employee Theft*, 62 SOC. FORCES 398, 402-03 (1983); Tittle & Rowe, *Certainty of Arrest and Crime Rates: A Further Test of the Deterrence Hypothesis*, 52 SOC. FORCES 455 (1974).

[19] *See* Sherman & Berk, *The Specific Deterrent Effect of Arrest for Domestic Assault*, 49 AM. SOC. REV. 261, 269-70 (1984); Wolpin, *An Economic Analysis of Crime and Punishment in England and Wales 1894-1967*, 86 J. POL. ECON. 815, 819-20 (1978).

[20] *See* F. ZIMRING & G. HAWKINS, *supra* note 10, at 158-73.

[21] *Id.* at 77-83.

[22] *Id.* at 84-87.

[23] *Id. See* Sherman & Berk, *The Specific Deterrent Effect of Arrest for Domestic Assault*, 49 AM. SOC. REV. 261 (1984).

discouraging crime has been observed,[24] and, theoretically, this proposition can be explained.

C. THE APPROPRIATE UNIT OF ANALYSIS

The second question found throughout the deterrence literature is a methodological or an epistemological one regarding the appropriate unit of analysis for deterrence research. Some investigators have used crime rates as dependent variables, generally within a comparative framework, to examine the effectiveness of certain laws within certain jurisdictions.[25] Essentially, these researchers posit that aggregated arrest or conviction data summarize a generalized effect of punishmnent on criminal behavior across individuals.[26]

Conversely, other investigators view the individual social actor as the only appropriate unit of analysis.[27] Theoretical work on decision making and information integration[28] makes the individual unit of analysis position espoused by some deterrence researchers the more reasonable one. This work shows that individual social actors, when making decisions, estimate and integrate subjectively perceived rewards and punishments associated with possible behaviors.[29] According to this approach, each individual must calculate the risk of apprehension and punishment when encountering a crime opportunity. This calculation requires an individual level decision making process that cannot be reflected by aggregated data.

D. THE ROLE OF FINANCIAL GAIN IN DETERRENCE

The third question, cogently summarized by James Q. Wilson,[30] concerns the role of perceived gain in the criminal decision. Many

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24 *See* F. ZIMRING & G. HAWKINS, *supra* note 10, at 84-87.

25 *See, e.g.*, Chilton, *Analyzing Urban Crime Data: Deterrence and the Limitations of Arrests Per Offense Ratios*, 19 CRIMINOLOGY 590, 605 (1982); Ehrlich, *The Deterrent Effect of Capital Punishment: A Question of Life and Death*, 65 AM. ECON. REV. 397, 398-417 (1975); Waldo & Chiricos, *Perceived Penal Sanction and Self Reported Criminality: A Neglected Approach to Deterrence Research*, 19 SOC. PROBS. 522 (1972).

26 *See* Chilton, *supra* note 25.

27 *See* C.R. TITTLE, *supra* note 2, at 225; Erickson, Gibbs & Jensen, *The Deterrence Doctrine and the Perceived Certainty of Legal Punishments*, 42 AM. SOC. REV. 305, 306 (1979); Montmarquette & Nerlove, *Deterrence and Delinquency: An Analysis of Individual Data*, 1 J. QUANTITATIVE CRIMINOLOGY 37, 39 (1985).

28 *See* L. OFSHE & R. OFSHE, UTILITY AND CHOICE IN SOCIAL INTERACTION 89 (1970); Anderson, *Information and Integration Theory: A Brief Survey*, in MEASUREMENT, PSYCHOPHYSICS, AND NEURAL INFORMATION PROCESSING (D. Kranis ed. 1974); Tversky, *Additivity, Utility, and Subjective Probability*, 4 J. OF MATHEMATICAL PSYCHOLOGY 175 (1967).

29 Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968).

30 *See* J.Q. WILSON, *supra* note 7. *See also* J.Q. WILSON & R. HERRNSTEIN, CRIME AND HUMAN NATURE 44 (1985).

deterrence researchers ignore individual perceptions of financial reward because gain (or reward) is considered to be external to the legal and normative system that metes out punishment.[31] Nevertheless, the possibility of reward certainly influences criminal conduct. How do the individual's perceptions of gain—financial gain from illegal as well as from legal activities—influence perceptions regarding punishment certainty and punishment severity in the decision to avoid or approach crime opportunities? Logically, if punishment discourages crime, the potential for illicit economic gain encourages crime. Moreover, if the gain from crime mitigates the threat of punishment, legal opportunities for financial gain can discount the value of the financial reward from crime.[32] In developing theoretically based deterrence laws and policies, the role of perceived legal and illegal economic rewards cannot be ignored.

