

Specialization and Persistence in the Arrest Histories of Sex Offenders

A Comparative Analysis of Alternative Measures and Offense Types

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A basic assumption underlying current public policy and crime-control efforts is that sex offenders are highly specialized and persistent. Using national data on about 10,000 sex offenders released from prison in 1994, this study explored this assumption by comparing the arrest patterns and cycles of sex offenders and other offenders. As a group and across various measures, sex offenders had low levels of specialization and persistence in offending in absolute and relative terms. Similar conclusions were reached when specific types of sex offenders (e.g., rapists, child molesters) were compared with other particular offenders (e.g., robbers, burglars, drug offenders), but the results were more measure dependent. Even among persistent serial sex offenders, rapists and child molesters were found to specialize only within a more predominant pattern of versatility across their criminal careers. These results are discussed in terms of their implications for future research and current public policy that are predicated on assumed specialization and persistence among sex offenders.

Keywords: *sex offenders; specialization; criminal careers*

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Sex offenders are a major focus of current crime-control policies and public concerns about crime. Various treatment modalities have long been offered to modify the behavior of sex offenders (for review, see Launay 2001; Lieb, Quinsey, and Berliner 1998; Rice and Harris 2003), whereas community notification laws have been more recently passed to increase public awareness of their presence in the community (for review, see Finn 1997; Matson and Lieb 1997). Both traditional treatment practices and current public policy are predicated on the assumption that most sex offenders are specialists and persist in sex offending across their criminal careers.

Using national data on prisoners released in 1994, the current study provided an empirical evaluation of these basic assumptions about sex offenders. Following previous research, several measures of specialization were used to compare different groups of sex offenders and nonsex offenders over their criminal careers. The observed patterns of specialization and persistence are discussed in terms of their implications for future research and public policy on sex offenders.

Images of Sex Offenders Underlying Public Policy

Various images of sexual offenders and their criminal behavior patterns are widely held by members of the general public, treatment professionals, and the legal profession. Many of these images reflect basic myths and misconceptions surrounding sex offending that derive from assertions by claim makers and media stereotypes of sensationalized and exceptional cases. Whatever their source or accuracy, these social constructions and images of sex offenders often form the basis of criminal law and public policy to control these offenders (see Jenkins 1998; Sample and Bray 2003; Zimring 2004). In fact, these stereotypical images have been shown by several researchers to have serious negative consequences for the effective detection, treatment, and control of sex offenders (see Quinn, Forsyth, and Mullen-Quinn 2004; Simon 2000; Websdale 1999).

On the basis of previous commentaries and anecdotal evidence, the dominant contemporary image of sex offenders involves attributions of uncontrolled sexual compulsion, specialization, and persistence in behavioral patterns over their criminal careers. For example, Sample and Bray (2003) contended that current sex-offender policies are predicated on a notion of "once a sex offender, always a sex offender" (p. 60). These authors also quoted a public official who alleged that "they will never stop. That [sex offending] is just what they do" (p. 60). Similarly, Zimring (2004:27) identified four assumptions

underlying current law and policies that project a comparable image of sex offenders. Elements of this image of sex offenders include (1) pathological sexual orientation, (2) sexual specialization, (3) fixed sexual proclivities, and (4) a high level of future sexual dangerousness. According to Zimring, these elements are interrelated and represent a collective portrait of the pathology-driven behavior believed to characterize serious sex offenders (p. 32).

The common belief that sex offenders exhibit specialization and persistent behavioral patterns is clearly evident in treatment practices (e.g., chemical castration to reduce sexual compulsion) and public policies (e.g., community notification, sex-offender registration, extended periods of civil commitment after serving criminal sentences; for review, see Lieb et al. 1998; Matson and Lieb 1997; Winick and LaFond 2003). In fact, the major assumption underlying these programs and policies is that sex offenders will continue to repeat these offenses unless they are controlled through chemical means or greater public surveillance and monitoring of them. Within this context, Simon (2003) considered Megan's Law a "long-term strategy for managing a permanently dangerous class" (p. 310). Such language continues to perpetuate the belief that sexual predators are "persistent specialists."

Empirical research that determines the accuracy of these basic assumptions about specialization and persistence is important because the success of contemporary laws and policies is tied directly to this portrait of sex offenders. For example, if most sex offenders are versatile offenders who do not specialize in sexual predation, sex-based therapies and public policies that are predicated on this belief will not have any meaningful impact on sex offending. Similarly, if most sex offenders have low recidivism rates, these same public policies that assume persistence in sexual offending over the life course would be largely unnecessary for purposes of crime control. Under these conditions, effective public policy for sex offending is only as good as the accuracy of the basic assumptions it makes about the propensity for sex offenders to be repetitive or persistent specialists.

Previous empirical studies of criminal offenders, however, are largely inconclusive about the degree of specialization and persistence among sex offenders. In fact, this research literature provides evidence of both generality and specificity in the behavioral patterns of sex offenders and extreme variability in their persistence over the criminal career (see Sample and Bray 2003; Soothill et al. 2000; Zimring 2004). Previous research has also documented the variability of offenses and behavioral patterns that correspond to different types of sex offending (for review, see Bradway 2000; Groth and Birnbaum 1979; Knight and Prentky 1990; Knight, Rosenberg, and Schneider 1985; Lieb et al. 1998).

Several large-scale studies have been conducted on the arrest histories of sex offenders in the United States and elsewhere (see Langan, Schmitt, and Durose 2003; Sample and Bray 2003; Soothill et al. 2000; Speir et al. 2001). When compared with other serious types of criminal behavior, sex offenders in these large-scale studies are often found to exhibit lower recidivism rates and have less extensive criminal histories. These conclusions hold for both sex offenders as a group and within specific subtypes of offenses (e.g., rapists, child molesters). For example, of the nearly 10,000 sex offenders released from prison in 15 U.S. states in 1994, fewer than half (43 percent) were rearrested for any crime within three years of their release, compared with recidivism risks of greater than two-thirds for released robbers, burglars, larcenists, and drug offenders (see Langan et al. 2003, Table 7; Langan and Levin 2002, Table 9). No substantial differences in the likelihood of rearrest existed between rapists (46 percent) and other sex offenders (42 percent). Only about 2 percent of the released rapists in this study were rearrested for another rape.

