

Prognostics of Recidivism for Incarcerated Juvenile Offenders: More evidence

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ABSTRACT

Considerable effort has been made in the past to identify reliable predictors of recidivism for incarcerated juvenile offenders, but with mixed results. This study draws extensively on previous research to produce a parsimonious set of reliable predictors from a large pool of potential indicators, using data available from a large sample of discharges from a secure state facility in the state of Louisiana. Socio-demographic profiles and delinquent histories of 1,319 juvenile offenders released during the 1999/2000 fiscal year were systematically distilled and from a wide array of potential predictors, a multi-method analysis revealed the following as the most reliable predictors of recidivism in the order of significance: offense type, drug use, peer influence, seriousness of the offense, alcohol use, age at first adjudication, and duration of incarceration.

Keywords: Recidivism predictors, juvenile recidivism, juvenile incarceration, race

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Introduction

Considerable effort has been made to identify key predictors of recidivism among incarcerated young offenders (Benda, 2001; DeComo, 1998; Harms, 2003; Langan & Levin, 2002; Pope and Snyder, 2003; Puzzanchera, 2003; Strom, 2000; Stahl, 2003). Attempts have been made with some success to measure the effects of a wide range of indicators, including such factors as: peer influence, offense type, drug use, family background, age, alcohol use, prison duration, emotional stability, health, prior offense, employment, race, gender and school discipline history. But the state of knowledge of this important problem is far from satisfactory and more research is needed to produce a reliable, universal and parsimonious inventory of recidivism predictors. Empirically based recidivism prediction models are a critical ingredient in the development of viable rehabilitation intervention programs. This paper presents an attempt to up-date and up-grade the extant findings on juvenile correctional recidivism. We analyze data from a large sample of discharged juvenile delinquents and use logistic regression techniques to identify and measure the impact of a number of viable recidivism predictors. The procedure allows us to compare the characteristics of recidivists and non-recidivists, and to measure the relative strength of each independent variable controlling for the effects of all other variables in the model. Variables used in the final analysis were developed from several sources: case profile data from the juvenile justice system, predictors reported in recent research findings, and variables generated from contemporary criminology theory. The bulk of the variables were operationalized from the files of the Louisiana Department of Public Safety and Corrections. The sample consists of a complete enumeration of all cases for a given period of time considered appropriate for this kind of analysis.

Objectives

The objective of this study was to identify and isolate a parsimonious set of the most reliable predictors of recidivism of juveniles charged with serious offending, among a multitude of factors that have so far been floated by previous literature. To achieve this objective, it was necessary, first, to assemble the most commonly reported factors, and to subject them to an initial correlation test in order to eliminate those with the least effect, and then to enter the strongly correlated factors into the decision-making binary logistic regression analysis. Although the significance of each potential predictor was tested for each factor individually, the general hypothesis underlying these tests was that, *ceteris paribus*, there is a statistically significant relationship between juvenile recidivism and each of the identified predictor variables.

Previous Literature

Recidivism is widely used to refer to reoffending within a specified period of time after release from a correctional facility. Because there is no universally accepted duration of time between discharge from custody and reoffending, this has to be specified depending upon the needs, constraints, or other circumstances of the study. Maltz (1984) identifies at least fourteen definitions, with the most common ones being re-arrest, re-adjudication/ re-conviction, re-sentence, and any type of return to prison with or without a new sentence. Owing to their relative ease of measurement as they require no active cooperation of subjects, re-arrests and re-convictions have been the most widely used measures (Greenwood, et. al., 1993). However, most arrests do not lead to conviction and the majority of the other definitions are imbued with similar operationalization weaknesses. Because new crimes are involved, re-adjudication/re-conviction, which is a confirmation through official judicial proceedings that a person has engaged in a subsequent offense after release and is bound for sentencing, gains prominence as the best indicator of the presence of recidivism and has been cited as such (see Champion, 1998). Re-arrest/re-conviction is consequently the measure of choice used in this study. While re-adjudication is for juvenile offenders processed in juvenile courts, re-conviction is either for adult criminals, or for juveniles tried and found guilty in an adults' court.