III.   Conceptual Flaws

A.   OVERVIEW

To refine the existing deterrence doctrine, integration of the empirical and theoretical contributions from the earlier works discussed above is necessary. It is also necessary to rid the doctrine of two crucial flaws: 1) the conceptual failure to distinguish between normative consensus and the influence of crime and punishment norms on behavior, perceptions and decision making; and 2) the mistaken view that criminal sanctions, especially the prison sentence, are the only calculable and potential penalties or costs associated with crime.

B.   NORMATIVE SYSTEMS

Weber argued that the rules governing social behavior tell actors what "is" empirically and what "ought to be" vis-a-vis their normative dimension.[33] Consider, for example, the rule "do not steal." This rule empirically reflects the notion that stealing can result in punishment. The rule also indicates that one ought to avoid stealing, a socially disvalued behavior.

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[31] *See* I. Piliavin & R. Gartner, The Impact of Supported Work on Ex-Offenders—2 The Final Report of the Supported Work Demonstration 88-92 (1981).

[32] As Wilson argues, select social programs, such as the Supported Work Program, improve opportunities for legitimately earned income and thus must be viewed as deterrence oriented programs. J.Q. Wilson, *supra* note 7. *See* I. Piliavin & R. Gartner, The Impact of Supported Work on Ex-Offenders—Volume 2 Final Report of the National Supported Work Demonstration (1981).

[33] Weber, *R. Stammler's Surmounting of the Materialist Conception of History*, 3 Brit. J.L. & Soc'y 17 (M. Albrow trans. 1976).

Normative systems contain explicit and implicit rules for behavior as well as criteria for distinguishing the rewards from the punishments associated with social life. Laws emanate from codified normative rules that exist within a specific institution of coercion (the courts) and are thus analytically distinct from rules of convention. Other norms dominate the behavior and perceptions of social actors due to normative consensus, i.e., widespread agreement within a community over the legitimacy of those norms. Normative consensus, Weber argued, results from a plurality of social factors habitually and subjectively experiencing actions guided by rules.[34]

If one considers normative consensus to be a form of legitimate domination, then the empirical distribution of known predatory criminals implies that segments of the general population are differentially likely to subscribe to or dissent from popular norms.[35] Several factors, including variation in the knowledge of norms, perceptions of fairness, and socioeconomic status, are arguably partial explanations for dissensus over normative systems that provide the rules and guidelines for appraising criminal and noncriminal opportunities.[36]

The deterrence doctrine is flawed by its failure to account for the distinction between the extent of normative consensus and differences in the degree to which social beings act according to the dictates of existing norms. As a result, one can conclude that deterrence oriented laws accept as nonproblematic normative consensus, especially with respect to disvaluing criminal sanctions.

Are select segments of the general population less likely to subscribe to a normative system that makes crime highly disvalued behavior? Or, generally, does consensus chartacterize the views held by the population regarding crime and its punishments? Surely, no deterrence based law can be effective unless it is directed toward the appropriate normative system or systems that make the criminal sanction a threat worth avoiding.

B. THE PENAL SANCTION

The second major flaw associated with contemporary variants of the deterrence doctrine is the conceptualization of the penal

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[34] M. WEBER, LAW IN ECONOMY AND SOCIETY (M. Rheinstein ed. 1954).

[35] Several sources of data clearly show that young, poor, minority men are disproportionately arrested for predatory crime. *See, e.g.*, U.S. DEP'T OF JUSTICE, SOURCEBOOK OF CRIMINAL JUSTICE STATISTICS—1985, at 416-22 (1986).

[36] Hagan & Albonetti, *Race, Class, and the Perception of Criminal Injustice in America*, 88 AM. J. SOC. 329, 333-39 (1982); Hamilton & Rytina, *Social Consensus in Norms of Justice: Should the Punishment Fit the Crime?*, 85 AM. J. SOC. 1117, 1122-24 (1980).

sanction as the exclusive "cost" or "penalty" associated with crime. In a capitalist economy, the financial cost to the offender of a term in prison or jail can be estimated easily, and the resulting measure of foregone personal income can be used to convince potential law breakers that "crime does not pay." The rational actor who balances the perceived probable cost of crime against the probable gain should be twice as deterred by the threat of a two year prison sentence than by the threat of a one year sentence.[37] Thus, according to this economic conceptualization, the courts should impose stiffer penalties to deter more crime. Our contention, however, is that the prison term cannot be measured only in terms of financial costs; instead it must be measured as a multi-dimensional and extreme form of punishment.

