

Crime Deterrence in High-Risk Juvenile Offenders

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Robert L. Listenbee, Administrator

Pathways to Desistance

How and why do many serious adolescent offenders stop offending while others continue to commit crimes? This series of bulletins presents findings from the Pathways to Desistance study, a multidisciplinary investigation that attempts to answer this question.

Investigators interviewed 1,354 young offenders from Philadelphia and Phoenix for 7 years after their convictions to learn what factors (e.g., individual maturation, life changes, and involvement with the criminal justice system) lead youth who have committed serious offenses to persist in or desist from offending.

As a result of these interviews and a review of official records, researchers have collected the most comprehensive dataset available about serious adolescent offenders and their lives in late adolescence and early adulthood.

These data provide an unprecedented look at how young people mature out of offending and what the justice system can do to promote positive changes in the lives of these youth.

Studying Deterrence Among High-Risk Adolescents

Thomas A. Loughran, Robert Brame, Jeffrey Fagan, Alex R. Piquero, Edward P. Mulvey, and Carol A. Schubert

Highlights

The Pathways to Desistance study followed more than 1,300 serious juvenile offenders for 7 years after their conviction. In this bulletin, the authors present some key findings on the link between perceptions of the threat of sanctions and deterrence from crime among serious adolescent offenders. Selected findings are as follows:

- There was no meaningful reduction in offending or arrests in response to more severe punishment (e.g., correctional placement, longer stays).
- Policies targeting specific types of offending may be more effective at deterring youth from engaging in these specific offenses as opposed to general policies aimed at overall crime reduction.
- In response to an arrest, youth slightly increased their risk perceptions, which is a necessary condition for deterrence.
- Creating ambiguity about detection probabilities in certain areas or for certain types of crime may have a deterrent effect by enhancing the perceived risk of getting caught.





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Studying Deterrence Among High-Risk Adolescents

Thomas A. Loughran, Robert Brame, Jeffrey Fagan, Alex R. Piquero, Edward P. Mulvey, and Carol A. Schubert

Although deterrence is one of the foundations of the juvenile justice and criminal justice systems, little is known about how the fear or threat of sanctions affects the decisionmaking process among adolescent offenders. These youth are an important focus of research attention, given their disproportionate rates of participation in serious crime, the diversity of their offending patterns and developmental backgrounds, and the strong likelihood of desistance as they transition to adulthood. Policymakers who understand the role of deterrence in a broader context of developmental change and life course transitions have important information as they consider how to respond to crimes that adolescents commit and respond to the offenders themselves.

Yet, researchers and policymakers know very little about how serious adolescent offenders perceive the threat or experience of punishment, which threats or experiences affect them, and in what ways. Consequently, these threats or experiences are important factors in youth's decisions to persist in or desist from crime (Anwar and Loughran, 2011; Paternoster, 1987; Nagin, 1998). In this bulletin, the authors consider—based on their review of recent evidence from the Pathways to Desistance study, a multisite, longitudinal sample of adolescent (primarily felony) offenders (see sidebar, “About the Pathways to Desistance Study”)—several questions regarding how juvenile offenders assess sanctions and the threat of sanctions.¹ Unlike most other research on serious adolescent offenders, the Pathways study draws from both interviews and official records from adolescence and early adulthood. The authors examine several questions related to deterring juveniles:

- Do their offending and punishment experiences mold offenders' perceptions of risks and consequences of offending (which relate directly to their propensity to be deterred from crimes)?

- Does placing offenders in a correctional facility have any tangible deterrent effects?
- Does longer placement have a more deterrent effect on juveniles?

The authors conclude with a discussion of directions for future applied research into deterrence and consider some broader implications for juvenile justice policy and practice.

Background

The criminological literature on deterrence (Beccaria, 1985; Zimring and Hawkins, 1973; Andenaes, 1974) is rooted in the belief that when offenders perceive criminal sanctions will be certain, severe, and swift, they will reduce their criminal activity because they perceive

KEY TERMS

Certainty effect: the negative correlation of crime and deviance with the risk or probability of being sanctioned.

