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# The Recidivism of Violent Youths in Juvenile and Adult Court: A Consideration of Selection Bias

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Running head: THE RECIDIVISM OF VIOLENT YOUTHS

“The Recidivism of Violent Youths in Juvenile and Adult Court:  
A Consideration of Selection Bias” \*

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### Abstract

Contemporary research suggests that increased efforts to transfer juveniles to the adult criminal justice system may backfire, as waived youths generally exhibit greater recidivism as compared to similar offenders retained in juvenile court. One concern with this research is the possibility of selection bias, meaning that the findings could be explained as merely a simple consequence of the highest risk youth being transferred. This study examined this issue for 494 violent youths from Pennsylvania, of which 79 were waived to adult court and 415 were retained in juvenile court. The likelihood, seriousness, and timing of their recidivism were analyzed, with a statistical control for selection bias included. The findings still suggest heightened recidivism among the transferred youths.

## The Recidivism of Violent Youths in Juvenile and Adult Court:

### A Consideration of Selection Bias

During the early to mid 1990s, in response to nationwide concern over youth violence, nearly all states moved to ease the process of “transferring” or “waiving” serious and violent juvenile offenders to the adult criminal justice system (Bishop, 2000; Griffin, Torbet, & Szymanski, 1998; Myers, 2001; Snyder & Sickmund, 1999). In some jurisdictions, juvenile court judges were given expanded powers to waive certain youths. Another approach was to grant prosecutors the authority to file charges in either juvenile or adult court. However, the most popular strategy was for state legislatures to statutorily exclude certain offenses, offenders, or both from juvenile court jurisdiction. In general, these legislative waiver laws automatically placed eligible youths into the adult system at the time of arrest, thereby removing the initial discretionary power of juvenile officials. This method of transfer essentially treats broad categories and increased numbers of offenders (usually those committing some type of violent act) as equal and deserving of being prosecuted in adult court.

Along with retribution and incapacitation, the principle of deterrence has been used as a primary justification for the contemporary waiver movement (Bishop, Frazier, Lanza-Kaduce, & Winner, 1996; Fagan, 1995; Singer, 1996). It is assumed by policymakers and the general public that treating juveniles as adults will reduce overall juvenile crime (i.e., a general deterrent effect) and also reduce or eliminate the future offending of those who are transferred to criminal court (i.e., a specific deterrent effect). This expectation of greater deterrence is based on the perception that juvenile courts are too lenient, and that criminal courts can provide increased accountability and stronger punishment, which will reduce youthful offending.

Although the literature surrounding the transfer process has been steadily building during the past 30 years (for extensive reviews, see Bishop, 2000; Howell, 1996, 1997; and Myers, 2001), relatively little empirical attention has been given to the possible deterrent effects achieved from this policy. With regard to general deterrence, only two studies have looked at the impact of expanded juvenile transfer laws on aggregate adolescent crime rates. Singer and McDowall's (1988; see also Singer 1996) evaluation of the impact of New York's 1978 legislative waiver law and Jensen and Metsger's (1994) assessment of a similar 1981 law in Idaho both suggested that the laws had little measurable effect on juvenile crime, and in the case of Idaho it may have actually backfired by contributing to an increase in juvenile offending. Thus, these laws did not produce the general deterrent effect expected by policymakers.

More important for the current research, only a few studies have assessed the specific deterrent effect of transferring juveniles to adult court. Fagan's (1995) research on New York and New Jersey youths revealed that robbery defendants processed in New York criminal courts were rearrested and reincarcerated at a higher rate than comparable youths in New Jersey juvenile courts, and the New York offenders were also rearrested in a shorter amount of time. In contrast, there were no significant differences for burglary offenders in juvenile versus adult court, in terms of rearrest, reincarceration, and time until rearrest.

In a study of matched youths in Florida, Bishop and her colleagues (1996) found that 30% of the juveniles transferred to adult court were rearrested during a 1-year follow-up period, while only 19% of the youths retained in juvenile court were rearrested. Furthermore, the mean time to failure was shorter for waived juveniles than for retained youths, and there was evidence that recidivism was more serious among youths treated as adults. A 6 year follow-up by the same authors (Winner, Lanza-Kaduce, Bishop, & Frazier, 1997) concluded that youths retained in

juvenile court eventually caught up with those transferred to adult court in terms of the prevalence of rearrest, but this was due to an increased probability of rearrest over the long term for retained youths processed on felony property offenses.<sup>1</sup> Once the effect of offense type was controlled, the findings indicated that transfer led to greater recidivism. Finally, even though transferred property felons were less likely to reoffend, when they did so they reoffended more frequently and more quickly than did the comparable retained youths.

Finally, in their study of youths considered for waiver in Hennepin County, Minnesota, Podkopacz and Feld (1996) also failed to find evidence of greater specific deterrence in adult criminal court. During a 2-year follow-up period, 58% of the transferred juveniles were convicted of a new crime, in contrast to only 42% of the retained youths. The authors offered three possible explanations for the lower juvenile court recidivism rate: (a) through an emphasis on prior offending, the juvenile court succeeded in transferring the most serious and frequent offenders who had a greater probability of recidivism; (b) treatment services were more effective in the juvenile correctional system; and/or (c) the adult criminal system better trained (rather than deterred) further criminality than did the juvenile system.

The second and third explanations presented above by Podkopacz and Feld (1996) both suggest greater effectiveness in the juvenile court system with regard to handling serious and violent youthful offenders. The first explanation points to the problem of selection bias in this type of research, or that greater recidivism could be found among transferred juveniles simply because they are more serious and persistent offenders. However, it is important to consider that none of these explanations would favor a dramatic increase the number of juveniles who are sent to adult criminal court.

Obviously, if the juvenile court provides better treatment, or if the adult system trains (rather than deters) further criminality, it would be prudent to keep all but the most serious and violent youthful offenders in the juvenile system. Furthermore, if transferred juveniles exhibit greater recidivism simply because they are substantially different from youths retained in the juvenile system, then it would not seem wise or just to treat broad categories of youthful offenders in a similar manner and send them in mass to adult court. Yet this is what the currently most popular method of transfer, legislative waiver, seeks to do.

The purpose of the current study was to provide a further examination of the future criminal behavior of similar youths in juvenile court versus adult criminal court. Using data from Pennsylvania, the likelihood, seriousness, and timing of the post-dispositional recidivism of transferred and nontransferred violent youths were analyzed, while utilizing a statistical control for selection bias. Findings from this research should be compared to those of the studies discussed above and also be given consideration by policymakers who are weighing the merits of expanded juvenile waiver laws.

### Juvenile Transfer in Pennsylvania<sup>2</sup>

Similar to the rest of the nation, increasing youth violence in Pennsylvania during the early to mid 1990s received a great deal of public attention (Bell, 1995, 1996a; 1996b). Newspaper editorials proclaimed that violent crime among juveniles had reached alarming proportions, and that armed youths were preying on the young and old alike (Evanko, 1995, p. A7). In response to this situation, and amid much political fanfare, legislators in Pennsylvania modified their juvenile code (Krebs, 1995; Loyd, 1996; Sampson, 1995a; 1995b; Stack, 1995; Stanley, 1996; Wing, 1996). In doing so, a move was made away from judicially waiving a relatively small annual number of offenders from juvenile to adult court, toward the statutory

exclusion of broad categories of violent youths from juvenile court jurisdiction. This was done with the expectation that the number of juveniles processed in adult criminal court would increase substantially.

Prior to the mid 1990s, Pennsylvania's *Juvenile Act* (Pennsylvania Juvenile Court Judges' Commission, 1992, Section 6355) did allow for both the judicial waiver and statutory exclusion of certain offenders. However, those charged with murder and those previously found guilty (of a misdemeanor or felony) in an adult criminal proceeding constituted the only offenders that were legislatively waived to adult court. The more common approach was judicial waiver, which hinged on a juvenile court judge determining whether a particular youth was no longer amenable to the treatment offered in the juvenile system. This decision was based on such factors as the juvenile's age, mental capacity, maturity, degree of criminal sophistication, prior delinquent involvement, prior treatment experience, chances for rehabilitation, and the nature of the current offense.

In general, Pennsylvania's juvenile code provided judges with broad discretionary power to transfer cases, which often has been criticized in the past (Feld, 1987, 1993). However, from 1985 through 1995, this system produced a judicial waiver to adult court in only about 1% of the total annual cases that reached disposition in Pennsylvania (Lemmon, Sontheimer, & Saylor, 1991; Myers, 1997). With regard to the actual numbers of judicial waivers during this time period, there was a gradual increase from 227 in 1985 (0.78% of the total dispositions), to 375 in 1990 (1.06% of the total dispositions), and finally to 533 in 1995 (1.44% of the total dispositions).

