

# **PREDICTORS OF DESISTANCE AMONG SEX OFFENDERS: THE INTERACTION OF FORMAL AND INFORMAL SOCIAL CONTROLS\***

**CANDACE KRUTTSCHNITT\*\***

**University of Minnesota  
Department of Sociology**

**CHRISTOPHER UGGEN\*\*\***

**University of Minnesota  
Department of Sociology**

**KELLY SHELTON\*\*\*\***

**Minnesota Department of Corrections**

Increasing attention is being given to the issue of desistance or cessation in adult criminal careers. We contribute to this research by considering how informal and formal social controls affect recidivism among 556 sex offenders placed on probation in 1992. We conduct an event history analysis of reoffense, based on the predictions of Sampson and Laub's and Gottfredson and Hirschi's control theories. We build on these perspectives by examining how informal social controls condition the effects of formal social controls generally and across offense types. We find less recidivism among offenders with stable job histories, particularly among those in court-ordered sex offender treatment. The results add both to theoretical formulations concerning desistance and recidivism and to policy formulations directed at growing prison populations.

---

\* We gratefully acknowledge the assistance of Will Alexander and Denise Hesselton, and of the Minnesota Department of Corrections, for providing access to the data for this paper. We also thank the three anonymous reviewers for their helpful comments. Points of view or opinions are those of the authors and do not necessarily represent the official views of the Minnesota Department of Corrections. Direct all correspondence to Candace Kruttschnitt, Department of Sociology, University of Minnesota, 267 19th Avenue South, Minneapolis, MN 55455.

\*\* Candace Kruttschnitt is a Professor and Chair of the Department of Sociology at the University of Minnesota. She has published extensively on the subject of female offenders, including both reviews of research pertaining to gender differences in etiology and primary analysis of criminal court sanctions. Most recently, she has undertaken a study (funded by the National Science Foundation) which seeks to replicate and extend Ward and Kassebaum's research on women's adaptations to incarceration. The research examines both temporal and institutional variations in women's prison experiences in California over a 30 year period.

\*\*\* Christopher Uggen is assistant professor of sociology at the University of Minnesota. His research addresses crime, law, and their relation to employment. Currently he is examining the socioeconomic determinants of illegal earnings (with Melissa Thompson) and the civic consequences of felon disenfranchisement (with Jeff Manza).

\*\*\*\* Kelly Shelton is currently an advocate for battered women. She obtained her M.A. degree in sociology at the University of Minnesota in 1998 and has worked as a research analyst for the Minnesota Department of Corrections.

With the recent focus on viewing crime from a life course or developmental perspective (e.g., Farrington 1992; Loeber and LeBlanc 1990; Matsueda and Heimer 1997; Sampson and Laub 1992), criminologists increasingly are turning their attention to the question of desistance or the cessation of criminal behavior. Most of the early work on desistance focused on the maturational reform process, or the apparent "aging out of crime." The decline in offending was thought to be a result of the "drift" associated with adolescent male status anxiety (Matza 1964), of the biopsychosocial changes that occur over time and reduce deviant motivations (Gove 1985), and even of changes in the opportunities and rational choices involved in committing crimes (Gartner and Piliavin 1988).

More recently, the search for potential turning points in deviant careers has centered on propositions from self-control and social control theories (Gottfredson and Hirschi 1990; Hirschi and Gottfredson 1995; Sampson and Laub 1993, 1995). As we will show, one of the main questions addressed here concerns the degree to which social bonds developed later in life affect the desistance process. Gottfredson and Hirschi argue that because low self-control is established early in life, criminality will be a stable trait over the life course; Sampson and Laub, however, see the potential for change with the reestablishment of informal social controls, through the adoption of social bonds, in adulthood.

In this theoretical context, the role of formal social controls, such as criminal justice sanctions, has received less consideration (Sherman 1993). Sampson and Laub (1993) estimated both direct and indirect effects of incarceration on long-term involvement in crime. Others have considered how probation and parole influence offending over relatively short periods (Horney, Osgood, and Marshall 1995). To date, however, we know of no study that has explicitly addressed the nature and extent of these formal controls, nor the degree to which they interact with informal social controls to affect subsequent changes in offending. This apparent lack of interest in the effects of formal control on adult criminal careers is surprising in view of the current focus on explaining individual variability in offending trajectories (e.g., Caspi and Moffitt 1992; Moffitt 1993); the concern among both academics and policy makers about increasing prison populations and the role that community-based sanctions could play in reducing these populations (Bennett, DiIulio, and Walters 1996; Blumstein 1994; Laub et al. 1995; LeClair and Guarino-Ghezzi 1991); and the fact that roughly two-thirds of all "correctional clients" in the United States are currently under supervision by probation officers (Petersilia 1997:149).

In the present study we address this gap in our knowledge and simultaneously contribute to the research on the determinants of desistance from criminal behavior. Specifically, we examine a variety of both informal and formal social controls that may explain or condition the adult offending patterns of a cohort of sex offenders. Our focus on this group may be particularly timely in light of the public's special concern about sex offenders' career trajectories and the virtual absence of information on the effectiveness of sex offender treatment as part of community corrections.

### INFORMAL SOCIAL CONTROLS

Sampson and Laub's (1993) age-graded theory of informal social control and Gottfredson and Hirschi's (1990) self-control theory have dominated recent attempts to explain stability and change in offending over the life course.<sup>1</sup> Sampson and Laub's theory makes three assertions: (1) Social bonds to family and school inhibit delinquency; (2) there tends to be continuity in antisocial behavior from childhood through adulthood; and (3) despite this trend toward continuity, desistance from crime is hastened by social ties to adult institutions. Support for this last assertion, that the development of adult social bonds is associated with the cessation of offending, is found in their analysis of the Glueck and Glueck data. Specifically, Sampson and Laub found that despite differences in the early childhood experiences of delinquents and nondelinquents, adult bonds to work and family produced similar outcomes in both groups. Strong adult attachments to work and marriage were associated with reduced criminal behavior and with desistance from crime. Similar findings have appeared in other longitudinal analyses of adult offenders (see, e.g., Farrington 1995; Farrington and West 1995; Horney et al. 1995).

Gottfredson and Hirschi's (1990) self-control theory offers a different perspective on stability and change in offending over the life course. These authors maintain that "criminality" (or criminal propensity) emerges as a result of ineffective childrearing; once this propensity is established, it is relatively constant throughout life. To explain the general decline of crime with age, they distinguish between crime (criminal events) and criminality (low self-control). The invariant age distribution of crime is a result of the decline in crime itself, rather than in criminal propensity, or criminality.

---

<sup>1</sup> These "pure" views have been complicated by the intriguing typologies or classifications of offenders developed by Moffitt (1993) and others (Bartusch et al. 1997; Nagin, Farrington & Moffitt 1995; Nagin and Land 1993). These researchers argue that specific characteristics of selected population groups produce distinctive offending trajectories, some of which may reflect time-invariant individual differences. For an comprehensive overview of this research, see Paternoster et al. (1997).

Although they do not directly address the etiology of this discontinuity, Gottfredson and Hirschi suggest a combination of factors that may serve as explanations: (1) the natural biological processes involved in aging, which cause most offenders to “burn out” over time (1990:115); (2) socialization, which occurs throughout life (1990:107); and (3) the reduction in exposure to criminal opportunities, which also covaries with aging (1990:136-37).

The low self-control that characterizes offenders, however, remains stable over the life course. It influences not only their propensity to offend but also their tendency to avoid attachment to, and involvement in, all interpersonal or job-related social institutions (Gottfredson and Hirschi 1990:165). Thus individuals with low self-control also should have difficulty in maintaining steady employment and satisfactory interpersonal relationships, regardless of their rate of offending.<sup>2</sup> According to Gottfredson and Hirschi, the factors that distinguish criminals from noncriminals are stable throughout the life course and can be determined without reference to concepts such as turning points, offending trajectories, or desistance.

### FORMAL SOCIAL CONTROLS

These theoretical perspectives adopt very different positions on the role of formal social controls in explaining desistance from crime. Sampson and Laub offer a state-dependence model in which incarceration has a criminogenic effect. Delinquency in childhood fosters adult crime because arrest and incarceration result in the “knifing off” of opportunities to participate in conventional social life (Sampson and Laub 1993:142). In their reanalysis of the Gluecks’ data, they found that incarceration had an indirect effect on reoffending: It reduced job stability, and this instability in turn contributed to continual involvement in crime. Thus, in Sampson and Laub’s theory of informal social control, continuity in crime is not simply a result of stable traits developed in childhood; it is also the product of social disadvantage and criminal justice sanctioning, which weaken bonds and limit social capital in adulthood.