In a bygone era, the sack of ashes (albeit perhaps an apocryphal sack) symbolized the community's denunciation of sins and sinners. Contemporarily, penal sanctions given by trial courts symbolize the distinction between the serious criminal offense and all other forms of illicit or deviant behavior in the United States. The states' penal codes specify which are the serious criminal offenses deserving a term of incarceration and which are the relatively trivial offenses deserving a monetary fine.[38] Thus, punishments are not limited to the "penalties" paid or the "costs" incurred by criminal offenders. Convicted felony offenders, as well as serious misdemeanor offenders, are sentenced to "serve" punishments—typically a term of probation or incarceration in prison. Since punishments can be served as well as paid, perceptions of punishment severity cannot be measured in terms of affordability. Punishment severity must be conceptualized in terms of deprivations. The offender punished by the court with a term of incarceration is deprived of liberty, autonomy and certain civil rights.[39]

Accurate conceptions of punishment severity perceptions must also incorporate views of the symbolic and stigmatizing function of the penal sanction. Symbolically, the second phase of a bifurcated

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[37] This illustration can be modified by introducing the notion of marginal disutility to the dimension of punishment severity, suggesting that a two year term of incarceration might be perceived as less than twice as severe as a one year term. Regardless, the relevant issue here is that the penal sanction is not amenable to quantification with an economic metric.

[38] In the state of Indiana, for example, an offender convicted of a CLASS C misdemeanor "may be imprisoned for a fixed term of not more than sixty (60) days; in addition, he may be fined not more than five hundred dollars ($500)." IND. CODE § 35-50-3-4 (West 1986). The offender convicted of CLASS A felony "shall be imprisoned for a fixed term of thirty (30) years." IND. CODE § 35-50-2-4 (West 1986).

[39] *See* J. INCIARDI, CRIMINAL JUSTICE 662 (1984).

criminal trial—the sentencing hearing—is an institutionalized degradation ceremony where the impartial judge, in the name of public values, denounces the offender by either removing the offender from the community, or restricting his (her) freedom according to the probation contract.[40]

The conceptual flaw of treating the penal sanction as only the "cost" of crime has severe implications for the deterrence doctrine. If perceptions of punishment severity extend the boundaries of financial estimations, criminal law that protracts the prison term for the purpose of deterrence cannot be effective, nor can it be a cost efficient method for controlling the crime problem.

IV.   A STUDY OF ECONOMICALLY MOTIVATED CRIME OPPORTUNITIES

A.   OVERVIEW

The data for this research is the product of our study funded by the National Institute of Justice to develop appropriate measures for observing perceptions of individuals encountering hypothetical crime opportunities.[41] The study is designed to reflect the three major contributions to the deterrence research tradition discussed above. First, it measures the importance of punishment certainty and punishment severity in perceptions of crime opportunities. Second, the individual's judgment is the unit of measurement. Third, the study measures both the perceived disutility of the criminal sanction as well as the perceived utility of financial gain from crime.[42]

B.   CHARACTERISTICS OF SURVEY RESPONDENTS

Unlike most deterrence research, in this study respondents are members of the general public rather than convicted or incarcerated offenders. The purpose of the study is to explicate the deterrence calculus. Thus, this study models the perceived probability of committing economically motivated crimes for those individuals who are apparently responsive to legal threats. As such, it permits an investigation of differences in the extent to which individuals subscribe to the normative system that determines the value of criminal gain and the disvalue of criminal sanctions.

A purposive sample of survey respondents is created to reflect

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[40] Garfinkel, *Conditions of a Successful Degradation Ceremony*, 61 AM. J. Soc. 420 (1956).

[41] For additional information on the study see Anderson, Harris & Miller, *supra* note 18.

[42] This study is informed by the subjective expected utility perspective of decision making. *See* L. OFSHE & R. OFSHE, *supra* note 28, at 11-20.

roughly the empirical relationships between predatory crime arrest data and the offender personal background characteristics of age, gender, family income and race.[43] A total of 751 individuals in the crime prone age groups (age fifteen to thirty-six) participated in a factorial survey study conducted in 1982 in Baltimore. Proportionate to their representation in the general population, women are undersampled and blacks are oversampled. In total, 347 white men, 173 white women, 154 black men and 77 black women are surveyed. Twenty percent of the sample falls close to the Social Security Administration's definition of poor households in the United States.[44]

Respondents were given booklets containing fifty vignettes. Each vignette describes a potential crime opportunity in terms of the nature of the offense, the possible economic gain from the crime, the risk of being caught and convicted of the crime and the punishment. We express the punishment that would result from conviction in terms of prison time and fines.[45] Figure 1 is an example of the crime opportunity vignettes used in the study. Respondents indicate on the rating line following each vignette how likely someone like themselves would be to commit the hypothetical crime under the circumstances described in the vignette. Therefore, the dependent measure is the perceived probability of a criminal decision.