In 1995, significant legislative attention was given to Pennsylvania's juvenile justice system, and the Commonwealth's *Juvenile Act* (Pennsylvania Juvenile Court Judges'

Commission, 1992) was modified. Legislation was enacted pertaining to such matters as the use of juvenile records in determining bail, fingerprinting of juveniles, expungement of juvenile records, public access to delinquency hearings, restitution by youthful offenders, creation of a DNA database, background checks for gun purchases, parental participation in treatment programming, parental responsibility for truancy, and reporting of delinquency dispositions. Perhaps the most important change, and the one that received the most public attention, concerned the prosecution of violent youthful offenders in adult criminal court.

The new juvenile code excluded from juvenile court jurisdiction any youth charged with murder or any of the following violent offenses, when the child was between 15 and 18 years of age at the time of the alleged offense and a deadly weapon<sup>3</sup> was used during the offense: rape, involuntary deviate sexual intercourse, aggravated assault, robbery, robbery of a motor vehicle, aggravated indecent assault, kidnapping, voluntary manslaughter, or an attempt, conspiracy, or solicitation to commit murder or any of these other listed offenses (Pennsylvania Juvenile Court Judges' Commission, 1996a, pp. 2-3). The new act also excluded any youth between 15 and 18 years of age at the time of the alleged offense who commits any of the above listed crimes, except for aggravated assault, after previously being adjudicated delinquent on the basis of any of these offenses.<sup>4</sup> The new juvenile code also allows for all excluded cases to be transferred back to juvenile court, if the offender establishes by a preponderance of the evidence that a reverse waiver will serve the public interest. It is noteworthy that in the years following the enactment of this legislative waiver law, judicial waivers in Pennsylvania steadily declined, from 501 in 1996 (1.40% of the total dispositions) to 183 in 2000 (0.44% of the total dispositions) (Pennsylvania Juvenile Court Judges' Commission, 1996b, 2000).

## Data and Methods

### *Sample and Procedure*

Pennsylvania's revised legislative waiver law became effective in March 1996. The current research examined certain offenders who were formally processed in Pennsylvania in 1994 and would have been excluded from juvenile court jurisdiction, had the more recent legislation been in effect at that time.<sup>5</sup> More specifically, this study analyzed data pertaining to a cohort of 494 male juvenile offenders who were arrested for robbery, aggravated assault, or both, and a deadly weapon was involved in their offense.<sup>6</sup> These youths were between the ages of 15 and 18 at the time of the offense and received a juvenile court disposition sometime during 1994. Of the 494 total offenders, 79 were judicially waived to adult criminal court, and 415 were retained in juvenile court.<sup>7</sup> The essence of this study was to compare the recidivism of the juveniles transferred to adult court with those retained in juvenile court.

It should be noted at the outset that due to a lack of random assignment, this study could not eliminate the potential problem of selection bias. The cohort of offenders was selected on the basis of meeting the current criteria for exclusion from juvenile court jurisdiction, but the waived and retained offenders were likely to be significantly different in terms of more than just the type of court system in which they were processed. Those who were waived to adult court were certified by a juvenile court judge as being no longer amenable to treatment in the juvenile system, generally meaning that these cases were seen as being more serious than those retained in juvenile court. However, as discussed below, a strong effort was made to control for variables that might influence the decision to transfer and the future offending behavior of youths (e.g., prior record, type of weapon involved in the offense, demographic variables, family and school

status), and a two-stage process was used to produce and utilize a statistical control for selection bias.

#### *Data Source*

Case information pertaining to the youthful offenders discussed above was obtained through The Center for Juvenile Justice Training and Research (CJJT&R), located at Shippensburg University (PA). The Center was established and is managed by the Juvenile Court Judges' Commission (JCJC) of the Commonwealth of Pennsylvania. In addition to providing a number of training and educational programs to juvenile probation officers from across the state, CJJT&R also operates a Statistical Analysis Center that compiles data and publishes an annual report on the activities of all juvenile courts in Pennsylvania. Because of this latter responsibility, CJJT&R maintains individual county data that enabled the current study to be completed.

In order to receive funding from JCJC, each county in Pennsylvania must submit offender and offense information pertaining to every juvenile court disposition handled within its jurisdiction. While providing extensive data on all youths handled by county juvenile courts, the reporting system also includes all cases in which "transfer to criminal court" is identified as the final disposition. Data for the current study were taken directly from the database maintained by CJJT&R and are limited to the information that the agency considers important for its purposes. Consequently, some variables that may be relevant to a discussion of juvenile justice processing and transfer to adult court were not available (e.g., socioeconomic status).

#### *Measures*

Table 1 presents statistical descriptions (i.e., means, standard deviations, and ranges) of all the variables employed in this study, based on the entire cohort of offenders. Because of the quasi-experimental design employed in this study, it is important to consider differences between

the waived and retained youths. Table 2 provides comparative, descriptive information for the separate transferred and nontransferred offenders. The variables are described in more detail below.

*Independent variables.*

The central independent variable was *transfer* to adult criminal court. Based on the quasi-experimental research design, this variable does not represent a true manipulation. Rather, it is a “treatment” given to an assigned group that may differ from the comparison group in terms of criminal activity and demographic characteristics (Campbell & Stanley, 1966; Cook & Campbell, 1979). This variable was coded as 0 if the offender was retained in juvenile court and 1 if the offender was waived to adult criminal court. Of the entire cohort of 494 offenders, 16% were transferred to adult criminal court.

Numerous other variables were utilized to control for any influence they might have on the decision to transfer and future criminal behavior. To begin, harsher penalties tend to be associated with older offenders than with younger offenders who are starting their delinquent career (Wolfgang, Figlio, & Sellin, 1972), and an older age at the time of offense has been found to predict judicial certification to adult criminal court (Eigen, 1981a, 1981b; Fagan & Deschenes, 1990; Podkopacz & Feld, 1996; Poulos & Orchowsky, 1994). Therefore, *age* at referral was included as a continuous variable, measured in years. While the average age of the offenders was slightly greater than 16 years, the transferred youths were significantly older (by nearly a year) than those retained in juvenile court.

*Race* also was used as an offender characteristic. Although recent research has failed to find direct racial bias in the transfer process (Fagan & Deschenes, 1990; Fagan, Forst, & Vivona, 1987; Podkopacz & Feld, 1996; Poulos & Orchowsky, 1994), racial characteristics are

hypothesized by labeling theory to influence justice system outcomes (Paternoster & Iovanni, 1989). Because of the way race was coded in the employed data, only whites (coded as 0) and nonwhites (coded as 1) could be distinguished. However, the nonwhite category was made up almost entirely of African Americans. Eighty-one percent of the youths were nonwhite, and race did not significantly differ by transfer status.

Research shows that juvenile justice processing and case outcomes often depend on whether the offender was handled in a rural, suburban, urban setting (Feld, 1993; Smith & Paternoster, 1990). Furthermore, location has been found to have a significant influence on the transfer decision (Feld, 1989; Hamparian et al., 1982; Poulos & Orchowsky, 1994). With this in mind, *county* of jurisdiction was coded as 1 for urban and 0 for suburban/rural.<sup>8</sup> Eighty-six percent of the offenders were from urban counties. Consistent with prior research, the retained youths were significantly more likely to come from an urban county as compared to the waived offenders.

Two other important social factors pertain to the youth's family and school situations. Traditionally, home and school environments have received strong consideration by the juvenile court, and both may have a significant influence on the transfer decision (Podkopacz & Feld, 1996; Singer, 1993) and future criminal behavior (Hirschi, 1969; Sherman, 1993). To control for these factors, *school* status, at the time of referral, was coded as 0 for not enrolled and 1 for enrolled, graduated, or GED. *Family* status, also at the time of the referral, was coded as 0 for living with two parents and 1 for other living arrangements (e.g., one parent, relative, in placement, living independently). Seventy-five percent of the offenders were living in something other than a two-parent household, and nearly the same percentage was enrolled in school, had graduated, or received a GED. While the transferred offenders were significantly less likely to be

enrolled in school than were the retained youths, little difference existed in terms of family status.

While the current research is limited to those offenders charged with robbery, aggravated assault, or both, use of a deadly weapon was also present as an offense characteristic. According to Pennsylvania law, use of a deadly weapon can encompass a wide variety of devices (e.g., firearms, clubs, knives, etc.). Therefore, *weapon* type was used as a control variable, coded as 1 for firearm and 0 for any other deadly weapon. Eighty-five percent of the youths employed a firearm. Somewhat surprisingly, those retained in juvenile court were significantly more likely to have used a gun than were the transferred offenders.

It was imperative to consider the prior offense history of the offenders in the study, in order to account for differences in past delinquent behavior between those youths who were transferred to adult court and those who remained in juvenile court. Also, prior record is an important consideration in research on recidivism, especially in studies that examine the effects of different justice system policies and programs. First, because of the strong relationship that exists between early onset and subsequent serious, violent, and chronic offending (Blumstein, Cohen, Roth, & Visser, 1986; Farrington, 1986; 1998), age at *first referral* to juvenile court was included as a continuous variable, measured in years. While the overall average age of first referral was slightly less than 15 years, those retained in juvenile court had a significantly older age of first referral as compared to the waived offenders.