The results of meta-analyses of past studies also provide some support for the general portrayal of sex offenders as primarily nonspecialists and non-persistent offenders (see Furby, Weinrott, and Blackshaw 1989; Hanson and Bussiere 1998). Hanson and Bussiere's (1998) meta-analysis of 61 studies yielded an average recidivism rate of 13 percent for the commission of a new sex offense within a four- to five-year follow-up period, and only about one-third of sex offenders repeated any type of criminal offense in this reference period. However, the meta-analysis by Furby et al. (1989) highlighted the substantial differences in findings across 49 studies, leading them to conclude that "by selectively contemplating the various studies, one can conclude anything one wants [about the recidivism risk of sex offenders]" (p. 27).

The conclusion derived from available empirical evidence on sex offenders is largely contrary to the conventional wisdom and stereotypical image of them as chronic and persistent sexual predators. It is also contrary to the findings from self-reports and clinical studies that indicate long and extensive histories of sexual abuses among these offenders (see Weinrott and Saylor 1991). However, basic differences in methodological designs of different studies are likely to contribute to these disparate conclusions. For example, nonrandom clinical samples are likely to overestimate the extensiveness of one's history of sexual predation because of their focus on the most chronic sex offenders, whereas high rates of unreported and undetected sex offenses contributes to substantial underestimation of the prevalence of recidivism when only official arrest data are used. Under these conditions, the true profile of the behavioral histories of sex offenders may fall anywhere between these two positions.

Measures of Specialization and Persistence

Specialization and persistence have been measured in a variety of ways within previous research on criminal careers of sex offenders and other offenders (see, e.g., Blumstein et al. 1988; Farrington 1986; Farrington, Snyder, and Finnegan 1988; Kempf 1987; Mazerolle et al. 2000; Tracy and Kempf-Leonard 1996). Specialization implies some degree of repetition of the same offense behavior over time, but the time span may represent only adjacent periods (e.g., rearrest for the same offense at time 1 and time 2) or cover the entire scope of one's criminal career. Similarly, persistence also involves the commission of criminal acts over at least two distinct time periods, but these repeat offenders may be either generalists (i.e., commit different types of offenses) or specialists (i.e., repeaters of the same offense type).¹

Common measures of specialization in previous research that focus on the joint offense distributions in adjacent time periods include (1) transition probabilities for the diagonal elements that represent the likelihood of repeating the same type of offense at arrest k and arrest $k + 1$ and (2) Farrington's (1986) forward specialization coefficient (FSC), derived from adjusted comparisons of observed and expected cell frequencies. The most widely used measures of specialization based on the entire criminal career (not just the adjacent cycles) include those derived from (1) percentage rules (e.g., specialization is represented by at least one-half of an individual's offending history involving the same offense type) and (2) the "diversity index," indicating the probability that any two offenses drawn randomly from an individual's offense history belong to separate offending categories (for applications of this measure, see Mazerolle et al. 2000; Piquero et al. 1999).

Regardless of the chosen measure of specialization, however, it is important to note that substantive conclusions are strongly affected by the level of specificity and generality that underlies how offenses are classified. In fact, as the number of offense categories increases, the likelihood of finding specialization decreases, in large part because finer gradations in offense categories make it less probable on chance alone that the same particular offense would occur on consecutive arrests.² Under these conditions, the empirical observation of lower rates of specialization among sex offenders in general or particular subtypes of them may simply reflect differences in the scope of criminal behaviors included within different offense categories.

Previous empirical studies suggest several general observations about the criminal histories of various types of offenders. First, there is no definitive evidence that sex offenders exhibit more specialization than other offenders. Rapists are among the least likely offenders to specialize in some studies

(Blumstein et al. 1988), whereas others have found that sex offenders have far greater risks than other offenders of repeating their crimes (Langan and Levin 2002; Stander et al. 1989). Second, the research literature is largely divided on whether specialization is best studied by using generic or refined categories for measuring sex offending. Soothill et al. (2000), for example, found major differences within specific sex-offense categories, whereas other authors (e.g., Speir et al. 2001) have contended that the use of specific rather than global categories may result in a sizable underestimation of the amount of specialization among sex offenders. Third, most comparative studies find that sex offenders have lower rates of recidivism than other offenders, suggesting that sex offenders are one of the least persistent types of offenders (see Langan and Levin 2002; Sample and Bray 2003). However, wide variability exists in the number of separate arrest cycles among particular sex offenders, covering the full range from one-timers to persistent and chronic offenders with multiple prior arrests.

Research Questions

Using a large national sample of prisoners released in 1994, the current study examined several interrelated questions about the criminal histories of sex offenders. First, what are the nature and magnitude of specialization and persistence among sex offenders? Second, do sex offenders exhibit lower or higher levels of specialization and persistence than other offenders? Third, are substantive conclusions about specialization and persistence consistent across different measures of these concepts, different stages of one's criminal career, and for both generic and offense-specific definitions of criminal behavior? By conducting these comparative analyses within the same study, the current research aimed to provide a strong empirical foundation for assessing the accuracy of the basic assumption underlying contemporary public policy that sex offenders are persistent specialists across their criminal careers.

Data and Methods

The data for the current study involved a sample of more than 38,000 persons who were released from prison in 15 states in 1994. Originally collected through the U.S. Department of Justice and the Bureau of Justice Statistics, the complete data file is available for secondary analysis from the Interuniversity Consortium for Political and Social Research (ICPSR) at the University of Michigan under the title "Recidivism of Prisoners Released

in 1994.” A full description of the sampling design and methods used in the data collection is provided in the original report and subsequent analyses (see Langan and Levin 2002; Langan et al. 2003).

Using both state and Federal Bureau of Investigation (FBI) records of arrests and prosecutions, information in this data set includes demographic information (e.g., age, sex, and race) and the entire officially recorded criminal history of each released prisoner. Each offender’s criminal history includes all known arrests, adjudications, and sentences before the 1994 release date and for the immediate three-year period following this date. The merging of state and FBI records provides a chronology of the different arrests for each offender in his or her state of incarceration and all other states.