Some of the more enduring predictors of recidivism include such variables as, age, gender, race, incarceration time, offense type, peer influence and substance abuse. An inverse relationship has been found to exist between age of the offender at first adjudication and the likelihood of recidivating: the younger the person is at first contact with law, the more likely it is that the person will commit further offenses upon release (Miner, 2002; Puzzanchera, et al., 2003). A similar relationship was shown between age at release from custody and recidivism; the younger the person is at the time of release, the more likely it is that the person will return to offending behavior (Benda, 2001; Harrison, et al., 2001; Harms, 2003). Literature also yields a general consensus that males are not only more represented than females in the general phenomenon of crime, but also, they are overly represented in recidivism rates (Greenwood et. al., 1993; DeComo, 1998; Quist & Matshazi, 2000). Such consensus is however largely lacking regarding the role of the offender's racial background in the likelihood to recidivate. Apparently, there is a rift with two discernible camps, one in support of a correlation between race and the pattern of offending (Benda, 2001; Strom, 2000; Harms, 2003; Pope and Snyder, 2003; Stahl, 2003), and the other that points to stereotypes as the main factor in the common conception that black people are more criminogenic and recidivates at a higher rate than white people

(Peterson and Hagan, 1984; Bridges and Steen, 1998). In a more recent evaluation of the role of race in the recidivism of juvenile offenders, race failed to rise to the level of statistical significance as a predictor of recidivism (Mbuba, 2005).

Similarly, the duration of incarceration has emerged in literature as an essential factor in juvenile recidivism; the longer the current duration, the higher the likelihood of recidivism, and vice versa (Sabol et al., 2000; Langan & Levin, 2002; Miner, 2002; Seabloom, et al., 2003). Furthermore, juveniles who have a prior history of offending are more likely to return to the correctional system after release than those who are first-time offenders (Corrado et al., 2003; Minor, et al., 1999). It has also been argued that prior criminal involvement weakens conventional social bonds thereby damaging those relationships that once helped deter criminal behavior (Hagan, 1993; Sampson and Laub, 1997). But it has also been found out that whether or not prior offense will determine reoffending largely depends on the number and severity of previous offenses, often in the region of five or more times (Snyder, 1998). But whether they are first time or repeat offenders, those who commit serious and violent offenses are more likely than minor and property offenders to commit additional offenses upon release (Duncan et al., 1995; Sabol, et al., 2000; Bondeson, 2002). This situation becomes complicated by drug use prior to adjudication, increasing the chances that the individual will recidivate (Grenier and Roundtree, 1987; Benda, 2001).

Another factor that has a bearing on the likelihood of recidivism according to prior studies is peer influence. A tour de force in this respect was offered by Akers (1985) when he found out that any criminal or delinquent acts and the resultant formal sanctions can give the affected individuals the greater exposure to and affinity for other individuals who constantly violate the law and this patterning of reinforcement leads to elevated participation in further criminal behavior. Since then, a great deal of literature has linked peer influence to patterned delinquent behavior, with peer pressure forming a central explanation of not only the first involvement in delinquency, but also the repetitive pattern that typifies recidivism (Loeber & Loeber, 1987; Warr, 1993; Thornberry, et al., 1995; Matsueda & Anderson, 1998).

Methods and Design

A cross sectional data analysis of case records for over thirteen hundred juvenile delinquents discharged from a secure state custody was used to compare the criminal and socio-demographic characteristics of those who were re-arrested with those who remained free for one calendar year post

release. As defined below, the sample population consisted of a complete enumeration of all eligible cases. Cases were matched with available pre-coded sociodemographic and delinquency case history files. The dependent variable was operationalized as a success-failure binary outcome and was correlated with all relevant independent variables in order to reduce the pool to a manageable size. Multivariate analyses were then used to test the ultimate significance of each of the variables in predicting a return to the system upon release. Logistic regression analysis was chosen for this study as it permits the use of a dichotomous dependent variable, measuring the effect of each predictor variable while controlling for all others.

The data used in this study was obtained from the Louisiana's Department of Public Safety and Corrections, and consisted of two datasets. The first set consisted of five data files, namely: (a) Demographic file that contained information pertaining to date of birth, race, sex, and home parish for each youth released from the secure section of the state custody/supervision during the 1999/2000 fiscal year; (b) Transfer file, which contained details of the physical location of placement for individual offenders, transfer dates, type of commitment, screening scores, and the facility exit outcomes; (c) Petition and offense history file, which carried information regarding the petition dates, offense histories, current offense type, date of adjudication, and disposition type; (d) Referral information file that contained information on the referral source, referral date, referral statute, and the referral sequence for every release made during the study period; and (e) Risk and needs assessment file, from which the assessment scores for various domains were obtained.