The factorial survey design that we use combines the benefits of a controlled experiment with those associated with survey research. Factorial objects, i.e., the individual vignettes, are constructed to model experimental conditions, and an adequate sample of the population being studied is selected to respond to the vignette booklets.[46] In this study, a total of 37,750 crime opportunity vignettes are rated (751 respondents × 50 factorial objects each).

To construct vignettes, a computer program randomly assigns values for all of the dimensions of information appearing in the vignettes. Thus, factorial objects are analogous to iterations under

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[43] These data can be found in U.S. DEP'T OF JUSTICE, *supra* note 35, at 416-22.

[44] The 1981 Social Security Administration poverty index was used to define poverty thresholds for the 200 interviews of individuals whose household income put them at or below a point equal to 150% of the "poverty line." The poverty index takes into account household size. Thus, a one person household is within 150% of the poverty level at $7,065 and a five person household is within 150% of the poverty level at $16,425 gross annual 1981 income.

[45] The research discussed here was also concerned with three non-economic crimes: carrying a handgun illegally, smoking marijuana, and assault. Those three crimes are not discussed in this paper.

[46] *See* MEASURING SOCIAL JUDGMENTS: THE FACTORIAL SURVEY APPROACH (P. Rossi & S. Nock eds. 1982).

FIGURE 1
EXAMPLE OF CRIME OPPORTUNITY VIGNETTE

THE CRIME YOU HAVE AN
OPPORTUNITY TO COMMIT IS: LYING ON INCOME TAX REPORT

IF YOU GET AWAY WITH IT THE
GAIN WILL BE: $5,000 GAIN

THE CHANCE OF GETTING CAUGHT
AND CONVICTED IS: 40% CHANCE OF BEING CAUGHT
                                              AND CONVICTED

THE PENALTY IF CAUGHT AND
CONVICTED IS: 6 MONTHS IN JAIL
                                             AND
                                           $500 FINE

UNDER THESE CIRCUMSTANCES, HOW LIKELY IS IT THAT YOU WOULD
COMMIT THE CRIME?

.----.----.----.----.----.----.----.----.----.----.
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

ABSOLUTELY   ABSOLUTELY
WOULD NOT   WOULD
COMMIT CRIME   COMMIT CRIME

experimental conditions. For this research, five dimensions of information are rotated: 1) Type of Crime, 2) Risk, 3) Prison, 4) Fine and 5) Gain. Note that Risk is a measure of punishment certainty, whereas Prison and Fine are measures of punishment severity. Table 1 shows the levels for the five dimensions of the hypothetical crime opportunity vignettes.

By design, factorial surveys generate asymptotically orthogonal variables, making them ideal for using an Ordinary Least Squares (O.L.S.) analytical approach[47] to observe how various dimensions of information are weighted and integrated by respondents when forming judgments abvout social objects.[48] The initial data file analyzed in this research contains 37,750 cases of information. Each case contains coded values for the five vignette dimensions under investigation, the respondent's perceived probability of a criminal decision and the respondent's background characteristics, which are obtained from an interview following the vignette rating task.

C.   THE DETERRENCE CALCULUS

As discussed above, one primary purpose of the crimé opportu-

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[47] E. HANUSHEK & J. JACKSON, STATISTICAL METHODS FOR SOCIAL SCIENTISTS 45-65 (1977); D. KLEINBAUM & L. KUPPER, APPLIED REGRESSION ANALYSIS AND OTHER MULTIVARIATE METHODS 131-57 (1978).

[48] For a general description of using factorial objects, see Rossi & Anderson, *The Factorial Survey Approach*, in MEASURING SOCIAL JUDGMENTS: THE FACTORIAL SURVEY APPROACH, *supra* note 46, at 1.

TABLE 1
VIGNETTE DIMENSIONS AND LEVELS

TYPE OF CRIME*	RISK	PRISON	FINE	GAIN
Armed Robbery	0	0	0	5
Purse Snatching	5	Probation**	100	25
Tax Evasion	10	.5	200	50
Stealing from Store	20	1	400	100
Selling Heroin	30	2	600	250
Selling Marijuana	40	4	800	500
Embezzlement	50	6	1,000	750
	60	8	2,000	1,000
	70	10	4,000	2,000
	80	15	6,000	4,000
	90	20	8,000	6,000
	100	25	10,000	8,000
				10,000
				20,000
				30,000
				40,000
				50,000
				75,000
				100,000

* Three non-economic crimes were also used, but they are not discussed in this paper.
** For the data examined here, probation was arbitrarily coded as .25 years.

nity study is to reflect the knowledge gained from earlier deterrence research in an attempt to model the deterrence calculus that characterizes individuals of the general public. Considering the distribution of known criminal incidents in the United States, a single equation linear additive model, modified to include a block of dummy variables to represent the Crime Type dimension, was used initially in the analysis designed to explain variance in the vignette ratings made by white males, white females, black males and black females.[49] Subsequent analysis using a logarithmic model produces a significant improvement over the linear model in R^2 values for the four gender by race subsamples. The error term $(1-R^2)$, however, remained large for all subsamples, with the specified model being the most successful in explaining variance in white male vignette ratings.