Detection probability: a “certainty effect” of criminal or deviant activity being discovered.

Deterrence: preventing a particular act or event by increasing the perceived risk of detection or sanction.

Risk perception: a subjective assessment of the detection probability.

Threat of sanctions: the calculated risk or “cost” of punishment when deciding whether to commit a crime.

ABOUT THE PATHWAYS TO DESISTANCE STUDY

The Pathways to Desistance study is a multidisciplinary, multisite longitudinal investigation of how serious juvenile offenders make the transition from adolescence to adulthood. It follows 1,354 young offenders from Philadelphia County, PA, and Maricopa County, AZ (metropolitan Phoenix), for 7 years after their court involvement. This study has collected the most comprehensive dataset currently available about serious adolescent offenders and their lives in late adolescence and early adulthood. It looks at the factors that lead youth who have committed serious offenses to persist in or desist from offending. Among the aims of the study are to:

- Identify initial patterns of how serious adolescent offenders stop antisocial activity.
- Describe the role of social context and developmental changes in promoting these positive changes.
- Compare the effects of sanctions and interventions in promoting these changes.

Characteristics of Study Participants

Enrollment took place between November 2000 and March 2003, and the research team concluded data collection in 2010. In general, participating youth were at least 14 years old and younger than 18 years old at the time of their study index petition; 8 youth were 13 years old and 16 youth were older than age 18 but younger than 19 at the time of their index petition. The youth in the sample were adjudicated delinquent or found guilty of a serious (overwhelmingly felony-level) violent crime, property offense, or drug offense at their current court appearance. Although felony drug offenses are among the eligible charges, the study limited the proportion of male drug offenders to no more than 15 percent; this limit ensures a heterogeneous sample of serious offenders. Because investigators wanted to include a large enough sample of female offenders—a group neglected in previous research—this limit did not apply to female drug offenders. In addition, youth whose cases were considered for trial in the criminal justice system were enrolled, regardless of the offense committed.

At the time of enrollment, participants were an average of 16.2 years old. The sample was 84 percent male and 80 percent minority (41 percent black, 34 percent Hispanic, and 5 percent American Indian/other). For approximately one-quarter (25.5 percent) of study participants, the study index petition was their first petition to court. Of the remaining participants (those with a petition before the study index petition), 69 percent had 2 or more prior petitions; the average was 3 in Maricopa County and 2.8 in Philadelphia County (exclusive of the study index offense). At both sites, more than 40 percent of the adolescents enrolled were adjudicated of felony crimes against persons (i.e., murder, robbery, aggravated assault, sex offenses, and kidnapping). At the time of the baseline

interview for the study, 50 percent of these adolescents were in an institutional setting (usually a residential treatment center); during the 7 years after study enrollment, 87 percent of the sample spent some time in an institutional setting.

Interview Methodology

Immediately after enrollment, researchers conducted a structured 4-hour baseline interview (in two sessions) with each adolescent. This interview included a thorough assessment of the adolescent's self-reported social background, developmental history, psychological functioning, psychosocial maturity, attitudes about illegal behavior, intelligence, school achievement and engagement, work experience, mental health, current and previous substance use and abuse, family and peer relationships, use of social services, and antisocial behavior.

After the baseline interview, researchers interviewed study participants every 6 months for the first 3 years, and annually thereafter. At each followup interview, researchers gathered information on the adolescent's self-reported behavior and experiences during the previous 6-month or 1-year reporting period, including any illegal activity, drug or alcohol use, and involvement with treatment or other services. Youth's self-reports about illegal activities included information about the range, the number, and other circumstances of those activities (e.g., whether or not others took part). In addition, the followup interviews collected a wide range of information about changes in life situations (e.g., living arrangements, employment), developmental factors (e.g., likelihood of thinking about and planning for the future, relationships with parents), and functional capacities (e.g., mental health symptoms).

Researchers also asked participants to report monthly about certain variables (e.g., school attendance, work performance, and involvement in interventions and sanctions) to maximize the amount of information obtained and to detect activity cycles shorter than the reporting period.