Next, three variables (prior referrals, prior adjudications, and prior placements) were combined into a composite measure ( $\alpha = .8694$ ) of each offender's delinquent history. Prior referrals represented the total number of times a youth was previously referred to the juvenile court. Prior adjudications represented the total number of times a youth was previously

adjudicated delinquent. Prior placements represented the total number of times a youth was placed in a juvenile correctional facility as a result of a juvenile court disposition. In order to obtain a comprehensive measure of the frequency and seriousness of prior offending and to prevent the problem of multicollinearity that would have existed if each would have been used separately in the analysis as independent variables, these three scores were added together to produce a continuous *prior record* variable. While the average score for this variable was slightly less than 3, the transferred offenders had a significantly greater prior record score than did the youths retained in juvenile court.

Lastly, to measure the seriousness of prior offending, a dummy variable was used to identify those juveniles who were previously adjudicated delinquent on one of the violent felonies targeted by the recently enacted legislative waiver law in Pennsylvania. The *prior violent felony* variable was coded as 1 if a prior violent felony was substantiated and a 0 if no prior adjudication of delinquency on a violent felony occurred. Thirteen percent of the offenders were previously adjudicated delinquent on a violent felony, and the waived youths were significantly more likely to possess this prior adjudication as compared to the retained offenders.

In addition to the variables discussed above, four case processing variables were utilized to assess their potential impact on future criminal behavior. These variables appeared useful in considering the possible effect of punishment certainty, severity, and swiftness on recidivism. *Release* from custody prior to final disposition refers to whether the offender was released from detention or secure custody either prior to sentencing (if the case resulted in a finding of guilt in either juvenile or adult court) or adjudication (if the case resulted in a dismissal or acquittal in either juvenile or adult court). This variable was coded as 0 if the offender remained in custody during this time period and 1 if the youth was released. Overall, 40% of the offenders were

released prior to disposition. A much larger and significantly greater percentage of the transferred offenders were released prior to final disposition, as compared to the retained youths.<sup>9</sup>

*Convict* was coded as 0 if the case resulted in a dismissal or acquittal and 1 if any charges were substantiated in juvenile or adult court. Sixty-four percent of the offenders were convicted in one court or the other. A significantly higher percentage of offenders were convicted in adult court than in juvenile court. *Incarceration* is the length of time ordered by the court for secure confinement,<sup>10</sup> measured in months. For the entire group of offenders, the average length of incarceration was nearly 6 months, but offenders in adult court received significantly longer periods of incarceration than did those in juvenile court.

Next, case-processing time (*process*) was measured in days, as a continuous variable. Due to this variable being positively and severely skewed, the natural log of processing time was used as the independent variable. The mean of the natural log of case-processing time for the entire group was 4.05 (57.4 days). Youths in adult court experienced much longer periods of case processing than did those retained in juvenile court.

Two final independent variables were employed, to account for differences in time that offenders were exposed to a risk of recidivism and to statistically control for the presence of selection bias (see Smith & Paternoster, 1990). Youths in this study either did not receive a sentence of incarceration or were released from incarceration sometime prior to December 31, 1997, and their subsequent recidivism was examined over an 18-month follow-up period. Of the 494 total offenders, 480 experienced the full 18-month exposure to risk by June 30, 1998 (the recidivism cut-off date for the data employed in this study). For the remaining 14 offenders, *risk*

*time* ranged from 9 to 17 months, and there was little difference in average time at risk between the waived and retained offenders.

Finally, because assignment to juvenile or adult court was the result of a non-random process, it seems likely that the higher-risk youth were more likely to be transferred to adult court. Therefore, these offenders would be more likely to commit new offenses whether or not any relationship exists between juvenile waiver and future offending. To correct for this type of selection bias, a two-part model was employed, as presented below. First, a logistic regression model was estimated that examined the possible determinants of transfer to adult court. The standardized residuals from this model were then employed in subsequent models that examined the possible determinants of recidivism, in order to capture differences among the offenders on unmeasured variables that influenced the probability of being waived to adult court.

INSERT TABLE 1 AND TABLE 2 HERE

*Dependent variables.*

Recidivism measures were constructed from data on official arrests that occurred following final disposition of an offender's case. These measures were based on county juvenile and criminal records and a statewide criminal records check conducted by the Pennsylvania State Police. Although this data was restricted to arrests occurring in Pennsylvania, the youthfulness of the offenders in this study would appear to limit both their mobility and the likelihood that they would be rearrested in another state. Although the use of arrest records in measuring recidivism is inherently problematic, in that not all future offenses result in detection, multiple measures of officially recorded contacts with the law have been used successfully in various studies that have examined the specific deterrent effect of formal sanctions (see, e.g., Bishop et al., 1996; Fagan, 1995; Podkopacz & Feld, 1996).

In this study, three outcome variables were examined. *Arrest* was coded a 1 if the offender was arrested during the follow-up period and 0 if no arrest occurred. Of the entire group, 31% were rearrested following final disposition. A comparison of the waived and retained youths initially suggests greater recidivism among those treated as adults, although the difference did not reach statistical significance. Of the transferred offenders, 38% were rearrested, as compared to 29% of those retained in juvenile court.

Violent felony arrests were used to measure the seriousness of recidivism following final disposition. *Violent* was coded as 1 if an arrest on a violent felony that was targeted in Pennsylvania's legislative waiver law occurred and 0 if no violent felony arrest took place. Overall, 17% of the offenders were rearrested for a violent felony offense following final disposition. Of the youths retained in juvenile court, 16% were rearrested on a violent felony charge following final disposition, compared to 24% of those waived to adult court.

Lastly, in order to examine how quickly offenders were rearrested during the post-dispositional time period, *arrest time* was measured in months. Overall, of the 152 youths who were rearrested, the mean time to rearrest was 6.74 months. The comparative breakdown suggests that the transferred offenders experienced a shorter time to rearrest (5.77 months), on average, than did the youths retained in juvenile court (6.98 months), though the difference again was not statistically significant.

## Results

The estimated zero-order correlations between all variables are presented in Table 3. The bivariate correlations among the independent variables suggest that multicollinearity was not a problem, and further examination of tolerance statistics and variance inflation factors from a

linear probability model (see Aldrich & Nelson, 1994) confirmed that collinearity among the independent variables did not pose a threat.

INSERT TABLE 3 HERE

#### *Determinants of Transfer*

In the first stage of analysis, a logistic regression model was employed to examine those factors that could influence the likelihood of transfer to adult court. As previously discussed, the standardized residuals from this model were saved and subsequently utilized as a statistical control for selection bias in the recidivism analyses presented shortly.

INSERT TABLE 4 HERE

The estimates for the determinants of *transfer* are presented in Table 4. The pseudo-R<sup>2</sup>s suggest that the model explains between 28% and 48% of the “variation” in the dependent variable. Of the nine independent variables in the equation, three coefficients were significant: age, weapon, and prior record. Consistent with prior research, the coefficient for *age* was positive ( $b = 1.210$ ;  $p < .01$ ), meaning that while controlling for the other factors, older youths were more likely to be transferred to adult court as compared to younger offenders. The coefficient for *weapon* was negative ( $b = -2.029$ ;  $p < .01$ ), surprisingly indicating that youths who employed a firearm during the commission of their offense were significantly less likely to be transferred than those who did not use a firearm. However, this finding might be explained as a consequence of an inability to control for victim injury. In other words, it may be that a large majority of the gun offenses did not produce an injury to the victim, while many of the non-firearm offenses could have involved a serious victim injury. Finally, as expected, the coefficient for *prior record* was positive ( $b = .265$ ;  $p < .01$ ), meaning that youths with a more extensive prior record were significantly more likely to be transferred to adult court. Both the Wald

statistics and odds ratios (exponentiated coefficients) indicate that these three variables were much stronger predictors of transfer as compared to the other six. However, roughly two-thirds of the “variation” in *transfer* was left unexplained, pointing to the need for further consideration of selection bias in examining the future criminal behavior of these youths.

#### *Determinants of Arrest*

The logistic regression estimates for the determinants of *arrest* are listed in Table 5. Two separate models are presented, one not containing the standardized residuals from the model in Table 4 and one with these residuals included, and the findings are very similar. To begin, the pseudo-R<sup>2</sup>s indicate that these models only explain about 11% to 16% of the “variation” in the dependent variable. However, perhaps most importantly, both without ( $b = .852$ ;  $p < .05$ ) and with ( $b = 1.793$ ;  $p < .05$ ) the statistical control for selection bias, the effect of *transfer* to adult court was positive and significant. This indicates that the waived youths were more likely to be rearrested following final disposition than were their counterparts in juvenile court. In fact, the odds ratios (exponentiated coefficients) for the transfer variable indicate that being waived to adult court more than doubled the simple odds of a post-dispositional arrest.<sup>11</sup> Furthermore, the coefficient for the standardized residuals was insignificant, providing further support for the conclusion that differences in recidivism for waived and retained youths were not due to selection bias.