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[49] *See* Anderson, Harris & Miller, *Models of Deterrence Theory*, 12 SOC. SCI. RES. 236, 245 (1983).

The findings, partly summarized in Table 2, represent at the subsample unit of analysis the perceived probability of criminal de-

TABLE 2
LINEAR MODEL REGRESSIONS SUBSAMPLE UNIT OF ANALYSIS

VIGNETTE DIMENSION	WHITE MALES	WHITE FEMALES	BLACK MALES	BLACK FEMALES
	β (σ$_\beta$)	β (σ$_\beta$)	β (σ$_\beta$)	β (σ$_\beta$)
GAIN[a]	.284**	.215**	.249**	.155**
	(.008)	(.011)	(.013)	(.018)
RISK	−.396**	−.347**	−.245**	−.188**
	(.007)	(.009)	(.011)	(.015)
FINE	−.489**	−.363**	−.327**	−.467**
	(.065)	(.092)	(.108)	(.145)
PRISON	−.640**	−.603**	−.464**	−.312**
	(.027)	(.037)	(.045)	(.060)
Crime Type[b]				
Purse Snatching	1.565*	1.092	.796	2.440
	(.794)	(1.102)	(1.305)	(1.794)
Tax Evasion	1.703*	2.584*	2.518	4.495*
	(.807)	(1.119)	(1.304)	(1.805)
Steal from Store	1.304	2.386*	2.204	5.589**
	(.795)	(1.125)	(1.314)	(1.791)
Sell Marijuana	6.050**	4.667**	7.631**	8.992**
	(.802)	(1.106)	(1.329)	(1.817)
Sell Heroin	.799	.432	−.842	2.392
	(.807)	(1.105)	(1.318)	(1.772)
Embezzlement	.142	1.252	3.171*	7.322**
	(.835)	(1.108)	(1.305)	(1.795)
Intercept	47.114	43.910	38.360	28.306
R^2	.244**	.197**	.117**	.078**
(N)	17,347	8,649	7,620	3,836

* p less than .05
** p less than .01
[a] The Gain and Fine coefficients have been multiplied by 1,000 and reflect the expected change in the vignette rating given a $1,000 increase in Gain or Fine net of other variables.
[b] Armed Robbery is the omitted category in a block of dummy variables to represent crime type.

cisions as a function of crime type,[50] economic gain, risk, fine, prison term and random error. Based on the subsample unit of analysis, it is clear that perceived criminal choices or decisions can

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[50] Seven different crime descriptions were rotated in vignettes in order to give respondents different crime scenarios to judge. The net effects of the various crime stems are not discussed in this paper.

be modeled. The partial regression coefficients representing the net effects of the vignette dimensions are statistically significant and in the predicted directions. As the gain from the hypothetical crime opportunity increases, the perceived probability of committing a crime increases. Likewise, as the certainty and severity of punishment increases, the perceived probability of illegal behavior decreases.

Based on the subsample unit of analysis, one could infer that white men, compared to the other gender by race segments of the population, are more likely to balance the cost of crime against the potential gain from crime when making decisions to approach or avoid criminal opportunities. Such an inference would permit the conclusion that the threat of severe sanctions best deters white men.

The analysis described above also suggests that aggregating the vignette ratings to the subsample unit of analysis can mask the structure of the individual's decision calculus. This approach could result in a misrepresentation of the degree to which the perceived probability of committing crimes is influenced by a consideration of the benefits and costs associated with criminal behavior for white males, white females, black males and black females. In other words, it is possible that the "within group" differences in the decision making calculus vary across the four gender by race segments of the general population. If "within group" differences vary considerably, the relatively high R^2 value for white males at the subsample unit of analysis would imply only that the individual white male is less likely than the individual black male, the individual black female or the individual white female to deviate from the values and norms governing white male perceptions.

One major purpose of this study is to examine individuals' differential subscription to normative systems that can influence the criminal decision. Thus, it is necessary to examine the individual respondent's calculus for balancing the perceived disvalue of punishment against the perceived value of gain.