By contrast, because Gottfredson and Hirschi regard low self-control as a persistent trait that is developed early in life, they view crime as highly resistant to both the informal social controls (e.g., attachment to prosocial peers, strong marital bonds, steady employment) that may occur later in life and the formal controls exerted by

---

<sup>2</sup> Gottfredson and Hirschi’s (1990:137) distinction between crime and criminality highlights the differences between traditional desistance theories and their age theory. Desistance theory posits that factors associated with age alter an offender’s criminal propensity; Gottfredson and Hirschi’s theory posits that propensity remains constant and that only criminal events decrease over time.

the criminal justice system (Gottfredson and Hirschi 1990:255-56). In fact, Gottfredson and Hirschi disregard not only the rehabilitative goals of sanctioning but also those of incapacitation. They argue that our inability to accurately predict and classify offenders, the considerable diversity of offending that results from low self-control, and the natural process whereby most offenders age out of crime produce policies that "are likely to mistake natural change for program effectiveness or waste considerable resources in treating or incapacitating [offenders]" (Gottfredson and Hirsch 1990:256).

### SEX OFFENDERS

For several reasons, sex offenders represent an important population in which to examine these two theoretical perspectives.<sup>3</sup> First, despite the claims of Gottfredson and Hirschi regarding criminal versatility, numerous researchers have found distinct types of offenders that can be arrayed along a criminal continuum according to their rates and age distributions of offending (see e.g., Cohen and Vila 1996; D'Unger, Land, and McCall 1998; Nagin et al. 1995; Nagin and Land 1993). Although relatively little is known about sex offenders' offense trajectories, there is considerable evidence of individual variability in recidivism among these offenders.<sup>4</sup>

In agreement with research on other types of offenders, it appears that both age at first arrest and extent of prior arrests are strong predictors of sex offenders' reoffense rates (Amir 1971; Furby, Weinrott, and Blackshaw 1989; Hall 1988; Hanson, Scott, and Steffy 1995; Hanson, Steffy, and Gauthier 1993; Pacht and Roberts 1968; Prentky, Knight, and Lee 1997; Rice, Quinsey, and Harris 1991; West 1983). Recidivism in this population has also been linked to the nature of their offenses and to victims' characteristics. Sex offenders are frequently partitioned or classified on the basis of the instant offense and their sexual preference (e.g., rapists, heterosexual pedophiles, homosexual pedophiles) as well as information pertaining to the victim's age and sex (Hall 1988; Hanson et al. 1993; Quinsey 1986). Although any classification scheme based solely on the instant offense would be misleading, some scholars have suggested that exhibitionists and pedophiles are more likely to recidivate than other offenders (Christiansen et al. 1965;

<sup>3</sup> Though the current study is framed by a sociological perspective, individual psychopathology in violent and sexual offending also may influence how offenders respond to formal and informal social controls (see, e.g., Harris, Rice and Cormier 1991; Harris, Rice and Quinsey 1994; Quinsey 1995; Quinsey and Chaplin 1988; Quinsey, Rice and Harris 1995; Rice, Harris and Quinsey 1990).

<sup>4</sup> Because sex offenses are severely underreported, most measures of recidivism underrepresent true reoffending rates. In the absence of self-report data, we have no other means of assessing recidivism and desistance in this population.

Gebhard et al. 1965). More recently it has been claimed that rapists have higher rates of sexual recidivism than child molesters (Quinsey, Lalumiere, et al. 1995) and, that, within the population of pedophiles, incest offenders have lower rates of recidivism than other child molesters (Furby et al. 1989; Hanson et al. 1993; Quinsey 1986; Revitch and Weiss 1962).

This second set of findings is particularly intriguing in light of the correlates of desistance identified both by Sampson and Laub and by Gottfredson and Hirschi. If the family, especially marital attachment, is critical to understanding desistance from crime, we would expect that the lower recidivism rate in incest cases is due to the effectiveness of family pressure in preventing recidivism (see Hanson et al. 1993; Quinsey 1977). On the other hand, if changes in the opportunities for crime are the key to understanding the decline in offending over the life course, we might expect that incest offenders and those who sexually assault family members would be less likely to desist from crime as their opportunities for offending become more readily available than those of offenders who target strangers (see Gottfredson & Hirschi 1990:128).

There is also a third way in which sex offenders present a unique opportunity to test these theoretical concepts. As stated above, Sampson and Laub argue that formal social controls have a criminogenic effect on offenders because they limit offenders' abilities to obtain the social capital, particularly the employment history, that facilitates desistance. Sex offenders have increasingly been subject to public scrutiny and legislative punitiveness, as characterized by the move (under criminal sexual conduct statutes) to arrest, prosecute, convict, and incarcerate more sex offenders (Anderson 1992; Chappell 1989; Spohn and Horney 1992). Even so, the great majority of these offenders are supervised in the community (Greenfeld 1997). Community supervision provides a natural laboratory for studying the life course perspective on desistance. In simple terms, it allows us to determine whether the social bonds to employment and family that are maintained, or are fostered as part of a community-based sanction, can cause discontinuity in crime, or whether, instead, treatment strategies and incapacitation policies are largely a waste of our time and energies.

### THE CURRENT STUDY

Decisions about what to do with sex offenders are often made without the benefit of theoretical insights or sound empirical evaluations. In the current study, we attempt to address this omission by exploring the role of informal and formal social controls as determinants of discontinuity in crime. Our data were obtained through a

retrospective study of all sex offenders ( $N = 556$ ) placed on probation in 1992 in the state of Minnesota, whose probation records and criminal histories were followed through June 1, 1997. We test two current applications of control theory by considering whether informal social controls (stable employment and marital attachment) predict desistance from crime and whether these bonds are conditioned by various formal social controls (e.g., the nature of probationary supervision, treatment requirements). The alternative theory predicts (1) that these controls will have no effect on desistance from crime, (2) that any observable decline in crime will be a result of stable individual propensities, aging, or a reduction in opportunities to offend, and (3) that offenders should continue to exhibit indications of low self-control (i.e., marital and job instability, alcohol and drug use). We employ event history analysis to model the time until reoffense.

## METHODS

### *Data*

The data to be analyzed were taken from the Minnesota Community-Based Sex Offender Program Evaluation Project. This project was designed to provide comprehensive data on all sex offenders placed on probation in Minnesota in 1992, including follow-up data on their conditions of probation, treatment requirements, and sanctions imposed on offenders who violated probation.<sup>5</sup>

For the purposes of this project, sex offenders included all adults who were convicted of criminal sexual conduct in the first through the fourth degree as established by Minnesota statutes. Although this population includes different types of sex offenders, it is not representative of the general population of sex offenders. The mandate for this project and the requirements of the Minnesota sentencing guidelines caused certain categories of individuals to be excluded from this study: (1) offenders convicted of less serious forms of sexual conduct (fifth-degree criminal sexual conduct, a misdemeanor), even if they were charged initially with a felony; (2) offenders with presumptive prison sentences, based on their criminal history scores and current conviction offense;<sup>6</sup> and (3) offenders

---

<sup>5</sup> The project was funded by the Minnesota State Legislature as a result of the passage of Minnesota Statute 241.67, subd. 8. This statute required the Commissioner of Corrections to develop a long-term project that would provide (1) reoffense data on each sex offender for 3 years following completion or termination of treatment and (2) the data necessary to form the basis of a coordinated, effective statewide system of sex offender treatment programs (Community-Based Project 1995).

<sup>6</sup> A Minnesota judge can depart from sentencing guidelines that mandate prison for any of the four degrees of felony criminal sexual conduct if he or she orders treatment or believes that such departure would preserve the family unit. This latter condition is used most often to ensure the offender's financial support of the family.

who were charged with multiple offenses and who, in the process of pleading, dropped their sexual offense. Both the most serious sex offenders and those who are able to avoid detection are likely to be underrepresented in this study. Despite these limitations, this population of probationers represents the great majority of known sex offenders in Minnesota, three times the number currently housed in state correctional facilities (Community-Based Sex Offender Program Evaluation Project 1995:6).

Retrospective data collection, initiated in 1995, included information contained in the presentence investigation report (PSI), the original criminal complaint, available psychological and medical assessments, and progress reports from treatment centers and probation officers. Reoffense data were compiled from criminal history checks and other follow-up investigations until June 1, 1997.<sup>7</sup> Minnesota Department of Corrections researchers verified the reliability of the demographic, historical, and criminological variables compiled by specially trained coders.