INSERT TABLE 5 HERE

In addition to the impact of *transfer*, several other significant effects were revealed. *Age* at referral had a significant, negative effect in both models, meaning older youths were less likely to be rearrested following final disposition than were younger juveniles. This seems likely due to the younger offenders aging into the known peak years of offending (i.e., upper teens)

during the post-dispositional time period, while older youths were aging out of the peak offending years at this time. Also, the coefficients for *school* status were positive and significant, indicating that offenders who were enrolled, graduated, or had obtained a GED at the time of referral were more likely to be rearrested following disposition than were youths who were not enrolled. This somewhat surprising finding concerning school status might be explained based on a process of weakened social bonds (Hirschi, 1969), as offenders who were enrolled may have been removed from school as a result of their initial arrest and court processing, increasing the likelihood of future offending. Moreover, youths who had graduated or obtained a GED could have lost employment as a consequence of their arrest and court processing, also increasing the likelihood of future offending. An alternative explanation is that this variable might be a poor proxy for actual school status. It could be that many juveniles who were reported as being enrolled in school may not have been attending school, or at least had a substantial number of absences.

Although the extent and seriousness of an offender's prior record (i.e., *prior record* and *prior violent*) did not have a significant effect on the likelihood of rearrest, the coefficients for age at *first referral* were negative and significant. This suggests that those offenders with an older age at first referral were less likely to be rearrested following final disposition than were youths with a younger age at first referral, which is consistent with what is known about the importance of early age of onset. Furthermore, *conviction* was found to have a significant, positive influence, meaning that youths who were convicted were more likely to be rearrested following disposition than were offenders who were not convicted. In contrast, *incarceration* length was found to have a significant, negative effect, indicating that youths who were incarcerated for longer periods of time were less likely to be rearrested following disposition

than were offenders who were either not incarcerated or were incarcerated for shorter time periods. These latter findings suggest that simply being convicted was not enough to deter the future offending of these violent youths. In fact, it increased the likelihood of post-dispositional recidivism. On the other hand, longer sentences of incarceration had a beneficial impact, suggesting greater deterrence, rehabilitation, maturation, or some combination of effects from longer periods of confinement.

#### *Determinants of Violent Felony Arrest*

The logistic regression results for the determinants of post-dispositional violent felony arrest are presented in Table 6. Again, two separate models are listed (both without and with the standardized residuals from the model in Table 4), and the findings are similar across the models. The pseudo-R<sup>2</sup>s suggest that the models do an overall poor job of predicting post-dispositional violent felony arrests, as only 8% to 13% of the “variation” in the dependent variable is explained. Moreover, none of the coefficients for the independent variables were found to be significant at the .05 level. However, in both models the coefficients for *transfer* were in the same, positive direction, and they somewhat approached statistical significance ( $p < .20$ ). Furthermore, the odds ratios again indicate that being waived to adult court approximately doubled the simple odds of being arrested on a post-dispositional violent felony charge, suggesting heightened violent recidivism on the part of transferred youths. Finally, the effect of the standardized residuals variable again was insignificant.

INSERT TABLE 6 HERE

In addition to the estimates for the transfer variable, the coefficients for *county* of jurisdiction and *incarceration* length came closest to reaching statistical significance ( $p < .10$ ), suggesting that urban youths were more likely to be rearrested on a violent felony offense

following disposition than were their rural and suburban counterparts, and that offenders who were incarcerated for longer periods of time were less likely to be rearrested on a violent felony offense following disposition than were those who were either not incarcerated or were incarcerated for shorter time periods. As with the previous logit models, this latter finding implies greater deterrence, rehabilitation, maturation, or a combination of effects from longer periods of confinement.

#### *Time to Rearrest*

The results of a Cox regression survival analysis (again in two separate models, without and with the control for selection bias) for the determinants of post-dispositional survival time may be found in Table 7, and they essentially mirror the findings from the logit models presented in Table 5. The positive and significant effects of *transfer* in these models indicate that, at any point in time following disposition, waived offenders experienced an increased risk of rearrest (i.e., decreased survival times) as compared to retained youths. In other words, youths transferred to adult court were rearrested more quickly following final disposition than were their counterparts who remained in juvenile court. Under the assumption that higher rate offenders would have shorter times until rearrest, the results also suggest that transferred youths were more frequent offenders following final disposition than were retained juveniles. The effect of the standardized residuals variable again was insignificant.

INSERT TABLE 7 HERE

There also were several other significant predictors revealed. First, in the model containing the standardized residuals, *age* at referral again had a significant, negative impact ( $b = -.279$ ;  $p < .05$ ), meaning that older youths exhibited a decreased risk of rearrest at any point in time following disposition (i.e., longer survival times than younger offenders). The coefficients

for *school* status were again positive and highly significant in both models. This indicates that, at any point in time following disposition, youths who were enrolled in school, graduated, or had obtained a GED at the time of referral experienced an increased risk of rearrest (i.e., decreased survival times) as compared to offenders who were not enrolled in school. With regard to the prior offending variables, in both models age at *first referral* was found to have a significant, negative effect. This signifies that, at any point in time following disposition, youths with an older age at first referral experienced a decreased risk of rearrest (i.e., increased survival times) as compared to offenders with a younger age at first referral.

Finally, conviction and incarceration length were found to have a significant influence on time to rearrest. *Conviction* had a positive effect in both models, meaning that, at any point in time following disposition, youths who were convicted experienced a greater risk of rearrest (i.e., decreased survival times) as compared to offenders who were not convicted. In contrast, the coefficients for *incarceration* length were negative and highly significant, indicating that, at any point in time following disposition, youths who were incarcerated for longer periods of time experienced a decreased risk of rearrest (i.e., increased survival times) as compared to youths who were either not incarcerated or were incarcerated for shorter periods of time. Overall, the findings concerning conviction and incarceration length again suggest that for serious and violent youthful offenders, being convicted is not enough to deter future offending. Instead, longer periods of confinement in correctional facilities appear necessary in order to provide deterrence, rehabilitation, maturation, or some combination of effects on future behavior.

### Discussion and Conclusions

Many supporters of treating juvenile offenders as adults assert that transfer sends notice to violent youths that their behavior will no longer be tolerated, particularly when harsh

sanctions are imposed in adult court. Consequently, it is expected that the transfer process will reduce future motivations toward offending, thereby further increasing public safety. The results of the current study fail to support this contention. Furthermore, these findings correspond well with those of other recent studies (Bishop et al., 1996; Fagan, 1995; Podkopacz & Feld, 1996; Winner et al., 1997; see also Myers 2001; Myers & Kiehl, 2001) that compared the recidivism of transferred juveniles with that of similar youths retained in juvenile court.

It seems, then, that legislative waiver laws (such as the one enacted in Pennsylvania) can realistically be expected to have little or no deterrent utility. In fact, the evidence actually suggests a "criminogenic effect," or that these laws may serve to increase the frequency and seriousness of future offending by those youths who are excluded from juvenile court. However, as noted by Podkopacz and Feld (1996, p. 491) and mentioned earlier, there is more than one possible explanation for the findings of greater recidivism among transferred youths.

First, it is possible that more effective treatment services are offered in the juvenile correctional system. Prior quantitative and qualitative research indicates that juveniles in adult prisons and jails generally receive inferior treatment services and are more often exposed to violent victimization as compared to youths in juvenile facilities, and that the adult system often is ill prepared to deal with these adolescents (Forst, Fagan, & Vivona, 1989; Howell, 1997; Myers, 2001; Reddington & Sapp, 1997). It should be recognized that in the current study, while controlling for court of jurisdiction, offenders who were incarcerated for longer periods of time exhibited lesser recidivism than did youths who either were not incarcerated or were confined for shorter time periods. It was not possible to determine why longer incarceration was associated with lesser recidivism. However, the results clearly suggest that for these violent offenders, lengthier confinement was beneficial. This could be taken by some to mean that since the adult

court is capable of imposing longer sentences than the juvenile system, then waiver to adult court should be utilized to a greater extent. However, this position ignores the positive transfer effect found in this and other studies. When considered with the consistent findings of greater recidivism among transferred youths, it would seem that longer-term treatment in juvenile correctional facilities provides the best chance for future law-abiding behavior among violent adolescents.

A second possible reason for the findings of greater recidivism by transferred juveniles is that these youths learned from other adult criminals, or that the adult court and incarceration experience served as a training ground for future criminality. Few would argue that having adolescents spend time with adult criminals produces beneficial consequences. On the other hand, others would assert that by placing violent youths in the company of older and more seasoned offenders, a forum is provided which serves to enhance the very behavior that is trying to be prevented.