Data were compiled for the three most serious charges at each arrest date. A hierarchy of offense seriousness was used by the original data collectors. Under this offense hierarchy, felonies were designed as more serious than misdemeanors, and particular offenses were classified in the following order from most to least serious: murder, rape or other sexual assault, robbery, aggravated assault, burglary, larceny or motor vehicle theft, fraud, drug trafficking, drug possession, weapons offenses, driving under the influence, other public order crimes, and other offenses (U.S. Department of Justice, Bureau of Justice Statistics 2003:8). We recoded the most serious charges into generic categories (e.g., sex offenders, violent offenders, property offenders, public-order offenders) and also retained the more refined offense-specific groupings (e.g., rapists, child molesters, robbers, burglars) that were derived from state statutes.³ Each distinct arrest date was considered a separate transition or “cycle” in the database, and a total of up to 99 separate arrest cycles were included for each person.⁴ The number and timing of these arrest cycles, as well as the most serious offense within each transition, formed the basis of our investigation of specialization and persistence.

Strengths and Limitations of Data Source

As a basis for studying the specialization and persistence of criminal careers, the data set used in the present study has several strengths and weaknesses. The choice of this data source was based on our contention that its strengths far exceed its limitations.

Compared with other available data collections for studying criminal careers, the primary advantages of the current source include its large sample size, national coverage, comprehensiveness of criminal history records, and inclusion of multiple arrest cycles throughout different stages of the criminal career. Specifically, about 10,000 male sex offenders released from state prisons in 1994 are contained in this data file, and the entire sample of 15 states

represents about two-thirds of prisoners released across the entire country in that year. This unparalleled “national” coverage is augmented by the comprehensiveness of the criminal history records (including both state and FBI rap sheets), the inclusion of both juvenile and adult arrest reports, and the ability to investigate multiple offense transitions ($k = 99$ cycles) at numerous time intervals and points in one’s criminal career. In terms of both sample size and national coverage, no other data source collected in the United States is even remotely comparable.⁵

The strengths of this national data source for studying the criminal histories of sex offenders are somewhat minimized by basic problems inherent with the data. For example, our substantive conclusions about specialization were restricted because the data source includes only official arrest records and convicted offenders who had served at least some time in state prisons. The fact that undetected and unreported criminal acts are not included becomes especially problematic if sex offenses are less likely than other offenses to come to the attention of law enforcement. Similarly, the inclusion of only released prison inmates in the sampling frame restricted our inferences to sex offenders who were incarcerated at some point in their criminal careers, a group of sex offenders who may be qualitatively different (e.g., having more extensive prior arrest records or committing more serious crimes) than sex offenders who have avoided incarceration. These offenders may also differ from offenders who were incarcerated but not released. Unfortunately, although these problems with using official records and prison populations limited the generality of our conclusions, they are not unique to this study. Given comparable problems of measurement and sampling bias in other data sources, we considered the relative strengths of the current data to provide a sufficiently sound foundation for investigating patterns of specialization and persistence among an incarcerated population.

Measures of Sex Offending and Other Offenses

Both generic and offense-specific measures of sex offending are included in the original data source and were used in the current study. Accordingly, a person was classified as a sex offender if he or she were arrested for any act of forcible intercourse (i.e., rape), child molestation, forcible sexual acts not amounting to intercourse, or nonforcible sexual acts (e.g., incest, fondling). Offense-specific comparisons were derived from separate analyses of arrests for the particular acts of rape and child molestation. Following common practices in previous research (see Mazerolle et al. 2000; Piquero et al. 1999), non-sex offenses were coded into the categories of violent offenses (e.g., murder, assault, robbery), property offenses (e.g., larceny, burglary, car theft), and

offenses involving public order (e.g., disorderly conduct, drug and alcohol offenses). Separate analyses were conducted using these general categories and specific offenses (e.g., rapists, child molesters, robbers, burglars) to assess how basic classification decisions affected our substantive conclusions about specialization and persistence.

Results

Before addressing more completely the question of offense specialization and persistence, it is instructive to examine the average arrest profiles and demographic characteristics for different types of offenders in this sample. Table 1 summarizes these basic sociodemographic profiles by types of offenders defined by their incarceration offenses.

As a group and within specific subtypes of them, sex offenders in this sample were more likely to be male, be White, be older at first arrest, and have shorter arrest histories than other offenders (see Table 1). Sex offenders, on average, had about 7 separate arrests in their criminal careers, compared with an average of about 10 arrests or more among the other general offender categories. Among specific types of offenders, the average arrest histories were somewhat comparable for child molesters and rapists. However, both types of sex offenders had fewer arrests than robbers, burglars, and all other nonsex offenders except murderers. These data provide little credible support for the conventional belief that sex offenders are especially persistent offenders.

Several factors may account for the fewer number of arrest cycles for sex offenders relative to other offenders. First, the average age of first arrest was about two years older for sex offenders than nonsex offenders. Second, sex offenders released in 1994 served longer prison sentences than most other offenders. These average prison terms were about 18 months longer for sex offenders than both property and public-order offenders (see Table 1). Rapists were surpassed only by murderers as the specific type of offender with the longest average imprisonment before release. This pattern of longer incapacitation and fewer active years for the opportunity for predation may contribute to the shorter number of different arrest cycles for sex offenders, especially among rapists.⁶

Measures of Specialization

Specialization is defined as the extent to which offenders repeat offenses of the same type over their criminal careers. Previous research has used