### *Measures*

Our model of desistance suggests relationships among a variety of informal and formal social controls and two measures of recidivism. Unfortunately, scholars have not agreed on a measure of recidivism for sex offenders. Scholars have focused on whether convicted sex offenders commit any new criminal acts, any new sexual offenses, and/or a new sexual offense that mirrors their prior behavior.

In this study, we first examine a general reoffense measure and then disaggregate reoffense into personal and nonpersonal categories. The former operationalizes desistance as the absence of any new crime or probation violation; the latter, as the absence of new personal offending. We further disaggregate personal crimes into sex offenses and nonsex personal crimes.

Gottfredson and Hirschi's (1990:256) theory emphasizes the diversity of behaviors that flow from low self-control. Because these scholars argue that the causes of truancy are the same as the causes of drug use, assault, or auto accidents, they believe that desistance among sex offenders should encompass desistance from all new offenses, regardless of type. Thus we examine a broad measure

---

<sup>7</sup> The offenders in this project are overrepresented in some counties (especially the metropolitan area encompassing Minneapolis and St. Paul) and underrepresented in others. This disparity pertains more to the access to information at the beginning of the project than to the proportionate representation of offenders in particular counties.

of desistance from reoffending which includes either a probation violation or an arrest for a new crime. Probation violations usually were recorded when offenders failed to comply with one or more of their special conditions of probation (e.g., by using alcohol or drugs or by refusing treatment).<sup>8</sup>

Research on sex offenders, as well as public concern, also directs attention to the rate at which sex offenders desist from sex offenses (Furby et al. 1989:8). In two three-year Bureau of Justice Statistics (BJS) follow-ups of felons placed on probation, rapists had a lower rate of rearrest for a violent crime than did most other violent offenders. Yet they were more likely than others to be rearrested for a new rape (Greenfeld 1997). Thus our second outcome measures desistance from sex or other personal offending. It includes any new charges, arrests, or convictions for criminal sexual conduct as well as probation violations that indicate their offending pattern (e.g., having contact with minors, contacting the victim). Because of specification of outcome variables, we must control for statewide differences in offenders' probabilities of being detected for new sex offenses. Urban counties in Minnesota often have probation officers whose caseloads are targeted to sex offenders; therefore we control for urban county in our analyses.

Employment and marital stability are the informal social controls specified in Sampson and Laub's age-graded theory. Job stability was recorded in the PSI; we measure it by determining whether the probationer had been working for at least six months with the same employer. Job stability thus indicates a stable employment history rather than stability over the observation period. We gauge marital stability by examining marital status at two points: the time of offense and the time of sentencing. This allows us to estimate the effects of formal criminal justice processing on informal social controls. Gottfredson and Hirschi's general theory of crime focuses on age and on opportunities for offending as sources of the decline in crime. Because incest offenders may have a unique set of opportunities for committing their offenses, we include, as an indicator of opportunity, whether the offender was living with children at the sentencing stage.

We use the following aspects of probation to measure formal social control: whether drug testing was ordered as a condition of probation, whether the probationer was ordered to avoid contact with minors, and whether the offender was required to attend a sex

---

<sup>8</sup> For a comprehensive overview of the three types of probation conditions — standard, punitive, and special/treatment — usually required by judges, see Peterilia (1997).

offender treatment program. To isolate the net effects of drug testing on the likelihood of recidivism, we also hold constant the offender's level of alcohol and drug use.

Finally, we control statistically for a number of variables shown in prior research to be important predictors of recidivism: sex, race, prior criminal history (including evidence of youthful offending), and offense seriousness (Furby et al. 1989; Hanson et al. 1995). Formal sanctions tend to vary directly with offender's history and with offense severity. Therefore, to isolate the independent effects of informal and formal social controls, we must adjust estimates for individual differences in criminality, or the offenders' stable preexisting characteristics. In multivariate models we include measures of prior criminal history, a summed official criminal history score derived from the Minnesota sentencing guidelines, and youthful offending, which captures the presence of a juvenile arrest (age 16 or younger). Our measures of offense seriousness are the length of the probationary sentence and the presence of injury to the victim.<sup>9</sup> We also attempt to control for the type of sex offender because research shows that the probability of reoffending is higher among pedophiles than among other sex offenders and lower among incest offenders than among other child molesters (Furby et al. 1989; Hanson et al. 1993; Quinsey 1986; West 1983). Thus our analysis includes both the victim's age and the offender's relationship to the victim.

### *Analysis*

A model of desistance from sex offending must be sensitive both to the duration of time before reoffense and to changes in reoffense status over time. Accordingly, for this project, event history analysis has several advantages over cross-sectional designs: (1) it makes estimates of explanatory variables more precise; (2) it helps to determine the temporal order of the explanatory and outcome variables; and (3) it provides an appropriate model of censored cases (those who never reoffended) over varying observation periods.<sup>10</sup>

<sup>9</sup> Initially we considered using length of probationary sentence as a measure of formal social control. These data, however, show little variation over the 5-year observation period: Fewer than 6% received probationary sentences of less than 5 years.

<sup>10</sup> Because probationers entered the risk set on different dates in 1992 and because the observation period ends on June 1, 1997 for all offenders, the duration of time at risk varies across the subjects. This form of random censoring is "noninformative" and it therefore is unlikely to bias estimates of the effects of independent variables (Allison 1995:13; Cox and Oakes 1984:5). Nevertheless, we initially included a covariate for entry time in each multivariate model to adjust estimates for differences in time at risk. Because this term never approached statistical significance in any equation and had only a trivial effect on the other estimates, we excluded it from our final models.

We estimate Cox's proportional hazard model (Cox 1972) to identify sources of variation in the timing of recidivism. In this model, the dependent variable is the natural logarithm of the hazard of reoffense, defined as an instantaneous probability. We define duration to reoffense as the difference between the reoffense date and the date of sentencing, less the time served in jail.<sup>11</sup> The Cox model does not require the selection of a particular distribution for survival times because the estimation method maximizes a partial likelihood that leaves the baseline hazard unspecified. We estimate the model as follows:

$$\log h_i(t) = \alpha_0(t) + \beta_1 X_{i1} + \dots + \beta_k X_{ik},$$

where  $\alpha_0(t)$  represents the natural logarithm of the unspecified baseline hazard function at time  $t$ ;  $X_1$  represents explanatory variables; and  $\beta_1$  represents the effects of these variables.

Cox's proportional hazards model assumes that for any two persons, the ratio of their hazards is a constant that does not vary with time. This implies that covariates raise or lower individual hazard rates by a constant multiple at all time points. We selected the Cox model rather than nonproportional piecewise models because we do not hypothesize interactions between our independent variables and time and because there were too few probation failures in any given interval to produce stable estimates. Moreover, we are interested primarily in determining the effects of informal and formal controls, rather than in modeling the duration structure of recidivism.

First, we present descriptive statistics and nonparametric survival plots for the probation population. Second, we build multivariate models of desistance to examine the effects of covariates on reoffending, using proportional hazards models. Third, and finally, we examine the predictors of different forms of recidivism, using competing-risks proportional-hazards models. We gauge the relative importance of probation, age-graded informal controls, and opportunities for offending with both additive and interactive models of the time until reoffense.

---

<sup>11</sup> In some cases the actual amount of jail time served was not recorded in the offender's files. In these instances we calculated duration to new offense by subtracting from the date of sentencing 67% of the jail time assigned by the judge: Offenders receiving a jail term as a condition of probation in Minnesota are required by state law to serve two-thirds of their jail sentence.

## RESULTS

*Descriptive Statistics*

Table 1 shows mean values for each of the independent variables in the analysis and displays the standard deviations for continuous independent variables. The great majority of sex offenders in Minnesota, as elsewhere, are male. Approximately two-thirds had victimized a child age 15 or under; and about 36 percent had victimized a family member. Alcohol use and other drug use are measured by a six-point scale ranging from no use to addiction or very heavy use. Because this is a sample of probationers, few of the offenders had early or extensive criminal histories: Only about 3 percent were arrested before age 17. The probationers averaged 33 years of age, with a range from 17 to 82. At the time of arrest, half reported job stability for six months or more, and 40 percent were married or cohabiting.<sup>12</sup> By the time of their sentencing, however, only 31 percent were married or cohabiting; this finding suggests that formal processing for the instant offense may have disrupted family stability for some offenders. More than two-thirds of the sample were required to attend sex offender treatment programs; smaller percentages were assigned other conditions of probation.