Third, labeling theory would seem to provide a sound explanation for why transferred juveniles exhibit greater recidivism than do similar offenders retained in the juvenile system. Being sent to adult criminal court can have a variety of negative consequences for youthful offenders, all of which may occur prior to any further criminal behavior. None are inevitable, but the degree to which these consequences occur may explain the consistent findings of greater recidivism among transferred youths.

To begin, as argued by Paternoster and Iovanni (1989, p. 376), the imposition of a label seems unlikely to amplify future offending if the label is applied and kept in private. While the juvenile court process still tends to be somewhat secretive, when youths are transferred to adult

court, they are very likely to be publicly labeled as a criminal. Subsequently, several additional outcomes may take place, either alone or in conjunction with each other.

One obvious potential consequence of transfer and public labeling is exclusion from conventional activities, such as jobs, school, and other social functions (Braithwaite, 1989; Link, 1982; Link et al., 1989; Paternoster & Iovanni, 1989). In other words, one possible result of public labeling is weakened social bonds (Hirschi, 1969). This is exemplified by Freeman's (1992) finding that the processing of juveniles in the criminal system leads to lower employment rates in the future, especially when a prison sentence is imposed. It is noteworthy that in the current study, youths who were enrolled in school, graduated, or had obtained a GED at the time of referral were more likely to be rearrested, and rearrested in a shorter time period, than were those who were not enrolled in school. It seems feasible that these youths experienced greater recidivism due to such factors as being removed from school, losing a job, or being excluded from future employment following their arrest.

Another possible consequence arising from transfer and public labeling is that waived juveniles may perceive that they are being treated unjustly. Recent research has found a sense of injustice over formal sanctioning to be associated with greater future offending, including such diverse behaviors as adolescent drug use, governmental regulation violations, domestic violence, shoplifting, and drunk driving (Lanza-Kaduce & Radosevich, 1987; Makkai & Braithwaite, 1994; Paternoster, Brame, Bachman, & Sherman, 1997; Tyler, 1990). It is conceivable that many youths processed in the adult system perceive unfair treatment and become alienated, which predisposes them to recidivate (see Sherman, 1993). This seems particularly likely if juveniles are physically or emotionally mistreated in adult facilities, or if they are excluded from conventional activities upon their return to the community.

A final potential consequence of transferring and publicly labeling juveniles as criminals is that their personal identities may be altered (Paternoster & Iovanni, 1989). Rooted within labeling theory is the symbolic interactionist tradition, which holds that the application of a deviant label and efforts to formally control deviant acts serve to produce a deviant self-image (Becker, 1963; Lemert, 1972). This, in turn, leads to worsened future behavior. Although labeling juveniles as delinquents and processing them in the juvenile system may create a certain amount of stigmatization, the stigma associated with criminal court processing would appear to have a stronger and more lasting effect on a youth's personal identity. Moreover, this change in personal identity may be exacerbated by the presence and influence of those who both support and exemplify the status of being a criminal (e.g., adult prison inmates).

While all of the above explanations for the findings of greater recidivism among transferred youths are plausible, the possibility cannot be ruled out that Pennsylvania juvenile courts were simply successful in identifying and transferring the most chronic violent offenders who had the greatest likelihood of subsequent criminal behavior. Although a strong effort was made to account for selection bias, in the absence of a randomized study, this threat still remains. However, while a certain degree of selection bias still may contribute to the results of this study, it seems important to point out that this explanation does not favor the increased use of transferring juveniles to adult court.

Legislative waiver laws, such as the one enacted in Pennsylvania, seek to greatly reduce or eliminate the discretionary powers of the juvenile court and treat mass quantities of juveniles as adults. None of the explanations discussed above, including the possibility of selection bias, support this practice. If the juvenile court can effectively distinguish the "worst" offenders and subsequently send them to adult court, removing this ability and handling broad categories of

youthful offenders as adults provides, at best, little gain. At worst, it would seem that there is much to lose through this practice.

Finally, while violent youths may, in general, experience harsher punishment in adult court, it also appears that only the most chronic and violent are immediately removed from society and undergo periods of confinement lasting more than a few years (Bishop, 2000; Howell, 1996, 1997; Myers, 2001). Therefore, it is unlikely that broad legislative waiver policies will provide an increased, long-term, incapacitative effect. Furthermore, current and past research suggests that if legislatures are seeking to provide greater deterrence of youthful offending, there is little reason to expect success. On the other hand, by statutorily excluding violent youths from juvenile court, adolescents may receive inadequate treatment services, be trained by more veteran offenders, experience the negative consequences of a criminal label, or all three. Therefore, it appears that policy-makers and justice system officials would be wise to consider the apparent consequences of placing youths into the adult system, and make their future decisions accordingly.

## Footnotes

<sup>1</sup> Fagan's (1995) study produced somewhat similar findings, in that transfer affected burglars differently than it did robbers. Together, these results seem to indicate an offense-specific transfer effect. Juveniles transferred on violent offenses appear to exhibit greater recidivism than that of similar youths retained in the juvenile system, while the recidivism of juveniles transferred on property offenses seems comparable to that of similar youths retained in juvenile court.

<sup>2</sup> The following discussion of modern juvenile justice legislative changes in Pennsylvania and the data employed in this study has been previously presented elsewhere (Myers, 2001; Myers & Kiehl, 2001).

<sup>3</sup> Defined by 18 PA C.S. Sec. 2301 as "any firearm, whether loaded or unloaded, or any device designed as a weapon and capable of producing death or serious bodily injury, or any other device or instrumentality which, in the manner in which it is used or intended to be used, is calculated or likely to produce death or serious bodily injury" (Crimes Code of Pennsylvania, 2000, p. 35).

<sup>4</sup> Aggravated assault was intentionally omitted from this repeat offender clause, apparently based on the belief of policymakers and practitioners that aggravated assault without a deadly weapon could encompass too many violent but less-serious acts (e.g., a fist-fight at school).

<sup>5</sup> The data employed in this study were collected as part of a larger research project (Myers, 2001) soon after the legislation went into effect. Therefore, cases actually processed under the new law could not be utilized, as most of the excluded cases were still being processed by the criminal justice system. While this study cannot be considered a direct test of the effectiveness of

Pennsylvania's revised juvenile code, the new law was instrumental in defining the population to be studied and creating the research design.

<sup>6</sup> There were less than 10 cases identified from 1994 that involved a deadly weapon and one or more of the following crimes: rape, involuntary deviant sexual intercourse, robbery of a motor vehicle, aggravated indecent assault, kidnapping, and voluntary manslaughter. Contacts with justice system officials revealed that a very high percentage (approximately 95%) of the cases actually excluded under the new law involve robberies and aggravated assaults with a deadly weapon, while few involve other violent offenses with a deadly weapon or repeat violent offenses without a deadly weapon.

<sup>7</sup> A total of 557 offenders were actually identified that met the criteria employed in this study. However, 63 were still incarcerated at the time the data were collected, and therefore their recidivism could not be examined. Of these 63 offenders, 59 were being housed in adult correctional facilities and 4 were in juvenile facilities.

<sup>8</sup> This variable was coded based on a county classification system existing in Pennsylvania and obtained from CJJT&R. Counties in the state are classified based on population, on a scale of 1 to 8, with 1 representing the largest population. Philadelphia County is the only Class 1 County, and Allegheny County (Pittsburgh) is the only Class 2 County. Both were coded as urban. All other counties are classified from 2A through 8. Class 2A and Class 3 counties were coded as suburban if they were adjacent to Philadelphia or Allegheny County; otherwise, they were coded as urban. Class 4 counties were coded as suburban if they were adjacent to an urban county; otherwise, they were coded as rural. Class 5, Class 6, Class 7, and Class 8 counties were coded as rural. The small number of offenders processed in rural counties (n=22) precluded a separation of rural and suburban counties.

<sup>9</sup> This finding suggests the presence of an initial “custody gap” for juveniles waived to adult criminal court, as transferred youths were more likely to be released on bail prior to disposition than were offenders retained in juvenile court. For further analysis and discussion of this finding, as well as an examination of the pre-dispositional recidivism of waived and retained youths, readers should consult Myers and Kiehl (2001).

<sup>10</sup> For this study, incarceration was defined as being sentenced to either a state or county prison by an adult court, or being placed in a state-run Youth Development Center or private juvenile correctional facility by a juvenile court. For youths retained in juvenile court, this variable represents the actual time served in a correctional facility. For those in adult court, this variable represents the minimum prison sentence imposed by an adult court judge.

<sup>11</sup> In the model containing the standardized residuals, and in similar subsequent models, the coefficients, standard errors, and odds ratios for the transfer variable are somewhat inflated due to a correlation ( $r = .79$ ) between this variable and the standardized residuals. Therefore, keeping in mind the similar conclusions from the two models and the insignificance of the residuals variable, the estimates from the model without the standardized residuals would appear to be more useful for interpretation purposes.