Table 1
Sociodemographic Attributes of Offenders Released in 1994

Type of Offender	Sample Size	Percentage Male	Percentage White	Mean Age at First Arrest (years)	Mean Arrests in Career	Time Served for 1994 Released Offense (months)
Sex offenders	9,806	99	62	25.2	6.8	37.2
Rapists	2,291	99	44	23.0	7.7	55.0
Child molesters	3,166	99	74	27.2	5.9	25.9
Other sex offenders	4,349	99	63	25.0	7.1	36.0
Violent offenders	6,340	93	38	21.2	9.9	36.3
Murderers or manslaughterers	1,217	90	46	23.1	6.6	60.1
Robbers	2,596	94	30	20.3	10.9	37.0
Aggravated assaulters	1,808	94	40	21.0	10.1	25.5
Other violent offenders	719	94	47	21.4	11.8	20.6
Property offenders	7,419	91	51	20.6	13.6	19.4
Burglars	3,129	96	55	20.0	12.8	23.8
Larcenists	3,272	84	47	21.3	14.8	15.9
Motor vehicle thieves	474	98	51	19.9	13.5	14.6
Other property offenders	544	94	58	20.7	12.0	19.2
Public-order offenders	10,060	91	41	22.1	11.2	16.9
Drug offenders	6,734	90	32	22.0	10.7	17.6
Other public-order offenders	3,326	94	60	22.3	12.3	15.6

various measures of offense specialization. These measures derive from the diagonal elements of adjacent transition matrices (e.g., k to $k + 1$ arrest cycles) and the pattern of similarity and diversity in offense types over particular stages and the entire span of one's criminal career.

Specialization in adjacent arrest cycles. Several measures of specialization examine the consistency in offense types across adjacent arrest cycles. These include the basic transition probabilities and the FSC (see Farrington 1986; Farrington et al. 1988). Table 2 summarizes these two measures of specialization for the diagonal elements for various adjacent arrest cycles.

When compared by their probabilities of repeating the same offense over successive arrest cycles, sex offenders exhibited substantially less specialization than other offender types. The average diagonal probability indicates that about one-fourth (26 percent) of sex offenders repeated sex offenses at their next arrest periods, whereas about one-third of violent offenders and more than half of both property offenders and those arrested for public-order crimes reproduced their same offenses in the next cycle (see Table 2).

The use of the average diagonal probabilities to measure the magnitude of specialization is reasonable as long as there is stability in the transition matrices over arrest cycles. However, this assumption of stationarity was clearly questioned in the arrest cycles for most offense types. In fact, a significant negative correlation ($r = -.72$) existed between the arrest cycle number (k) and the diagonal probabilities for sex offenses, whereas significant positive correlations between these variables were found for property offenses ($r = .90$) and public-order crimes ($r = .81$).⁷ There was a marginally significant, negative relationship between arrest cycle and the diagonal probabilities for violent offenders ($r = -.37, p < .10$). Sex offenders retained substantially lower specialization across arrest cycles even when we focused on offenders with extensive criminal records of 20 or more separate arrests.⁸

The second panel of Table 2 displays the FSC for general offense types at various arrest cycles. The average FSC values were lower among violent offenders ($M = .20$) and sex offenders ($M = .23$) than property ($M = .32$) and public-order ($M = .29$) offenders, suggesting again relatively lower specialization among sex offenders.

As was true of the analysis of diagonal probabilities, the FSC values varied across arrest cycles and offense type. Decreases in FSC values over successive arrest cycles suggested a significant reduction in specialization among sex offenders ($r = -.61$) over their criminal careers. A pattern of rising specialization was indicated by significant increases in FSC values across successive arrest cycles for property crimes ($r = .54$) and public-order crimes ($r = .55$). A positive but nonsignificant correlation was found among FSC values for violent offenses and arrest cycle ($r = .23$).⁹

When coupled with the knowledge that sex offenders typically have less extensive arrest histories than other offenders (see Table 1), the negative correlation between arrest cycle and these measures of specialization for sex offenders provides strong evidence against their stereotypical portrayal as "persistent specialists." In fact, these results suggest that sex offenders with more extensive arrest records are actually more likely to be generalists rather than specialists. For property and public-order offenders, however, the likelihood of specialization increases with increases in the extensiveness of their

Table 2
Measures of Specialization for Adjacent Arrest Cycles
(k and $k + 1$) for General Offense Types

Offense Type at Arrest Cycles k and $k + 1$	Diagonal Probabilities for k to $k + 1$ Transitions									Mean $k1$ to $k25$
	$k1$	$k2$	$k3$	$k4$	$k5$	$k10$	$k15$	$k20$	$k25$	
Sex offense	.39	.36	.33	.28	.29	.27	.24	.25	.15	.26
Violent offense	.32	.32	.33	.35	.34	.35	.35	.31	.27	.33
Property offense	.52	.54	.53	.54	.53	.54	.56	.59	.60	.56
Public-order offense	.54	.57	.57	.59	.59	.62	.63	.59	.64	.61

Offense Type at Arrest Cycles k and $k + 1$	Forward Specialization Coefficient by Arrest Cycle k									Mean $k1$ to $k25$
	$k1$	$k2$	$k3$	$k4$	$k5$	$k10$	$k15$	$k20$	$k25$	
Sex offense	.33	.31	.29	.24	.25	.24	.22	.23	.13	.23
Violent offense	.16	.19	.19	.20	.20	.21	.23	.19	.16	.20
Property offense	.26	.29	.29	.30	.29	.30	.33	.33	.37	.32
Public-order offense	.25	.27	.26	.29	.27	.30	.31	.27	.30	.29

Offense Type at Arrest Cycle (k)	Sample Size for Offense Type at Arrest Cycle k								
	$k1$	$k2$	$k3$	$k4$	$k5$	$k10$	$k15$	$k20$	$k25$
Sex offense	2,180	2,429	1,849	1,428	1,144	474	207	86	41
Violent offense	5,015	4,980	4,540	4,296	3,950	2,278	1,265	667	373
Property offense	11,677	10,257	9,262	8,395	7,531	4,580	2,720	1,556	942
Public-order offense	10,067	10,860	10,723	10,051	9,449	5,887	3,476	2,030	1,182

criminal careers. It is these latter types of offenders who are best represented by the notion of persistent specialists.

Specialization over the entire criminal career. Both diagonal probabilities and the FSC measure of specialization are based on patterns derived from adjacent arrest cycles. However, it is also important to examine specialization as measured by the degree of concentration of similar offense types in both adjacent and nonadjacent cycles. Two measures of specialization derived from the concentration of similar offenses include percentage rules and the diversity index.