D. THE INDIVIDUAL UNIT OF ANALYSIS

A crucial benefit of the factorial survey design is that it places no restrictions on the unit of aggregation for analysis. All vignette ratings can be pooled and analyzed together; subsamples of ratings can be analyzed separately (as discussed above); or the individual's vignette ratings can be analyzed. For this particular research, the individual respondent's decision making calculus is modeled in order to obtain the best representation of how the gender by race seg-

ments of the general population tend to value and disvalue the benefits and costs of crime when faced with criminal opportunities.

To explain variance in criminal opportunity judgments at the respondent unit of analysis, one functional form of an equation is specified for 751 separate O.L.S. analyses of vignette ratings. The final estimated function is of the form:

$$Y = \beta_0 + \beta_1 \log_e G + \beta_2 \log_e P + \beta_3 R + \beta_4 F + \Sigma\beta D_i + \epsilon,$$

where β_0 is the constant and β_k is the partial regression coefficient of the kth vignette variable. The meanings of the other terms are given below:

$\log_e G$ = Natural Logarithm of Gain in Dollars
$\log_e P$ = Natural Logarithm of Prison Time in Years
R   = Risk on a 0 - 100 Scale
F   = Fine in Dollars
D   = 0 - 1 Crime Dummies with Tax Evasion Omitted
ϵ = Stochastic Error Term with Usual O.L.S. Assumptions
Y   = Perceived Probability of Crime on a 0 - 100 Scale.

We used the single equation model to generate the respondent unit of analysis data. Each case in this particular data file contains the respondent's partial regression coefficients, the multiple R^2 value from the full equation, the mean vignette rating and the numerical values that represent such personal background characteristics as age, gender, race, income and level of education.

E.   GENERAL RESEARCH HYPOTHESES

A major conceptual flaw associated with popular variations of the deterrence doctrine is the implicit acceptance of widespread consensus over normative systems that make the penal sanction an especially disvalued punishment. This research, however, takes consensus as problematic. It examines perceptions about hypothetical crime opportunities based on the premise that meaningful segments of the general public may indeed subscribe to distinctive norms that guide their perceptions.

This study is principally concerned with crime opportunity norms that characterize the gender and race segments of the general population. We choose to focus on these particular segments because they show extreme and obvious differences in their proximity to crime and the criminal justice system.[51]

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[51] Major differences in crime opportunity judgments would be predicted among the age strata, occupational groups, and so forth.

F.   THE PROXIMITY PROBLEM

In terms of gender and race, the empirical picture shows that males and blacks are more likely than females and whites to be arrested for crimes or victimized by predatory offenses.[52] Additional indicators such as the composition of the prison populations[53] or offenders shot by police[54] reaffirm the notion that males, especially black males, are disproportionately represented within the criminal justice populations. The probabilities of predatory crime victimization, arrest and incarceration summarize an objective proximity to crime and the criminal justice process. Quite clearly, the race and gender segments are not equally proximite to crime and the criminal justice system at an objective level.

Moreover, there is some evidence for suggesting that the gender and race segments of the general population are not equally proximate to crime and the criminal justice system at the subjective level. A concern over crime, a fear of being victimized by violent crime, and perceptions of fairness in criminal justice can be used to summarize a subjective proximity to crime and criminal justice. Some researchers have found that females and blacks fear crime more than males and whites.[55] Others have found that blacks perceive more injustice than whites in the legal response to crime.[56]

G.   EXPECTED PATTERNS OF RACE AND GENDER DIFFERENCE

Premised on: 1) an expectation of a lack of normative consensus due to variations in objective and subjective proximity to crime and criminal justice, and 2) the salience of financial gain, punishment severity, and punishment certainty in the deterrence calculus, the following gender and race patterns are expected when examining perceptions of crime opportunities at the respondent unit of analysis.

(1)   Compared to males, females are expected to indicate a lower perceived probability of committing economically motivated crime.

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[52] *See* BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, SPECIAL REPORT: RE-PORTING CRIMES TO THE POLICE 4 (1985).

[53] Bureau of Justice Statistics, U.S. DEP'T OF JUSTICE, BULLETIN: PRISONERS IN 1985, at 4 (1986). *See* Christianson, *Our Black Prisons*, in THE CRIMINAL JUSTICE SYSTEM AND BLACKS 259 (D. Georges-Aveyie ed. 1984).

[54] Fyfe, *Blind Justice: Police Shootings in Memphis*, 73 J. CRIM. L. & CRIMINOLOGY 707 (1982); Geller & Karales, *Shootings of and by Chicago Police: Uncommon Crises*, 72 J. CRIM. L. & CRIMINOLOGY 1813 (1981).

[55] Liska, Lawrence & Sanchirico, *Fear of Crime as a Social Fact*, 60 SOC. FORCES 760, 762 (1982); Warr & Stafford, *Fear of Victimization: A Look at the Proximate Causes*, 61 SOC. FORCES 1033, 1040-41 (1983).