The second set of data was drawn from the state's Corrections Adult Justice Uniform Network (CAJUN), which contained only those convictions that resulted in adult placement. The CAJUN dataset was essential because some juvenile offenders had been sentenced as adults and they could therefore be traced to the adult facility. These two datasets were merged using common identifiers and case identification numbers. Such personal identifiers were later replaced with a set of unrelated cataloging in order to conceal the identities of the subjects. In the 1999/2000 fiscal year, the number of juvenile offenders released from secure custody in the state of Louisiana was 2,810, excluding a few cases that lacked proper identification. These releasees had been placed in different types of custody. A dominant consideration in determining the custody type for offenders is the seriousness of the offense committed. Those who committed the most serious offenses were incarcerated in secure custody while those with less serious offenses were placed in community-based facilities. This study focused on the former subgroup.

Three factors were used to determine inclusion into the sample. First, the offender must have been incarcerated in secure custody. Secondly, since not all exits from custody amounted to release, given that some offenders would exit one program into another, subjects included in the study were only those who were released from custody into the community. Thirdly, the release period for all the offenders in the sample had to fall within the specified time frame of July 1999 through June 2000. This yielded a sample of 1,319 released offenders. Because the study involved a total count of juveniles who were incarcerated in the state secure custody during the study period, the findings are largely amenable to generalization. However, since they pertain to a sample collected from only one state with cultural and socio-demographic characteristics that may differ in some ways from other population groups, there is no claim that these findings would be a true microcosm of universal expectations.

A number of possible limitations can be acknowledged in this study. Firstly, the study employed data obtained from a government agency, and the data had already been coded although a fresh coding and reorganization became necessary for various reasons explained elsewhere in this study. A strong word of caution is offered by Hagan (2003:246) when he states that, “[t]he investigator must remember that the data have been gathered for agency purposes and therefore may not contain the degree of accuracy or operationalization the researcher desires.” Although it is not possible to lay a legitimate claim to the ability to completely eliminate the subjectivity referred to by Hagan, the caution positively informs the study. In that regard, consultative forums were held with the agency administration during which the main domains of the data were examined and consistency checks and cross-checks of the data were conducted thereafter. These efforts greatly helped to dispel instrumentation fears. In addition, on-site visits were made to a select number of correctional facilities in order to verify any conspicuously outlying observations.

Secondly, it is recognized that the recidivism of the juveniles in this study was tracked for only one year. Although this does not, in any way, adversely impact the general findings given that almost 70 percent of all the recidivism of the first three years takes place within the first year (Langan & Levin, 2002), it is acknowledged that a longer period of follow up might see the recidivism level go up. It should be noted, however, that excessively long periods of tracking offenders upon release may yield reoffending that is not necessarily related to the initial act of offending.

All individual juvenile offenders released from the state custody of Louisiana in 1999/2000 fiscal year were tracked for a period of twelve months from the date each offender was released. Specifically, the first entry, released on the first of July 1999, was tracked up to the end of June 2000, while the last entry released on 30th June 2000 was tracked up to end of July 2001. Although there are several validity concerns that have for long been associated with studies of this nature (see Campbell and Stanley, 1963) such concerns are discussed in this study only to the extent of their threat to the study findings. Those that are relevant to this study include maturation and case mortality. While there is no gainsaying that the propensity to criminal behavior declines with age, this study did not only involve a single year of follow-up, but also, all the subjects were below the age at which physical activity could reasonable be expected to begin declining. These two twin factors eschew any meaningful possibility of maturation effect. In any follow-up study, unexpected loss of subjects occurs quite often and this may have an important consequence on the results. Case mortality in the current study was not a threat to the findings; although some of the releasees may have died or moved to other states after release, that proportion was negligible, mainly because the follow-up duration was relatively short, and also because juveniles are considerably less mobile compared to adult subjects.