**Table 1. Characteristics of Minnesota Sex Offenders Placed on Probation in 1992**

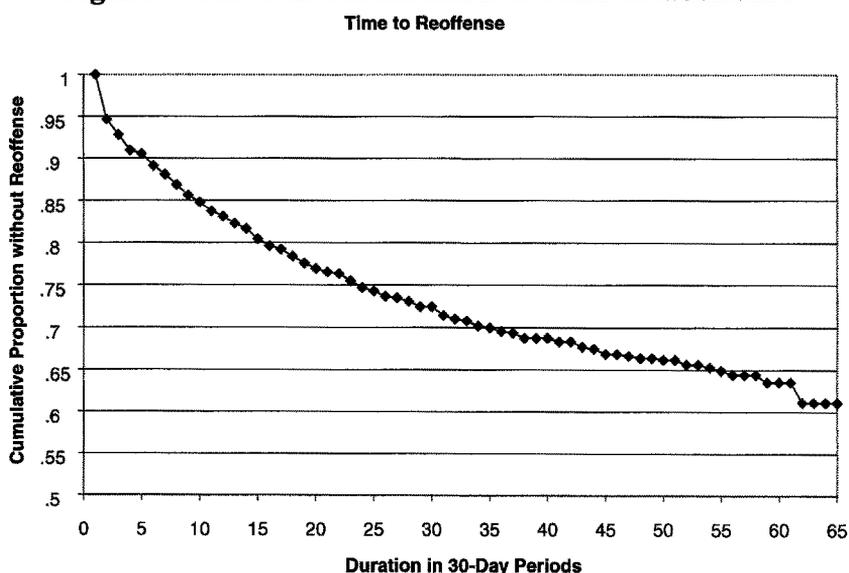
Variable	Mean	SD
Percent Female	3%	
Percent Nonwhite	20%	
Percent in Urban County	31%	
Percent with Juvenile Arrest	3%	
Criminal History Score	.44	(1.05)
Percent with Child Victim	66%	
Percent with Familial Victim	36%	
Percent with Victim Injury	51%	
Length of Probation in Years	12.49	(8.29)
Degree of Drug Use (6-point scale)	.76	(1.52)
Degree of Alcohol Use (6-point scale)	2.27	(1.52)
Percent Living with Children	19%	
Age	33.08	(12.87)
Percent with Stable Employment	50%	
Percent Married at Sentencing	31%	
Percent Married at Offense	40%	
Percent with Drug Test Condition	21%	
Percent with Sex Offender Treatment Condition	68%	
Percent with "No Contact" with Minors Condition	30%	

<sup>12</sup> Only 30 of the probationers were cohabiting and 188 were legally married at the time of offense. Because marriage involves a greater commitment than cohabitation, we also examined models in which cohabitants were excluded from the marital category. The results are virtually identical to those presented below.

### Nonparametric Results

Figure 1 shows the cumulative proportion of probationers who had not yet reoffended by thirty-day periods. The risk of reoffending is highest immediately after release; fewer probation failures occur later. After 12 30-day intervals or one year on probation, approximately 83 percent of the sample had not yet reoffended. After two years, 75 percent remained in a state of desistance. As of June 1997, when most offenders had been free at least five years, about 65 percent had not yet reoffended.<sup>13</sup>

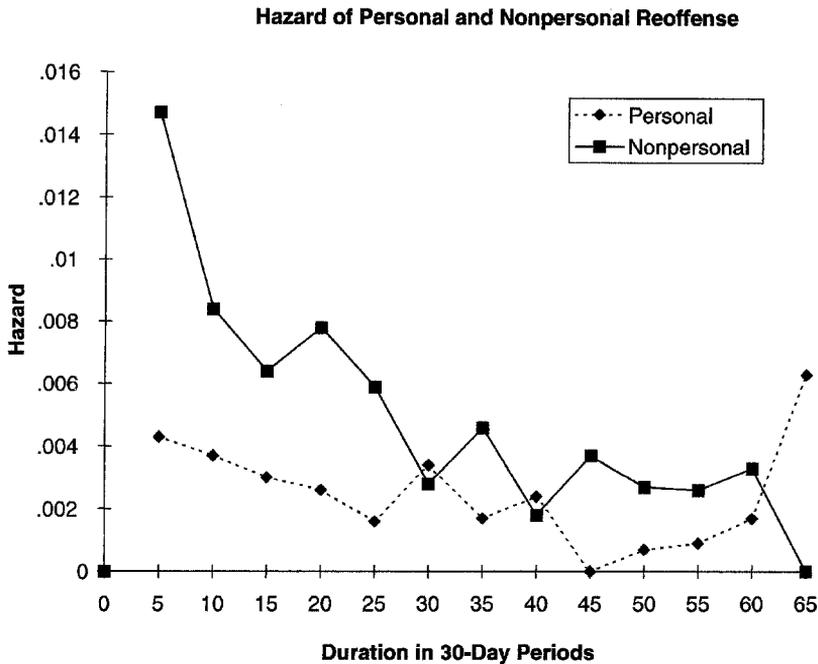
**Figure 1. Survival Distribution of Time to Reoffense**



In contrast to the “any reoffense” outcome, relatively few probationers were rearrested for new crimes against persons. Figure 2 shows the hazard distributions for new personal and nonpersonal offenses. The hazard of nonpersonal reoffending follows a monotonically declining trend. The hazard of personal reoffending is low and declines over the first two years (or 24 30-day periods); it fluctuates erratically in later durations, when fewer probationers are at risk. Overall about 10 percent were rearrested for a sex offense or other personal offense over the observation period, and about 90 percent had desisted from these activities. When the analysis is limited to new sex offenses, only 5.6 percent reoffended within five years. In summary, the majority of probationers remained in a state of desistance throughout the observation period. Of those who reoffended,

<sup>13</sup> We excluded from the analysis five offenders who failed before their release from jail and never reentered the risk set. In these cases, new charges were brought for past offenses, and the probationer was never at risk of reoffense.

**Figure 2. Hazard Plots for Personal and Nonpersonal Reoffenses**



only a relatively small proportion committed new crimes against persons.

#### *Multivariate Model of Reoffense*

Five multivariate specifications of formal and informal control are shown in the model for any reoffending displayed in Table 2. Model 1 includes only baseline criminality and offender characteristics. As expected, those with juvenile arrests and higher criminal history scores were more likely to reoffend. The exponentials of these proportional hazards estimates may be interpreted in terms of relative risks; thus the .79 coefficient for juvenile arrest corresponds to a 120 percent increase in the rate of reoffense among those with a juvenile arrest record relative to those without such a record. Net of residence in the state's two largest counties, non-white offenders were significantly more likely to reoffend than white offenders. In agreement with prior research, those who victimized children had about a 48 percent greater risk of reoffending, though intrafamilial offenders were less likely to reoffend than those who victimized outside their family.<sup>14</sup>

<sup>14</sup> Both of these relationships hold in the bivariate case as well as the multivariate model.

**Table 2. Estimates from Proportional Hazards Models Predicting Any Reoffense (N = 422)**

	Model 1	Model 2	Model 3	Model 4	Model 5
Female	-.42 (.72)	-.47 (.73)	-.62 (.73)	-.59 (.73)	-.61 (.73)
Non-White	.53** (.21)	.42* (.21)	.33# (.21)	.30# (.21)	.30# (.22)
Urban County	-.19 (.19)	-.13 (.19)	-.12 (.19)	-.15 (.20)	-.17 (.20)
Juvenile Arrest	.79* (.35)	.68* (.35)	.61* (.36)	.61* (.36)	.52# (.36)
Criminal History Score	.15* (.09)	.17* (.09)	.16# (.10)	.16# (.10)	.18* (.10)
Child Victim	.39* (.20)	.41* (.20)	.37* (.20)	.35* (.20)	.34* (.20)
Familial Victim	-.34# (.20)	-.17 (.21)	-.16 (.22)	-.18 (.22)	-.21 (.22)
Victim Injury	.07 (.11)	.05 (.11)	.06 (.11)	.07 (.11)	.08 (.11)
Length of Probation	-.01 (.01)	-.01 (.01)	-.01 (.01)	-.01 (.01)	-.01 (.01)
Drug Use	.15** (.05)	.13* (.06)	.11* (.06)	.10* (.06)	.10* (.06)
Alcohol Use	.04 (.05)	.04 (.05)	.05 (.05)	.04 (.06)	.03 (.06)
Living with Children		-.26 (.25)	-.15 (.30)	-.18 (.30)	-.12 (.30)
Age		-.03** (.01)	-.02* (.01)	-.02* (.01)	-.02* (.01)
Job Stability			-.46** (.19)	-.46** (.19)	.02 (.33)
Married at Sentencing			-.14 (.29)	-.15 (.29)	-.35 (.51)
Marital Disruption			.12 (.33)	.08 (.33)	.03 (.33)
Drug Testing Condition				.26 (.21)	.28# (.21)
Sex Off. Treatment Condition				.11 (.20)	.33 (.27)
No Contact				.01 (.21)	-.01 (.21)
Job Stability x Sex Treatment					-.68# (.40)
Marital Status x Sex Treatment					.26 (.52)
-2 Log L	1562.6	1552.2	1545.0	1543.4	1540.5
Chi-Square (df)	52.8** (11)	60.7** (13)	67.8# (16)	70.1 (19)	73.1 (21)
Generalized R <sup>2</sup>	.118	.134	.149	.153	.159