In addition to the interviews of study participants, for the first 3 years of the study, researchers annually interviewed a family member or friend about the study participant to validate the participant's responses. Each year, researchers also reviewed official records (local juvenile and adult court records and FBI nationwide arrest records) for each adolescent.

Investigators have now completed the last (84-month) set of followup interviews, and the research team is analyzing interview data. The study maintained the adolescents' participation throughout the project: At each followup interview point, researchers found and interviewed approximately 90 percent of the enrolled sample. Researchers have completed more than 21,000 interviews in all.

the risks and costs of sanctions will exceed the returns from crime. Becker (1968) suggested that offenders base their decisions to commit crime on the combined effects of three dimensions of deterrence, each of which forms part of a “sanction regime”—the risks of arrest, the likelihood of conviction, and the costs of punishment (see figure 1).

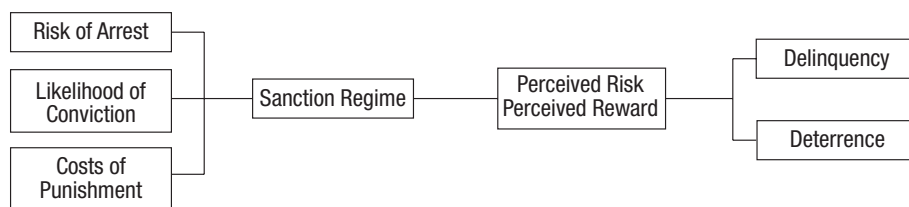
To be effective, the combined effects of the sanction regime must neutralize or exceed the rewards of crime. Acting together, sanction regimes set both the risks and conditional costs of crime and—with timely responses that connect the crime to the costs—they create a deterrent threat. Much of modern deterrence theory can be traced back to Becker’s design.

Since Becker (1968), deterrence theorists typically have distinguished between two types of deterrence: for society as a whole (general deterrence) and for individuals (specific deterrence). General deterrence is predicated on the idea of vicarious learning. According to this perspective, clearly announced laws backed up with aggressive enforcement, prosecution, and punishment send a message to the community that crime will not be tolerated. Potential offenders—who learn from the experiences of others—will mostly choose not to offend. On the other hand, specific deterrence is predicated on the idea of experiential learning. This perspective emphasizes the importance of one’s own prior offending and sanction experiences in framing the costs and benefits of criminal involvement.

What is clear is that the extent to which offenders apply decisionmaking processes varies. Recidivism rates of previously sanctioned juvenile and adult offenders are high; however, they are not 100 percent (Nagin, 1998). Some offenders persist, whereas others desist. Desistance itself takes several forms. For some, it is spontaneous and abrupt; others desist incrementally over time; some desist for varying time intervals; and still others desist from serious crime by shifting to less serious (and potentially less costly) crimes. Perhaps due to differences in maturity, cognitive impairment, prior experiences, and other possible factors, some individuals “don’t get it” when they are punished for criminal activity, whereas others do and still others “get it eventually.” In addition, some may “get it” but decide to continue offending in the face of substantial risks of punishment.

The psychological literature on risk, for example, indicates that a developmental gap in the maturation of the cognitive-control system can help explain some adolescent risk behaviors. It has been well established that the logical reasoning capabilities of adolescents are comparable to

Figure 1. Offenders’ Decisionmaking Process



those of adults by age 15; essentially, adolescents and adults are equally able to perceive risk and its potential effects (Reyna and Farley, 2006; Millstein and Halpern-Felsher, 2002; Steinberg, 2007). However, psychosocial maturation processes (e.g., impulse control, emotion regulation, future orientation, delayed gratification, resistance to peer influence) continue to develop into young adulthood (Steinberg, 2004). As such, it is believed that ongoing psychosocial development weakens the fully mature logical reasoning abilities of adolescents and results in higher vulnerability for engaging in risk-taking behaviors (Steinberg, 2007).