Data Analysis

The analysis consisted of two stages. To reduce the pool of potential predictors to a set that most closely approximates the most fecund of them all, all independent variables were correlated with the dependent variable, a binary variable where each case was identified as either a recidivist or a non-recidivist. Only those that showed a strong correlation were entered for this analysis. The second stage involved a run of binary logistic regression analyses in order to ultimately isolate the statistically significant predictors of recidivism, and, consequently, to inform the final indomitable profile of the potential juvenile recidivist. Three hundred and thirty two of the 1,319 dischargees (25.2 per cent) were re-arrested. A breakdown of the predictors that showed a strong correlation and the recidivism rates for each of those predictors is shown in Table 1.

Predictor	Operationalization	N		Total = 1,319	
		Recidivated	% Recidivated	N	%
Race	<i>White</i>	68	26.6	256	19.4
	<i>Black</i>	264	24.8	1063	80.6
Sex	<i>Male</i>	302	26.8	1125	85.3
	<i>Female</i>	30	15.5	194	14.7
Peer influence	<i>No peer influence</i>	47	9.0	520	39.4
	<i>Negative influence</i>	285	35.7	799	60.6
Offense seriousness	<i>Felony</i>	276	33.1	835	63.3
	<i>Misdemeanor</i>	56	11.6	484	36.7
Offense type	<i>Committed</i>	328	28.6	1148	87.0
	<i>Attempted, ...</i>	4	2.3	171	13.0
Drug use	<i>No use</i>	256	21.3	1202	91.1
	<i>History of use</i>	76	65.0	117	8.9
Alcohol use	<i>No use</i>	75	13.1	573	43.4
	<i>History of use</i>	257	34.5	746	56.6

Table 1: Cross-tabulation Results

Evidently, the releasees were predominantly black males, reflecting the disproportionate representation of minorities in the inmate population. Negative peer influence was an important factor for 60.6 percent of the offenders. In addition, 63.3 percent of the total sample had been adjudicated for felonious offenses while 87 percent had committed the offense directly. But use of drugs prior to the first adjudication did not occur frequently, although a remarkable number of offenders had used alcohol by the time they entered the correctional system. The offenders' average age at first adjudication was 13.6 years (S.D = 1.6) and their mean age at release was 17.8 years (S.D. = 1.4). Their average period of stay in incarceration was 33.2 months (S.D = 13.3).

Binary logistic regression analyses formed the basis of testing the hypothesis that there is a statistically significant relationship between recidivism and each of the predictor variables, controlling for the effect of all others. This method was chosen over multiple regression, normally used in previous studies, because of the ease with which it accommodates the use of a dichotomous dependent variables as well as its ability to convert the

probabilities based on a dichotomous dependent variable into logged odds that take the form of a continuous variable. The null hypothesis tested in the study was that, *ceteris paribus*, there is no relationship between recidivism and any of the factors under study. This hypothesis was tested for each of the predictors, using the Bayesian Information Criterion (BIC) derived through logistic regression analyses (Pampel, 2000:30-31). BIC is obtained as the squared Wald (Z^2) minus the natural logarithm of the sample size ($\ln n$), whereby Wald is the ratio of the logit coefficient of x_1 to the standard error of x_1 . Logistic regression was chosen for this study due to its ability to convert probabilities based on a dichotomous dependent variable into logged odds that signify an underlying continuous variable. With recidivism as the dependent variable, the logistic regression model would take the following form: $\ln(p/1-p) = f(x)$, where p is the conditional probability of recidivating given a specific value of the descriptive variable x ; and $p/1-p$ is the odds of recidivating given x .

The essence of a logistic regression analysis is that BIC should exceed zero for the effect of the predictor variable on the dependent variable to be significant (Pampel, 2000). The general BIC decision rule is that if $Z^2 > \ln n$, H_0 should be rejected, whereby a BIC value of between 0 and 2 is defined as weak; 2 to 6 as positive; 6 to 10 as strong; and beyond 10 as very strong (Pampel, 2000). It is recognized that these BIC categories are not mutually exclusive, but they were nonetheless adopted in this study because of their capacity to measure the strength of association. The natural logarithm of the sample for this study was 7.185. The logistic regression analysis produced the results summarized in Table 2 below. Because the aim of the study was to extract the most reliable predictors of recidivism, the predictors are rank-ordered in column one according to the level of their statistical significance.