A basic measure of specialization involves the percentage concentration of offense types that are repeated over the criminal career. Using a minimum of

two different arrest cycles to define the criminal career, this measure of specialization requires the computation of the conditional probability of rearrest for a particular offense type given at least one previous arrest for that type of offense. The percentage concentration among offense types ranges from 100 percent specialization (all arrest cycles involve the same offense type) to 0 percent specialization (i.e., one-timers for whom no arrests involve the same offense type). Table 3 summarizes the results of this percentage concentration measure under different definitional criteria for classifying specialists and generalists.

Regardless of the particular offense type, perfect specialization is rarely observed across all arrest cycles. Public-order offenders had the highest level of repetition of the same offense type over all cycles, but even among this diverse class of offenses, only 6 percent of them were perfect specialists (see Table 3). Only about 1 out of every 26 offenders (5 percent) had only sex offenses in their arrest histories, whereas the lowest level of perfect specialization was observed among violent offenders (1 percent). Under a 50 percent rule for defining specialization (i.e., at least one-half of arrests involve the same offense type), the highest degree of specialization was found among public-order offenses (49 percent of these general offenses qualified under this decision rule), followed by property offenses (37 percent), sex offenses (23 percent), and violent offenses (16 percent). An identical rank ordering of offense types was found when specialization was defined by a concentration of the same offense under a 75 percent decision rule (i.e., at least three-fourths of the arrest cycles involve the same offense type).

The proportion of offenders who were nonrepeaters of the same offense is reported in the last column of Table 3. As a measure of generalists, this concentration of one-timers who did not repeat the same offense in any other cycle was substantially higher among sex offenders (61 percent) than any other offense type. Given the relatively high level of specialization among public-order offenders, it should not be surprising to find that these offenders also had the lowest proportion of one-timers in their criminal careers (18 percent). Overall, these results suggest that sex offending was typically an aberrant arrest pattern for the majority of these offenders.

The diversity index is another measure of specialization over both adjacent and nonadjacent arrest transitions. This index ranges in the limits from 0 to approximately 1.0, with a value of 0 representing complete specialization (see Mazerolle et al. 2000:1154). As shown in Table 4, there was very little difference in the average diversity values across offense types. The lowest values on the diversity index were found for public-order offenses ($M = .48$) and property offenses ($M = .51$), indicating that these offenses had the greatest specialization. Sex offenders were represented by the lowest degree of

Table 3
Measures of Specialists and Generalists Across Criminal
Careers Under Different Percentage Concentration
Definitional Criterion (2 to 25 arrest cycles)

Offense Type	Sample Size	Specialists			Generalists		
		Percentage of Arrest Cycles That Repeat the Same Offense Type			Percentage of Arrest Cycles That Repeat the Same Offense Type		
		100 Percent	>75 Percent	>50 Percent	<50 Percent	<25 Percent	100 Percent Nonrepeaters
Sex offense	9,071	5.2	6.6	23.4	76.6	52.7	60.6
Violent offense	19,058	1.4	2.9	16.2	83.8	51.1	36.1
Property offense	22,574	2.8	11.1	37.0	63.0	27.8	22.9
Public-order offense	26,061	6.1	17.3	49.0	51.0	18.5	18.2

specialization. For each offense type (except property offenses), lower levels of specialization were found with increases in the arrest cycles. After the fifth arrest cycle, the diversity index revealed that sex offenders had less specialization for each arrest cycle than other types of offenders.

Differences in specialization for specific offense types. One possible explanation for the relatively low levels of specialization among sex offenders involves the wider range of criminal behaviors included in each of the comparison groups. Compared with the relatively restricted behavioral domain in the category of sex offending, both the general categories of public-order crimes and property offenses included various types of criminal behavior under their scope. This basic difference in the homogeneity of general categories increased by chance alone the likelihood of matching both public-order crimes and property offenses over successive arrest cycles, thereby generating higher levels of specialization for these offense categories.

To evaluate the impact of coding and classification decisions on the finding of specialization, we reanalyzed these data using more specific comparative offenses. This revised classification scheme includes Part I Offenses under the FBI's Uniform Crime Reports (i.e., murder or manslaughter, rape, robbery, aggravated assaults, larceny or theft, motor vehicle theft), child molestation,

Table 4
Measures of Specialization Using Diversity Index
for Offense Types at Arrest Cycle *k*

Offense Type at Arrest Cycle (<i>k</i>)	Diversity Index by Offense Type at Specific Arrest Cycle <i>k</i>								
	<i>k</i> 1	<i>k</i> 2	<i>k</i> 3	<i>k</i> 4	<i>k</i> 5	<i>k</i> 10	<i>k</i> 15	<i>k</i> 20	Mean <i>k</i> 1 to <i>k</i> 25
Sex offense	.42	.44	.51	.55	.57	.61	.61	.59	.59
Violent offense	.51	.52	.54	.55	.56	.57	.58	.58	.57
Property offense	.49	.48	.48	.48	.48	.49	.49	.48	.47
Public-order offense	.41	.42	.44	.44	.46	.48	.50	.50	.51

Offense Type at Arrest Cycle (<i>k</i>)	Sample Size for Offense Type at Arrest Cycle <i>k</i>								
	<i>k</i> 1	<i>k</i> 2	<i>k</i> 3	<i>k</i> 4	<i>k</i> 5	<i>k</i> 10	<i>k</i> 15	<i>k</i> 20	<i>k</i> 25
Sex offense	2,180	2,429	1,849	1,428	1,144	474	207	86	41
Violent offense	5,015	4,980	4,540	4,296	3,950	2,278	1,265	667	373
Property offense	11,677	10,257	9,262	8,395	7,531	4,580	2,720	1,556	942
Public-order offense	10,067	10,860	10,723	10,051	9,449	5,887	3,476	2,030	1,182

and drug offenses. Measures of specialization under this more restrictive definition of offense types are summarized in Table 5.

As shown in Table 5, substantial conclusions about the relatively low levels of specialization among sex offenders differ somewhat when we examined specific offense types within general categories. The conclusions were also more measure specific (i.e., they varied more widely across different measures of specialization). Among specific offense types, drug offenses exhibited the highest degree of specialization across all measures, whereas murders were the least specialized offenses.