[56] *See supra* note 36.

(2)   The average black male deterrence calculus is expected to be as structured as the average white male calculus, when measured by respondent level R^2 values.

(3)   Norms for disvaluing punishment and for valuing gain, as they are represented by respondent level partial regression coefficients that model the deterrence calculus, are expected to vary across gender by race segments of the general population.

(4)   The Gain, Risk and Prison vignette dimensions are expected to be weighted more heavily by males than by females.

(5)   Regardless of gender and race, Prison and Fine measures of crime severity are expected to be less important in the deterrence calculus than Gain or Risk.

V.   FINDINGS

A.   SUMMARY MEASURES

Table 3 shows the gender by race distributions of two summary measures derived from the respondent unit of analysis examination

TABLE 3
SUMMARY MEASURES

(A) MEAN RATINGS — Judgment Tendencies		
Respondent Group	$\bar{X}$	σ
White Males (N=346)	29.505	14.523
White Females (N=172)	28.296	15.854
Black Males (N=151)	27.659	18.185
Black Females (N=77)	23.094	18.143
(B) EXPLAINED VARIANCES — Degree of Structure in Judgments		
Respondent Group	$\bar{X}$	σ
White Males (N=346)	.580	.172
White Females (N=172)	.561	.153
Black Males (N=151)	.555	.187
Black Females (N=77)	.588	.165

of vignette ratings. The respondent level mean vignette rating, displayed in the top panel of Table 3, is called the rating tendency and represents the overall perceived probability of committing economically motivated crimes. Separate variance estimates are used to identify statistically significant differences across pairs of mean rating tendencies. As expected, this analysis shows that the mean of the black female vignette rating tendency is substantially and significantly lower than either the mean of the white male or the black

male rating tendency. These data imply that, on average, black women perceive a lesser likelihood of committing crime than men.

These data, however, quite unexpectedly suggest that white women, faced with what are considered the "right circumstances" for committing crime, perceive that they are as likely as males to take advantage of a criminal opportunity. In the past decade, Simon[57] and Adler[58] among other criminologists predicted dramatic increases in the number of women in the arrest data.[59] Contrary to those predictions, no factual data indicate that women today are committing more serious crimes than they have in the past.[60] This study, however, suggests that some white women are experiencing at a subjective level a greater likelihood of committing crime than we anticipated.

The bottom panel of Table 3 shows the distribution of respondent level multiple R^2 values from the individual respondent level of analysis. The multiple R^2 values represent the degree to which the single equation used to model the respondents' perceived likelihood of criminal decisions summarizes the vignette dimension effects. As expected, but contrary to what a subsample level of analysis implies (see Table 2), there are no significant differences across the gender and race segments regarding the degree to which perceived criminal decisions are structured by the weighting and integrating of dimensions of information appearing in the vignettes.

When examining the standard deviations of the distributions of respondent R^2 values, one must note, however, that the values for black males and females are more dispersed than those for white males and females. The standard deviations suggest that to adequately represent black perceptions of crime opportunities, the black *individual's* perceptions must be analyzed. A subsample unit of analysis may only be appropriate for representing limited segments of the general population, i.e., those more likely to show consensus in judgments.

B.   NORMS GOVERNING PERCEPTIONS OF GAIN AND PUNISHMENT

Table 4 displays the gender by race distributions of the respondent level partial regression coefficients representing the net influences of Gain, Risk, Prison and Fine on the perceived probability of criminal decisions. The partial regression coefficients essentially re-

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[57] R. SIMON, WOMEN AND CRIME 105-10 (1975).

[58] F. ADLER, SISTERS IN CRIME: THE RISE OF THE NEW FEMALE CRIMINAL (1975).

[59] *Id.* at 250; R. SIMON, *supra* note 57, at 48.

[60] C. MANN, FEMALE CRIME AND DELINQUENCY 15-20 (1984); Steffensmier, *Sex differences in Patterns of Adult Crime 1965-1977*, 58 SOC. FORCES 1080, 1092 (1980).

TABLE 4
MEAN STATISTICS FROM INDIVIDUAL LEVEL REGRESSIONS

VIGNETTE DIMENSION	WHITE MALES	WHITE FEMALES	BLACK MALES	BLACK FEMALES
	$\bar{X}$ (σ)	$\bar{X}$ (σ)	$\bar{X}$ (σ)	$\bar{X}$ (σ)
Log Gain	3.585	3.059	3.062	2.289
	(2.516)	(2.250)	(2.758)	(2.895)
Risk	−.398	−.356	−.254	−.192
	(.259)	(.243)	(.311)	(.288)
Log Prison	−1.802	−1.420	−1.096	−.890
	(1.768)	(1.565)	(1.734)	(1.890)
Fine in	−.046	−.039	−.038	−.032
Hundreds	(.099)	(.095)	(.105)	(.103)
(N)	346	172	151	77

flect the respondent's accepted norms for valuing the financial gain from crime and for disvaluing the punishment associated with a criminal conviction.