#  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$  (directional tests)

Model 2 adds to the baseline model the effects of age and the probationer's living arrangements at time of sentencing.<sup>15</sup> Age has a strong negative effect on reoffending: Each one-year increase in

<sup>15</sup> The chi-square value reported at the bottom of Model 1 in Table 2 is the likelihood-ratio chi-square statistic for the global test examining whether all coefficients are equal to zero. The significance levels of the chi-square statistics reported for Models 2-5 reflect the significance of the difference between the model in question and the previous model.

age at sentencing reduces the hazard of reoffense by about 3 percent, net of the other covariates. Following Gottfredson and Hirschi, we assumed that those living with children should have greater opportunity to reoffend. For this probation sample, however, this is not the case. One explanation for this finding is that the criminal justice system, through probation conditions and sentencing guidelines, screens out those who are most at risk for victimizing children, so that those who are *permitted* to live with children are least likely to reoffend. Another explanation, however, is consistent both with Sampson and Laub's view of informal social controls and with prior research. According to this view, family pressure may help to prevent recidivism among officially reported incest offenders (Quinsey 1977).<sup>16</sup>

The informal social control measures of employment and family stability are added to Model 3. The likelihood-ratio chi-square test suggests that the inclusion of these factors marginally increases the model's explanatory power. Those with stable employment at the time of sentencing were approximately 37 percent less likely to reoffend than those with less stable employment histories. Marriage or cohabitation at sentencing also reflects stability: Almost one-fourth of the unions dissolved between the arrest and the sentencing stage. This effect is negative, as in previous research on recidivism among sex offenders (Hanson et al. 1993), though not statistically significant. Probationers whose union had dissolved had a nonsignificantly higher rate of reoffending than probationers who previously were unattached.<sup>17</sup> The informal social controls partially mediate the race effect observed in Models 1 and 2. In fact, whites are almost twice as likely as nonwhites to report stable employment (55 percent vs. 29 percent), and job stability is a strong negative predictor of reoffense across both race categories.<sup>18</sup>

None of the formal social control indicators are statistically significant in Model 4, although we caution again that these variables are unlikely to be completely exogenous. The positive sign of the drug testing effect, for example, is more likely to reflect unmeasured individual variation in drug use (although we adjust for such heterogeneity with a control for drug use history) than any criminogenic effect of this probation condition.

---

<sup>16</sup> We also tested for interactions between child victim and living arrangements and between intrafamilial victim and living arrangements. Because none of these interactions approached statistical significance, we present the additive models.

<sup>17</sup> We also modeled marriage using change score and static score specifications (Finkel 1995). In no case was marriage a significant predictor of reoffense.

<sup>18</sup> Because we use official rather than self-reported reoffense measures, the remaining marginally significant race effect may be due in part to legal biases against African-Americans or other racial minorities.

Although these formal controls have no significant additive effects on the probability of desistance, we find some evidence of a reduction in offending rates when they are combined with informal social controls. Model 5 tests for the interaction of informal controls with formal controls. Because the joint interaction model does not significantly improve the overall fit, the interaction results must be interpreted cautiously. Nevertheless, sex offender treatment appears to be more effective among offenders with stable employment than among those without stable employment. In this model, the job stability coefficient indicates the effect of job stability among those not assigned to treatment; the treatment coefficient indicates the effect of treatment among those with unstable work histories. Both estimates are nonsignificant and positive. The interaction coefficient indicates the estimated difference in the effectiveness of sex offender treatment across levels of job stability. Although the interaction term is only marginally significant, the relative risk of reoffense is about 50 percent lower for those entering treatment with stable employment than for those entering treatment without it.

### *Multivariate Competing-Risks Models*

The models presented in Table 2 treat all reoffenses as if they are identical. Yet some "failures," as measured by this global reoffense outcome, are more serious than others. A sex offender who is arrested for a new rape offense, for example, represents a qualitatively different type of recidivism than a sex offender who violates a probation condition. In the analysis of competing risks below, we contrast failures for sex offending and other personal offenses with failures due to probation violations, property offenses, drug- and alcohol-related offenses, and traffic or other offenses. According to Gottfredson and Hirschi (1990), we should expect similar predictors across all types of offenses: Age, criminal history, and drug use should be associated with each outcome. If sex offenders are likely to specialize, however, we should expect the effectiveness of formal and informal controls to vary across these outcomes. Sex offender treatment, for example, may exert its strongest effect on new sex crimes. The competing-risks analysis assumes that the occurrence of one type of event removes the probationer from the risk set for the other event. Because these offenders' probation is likely to be revoked for either type of offense, this assumption is reasonable for this research setting.

Table 3 presents estimates from trimmed models of reoffending, which include each of the significant predictors included in

**Table 3. Estimates from Trimmed Models Predicting Any Reoffense and Competing Risks Models, by Reoffense Category (N = 448)**

	Any Reoffense or Violation		Personal vs. Nonpersonal Crime		Non-Personal Reoffense		Sex vs. Nonsex Personal Crime		Sex vs. Nonsex Personal Crime	
	Any New Offense	New Personal Crime	New Personal Crime	Non-Personal Reoffense	New Sex Crime	Non-Sex Personal Crime	New Sex Crime	Non-Sex Personal Crime	New Sex Crime	Non-Sex Personal Crime
Criminal History	.25*** (.08)	.21# (.15)	.21# (.16)	.26** (.09)	.26# (.18)	.27# (.18)	.09 (.29)	.09 (.29)	.09 (.29)	.07 (.29)
Child Victim	.36* (.18)	.05 (.32)	.00 (.32)	.50* (.22)	-.14 (.42)	-.19 (.42)	.39 (.50)	.39 (.50)	.39 (.50)	.35 (.50)
Drug Use	.16*** (.05)	.19* (.08)	.19* (.08)	.15** (.06)	.11 (.12)	.12 (.12)	.29** (.12)	.29** (.12)	.29** (.12)	.30** (.12)
Age	-.02** (.01)	-.04* (.02)	-.04* (.02)	-.02* (.01)	-.01 (.02)	-.01 (.02)	-.10** (.04)	-.10** (.04)	-.10** (.04)	-.09** (.04)
Job Stability	-.55*** (.17)	-.57* (.33)	.12 (.50)	-.54** (.20)	-.47 (.42)	.38 (.71)	-.65 (.55)	-.65 (.55)	-.65 (.55)	-.01 (.72)
Sex Off. Treatment	-.11 (.18)	-.28 (.32)	-.11 (.40)	-.04 (.21)	-.05 (.44)	.45 (.59)	-.53 (.48)	-.53 (.48)	-.53 (.48)	-.19 (.56)
Job x Sex Treatment	-.78* (.36)		-.13* (.65)		-.64# (.43)	-.124# (.88)				-.127 (1.07)
Number of Events	153	44	44	109	25	25	19	19	19	19
-2 Log L	1739.0	488.8	485.9	1245.9	290.1	288.1	190.0	190.0	190.0	188.5
Chi-Square (df)	64.4*** (6)	25.4*** (6)	27.4* (7)	43.1*** (6)	6.9 (6)	8.8# (7)	25.9*** (6)	25.9*** (6)	25.9*** (6)	26.3 (7)
Gen. R <sup>2</sup>	.134	.055	.059	.092	.015	.019	.056	.056	.056	.057

# p < .10; \* p < .05; \*\* p < .01; \*\*\* p < .001 (directional tests)

Model 5 of Table 2.<sup>19</sup> The first two columns of Table 3 show results of the trimmed model for any reoffense. Of the 153 reoffenders, only 44 were rearrested or reconvicted on a new personal offense. When those who commit new personal crimes are compared with those who reoffend in other categories, the estimates vary little across the two equations; we cannot reject the global null hypothesis that all coefficients are equal across these equations.<sup>20</sup> Those who victimized children were no more likely to commit a new personal crime than those who had not victimized children, though child victimization is a significant predictor in the nonpersonal reoffense category.<sup>21</sup> Criminal history, drug use, and age predict both types of offending. Job stability effects are roughly equal in magnitude for personal and nonpersonal offenses: The relative risk of reoffense is reduced by about 40 percent in each of the additive models. Again, job stability appears to interact with sex offender treatment programs, though the magnitude of the interaction is much larger for personal than for nonpersonal reoffenses.