## References

- Aldrich, J. H., & Nelson, F. D. (1984). *Linear probability, logit, and probit models* (Sage University Paper Series on Quantitative Applications in the Social Sciences, No. 07-045). Beverly Hills, CA: Sage Publications, Inc.
- Bachman, R., & Paternoster, R. (1997). *Statistical methods for criminology and criminal justice*. New York: McGraw-Hill.
- Becker, H. S. (1963). *Outsiders*. New York: Free Press.
- Bell, A. (1995, May 11). Bill highlights "public safety". *The Patriot*, p. B1.
- Bell, A. (1996a, February 4). Funding plummets while juvenile crime escalates: \$45 million loss may prompt lawsuit. *The Sunday Patriot - News*, p. B1.
- Bell, A. (1996b, February 1). Juvenile system direction said needed: State pays out \$400 million for underage crime programs. *The Patriot*, p. B6.
- Bishop, D. M. (2000). Juvenile offenders in the adult criminal justice system. In M. Tonry (Ed.), *Crime and justice: A review of research* (Vol. 27, pp. 81-167). Chicago: University of Chicago Press.
- Bishop, D. M., Frazier, C. E., Lanza-Kaduce, L., & Winner, L. (1996). The transfer of juveniles to criminal court: Does it make a difference? *Crime & Delinquency*, 42(2), 171-191.
- Blumstein, A., Cohen, J., Martin, S. E., & Tonry, M. (1983). *Research on sentencing: The search for reform*. Washington, DC: National Academy Press.
- Blumstein, A., Cohen, J., Roth, J., & Visher, C. (1986). *Criminal careers and "career criminals"*. Washington, DC: National Academy Press.
- Braithwaite, J. (1989). *Crime, shame, and reintegration*. Cambridge: Cambridge University Press.
- Breed v. Jones, 4. U. S. 5. (1975).

- Campbell, D. T., & Stanley, J. C. (1966). Experimental and quasi-experimental designs for research. In N. L. Gage (Ed.), *Handbook of research on teaching* (pp. 1-76). Chicago: Rand McNally.
- Clarke, E. E. (1996). A case for reinventing juvenile transfer. *Juvenile and Family Court Journal*, 47, 3-22.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi experimentation: Design and analysis issues for field settings*. Chicago: Rand McNally.
- Crimes Code of Pennsylvania, 18 PA C.S. Sec. 2301 (2000). Binghamton, NY: Gould Publications.
- DeFrances, C. J., & Strom, K. J. (1997). *Juveniles prosecuted in state criminal courts*. (Report No. NCJ-164265). Washington, DC: Bureau of Justice Statistics/Office of Juvenile Justice and Delinquency Prevention.
- Eigen, J. P. (1981a). The determinants and impact of jurisdictional transfer in Philadelphia. In J. C. Hall, D. M. Hamparian, J. M. Pettibone, & J. L. White (Eds.), *Major issues in juvenile justice information and training: Readings in public policy* (pp. 333-350). Columbus, OH: Academy for Contemporary Problems.
- Eigen, J. P. (1981b). Punishing youth homicide offenders in Philadelphia. *The Journal of Criminal Law and Criminology*, 72(3), 1072-1093.
- Evanko, P. J. (1995, August 28). Violent juvenile crime is growing state problem. The Patriot, p. A7.
- Fagan, J. (1995). Separating the men from the boys: The comparative advantage of juvenile versus criminal court sanctions on recidivism among adolescent felony offenders. In J. C. Howell, B. Krisberg, J. D. Hawkins, & J. J. Wilson (Eds.), *A sourcebook: Serious, violent, & chronic juvenile offenders* (pp. 238-260). Thousand Oaks, CA: Sage Publications, Inc.
- Fagan, J., & Deschenes, E. P. (1990). Determinants of judicial waiver decisions for violent juvenile offenders. *The Journal of Criminal Law and Criminology*, 81(2), 314-347.

- Fagan, J., Forst, M., & Vivona, T. S. (1987). Racial determinants of the judicial transfer decision: Prosecuting violent youth in criminal court. *Crime & Delinquency*, 33(2), 259-286.
- Farrington, D. P. (1986). Age and crime. In M. Tonry, & N. Morris (Eds.), *Crime and justice: An annual review of research* (Vol. 7, pp. 189-250). Chicago: The University of Chicago Press.
- Farrington, D. P. (1998). Predictors, causes, and correlates of male youth violence. In M. Tonry, & M. H. Moore (Eds.), *Crime and justice: A review of research* (Vol. 24, pp. 421-475). Chicago: The University of Chicago Press.
- Feld, B. C. (1987). The juvenile court meets the principle of the offense: Legislative changes in juvenile waiver statutes. *The Journal of Criminal Law and Criminology*, 78(3), 471-533.
- Feld, B. C. (1989). Bad law makes hard cases: Reflections on teen-aged axe-murderers, judicial activism, and legislative default. *Journal of Law and Inequality*, 8(1), 1-101.
- Feld, B. C. (1993). Criminalizing the American juvenile court. In M. Tonry (Ed.), *Crime and justice: A review of research* (Vol. 17, pp. 197-280). Chicago: University of Chicago Press.
- Forst, M., Fagan, J., & Vivona, T. S. (1989). Youths in prisons and training schools: Perceptions and consequences of the treatment-custody dichotomy. *Juvenile and Family Court Journal*, 40, 1-14.
- Frazier, C. E., & Bishop, D. M. (1995). Reflections on race effects in juvenile justice. In K. K. Leonard, C. E. Pope, & W. H. Feyerherm (Eds.), *Minorities in juvenile justice* (pp. 16-46). Thousand Oaks, CA: Sage Publications, Inc.
- Freeman, R. B. (1992). Crime and the employment of disadvantaged youth. In G. Peterson, & W. Vroman (Eds.), *Urban labor markets and job opportunity* (pp. 201-238). Washington, DC: Urban Institute Press.
- Gottfredson, D. C., & Barton, W. H. (1993). Deinstitutionalization of juvenile offenders. *Criminology*, 31(4), 591-607.

- Gove, W. R. (1980). The labelling perspective: An overview. In W. R. Gove (Ed.), *The labelling of deviance* (2nd ed., pp. 9-33). Beverly Hills: Sage Publications, Inc.
- Griffin, P., Torbet, P., & Szymanski, L. (1998). *Trying juveniles as adults in criminal court: An analysis of state transfer provisions*. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.
- Hamparian, D., Estep, L. K., Muntean, S. M., Prestino, R., Swisher, R. G., Wallace, P. L., & White, J. L. (1982). *Youth in adult court: Between two worlds*. Columbus, OH: Academy for Contemporary Problems.
- Hirschi, T. (1969). *Causes of delinquency*. Berkley: University of California Press.
- Howell, J. C. (1996). Juvenile transfers to the criminal justice system: State of the art. *Law & Policy*, 18(1 & 2), 17-60.
- Howell, J. C. (1997). *Juvenile justice and youth violence*. Thousand Oaks, CA: Sage Publications, Inc.
- Jensen, E. J., & Metsger, L. K. (1994). A test of the deterrent effect of legislative waiver on violent juvenile crime. *Crime & Delinquency*, 40(1), 96-104.
- Kent v. United States, 3. U. S. 5. (1966).
- Kinder, K., Veneziano, C., Fichter, M., & Azuma, H. (1995). A comparison of the dispositions of juvenile offenders certified as adults with juvenile offenders not certified. *Juvenile and Family Court Journal*, 46, 37-42.
- Krebs, J. (1995, November 1). Ridge hails anti-crime law arsenal: Democrats feel politics buried their proposals. *The Patriot*, p. A1.
- Lanza-Kaduce, L., & Radosevich, M. J. (1987). Negative reactions to processing and substance use among young incarcerated males. *Deviant Behavior*, 8, 137-148.

- Lemert, E. M. (1972). *Human deviance, social problems and social control* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Lemmon, J. H., Sontheimer, H., & Saylor, K. A. (1991). *A study of Pennsylvania juveniles transferred to criminal court in 1986*. Harrisburg, PA: The Pennsylvania Juvenile Court Judges' Commission.
- Link, B. (1982). Mental patient status, work and income: An examination of the effects of a psychiatric label. *American Sociological Review*, *47*, 202-215.
- Link, B., Cullen, F. T., Struening, E., Shrout, P., & Dohrenwend, B. P. (1989). A modified labeling theory approach to mental disorders: An empirical assessment. *American Sociological Review*, *54*, 400-423.
- Loyd, L. (1996, March 19). Juvenile justice law gets tougher on toughest offenders. *Philadelphia Inquirer*.
- Makkai, T., & Braithwaite, J. (1994). The dialectics of corporate deterrence. *Journal of Research in Crime and Delinquency*, *31*, 347-373.
- Menard, S. (1995). *Applied logistic regression analysis* (Sage University Paper Series on Quantitative Applications in the Social Sciences, No. 07-106). Thousand Oaks, CA: Sage Publications, Inc.
- Murray, C. A., & Cox, L. A. (1979). *Beyond probation: Juvenile corrections and the chronic delinquent*. Beverly Hills, CA: Sage Publications, Inc.
- Myers, D. L. (1997, March). *Excluding juvenile offenders from juvenile court: The effects of Pennsylvania's recent legislation*. Paper presented at the annual meeting of the Academy of Criminal Justice Sciences, Louisville, KY.
- Myers, D. L. (2001). *Excluding violent youths from juvenile court: The effectiveness of legislative waiver*. New York: LFB Scholarly Publishing.