The statistics displayed in Table 4 show that, as expected, members of the gender and race segments of the general population tend to subscribe to at least moderately different normative systems that guide perceptions of economic crime opportunities. Moreover, white men and black women appear to show the greatest differences in subscription to norms for valuing the gain from crime and disvaluing the various dimensions of punishment for crime. Regardless of the vignette dimension under consideration, the average white male partial regression coefficient is substantially larger than the average black female statistic.

C. STRENGTH OF EFFECTS

This particular application of the factorial survey design permits a comparison across and within the gender by race segments of the relative strengths of the vignette dimensions in a criminal decision calculus. When independent variables are orthogonal, as they are by design in this research, the sum of the squared standardized partial regression coefficients approximates the coefficient of determination. Thus, $\beta_i/\Sigma\beta_i^2$ was used to estimate the strength of the Risk, Prison, Gain and Fine dimensions. The resulting gender by race distributions of strength measures are displayed in Table 5.

TABLE 5
RELATIVE STRENGTH OF VIGNETTE DIMENSIONS*

DIMENSION	WHITE MALES	WHITE FEMALES	BLACK MALES	BLACK FEMALES
	$\bar{X}$	$\bar{X}$	$\bar{X}$	$\bar{X}$
Gain	.326	.239	.280	.256
Prison	.137	.115	.103	.094
Risk	.529	.395	.285	.258
Fine	.029	.039	.046	.040
(N)	345	172	151	77

* $\beta_i / \Sigma \beta_i^2$

The only finding congruent with expectations for race and gender differences in the weighting (or strength) of vignette dimensions concerns the average net effect of financial gain. Men, especially white men, are more strongly influenced than black men or black women by the punishment dimensions of certainty and severity (Risk and Prison) when judging crime scenarios.

Congruent with expectations for similarities in the deterrence calculus, the four gender by race groups indicate that the certainty of getting caught and convicted for a crime (Risk) has a stronger effect than the dimensions of crime severity (Prison and Fine) in the deterrence calculus. Moreover, the financial gain from a hypothetical crime appears to have a relatively strong influence on the crime opportunity judgments made by the typical respondent, regardless of gender or race.[61]

VI. CONCLUSIONS AND INTERPRETATIONS

The data analyzed in this research represent judgments about hypothetical criminal situations or the perceived probabilities of criminal decisions. How closely such judgments about social subjects correspond to behavior is a matter for speculation and empirical verification. What these data show and imply, however, with respect to how survey respondents subjectively value and disvalue the financial gain and the potential punishments associated with crime opportunities are important for understanding how legal

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[61] As J. Kim and C. Mueller show, the magnitudes of the standardized partial regression coefficients are influenced in part by the variance in the independent variables, in this research, a design effect. Kim & Mueller, *Standardized and Unstandardized Coefficients in Causal Analysis: An Expository Note*, 4 SOC. METHODS & RES. 423 (1976). Thus, within group comparisons of the strength of the different vignette dimensions must be interpreted with caution.

threats can be used effectively to discourage common criminal behavior.

Clearly this research shows that the threat of punishment is a central and multi-dimensional factor of information processed by individuals faced with perceived economically motivated crime opportunities. Most importantly, these data suggest that predatory crime control policies ought to focus on the certainty of punishment as the primary means for discouraging illicit behaviors. Thus, increasing the likelihood of a criminal conviction and criminal sanction is likely to be more effective than lengthening prison sentences under a deterrence based punishment scheme.

For individuals faced with criminal opportunities, punishment severity is more than an opportunity cost, i.e., foregone income. A better understanding of perceptions regarding the deprivations and stigmas associated with the penal sanction is needed before law makers and policy makers can attempt to deter crime with punishment severity. This research indicates that, to be effective, predatory crime control programs must neutralize or discount the value of financial gain from crime. Blocking criminal opportunities as well as providing legal opportunities for financial gain should be incorporated into social programs that are designed to ameliorate the predatory crime problem.

Deterrence based theory, law, and social policy cannot assume normative consensus. This research found at least moderate dissensus across the gender by race segments of the general population over normative guidelines for disvaluing the criminal sanction. Future theoretical and empirical work on the deterrence doctrine must examine variations in perceptions of both the upside and the downside of criminal opportunities across meaningful segments of the general population. Deterrence based laws or programs cannot be fully effective until we learn why, for some individuals, prison is not a threat worth avoiding.