In the next set of competing-risks models, we further divide the personal offense category into those who commit new sex crimes and those who commit other new personal crimes, such as robbery. In this way we learn whether those who may specialize in sex offenses are distinct from other offenders. Because both categories contain so few events, the standard errors of the estimates are much larger and the test statistics are much smaller than in the general reoffense models. Moreover, aside from criminal history and job stability, the individual coefficients for the sex-specific crime models are small in magnitude as well as significance. Therefore the overall model for new sex crimes provides a poor fit to the data; we cannot reject the null hypothesis that all of the coefficients are zero.

The predictors of other (nonsex) personal crimes, in contrast, tend to mirror the predictors of nonpersonal reoffending; drug use and age are the most powerful determinants. Age has a particularly strong negative effect on this outcome: Each additional year of age

---

<sup>19</sup> We estimate trimmed models for the competing risks analysis because there were too few failures for new sex offenses or other personal offenses to permit estimation of the full models in Table 2.

<sup>20</sup> To test whether  $\beta_j = \beta$  for all  $j$  event types, we summed the  $-2$  log-likelihoods for the personal and nonpersonal offense models and deviated the result from the  $-2$  log-likelihood for the model for any reoffense (Allison 1995:198). This provides a likelihood ratio chi-square statistic with degrees of freedom equal to the number of additional parameters estimated (in this case, 7).

<sup>21</sup> We conducted a one-degree-of-freedom Wald chi-square test for the difference in this effect across the two equations by dividing the square of the difference between the two estimates by the sum of the squared standard errors (see Allison 1995:199). In this case, the test fails to reject the null hypothesis that the child victim effect is equal across the two outcomes.

contributes to a 9 percent decline in the rate of other personal crimes. Further, the difference in the age effect between new sex crimes and other personal crimes is statistically significant at the .05 level.<sup>22</sup>

Although results from the competing-risks models must be treated cautiously because of the small number of reoffenses in several categories, two findings emerge consistently. First, we find that a history of job stability exerts a negative effect on all types of offending. Second, we find a robust interaction between job stability and court-ordered sex offender treatment — that is, between informal and formal social controls.

## DISCUSSION AND CONCLUSION

These findings partially support Sampson and Laub's (1993) age-graded theory of informal social control and highlight the role of formal criminal justice processing in hastening desistance among sex offenders. Sampson and Laub argue that offending trajectories may be altered when links to adult institutions — particularly marriage and employment — are forged. By contrast, Gottfredson and Hirschi (1990) assume that once criminality (or low self-control) is established, offending declines primarily as a result of aging and reduced opportunities for offending. We find that job stability significantly reduces the probability of reoffending among convicted sex offenders, although marital status exerts virtually no effect. In fairness to Sampson and Laub, however, a plausible explanation for the absence of a marriage effect is our inability to capture the quality and duration of the marital relationship. Sampson and Laub argue that the strength of the marital attachment, not merely its existence, is critical to a reduction in criminal behavior (also see Laub, Sampson, and Nagin 1998). Nevertheless, spouses who remain in unions with convicted sex offenders certainly demonstrate marital commitment and informal social control.

The overall comparability of the effects across different offense types tends to support Gottfredson and Hirschi's theory of low self-control. Additional evidence for the theory appears with the age effects: Increasing age produces a significant decline in crime across all but the new sex offending models. (Even this effect, however, is reduced somewhat when controls for job stability and marriage are introduced.) Nevertheless, the interactions between informal and

---

<sup>22</sup> The chi-square value for the difference test discussed in the previous note is 3.88. The global test examining whether corresponding coefficients are equal across the two offense types approaches marginal statistical significance for the additive model ( $p < .2$ ).

formal social controls and the competing-risks models raise questions about the Gottfredson and Hirschi model. As stated earlier, Gottfredson and Hirschi (1990:256) argue that virtually all correctional enterprises, especially those directed toward rehabilitation, are ineffectual because offending does not lend itself either to classification or to prediction, and responds only to the biological process of aging.

We found that when those with stable work histories receive sex offender treatment, reoffending declines significantly. In addition, though the predictors of reoffending are similar across offense categories, some potentially important subgroup differences emerged in our analysis. In fact, for the small number of respondents whose reoffense was a new sex offense, the only factor that even marginally reduces their risks of reoffending is the combined effect of stable employment and sex offender treatment. Further, this group of repeat sex offenders, unlike other members of their probation cohort, apparently is impervious to the effects of aging and drug use. Given the overrepresentation of child molesters in this study and the previous findings of specialization among pedophiles (Hall and Proctor, 1987), perhaps such resilience is particularly characteristic of this group of sex offenders.

These results raise several important theoretical and policy issues. On a theoretical level, we must ask how the combined effects of treatment and employment engender desistance. Sampson and Laub's theory does not specifically address community-based corrections; instead, it directs attention to the negative effects of incarceration on long-term job stability. Yet in a later publication, these authors advocate greater use of community-based sanctions, such as probation, to ensure that offenders have the potential to remain employed or to develop connections to potential employers (Laub et al. 1995:100-101). They also suggest that the community response to offenders is an important component of adult desistance from crime. Citing Braithwaite's notion of reintegrative shaming, Laub and his colleagues (1995:102) argue that offenders must receive a chance to develop the social capital necessary to deter them from future offenses.

Unfortunately, given the nature of our data, we cannot determine whether these offenders acquired the social capital that produced their apparent desistance before they were placed on probation or whether their current employment, in connection with community-based treatment, had a genuine effect on their reoffense rates. That is, we face the problem of unobserved heterogeneity in individuals' criminal propensity, and cannot rule out competing theoretical interpretations of the job stability effect. Job stability

may reflect offenders' responsiveness or amenability to treatment, as well as the attachment, commitment, and involvement associated with work, or it may indicate the effects of changes in routine activities and networks of peer association (Warr 1998). In our models we attempted to incorporate some indicators of criminal propensity (e.g., youth arrest record, criminal history score, level of drug and alcohol use) but unmeasured differences in propensity for crime could still have affected our results. For two reasons, however, we think that this may not be the case. First, if the effects of job stability were spurious as the result of a common cause, we would expect to observe them in both the treatment and the nontreatment groups. Second, our findings show considerable consistency with those of other researchers.

In an earlier paper that sought to determine the short-term effects of social bonds on offending, Horney and her colleagues (1995) faced a similar problem. Although their data and the corresponding method of analysis were clearly superior to ours for ruling out criminal propensity as a confounding variable, they still could not assume that the local life conditions of the offenders they studied were distributed randomly among offenders. Citing the important experimental work of Nagin and Paternoster (1993), Horney et al. acknowledged that even when one accounts for differences in criminal propensity, offenders still can make rational decisions about the costs and benefits of crime. They found that even those with low self-control, who maintained fewer social bonds than those with higher self-control, were not insensitive to the effects of these bonds. In fact they were less likely to commit crimes when they worked and when they lived with a wife (Horney et al. 1995:670-71).

Although our findings are largely consistent with this outcome, they also draw attention to the combined effects of formal and informal social controls in deterring subsequent offending (Sherman 1993). According to Horney and her colleagues, community-based sanctions such as probation and parole had virtually no effect on offenders' desistance from crime. We believe that there are some important reasons for this difference in outcomes. First, their research focused on incarcerated offenders, who presumably differ in important ways from offenders who are placed on probation. "Probationers" are a group of offenders who are judged to be a better "community" risk. As such, they may be more likely to be middle

class and to have acquired some social capital, or a greater investment in their communities, than those who are placed behind bars.<sup>23</sup>

Second, Horney et al. did not examine whether reoffending is influenced by the conditions of probation to which an offender is subject. The stigma that is attached to conviction for a "sex crime" and placement in a "sex offender treatment program" may increase the costs of crime, especially for middle-class offenders (see Massaro 1991:1933-35). We believe that it is precisely this combination of costs and benefits which produces the noted effects of employment stability and court-ordered treatment on desistance from crime among these probationers. Sherman and Smith (1992) offer a similar "stake in conformity" (Toby 1957) hypothesis to explain why arrest in domestic violence cases has a deterrent effect only among those who are married and employed.