- Myers, D. L., & Kiehl, K. (2001). The pre-dispositional status of violent youthful offenders: Is there a “custody gap” in adult criminal court? *Justice Research and Policy*, 3(1), 115-143.
- Paternoster, R., Brame, R., Bachman, R., & Sherman, L. W. (1997). Do fair procedures matter? The effect of procedural justice on spouse assault. *Law and Society Review*, 31, 163-204.
- Paternoster, R., & Iovanni, L. (1989). The labeling perspective and delinquency: An elaboration of the theory and an assessment of the evidence. *Justice Quarterly*, 6(3), 359-394.
- Pennsylvania Juvenile Court Judges' Commission. (1992). *The Juvenile Act*. 42 PA C.S. Sec. 6301 et seq. Harrisburg, PA: Juvenile Court Judges' Commission.
- Pennsylvania Juvenile Court Judges' Commission. (1996a). *The Juvenile Act*. 42 PA C.S. Sec. 6301 et seq. Harrisburg, PA: Juvenile Court Judges' Commission.
- Pennsylvania Juvenile Court Judges' Commission. (1996b). *Pennsylvania Juvenile Court Dispositions 1996*. Harrisburg, PA: Juvenile Court Judges' Commission.
- Pennsylvania Juvenile Court Judges' Commission. (2000). *Pennsylvania Juvenile Court Dispositions 2000*. Harrisburg, PA: Juvenile Court Judges' Commission.
- Podkopacz, M. R., & Feld, B. C. (1996). The end of the line: An empirical study of judicial waiver. *The Journal of Criminal Law and Criminology*, 86(2), 449-492.
- Poulos, T. M., & Orchowsky, S. (1994). Serious juvenile offenders: Predicting the probability of transfer to criminal court. *Crime & Delinquency*, 40(1), 3-17.
- Reddington, F. P., & Sapp, A. D. (1997). Juveniles in adult prisons: Problems and prospects. *Journal of Crime and Justice*, 20(2), 139-152.
- Sampson, P. (1995a, April 2). Bill would expose crimes to media, public. *The Sunday Patriot News*, p. A6.

- Sampson, P. (1995b, October 26). Senate addresses youth crimes: Serious offenses could bring automatic transfer to adult court. *The Patriot*, p. B5.
- Sampson, R. J. (1986). Effects of socioeconomic context on official reaction to juvenile delinquency. *American Sociological Review*, *51*, 876-885.
- Sherman, L. W. (1993). Defiance, deterrence, and irrelevance: A theory of the criminal sanction. *Journal of Research in Crime and Delinquency*, *30*(4), 445-473.
- Sickmund, M., Snyder, H. N., & Poe-Yamagata, E. (1997). *Juvenile offenders and victims: 1997 update on violence*. (Report No. NCJ-165703). Washington, DC: Office of Juvenile Justice and Delinquency Prevention.
- Singer, S. I. (1996). *Recriminalizing delinquency: Violent juvenile crime and juvenile justice reform*. New York: Cambridge University Press.
- Singer, S. I., & McDowall, D. (1988). Criminalizing delinquency: The deterrent effects of the New York juvenile offender law. *Law and Society Review*, *22*(3), 521-535.
- Smith, D. A., & Paternoster, R. (1990). Formal processing and future delinquency: Deviance amplification as a selection artifact. *Law and Society Review*, *24*(5), 1109-1131.
- Snyder, H. N., & Sickmund, M. (1999). *Juvenile offenders and victims: 1999 National Report* (Report No. NCJ-178257). Washington, DC: Office of Juvenile Justice and Delinquency Prevention.
- Stack, B. W. (1995, April 18). Juvenile justice: Drop kid gloves? *Pittsburgh Post Gazette*.
- Stanley, B. (1996, November 17). States strengthen laws to crackdown on juvenile crime: Now it's easier to try youths as adults across nation; Impact unclear. *The Sunday Patriot News*, p. A4.
- Tittle, C. R. (1975). Deterrents or labeling. *Social Problems*, *22*, 332-345.

- Torbet, P., Gable, R., Hurst, H. I., Montgomery, I., Szymanski, L., & Thomas, D. (1996). *State responses to serious and violent juvenile crime*. (Report No. NCJ-161565). Washington, DC: Office of Juvenile Justice and Delinquency Prevention.
- Tyler, T. R. (1990). *Why people obey the law*. New Haven: Yale University Press.
- Wing, J. (1996, March 16). Youth-crime law is tough on offenders and the system. *Philadelphia Inquirer*.
- Winner, L., Lanza-Kaduce, L., Bishop, D. M., & Frazier, C. E. (1997). The transfer of juveniles to criminal court: Reexamining recidivism over the long term. *Crime & Delinquency*, 43(4), 548-563.
- Wolfgang, M., Figlio, R., & Sellin, T. (1972). *Delinquency in a birth cohort*. Chicago: University of Chicago Press.
- Wordes, M., & Bynum, T. S. (1995). Policing juveniles: Is there bias against youths of color? In K. K. Leonard, C. E. Pope, & W. H. Feyerherm (Eds.), *Minorities in juvenile justice* (pp. 47-65). Thousand Oaks, CA: Sage Publications, Inc.

Table 1

*Descriptive Statistics for all Variables*

Variable	<i>M</i>	<i>SD</i>	Min	Max	N
Transfer	0.16	0.37	0.00	1.00	494
Age	16.17	0.86	15.00	18.00	494
Race	0.81	0.39	0.00	1.00	494
County	0.86	0.34	0.00	1.00	494
School	0.72	0.45	0.00	1.00	494
Family	0.75	0.43	0.00	1.00	494
Weapon	0.85	0.36	0.00	1.00	494
First Referral	14.85	1.65	10.00	18.00	494
Prior Record	2.92	3.68	0.00	28.00	494
Prior Violent	0.13	0.33	0.00	1.00	494
Release	0.40	0.49	0.00	1.00	494
Convict	0.64	0.48	0.00	1.00	494
Incarceration	5.90	8.04	0.00	36.00	494
Process	4.05	1.16	0.00	6.72	494
Risk Time	17.89	0.76	9.00	18.00	494
Arrest	0.31	0.46	0.00	1.00	494
Violent	0.17	0.38	0.00	1.00	494
Arrest Time	6.74	4.34	1.00	18.00	152

Table 2

*Descriptive Statistics by Transfer Status*

Variable	<i>M</i>	<i>SD</i>	Min	Max	N
<i>Transferred Offenders</i>					
Age	16.85	0.62	15.00	18.00	79
Race	0.73	0.44	0.00	1.00	79
County	0.75	0.44	0.00	1.00	79
School	0.59	0.49	0.00	1.00	79
Family	0.77	0.42	0.00	1.00	79
Weapon	0.58	0.50	0.00	1.00	79
First Referral	14.23	2.14	10.00	17.00	79
Prior Record	6.70	5.45	0.00	28.00	79
Prior Violent	0.28	0.45	0.00	1.00	79
Release	0.63	0.49	0.00	1.00	79
Convict	0.77	0.42	0.00	1.00	79
Incarceration	10.19	8.97	0.00	36.00	79
Process	5.21	1.20	0.00	6.72	79
Risk Time	17.82	1.61	9.00	18.00	79
Arrest	0.38	0.49	0.00	1.00	79
Violent	0.24	0.43	0.00	1.00	79
Arrest Time	5.77	4.61	1.00	18.00	30
<i>Nontransferred Offenders</i>					
Age	16.04**	0.84	15.00	18.00	415
Race	0.82	0.38	0.00	1.00	415
County	0.89**	0.32	0.00	1.00	415
School	0.74**	0.44	0.00	1.00	415
Family	0.75	0.43	0.00	1.00	415
Weapon	0.90**	0.30	0.00	1.00	415
First Referral	14.97**	1.51	10.00	18.00	415
Prior Record	2.20**	2.69	0.00	17.00	415
Prior Violent	0.10**	0.30	0.00	1.00	415
Release	0.35**	0.48	0.00	1.00	415
Convict	0.61**	0.49	0.00	1.00	415
Incarceration	5.09**	7.59	0.00	36.00	415
Process	3.83**	1.01	0.00	6.66	415
Risk Time	17.98	0.40	10.00	18.00	415
Arrest	0.29	0.46	0.00	1.00	415
Violent	0.16	0.36	0.00	1.00	415
Arrest Time	6.98	4.26	1.00	18.00	122