Predictor	B	S.E.	Z2	BIC (Z2- ln n)	Sig.
Offense type	2.536	.547	21.520	14.335	.000
Drug use	1.756	.297	35.016	27.831	.000
Peer influence	1.552	.266	33.923	26.738	.000
Seriousness of the offense	1.281	.207	38.252	31.067	.000
Alcohol use	.863	.202	18.196	11.011	.000
Age at first adjudication	-.254	.067	14.235	7.05	.000
Duration of incarceration	.041	.006	53.303	46.118	.000
Prior offense	.362	.183	3.905	-3.28	.048
Sex	-.532	.281	3.574	-3.611	.059
Race	.239	.213	1.259	-5.926	.262

Table 2: Partial Logistic Regression Analysis Results

Operationalization and Hypothesis Testing

The dependent variable in this study was recidivism and this was operationalized as a binary score classifying each case as either a recidivist, coded as "1", or a non-recidivist, coded as "0". The operationalization of predictor variables and the extent to which each of those variables influences the likelihood of re-arrest a year post release is explained in turns below.

Offense type: This variable was operationalized according to whether the offender directly committed the offense, coded as "1", or attempted, incited, or conspired with others to commit an offense, coded "0". According to the analyses in Table 2, the logged odds of recidivating for discharges who had actually committed the offense themselves directly were 2.536 times higher than for those who attempted, incited or otherwise conspired with others to commit the offense. The BIC value confirms a very strong relationship between offense type and the likelihood of recidivating. Since Z^2 exceeds the $\ln n$, this provides grounds for rejecting the H_0 . Indeed, the probability that Z^2 of 21.52 would occur if H_0 were true is zero. This finding decisively confirmed that the offense type affects the likelihood of recidivating for offenders released from secure custody.

Drug use: This was a dummy variable coded as "no use=0" and "history of use=1" and it pertains to history of use of drugs prior to adjudication. According to the analysis in Table 2, the logged odds of recidivating were 1.756 times higher for those who had a history of use of drugs than for those

who did not have such a history. The high BIC value confirms a very strong association between use of drugs and the likelihood of recidivating. Furthermore, the probability that a Z^2 of 35.02 or higher would occur with a true H_0 is nil. These findings underscored the need to accept the research hypothesis of a relationship between drug use and recidivism.

Following the same BIC decision rule as explained in the preceding section and illustrated above in the case of offense type and drug use, other factors that forcefully emerged as statistically significant in predicting juvenile recidivism were peer influence, offense seriousness, prior alcohol use, age at first adjudication, and duration of stay in the correctional facility (see Table 2). It was notable that existence of prior offense, sex and race of the offender did not rise to statistical significance in predicting juvenile recidivism. Race was included in the model because it finds support from stereotypical conceptions in the literature (Peterson and Hagan, 1984:67, Bridges and Steen, 1998), but it was not statistically significant when controls were made for all other predictors.

Summary and Conclusion

Although tremendous efforts have been expended in the past towards identifying reliable predictors of recidivism among juvenile offenders with serious criminal charges, there has not been much consistency in identifying the predictors. Because some of the cited factors have little or no generalizable value, this study undertook to delve into those commonly cited factors in juvenile recidivism and to search for the true predictors, using data obtained from the Office of Youth Development in the state of Louisiana. To achieve this goal, most of the factors mentioned in previous research were subjected to two tests. The first comprised of percentages and correlation analyses and only those factors with strong correlation to recidivism were retained and entered for further scrutiny. Factors that made it through this initial elimination level included offense type, history of drug use, peer influence, seriousness of the offense, history of alcohol use, age at first adjudication, duration of incarceration, prior offense records, sex, and race. All the ten factors were subjected to the ultimate test, the binary regression analysis, at which the true predictors of recidivism for serious juvenile offenders were identified while taking into account the actual effect of those factors when everything else is controlled for. The following emerged as the most reliable predictors of recidivism in the order of significance: offense type, drug use, peer influence, seriousness of the offense, alcohol use, age at first adjudication, and duration of incarceration. Finally, although it would be possible to include into these analysis

interaction effects and various psychological and personality level variables, our goal was to focus on case history data routinely collected in the adjudication and incarceration process, so that the results would have a higher generalizable application.

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