On a policy level, these findings raise serious questions about the recent incarceration binge in this country and, moreover, the notion that offenders respond to nothing except longer periods of imprisonment. We have found that most sex offenders on probation do not reoffend within five years; among those who do so, few commit new sex crimes. Offenders can do quite well in the community within the confines of supervision, treatment, and stable employment. In this study, however, we cannot ensure that either informal or formal controls are determined exogenously. A quick overview of the characteristics of those assigned to sex offender treatment, relative to those who are not assigned to treatment, suggests a problem of "best case scenario" or "creaming," which frequently appears in research on program evaluation and sex offender treatment (also see Hall 1995). Those who receive treatment tend: (1) to be older, (2) to be married, (3) have chosen a family member to victimize, and (4) to have longer probation sentences.

A more complete understanding of desistance among sex offenders, then, requires additional basic research. Although it is now commonplace to end research papers with a call for "yet more research," we think that our "call" is particularly well timed and especially important. If we want to reduce crime in a cost-effective manner, we must systematically address the most promising avenues of desistance (also see Wilson 1975:59).

---

<sup>23</sup> There is evidence that offenders who are granted felony probation are indistinguishable, in terms of their crimes and criminal histories, from those who are imprisoned. Yet according to analyses of the factors predicting who will be granted probation and who will be sentenced to prison, after these factors are controlled, a defendant's chances of imprisonment are reduced by having a private (rather than a public) attorney (Petersilia & Turner 1986:xi).

In addition to assessments of the applicability of treatment for a wider range of offenders, independent evaluations of the existing programs are seriously needed. According to the most recent official data gathered on sex offender treatment programs in Minnesota, 51 agencies were treating offenders on an outpatient basis, most used a mix of treatment approaches, and most did not follow their clients after they left treatment (Sex Offender Treatment Programs 1994). To understand why some formal sanctions are more effective among some groups of offenders than among others, we need a more refined understanding of their content (Sherman 1993). Random assignment of offenders to treatment or no-treatment alternatives is desirable for determining which programs are most likely to succeed, but the ethical and logistical problems inherent in this design usually preclude its adoption (see Meyers and Romero 1980; Romero and Williams 1983). Nevertheless, good quasi-experimental designs exist (Alwin and Sullivan 1975); if implemented, these could provide solid empirical evidence for the expanded development of community-based supervision of sex offenders who attend the specified treatment programs. Such research also might help to identify whether there are prisoners who could be safely supervised in the community.

These probationers' employment records are an equally important element in our findings. Although we cannot assign offenders randomly to treatment on the basis of their employment records, probation may help to foster job stability. Yet little is known about how employment services might be integrated into probationary services. Given the mounting evidence concerning both the short-term and the long-term benefits of employment in reducing crime, future researchers must examine how employment agencies can contribute to the crime control function of probation agencies.

In summary, we have found that most sex offenders placed on probation are likely to desist from sex crimes and other crimes, at least when desistance is measured by the absence of official reoffense. We have also found that convicted sex offenders who experience the combined effects of both formal and informal social controls are particularly likely to desist. Unfortunately, further progress in our knowledge about desistance from crime in this population will require more research along these lines. Nevertheless, we think such research is warranted and will contribute to more sound theory and more effective public policy.

## REFERENCES

- Allison, P.D. 1995. *Survival Analysis Using the SAS System: A Practical Guide*. Cary, NC: SAS Institute.
- Alwin, D.F. and M.J. Sullivan. 1975. "Issues of Design and Analysis in Evaluation Research." *Sociological Methods and Research* 4:77-100.
- Amir, M. 1971. *Patterns in Forcible Rape*. Chicago: University of Chicago Press.
- Anderson, N.W., ed. 1992. "Predators and Politics. A Symposium on Washington's Sexually Violent Predators Statute." *University of Puget Sound Law Review* 15:517-23.
- Bartusch, D.R.J., D.R. Lynam, T.E. Moffitt, and P.A. Silva. 1997. "Is Age Important? Testing a General versus a Developmental Theory of Antisocial Behavior." *Criminology* 35:13-48.
- Bennett, W.J., J.J. DiIulio Jr, and J.P. Walters. 1996. *Body Count*. New York: Simon and Schuster.
- Blumstein, A. 1994. "Prisons." Pp. 387-419 in *Crime*, edited by J. Q. Wilson and J. Petersilia. San Francisco: ICS Press.
- Caspi, A. and T. Moffitt. 1992. "The Continuity of Maladaptive Behavior: From Description to Understanding in the Study of Antisocial Behavior." Pp. 472-511 in *Manual of Developmental Psychopathology*, edited by D. Cicchetti and D. Cohen. New York: Wiley.
- Chappell, D. 1989. "Sexual Criminal Violence." Pp. 68-108 in *Pathways to Criminal Violence*, edited by N.A. Weiner and M.E. Wolfgang. Newbury Park, CA: Sage.
- Christiansen, K.O., M. Elers-Nielsen, L. Le Maire, and G.K. Sturup. 1965. "Recidivism among Sexual Offenders." Pp. 55-85 in *Scandinavian Studies in Criminology*, Vol. 1, edited by K.O. Christiansen. London: Tavistock.
- Cohen, L.E. and B.J. Vila. 1996. "Self-Control and Social Control: An Exposition of the Gottfredson-Hirschi/Sampson-Laub Debate." *Studies on Crime and Crime Prevention* 5:125-50.
- Community Based Sex Offender Program Evaluation Project. 1995. "Report to the Legislature, October 1995." St. Paul: Minnesota Department of Corrections.
- Cox, D.R. 1972. "Regression Models and Life Tables." *Journal of the Royal Statistical Society, Series B* 34:187-220.
- Cox, D.R. and D. Oakes. 1984. *Analysis of Survival Data*. London: Chapman and Hall.
- D'Unger, A.V., K.C. Land, and P.L. McCall. 1998. "How Many Categories of Delinquent/Criminal Careers? Results from Mixed Poisson Regression Analyses." *American Journal of Sociology* 103:1593-1630.
- Farrington, D.P. 1992. "Explaining the Beginning, Progress, and Ending of Antisocial Behavior from Birth to Adulthood." Pp. 253-86 in *Facts, Frameworks, and Forecasts*, edited by J. McCord. New Brunswick, NJ: Transaction.
- . 1995. "The Development of Offending and Antisocial Behavior from Childhood: Key Findings from the Cambridge Study in Delinquent Development." *Journal of Child Psychology and Psychiatry* 36:1-36.
- Farrington, D.P. and D.J. West. 1995. "Effects of Marriage, Separation and Children on Offending by Adult Males." Pp. 249-81 in *Delinquency and Disrepute in the Life Course*, edited by J. Hagan. Greenwich, CT: JAI.
- Finkel, S.E. 1995. *Causal Analysis with Panel Data*. Thousand Oaks, CA: Sage.
- Furby, L., M.R. Weinrott, and L. Blackshaw. 1989. "Sex Offender Recidivism: A Review." *Psychological Bulletin* 105:3-30.
- Gartner, R. and I. Piliavin. 1988. "The Aging Offender and the Aged Offender." Pp. 287-315 in *Life-Span Development and Behavior*, Vol. 9, edited by P.B. Baltes, D.L. Fetherman, and R.M. Lerner. Hillsdale, NJ: Erlbaum.
- Gebhard, P.H., J.H. Gagnon, W.B. Pomeroy, and C.V. Christenson. 1965. *Sex Offenders: An Analysis of Types*. New York: Harper and Row.
- Glueck, S. and E. Glueck. 1950. *Unraveling Juvenile Delinquency*. New York: The Commonwealth Fund.
- Gottfredson, M. and T. Hirschi. 1990. *A General Theory of Crime*. Sanford, CA: Stanford University Press.
- Gove, W.R. 1985. "The Effect of Age and Gender on Deviant Behavior: A Biopsychosocial Perspective." Pp. 115-44 in *Gender and the Life Course*, edited by A.S. Rossi. New York: Aldine.