When differences within sex offenders were examined, child molesters were found to be more specialized than rapists, but their relative rankings compared with other offenders varied across measures. For example, approximately 70 percent of both child molesters and rapists were "one-timers" (i.e., arrested only once for their particular offense type), placing them among the lowest group along with murderers on this measure of specialization. Compared with the relatively high ranking of child molesters on the FSC, rapists were relatively low specialists on the basis of this measure.

Table 5
Measures of Specialization Using More
Restrictive Offense Categories

Offense Type	Mean Diagonal Probability	Mean Forward Specialization Coefficient	Mean Diversity Index	Percentage Rule			Generalists: Percentage One-Timers
				100 Percent	>75 Percent	>50 Percent	
Rape	.16	.15	.62	1.4	1.9	12.5	73.8
Child molestation	.24	.23	.60	5.0	6.4	25.8	69.2
Murder	.11	.11	.62	.8	.9	8.8	84.7
Robbery	.21	.18	.63	.5	.9	6.6	57.0
Aggravated assault	.24	.19	.61	.4	.8	8.0	54.1
Burglary	.32	.25	.60	.6	1.6	10.2	44.4
Larceny	.21	.19	.62	.1	.2	3.1	63.4
Motor vehicle theft	.18	.17	.63	.1	.3	2.9	66.4
Drug offenses	.45	.32	.57	2.7	6.6	23.6	32.9

In contrast, perfect specialization was rare among all specific offenses, but child molesters and rapists were ranked relatively higher than other offenders under this 100 percent rule.

As was found in the analysis of general offense types, differences in specialization were observed across arrest cycles for specific crime types. For example, significant decreases in specialization over successive arrest cycles were found among child molesters on the basis of diagonal probabilities ($r = -.44$), the FSC measure ($r = -.42$, $p < .10$), and the diversity index ($r = .77$). Although the magnitude of the correlations was generally weaker, the same directional trends were found among rapists.¹⁰ In contrast, a substantially stronger and positive relationship existed between arrest cycle and specialization across measures for burglars (r values ranged from .58 to .78). The level of specialization and arrest cycles were not significantly correlated for motor vehicle theft across measures, but this correlation was substantial among drug offenders, but only when the diversity index was used to measure specialization ($r = .87$).

Given these substantial context-specific effects (i.e., the results varied by measure of specialization and arrest cycle for particular offense types), the average ratings of specialization provided in Table 5 should be viewed with some caution. In general, these results indicate that specialization was

rare among each of these specific offenses. Conclusions about the relative specialization between them, however, depend in many cases on how we measure specialization and the stage of the arrest cycle in the criminal career under consideration.

Specialization and Versatility in the Arrest Histories of Serial Sex Offenders

Previous research suggests that offenders may be both specialists and generalists over their criminal careers (see Farrington et al. 1988; Soothill et al. 2000). This idea that specialization may be superimposed on a versatile criminal career can be empirically demonstrated in at least two distinct ways. First, versatile offenders may become increasingly specialized through successive arrest cycles. Second, regardless of the stage of their criminal careers, “spree” offenders may commit the same types of offenses over several successive arrest cycles, followed by a different offense pattern.

We explored this possibility of “versatile specialists” by examining the pattern of arrest cycles for serial sex offenders (i.e., sex offenders with three or more arrests for sex crimes in their careers). Serial sexual rapists and molesters were rare in this sample (representing only 7 percent of all rapists and 8 percent of all child molesters), but these sex offenders are the group that is the most visible target of community notification programs and other crime-control efforts. Patterns of persistence, escalation, and desistance among these serial sex offenders are summarized in Table 6.

Serial sex offenders exhibited wide variability in their offense patterns over arrest cycles. More than one-half of serial rapists and child molesters had arrests for these particular sex offenses within the first third of their criminal careers, whereas only about one-tenth of them began their sexual predation during the last third of their arrest histories. A slightly higher proportion of serial child molesters (37 percent) than serial rapists (27 percent) were persistent specialists, meaning that they had at least one arrest for their particular type of sexual offense during the beginning (first third), middle (second third), and last stages of their criminal careers. About 4 out of every 10 of both types of sex offenders escalated into sexual predation in the later stages of their criminal careers. More than one-half of child molesters had concentrated sprees of at least three consecutive arrests for this offense, whereas only about one-third of serial rapists had similar sprees of consecutive arrests.

When compared with other repeat offenders, serial sexual offenders were different in several respects. First, with the exception of murderers, a lower proportion of serial offenders were found among serial rapists and

Table 6
Patterns of Persistence, Escalation, De-Escalation,
and Spree Arrest Trends Among Serial Rapists
and Serial Child Molesters

Offense Type	Serial Rapists (percentage)	Serial Child Molesters (percentage)
Stage of first arrest for offense type		
First third of arrest career	56.7	53.7
Second third of arrest career	34.6	36.2
Last stage of arrest career	8.7	10.1
Persistence over criminal career ^a	27.0	37.2
Escalation of offense type ^b	38.8	43.1
De-escalation of offense type ^c	22.4	11.0
Spree of three or more consecutive arrests for same offense type	38.0	58.3

a. Persistence refers to having at least one arrest for a particular offense type during each third of one's criminal career.

b. Escalation includes cases in which an arrest for a particular offense type was not present during the previous stage of one's criminal career but was found in all subsequent stages. For example, serial rapists would be counted as escalator in the following situations: no rape arrest in the first stage of their careers but subsequent arrests for rape during both the second and last thirds of their careers and no rape arrests in the first or second stage but at least one rape arrest in the last stage of their careers.

c. De-escalation refers to desistance in arrests for a particular offense type over successive stages of the criminal career. For example, serial rapists would be counted as de-escalators in the following situations: rape arrests among the first third of their arrests and no subsequent arrests for rape and rape arrests in the second third of their arrest cycles but no subsequent arrests for rape.

child molesters than other offenders. For example, compared with less than 10 percent among rapists and child molesters, nearly half (44 percent) of drug offenders had at least three different arrests for drug offenses, and nearly one-third of burglars were serial offenders of this type of property crime. About one-fifth of robbers and assaulters had at least three arrests for their respective crimes. Second, arrests for particular offense types were more persistent and exhibited less escalation over the criminal career for nonsex offenses. Serial drug offenders and serial burglars were especially likely to persist in their respective offense types. Overall, these comparative results indicate that serial sexual predators exhibited more versatility in their arrest patterns than most other types of serial offenders. Only a modicum of specialization was embedded in otherwise versatile criminal careers, even among this small group of serial sex offenders.