*Note:* Differences tested between groups. 2-tailed significance: \*  $p < .05$ ; \*\*  $p < .01$

Table 3

*Estimated Correlations Among All Variables*

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Transfer (1)	1.00																		
Age (2)	.35**	1.00																	
Race (3)	-.08	-.01	1.00																
County (4)	-.15**	-.04	.26**	1.00															
School (5)	-.12**	-.17**	-.09	.07	1.00														
Family (6)	.02	.01	.24**	.06	.02	1.00													
Weapon (7)	-.32**	-.10*	.41**	.31**	.01	.08	1.00												
First Ref. (8)	-.16	.22**	-.07	-.02	-.02	-.12**	.02	1.00											
Prior Rec. (9)	.45**	.24**	.11*	-.05	-.11*	.12**	-.09*	-.59**	1.00										
Prior Vio. (10)	.20**	.05	.06	-.03	-.02	.07	-.03	-.28**	.45**	1.00									
Release (11)	.21**	.16**	-.11*	.08	-.08	-.07	-.15**	.03	.03	.02	1.00								
Convict (12)	.12**	-.07	-.14**	-.22**	-.07	-.11*	-.15**	-.03	.05	.03	-.14**	1.00							
Incarce. (13)	.23**	.01	.07	-.09*	-.06	.02	.01	-.09*	.15**	.17**	-.14**	.55**	1.00						
Process (14)	.44**	.19**	-.07	-.02	-.10*	-.05	-.19**	.08	.09*	.01	.44**	.06	.03	1.00					
Risk Time (15)	-.04	.04	.02	.11*	-.04	-.07	-.07	.04	-.03	-.03	-.03	-.02	-.16**	-.03	1.00				
Arrest (16)	.07	-.09*	.07	.06	-.12**	.01	.02	-.20**	.15**	.04	-.01	-.01	-.10*	-.01	.08	1.00			
Violent (17)	.08	-.02	.10*	.08	-.03	.10*	.04	-.20**	.20**	.06	-.02	-.01	-.02	-.05	.01	.68**	1.00		
Arr. Time (18)	-.11	-.09	.14	.01	.10	.04	.10	.05	-.11	.02	-.15	-.28**	-.11	-.08	-.07	-	-.11	1.00	

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*Note:* N = 494. Coefficients for Arrest Time were based on the 152 offenders who were arrested.  
 2-tailed significance: \* p < .05; \*\* p < .01

Table 4

*Logistic Regression Estimates for the Determinants of Transfer (N=494)*

Variable	<i>B</i>	<i>SE</i>	Wald	Exp (B)
Age	1.210	(.244)	24.555**	3.35
Race	.211	(.481)	.193	1.23
County	-.663	(.411)	2.605	.51
School	-.244	(.333)	.538	.78
Family	-.039	(.384)	.010	.96
Weapon	-2.029	(.426)	22.633**	.13
First Referral	.004	(.115)	.001	1.00
Prior Record	.265	(.060)	19.465**	1.30
Prior Violent	.353	(.443)	.632	1.42
Constant	-20.625	(3.93)	27.592**	
-2 Log-likelihood	272.871			
Model Chi-Square	161.390** ( <i>df</i> = 9)			
Cox & Snell R <sup>2</sup>	.279			
Nagelkerke R <sup>2</sup>	.477			

\*  $p < .05$ \*\*  $p < .01$

Table 5

*Logistic Regression Estimates for the Determinants of Post-Dispositional Arrest (N=494)*

Variable	B (SE)	Wald	Exp (B)	B (SE)	Wald	Exp (B)
Transfer	.852 (.397)	4.61*	2.35	1.79 (.812)	4.88*	6.01
Age	-.288 (.145)	3.96*	.75	-.369 (.157)	5.51*	.69
Race	.519 (.322)	2.59	1.68	.520 (.322)	2.60	1.68
County	.281 (.357)	.62	1.32	.342 (.361)	.90	1.41
School	.792 (.262)	9.12**	2.21	.842 (.266)	9.99**	2.32
Family	-.175 (.252)	.48	.84	-.182 (.253)	.52	.83
Weapon	.317 (.363)	.76	1.37	.574 (.416)	1.91	1.78
First Referral	-.178 (.085)	4.36*	.84	-.179 (.085)	4.43*	.84
Prior Record	.065 (.043)	2.29	1.07	.033 (.049)	.45	1.03
Prior Violent	-.188 (.344)	.30	.83	-.213 (.345)	.38	.81
Release	.047 (.246)	.04	1.04	.074 (.247)	.09	1.08
Convict	.606 (.275)	4.84*	1.83	.639 (.277)	5.32*	1.89
Incarceration	-.066 (.018)	12.68**	.94	-.067 (.018)	13.21**	.93
Process	-.051 (.111)	.21	.95	-.054 (.112)	.23	.95
Risk Time	.237 (.197)	1.45	1.26	.180 (.187)	.93	1.20
Residuals				-.343 (.260)	1.74	.71
Constant	.626 (4.01)	.024		2.60 (4.10)	.40	
-2 Log-likelihood	552.190			550.392		
Model Chi-Square	57.645** (df=15)			59.443** (df=16)		
Cox & Snell R <sup>2</sup>	.110			.113		
Nagelkerke R <sup>2</sup>	.155			.160		

\* p < .05

\*\* p < .01

Table 6

*Logistic Regression Estimates for the Determinants of Post-Dispositional Violent Felony Arrest (N=494)*

Variable	B (SE)	Wald	Exp (B)	B (SE)	Wald	Exp (B)
Transfer	.692 (.463)	2.23	1.99	1.33 (.952)	1.96	3.79
Age	-.115 (.169)	.46	.89	-.178 (.188)	.89	.84
Race	.502 (.439)	1.31	1.65	.503 (.439)	1.31	1.65
County	.900 (.515)	3.05	2.45	.949 (.522)	3.30	2.58
School	.295 (.306)	.93	1.34	.327 (.310)	1.11	1.39
Family	.437 (.345)	1.61	1.54	.435 (.344)	1.60	1.55
Weapon	.303 (.475)	.41	1.35	.486 (.535)	.83	1.63
First Referral	-.153 (.096)	2.53	.86	-.152 (.096)	2.49	.86
Prior Record	.091 (.048)	3.68	1.09	.071 (.054)	1.68	1.07
Prior Violent	-.258 (.398)	.42	.77	-.287 (.402)	.51	.75
Release	.056 (.299)	.03	1.05	.078 (.300)	.07	1.08
Convict	.497 (.335)	2.21	1.64	.510 (.334)	2.33	1.66
Incarceration	-.038 (.021)	3.22	.96	-.038 (.021)	3.28	.96
Process	-.194 (.130)	2.23	.82	-.198 (.131)	2.30	.82
Risk Time	.035 (.070)	.25	1.03	.025 (.073)	.12	1.02
Residuals				-.225 (.295)	.58	.80
Constant	.067 (3.01)	.001		.994 (3.25)	.09	
-2 Log-likelihood	410.821			410.217		
Model Chi-Square	39.658** (df=15)			40.262** (df=16)		
Cox & Snell R <sup>2</sup>	.077			.078		
Nagelkerke R <sup>2</sup>	.129			.131		

\* p < .05

\*\* p < .01

Table 7

*Cox Regression Estimates for the Determinants of Post-Dispositional Survival Time (N=494)*

Variable	B (SE)	Wald	Exp (B)	B (SE)	Wald	Exp (B)
Transfer	.683 (.302)	5.11*	1.98	1.75 (.621)	7.93**	5.75
Age	-.177 (.111)	2.55	.84	-.279 (.124)	5.10*	.75
Race	.412 (.261)	2.48	1.51	.426 (.260)	2.69	1.53
County	.369 (.292)	1.60	1.45	.319 (.242)	1.74	1.37
School	.597 (.213)	7.88**	1.82	.652 (.216)	9.07**	1.92
Family	-.180 (.199)	.81	.83	-.176 (.199)	.78	.84
Weapon	.245 (.280)	.77	1.28	.553 (.325)	2.90	1.74
First Referral	-.148 (.064)	5.33*	.86	-.151 (.064)	5.65*	.86
Prior Record	.041 (.030)	1.88	1.04	.005 (.035)	.02	1.01
Prior Violent	-.121 (.271)	.20	.89	-.165 (.277)	.35	.85
Release	.110 (.196)	.32	1.11	.165 (.196)	.70	1.18
Convict	.632 (.214)	8.71**	1.88	.654 (.213)	9.45**	1.92
Incarceration	-.059 (.015)	15.53**	.94	-.060 (.015)	16.24**	.94
Process	-.078 (.084)	.87	.92	-.082 (.083)	.97	.92
Residuals				-.352 (.186)	3.60	.70
-2 Log-likelihood	1782.784			1779.182		
Model Chi-Square	53.523** (df=14)			55.694** (df=15)		

\* p < .05  
 \*\* p < .01