- Greenfield, L.A. 1997. *Sex Offenses and Offenders. An Analysis of Data on Rape and Sexual Assault*. Washington, DC: U.S. Department of Justice.
- Hall, G.C. Nagayama. 1988. "Criminal Behavior As a Function of Clinical and Actuarial Variables in a Sexual Offender Population." *Journal of Research in Crime and Delinquency* 32:325-37.
- . 1995. "Sexual Offender Recidivism Revisited; A Meta-Analysis of Recent Treatment Studies." *Journal of Consulting and Clinical Psychology* 63:802-09.
- Hall, G.C. Nagayama and W.C. Proctor. 1987. "Criminological Predictors of Recidivism in a Sexual Offender Population." *Journal of Consulting and Clinical Psychology* 55:111-12.
- Hanson, R.K., H. Scott, and R.A. Steffy. 1995. "A Comparison of Child Molesters and Nonsexual Criminals: Risk Predictors and Long-term Recidivism." *Journal of Research in Crime and Delinquency* 32:325-37.
- Hanson, R.K., R.A. Steffy, and R. Gauthier. 1993. "Long-Term Recidivism of Child Molesters." *Journal of Consulting and Clinical Psychology* 61:646-52.
- Harris, G.T., M.E. Rice, and C.A. Cormier. 1991. "Psychopathy and Violent Recidivism." *Law and Human Behavior* 15:223-36.
- Harris, G.T., M.E. Rice, and V.L. Quinsey. 1994. "Psychopathy As a Taxon: Evidence That Psychopaths Are a Discrete Class." *Journal of Consulting and Clinical Psychology* 62:387-97.
- Hirschi, T. and M.R. Gottfredson. 1995. "Control Theory and the Life-Course Perspective." *Studies on Crime and Crime Prevention* 4:131-42.
- Horney, J., D.W. Osgood, and I.H. Marshall. 1995. "Criminal Careers in the Short-Term: Intra-Individual Variability in Crime and Its Relation to Local Life Circumstances." *American Sociological Review* 60:655-73.
- Laub, J.H., R.J. Sampson, R.P. Corbett Jr., and J.S. Smith. 1995. "The Public Policy Implications of a Life-Course Perspective on Crime." Pp.91-106 in *Crime and Public Policy: Putting Theory to Work*, edited by H. Barlow. Boulder: Westview.
- Laub, J.H., R.J. Sampson, and D.S. Nagin. 1998. "Trajectories of Change in Criminal Offending: Good Marriages and the Desistance Process." *American Sociological Review* 63:225-38.
- LeClair, D.P. and S. Guarino-Ghezzi. 1991. "Does Incapacitation Guarantee Public Safety? Lessons from the Massachusetts Furlough and Prerelease Programs." *Justice Quarterly* 8:9-36.
- Loeber, R. and M. LeBlanc. 1990. "Toward a Developmental Criminology." Pp. 375-437 in *Crime and Justice*, Vol. 22, edited by M. Tonry and N. Morris. Chicago: University of Chicago Press.
- Massaro, T.M. 1991. "Shame, Culture, and American Criminal Law." *Michigan Law Review* 84:1880-1944.
- Matsueda, R. and K. Heimer. 1997. "A Symbolic Interactionist Theory of Role Transitions, Role-Commitments, and Delinquency." Pp. 163-213 in *Developmental Theories of Crime and Delinquency*, edited by T. Thornberry. New Brunswick, NJ: Transaction.
- Matza, D. 1964. *Delinquency and Drift*. New York: Wiley.
- Meyers, L.C. and J. Romero. 1980. *A Ten-Year Follow-up of Sex Offender Recidivism*. Philadelphia: J.J. Peters Institute.
- Moffitt, T. 1993. "Adolescence-Limited and Life-Course Persistent Antisocial Behavior: A Developmental Taxonomy." *Psychological Review* 100:674-701.
- Nagin, D.S., D.P. Farrington, and T.E. Moffitt. 1995. "Life-Course Trajectories of Different Types of Offenders." *Criminology* 33:111-39.
- Nagin, D.S. and K.C. Land. 1993. "Age, Criminal Careers, and Population Heterogeneity: Specification and Estimation of a Nonparametric, Mixed Poisson Model." *Criminology* 31:327-62.
- Nagin, D.S. and R. Paternoster. 1993. "Enduring Individual Differences and Rational Choice Theories of Crime." *Law and Society Review* 27:467-96.
- Pacht, A.R. and L.M. Roberts. 1968. "Factors Related to Parole Experience of the Sexual Offender: A Nine-Year Study." *Journal of Correctional Psychology* 3:8-9.
- Paternoster, R., C.W. Dean, A. Piquero, P. Mazerolle, and R. Brame. 1997. "Generality, Continuity, and Change in Offending." *Journal of Quantitative Criminology* 13:231-66.
- Petersilia, J. 1997. "Probation in the United States." Pp. 149-200 in *Crime and Justice*, Vol. 22, edited by M. Tonry. Chicago: University of Chicago Press.
- Petersilia, J. and S. Turner. 1986. *Prison versus Probation in California: Implications for Crime and Offender Recidivism*. Santa Monica: RAND.

- Prentky, R.A., R.A. Knight, and A.F.S. Lee. 1997. "Risk Factors Associated with Recidivism among Extrafamilial Child Molesters." *Journal of Consulting and Clinical Psychology* 65:141-49.
- Quinsey, V.L. 1977. "The Assessment and Treatment of Child Molesters: A Review." *Canadian Psychological Review* 18:204-20.
- . 1986. "Men Who Have Sex with Children." Pp. 140-72 in *Law and Mental Health: Interpersonal Perspectives*, Vol. 2, edited by D.N. Weisstub. Elmsford, NY: Pergamon.
- . 1995. "The Prediction and Explanation of Criminal Violence." *International Journal of Law and Psychiatry* 18:117-27.
- Quinsey, V.L. and T.C. Chaplin. 1988. "Penile Responses of Child Molesters and Normals to Descriptions of Encounters with Children Involving Sex and Violence." *Journal of Interpersonal Violence* 3:259-74.
- Quinsey, V.L., M.L. Lalumiere, M.E. Rice, and G.T. Harris. 1995. "Predicting Sexual Offenses." Pp. 114-37 in *Assessing Dangerousness: Violence by Sexual Offenders, Batterers and Child Abusers*, edited by J.C. Campbell. Thousand Oaks, CA: Sage.
- Quinsey, V.L., M.E. Rice, and G.T. Harris. 1995. "Actuarial Prediction of Sexual Recidivism." *Journal of Interpersonal Violence* 10:85-105.
- Revitch, E. and R.G. Weiss. 1962. "The Pedophilic Offender." *Diseases of the Nervous System* 23:73-78.
- Rice, M.E., G.T. Harris, and V.L. Quinsey. 1990. "A Follow-Up of Rapists Assessed in a Maximum Security Psychiatric Facility." *Journal of Interpersonal Violence* 5:435-48.
- Rice, M.E., V.L. Quinsey, and G.T. Harris. 1991. "Sexual Recidivism among Child Molesters Released from a Maximum Security Psychiatric Institution." *Journal of Consulting and Clinical Psychology* 59:381-86.
- Romero, J.J. and L.M. Williams. 1983. "Group Psychotherapy and Intensive Probation Supervision with Sex Offenders: A Comparative Study." *Federal Probation* 47:36-42.
- Sampson, R.J. and J.H. Laub. 1992. "Crime and Deviance in the Life Course." *Annual Review of Sociology* 18:63-84.
- . 1993. *Crime in the Making*. Cambridge, MA: Harvard University Press.
- . 1995. "Understanding Variability in Lives through Time: Contributions of Life Course Criminology." *Studies on Crime and Crime Prevention* 4:143-58.
- Sex Offender Treatment Programs. 1994. *Sex Offender Treatment Programs*. St. Paul: Program Evaluation Division Office of the Legislative Auditor, State of Minnesota.
- Sherman, L.W. 1993. "Defiance, Deterrence, and Irrelevance: A Theory of the Criminal Sanction." *Journal of Research in Crime and Delinquency* 30:445-73.
- Sherman, L.W. and D.A. Smith. 1992. "Crime, Punishment, and Stake in Conformity: Legal and Informal Control of Domestic Violence." *American Sociological Review* 57:680-90.
- Spohn, C. and J. Horney. 1992. *Rape Law Reform: A Grassroots Revolution and Its Impact*. New York: Plenum.
- Toby, J. 1957. "Social Disorganization and Stake in Conformity: Complementary Factors in the Predatory Behavior of Hoodlums." *Journal of Criminal Law, Criminology, and Police Science* 48:12-17.
- Warr, M. 1998. "Life-Course Transitions and Desistance from Crime." *Criminology* 36:183-216.
- West, D.J. 1983. "Sex Offenses and Offending." Pp. 183-233 in *Crime and Justice*, Vol. 5, edited by M. Tonry and N. Morris. Chicago: University of Chicago Press.
- Wilson, J.Q. 1975. *Thinking about Crime*. New York: Vintage.