Discussion of Results

The current study was designed to empirically examine several questions about the absolute and relative magnitude of specialization and persistence in the criminal careers of sex offenders. Our comparative results across different groups of offenders and various measures of specialization are summarized and discussed below.

As a group and across different measures, sex offenders in this sample are not typically specialists or persistent offenders. Of offenders with at least one arrest for a sex crime, only 5 percent were exclusively sex offenders (i.e., all of their arrests were for sex offenses), whereas the majority of them (60 percent) had only one arrest for a sex offense in their criminal careers (see Table 3). Alternative measures of specialization (e.g., transition diagonal probabilities, FSC values, the diversity index) provide similar results about the relatively lower specialization among sex offenders. In fact, using these measures, specialization among sex offenders drops substantially over successive stages of their criminal careers. For persons arrested for property and public order crimes, however, the observed degree of specialization increases through subsequent arrest cycles (see Tables 2 and 4).

When comparisons are made among specific offense types, conclusions about the level of relative specialization are more complex. Child molesters tend to exhibit more specialization than rapists across measures, but their relative position as specialists compared with other offenders depends on how specialization is measured and the career stage of the arrest cycle. Contrary to their common portrayal as serial sexual predators, arrests for sex offending tend to be an aberrant pattern for both rapists and child molesters. This is especially true compared with drug offenders and burglars, who more typically repeat the same offense at other arrest cycles. On other measures (e.g., the 100 percent rule, FSC), child molesters would be considered relatively more specialized than most other offenders. However, even among serial sex offenders, specialization exists primarily within a more general context of offense versatility.

Given the importance of specialization as a key assumption underlying various treatment programs and public policy initiatives, it is important to examine our findings more closely. Several possible explanations for our findings are described below.

As mentioned previously, conclusions about specialization are dependent on the coding and classification of offenses within general crime categories. All else constant, the more diversity of behaviors included in an offense category, the greater the likelihood by chance alone of finding this offense category repeated in subsequent arrest cycles (i.e., the greater specialization).

In the present study, the category “sex offending” includes a far more restrictive range of behavioral patterns than more general categories such as property crimes or public-order offenses. Accordingly, the more limited opportunity to discover high levels of specialization among more restrictive offense categories may explain the relatively low levels of specialization among sex offenders in the current sample.

Although our results are somewhat similar across measures in the current study, it is extremely important to use multiple measures of specialization in future research because of the inherent limitations and shortcomings of each approach. For example, traditional measures of specialization based on adjacent transition matrices (e.g., diagonal probability, FSC) ignore the repetition of offense patterns over nonadjacent cycles. Percentage-based computations of specialization over the entire career are affected by the number of arrest cycles, with greater specialization being more probable by chance alone the fewer the number of cycles.¹¹ Similarly, numerical scores on the diversity index are a function of the amount of specialization, the number of offense categories, and the number of arrest cycles. It is only through the ability to assess the robustness of our findings across multiple measures that we have some confidence in the conclusion that sex offenders in this study are not typically specialized or persistent offenders in either relative or absolute terms.

A major limitation on the generalizability of our results involves the sample design and the use of official arrest data. Most of the arrest data were based on one's adult criminal record, limiting our ability to assess differences between juvenile and adult patterns. The use of a prison sample restricts our inferences to offenders who have served at least some time in prison, offenders who may be qualitatively different in their offense patterns than those undetected or nonincarcerated offenders. Similarly, by using an incarcerated sample, both the number and timing of arrest cycles may be shorter because of their less time “at risk” for reoffending than nonincarcerated offenders. Whether they have equal levels of specialization across arrest cycles, however, should be largely unaffected by sampling only people who have at least one incarceration experience. On the other hand, if it is true that specialization increases with age and over stages of one's criminal careers (see Farrington et al. 1988), the inclusion of more serious offenders with longer criminal histories in this prison sample may actually inflate our estimates of specialization.

Concerning the use of official data to measure criminal careers, the relative virtues and limitations of official data and self-report measures of crime are well known and need not be repeated here (for review, see Mosher,

Miethe, and Phillips, 2002). Self-report studies indicate that the gap between actual and officially recorded sex offending (i.e., the “dark figures”) is enormous (see Abel et al. 1987; Freeman-Longo 1985; Weinrott and Saylor 1991). However, the same argument can be made for the dramatic underreporting and underrecording of other offenses as well (e.g., drug offenses, public-order crimes, property crimes, violent offenses [especially domestic violence]). Similarly, we recognize that those who specialize in sex offending may be especially talented in avoiding arrest (and victims may be unwilling to report these crimes to the authorities for various reasons), but the same argument is also possible for other types of offenders.

Although there is no question that our use of official arrest data underestimates the criminal careers of all types of offenders, the biases in official data should not necessarily affect our substantive conclusions about the relative levels of specialization across different offender groups. Nonetheless, future research using both self-reports and arrest data is clearly needed to replicate the observed results in the current study.

Conclusions and Implications

Contemporary public policy involving sex offenders includes offender registries, community notification campaigns, civil commitment laws, chemical castration, and increased sentences for sexual offenses (see Wood, Grossman, and Fichtner 2000). These crime-control policies are based on the assumption that sex offenders are persistent specialists in their patterns of criminal activities (see Sampson and Bray 2003; Simon 1997, 2000; Zimring 2004).

Collectively, our results question this specialization assumption for sex offenders in general, particular types of sex offenders (e.g., rapist, child molesters), and across general and specific categories of other types of offenders. The number of arrest cycles and recidivism rates are lower for sex offenders than other general types of offenders (see also Langan et al. 2003), only about one-quarter of these offenders with multiple arrests repeat a sex offense in their next arrest cycle, and the vast majority of sex offenders are never arrested for another sex offense in their criminal careers. Even among serial rapists and child molesters, arrest cycles exhibit a predominant pattern of offense versatility and limited evidence of specialization.

The specialization assumption is even more problematic when the results of clinical and case studies are examined. Past research indicates enormous variability in the sexual paraphilias, motivations, target preferences, and modi

operandi of various types of sexual predators (Bradway 1990; Knight and Prentky 1990). This diversity exists even within more specific categories such as preferential or situational child molesters and “power-control” rapists. The strong possibility of various types of displacement by sex offenders in response to control efforts (e.g., the substitution of different crime victims, the timing of offenses, changes in the spatial location) is additional evidence against the common stereotypical image of them as a highly specialized group of offenders.¹²

Regardless of the actual level of specialization and persistence among these offenders, sexual-predator laws have been viewed as “feel-good” legislation that symbolically serve to pacify public outrage by “doing something” about brutal, heinous sex crimes (see Freeman-Longo 1997; Palermo and Farkas 2001). However, by focusing on only the small fraction of sex offenders who are covered by sex-offender laws, both community notification laws and sex-offender registration have been criticized for creating a potentially false sense of security for communities (Freeman-Longo 1997; Prentky 1996). In addition, several authors (e.g., Simon 2000, Hanson, Scott, and Steffy 1995) have contended that the assumption of specialization underlying sexual-predator laws may also hamper law enforcement’s detection and investigation of most sex offenders. By narrowing initial investigations of sex crimes to registered sex offenders, police agencies may help promote the stereotypical image of specialization and thereby inadvertently increase the victimization risks from those sexual predators who have remained undetected by the criminal justice system.

The effective treatment and control of sex offenders is a fundamental concern for the general population, criminologists, and clinicians. However, the overall effectiveness of particular public policies ultimately rests on the validity of their assumptions about whether offenders are best characterized as specialists or generalists. Given our major finding that the average sex offender in the current sample does not appear to be a persistent specialist over his or her arrest career, it seems somewhat unlikely that registration and notification policies will decrease sexual victimization. We hope that these findings serve as an empirical foundation for future critical analysis of contemporary laws and public policies directed at sex offenders.

Notes

1. As will be applied later, both specialization and persistence can be measured in qualitative (e.g., perfect specialists, nonpersistent offenders [i.e., “one-timers” or nonrecidivists]) and quantitative (e.g., relatively more or less specialized or persistent) terms.

2. For example, when only two offense categories are used and these offenses are equally probable at any given time, the probability of receiving matching offenses on consecutive arrests is .50 on the basis of chance alone. This probability is reduced to .33 on the basis of chance alone when the number of equally likely offenses is increased to three and continuously decreases as the number of offense categories increases. It is in this context that we assert the greater difficulty of finding offense specialization by chance alone when the number of offense categories is increased.

3. As described by Langan et al. (2003:3-4), rapists were defined in this study as sex offenders who engaged in forcible intercourse (vaginal, anal, or oral) with a female or male victim. Rape also included "forcible sodomy" and "penetration with a foreign object." Child molesters involved those who raped or sexually assaulted children.

4. As mentioned in the ICPSR codebook for these data, setting the maximum number of arrest cycles at 99 truncated the arrest records for 10 individuals who had more than 99 arrests. Earlier arrests for these people were dropped until 99 arrest cycles remained.

5. A study of sex offenders in England and Wales was of comparable breadth, including over 6,000 men convicted of sex offenses (see Soothill et al. 2000).

6. Other explanations for the fewer arrest cycles for sex offenders are also available, including the possibility that arrest charges for sex offenders are more likely to be pooled into a single cycle than is true of other offenses. Unfortunately, there is no way to evaluate this alternative view with the current data. For our purposes, however, being able to explain the differences in the number of arrests for sex offenders and other offenders was less important than the primary concern of this study: documenting the patterns of specialization in arrest cycles regardless of the offense-specific differences in the number or length of these particular cycles.

7. These correlations were based on the first 25 cycles. For purposes of parsimony, Table 2 shows the first 5 cycles and every fifth arrest cycle thereafter. The complete series for the entire 25 cycles are available from the authors on request.

8. This finding is important because it suggests that the lower rate of specialization among sex offenders is not due to a type of sampling bias caused by the dropping out of the sample offenders who had more specialization or versatility (see Farrington et al. 1988:477). By analyzing only those persons with 20 or more arrests, we controlled for this type of sample attrition and were able to conclude that the sex offenders in our sample had comparatively lower rates of specialization than other offenders, regardless of the extensiveness of their arrest histories.

9. Given these opposite trends over arrest cycles for different offense types, the comparison of average FSC values actually suppressed the magnitude of differences between sex offenders and other offenders. For example, sex offenders exhibited even less specialization than property offenders (mean FSC values = .21 and .33, respectively) when focusing on chronic offenders with more than 10 arrest cycles, but these offense differences were substantively trivial among offenders with less extensive criminal records (mean FSC values = .26 and .30).

10. In particular, the correlations between arrest cycle and specialization among rapists were marginally significant ($p < .10$) on the basis of the diagonal probabilities in the transition matrices ($r = -.38$) and the diversity index ($r = .39$) but not significant for the FSC measure ($r = -.29$). The substantive conclusions were the same when Spearman's rank-order correlations were used rather than Pearson's product-moment coefficient.

11. To illustrate this point, consider the situation in which sex offending and burglary are equally probable outcomes on any given cycle. The probability of being a perfect specialist in sex offending on the basis of two arrest cycles is .25 ($.5 \times .5$), whereas the likelihood of

perfect specialization in sex offending by chance alone decreases to .12 ($.5 \times .5 \times .5$) for three arrest cycles to and about .06 for four arrest cycles.

12. For previous studies of displacement for various types of crimes, see Gabor (1990), Cornish and Clark (1987), Barr and Pease (1990), and Miethe (1991).

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