Results from the Pathways study address two of the three prongs of the deterrence equation—the certainty and severity hypotheses. The idea behind the first hypothesis is that more certain punishment should reduce crime because the greater a person’s perceived likelihood that he or she will be caught for committing a crime, the less willingness he or she should have to engage in that crime. The severity hypothesis is based on the assumption that the stronger the penalty associated with a crime, the greater the potential cost of committing the crime, which should also dissuade offenders.² Although the idea that increasing the severity of punishment should serve as a strongly motivating deterrent from crime is intuitive and popular, the majority of deterrence research indicates that the certainty of the punishment, rather than its severity, is the primary mechanism through which deterrence works (Nagin, 1998; Durlauf and Nagin, 2011; Paternoster, 2010). In other words, all things being equal, offenders typically respond to a threatened punishment that is more likely to occur than to one that is more severe. However, it should be noted that the majority—though certainly not all—of deterrence research has been conducted on adults; that is, much of what researchers know about deterrence and risk has not necessarily been studied in juvenile populations (Levitt, 1998). Recent research, described in this bulletin, has begun to close this age gap in the literature.

In this bulletin, the authors review evidence from the Pathways to Desistance study on deterrence among serious adolescent offenders. They find no meaningful reduction

in either offending or arrests in response to more severe punishments (e.g., correctional placement, longer lengths of placement). However, the authors do find evidence that serious adolescent offenders respond to the threat or risk of sanctions; their recidivism is tied strongly and directly to their perceptions of how certain they are that they will be arrested.

Increasing Deterrence Through Severity: Institutional Placement and Length of Stay

In the early 20th century, juvenile courts in the United States worked toward the goal of rehabilitating delinquent youth to be productive members of society through the use of treatment programs. This process was distinctly different than that used in the criminal justice system. However, as public support of rehabilitation waned in the 1950s and 1960s, and serious juvenile offending increased in the 1980s, juvenile courts transformed from treatment-focused institutions to more punitive criminal justice agencies (Snyder and Sickmund, 1999).

Contemporary juvenile courts seek to accommodate the goals of both punishment and intervention in their responses to youth crime. Often, these goals overlap and, at times, punishment is considered to have rehabilitative value by imposing costs on liberty that are designed (in part) to deter further offending. In other instances, punishment is the goal of court sanctions, especially for youth who are transferred to the criminal justice system. Punishments range from varying degrees of probation supervision to more severe sanctions such as institutional placement. Institutional placement is likely to be considered a more costly (and severe) penalty than probation and is therefore thought to have a stronger deterrent effect. Placement itself exacts costs that can vary in terms of the lengths of stay and the conditions of confinement. More prisonlike institutions are purported to have stronger punishment costs than prisons with a more campus-like setting. Deterrence is also thought to co-vary with the length of punishment; in general, individuals who are institutionalized longer will experience a more expensive and severe sanction than those with shorter stays.

Examining the Effect of Severity of Punishment on Deterrence

Loughran and colleagues (2009) explored two distinct but related questions that are relevant to policy regarding specific forms of deterrence and the severity of punishment: (1) The researchers estimated the effect of placement and of probation on offenders and their subsequent rates of self-reported reoffending and rearrest, and (2) they estimated the marginal effect of offenders' lengths of stay in placement

on subsequent offending. The following important policy perspectives explain why the authors focused on these questions (p. 701):

Thus, the policy question germane to this debate is finding the level of punishment and/or treatment within the juvenile justice system that maximizes the public safety benefits of confinement. A demonstration of capacity for effective punishment and the efficient use of resources are essential to the survival of the juvenile court. If longer stays in institutional facilities are not producing gains in reduced offending, then it is questionable whether this use of resources is either justifiable or politically attractive. The financial cost of placing individuals in institutional care for extended periods is substantial, and high levels of spending on this practice should produce some benefit in terms of increased public safety. Without a demonstration that increased or longer institutional stays provide such a benefit, the argument for incurring these costs is substantially weaker.

Comparing recidivism rates for offenders receiving placement versus probation. In the Pathways sample, offenders who were placed in an institution had higher recidivism rates than those placed on probation. These results were borne out in rates of arrest and self-reported offending. Individuals who were removed from the community to a correctional or other out-of-home placement averaged 1.2 new arrests per year (postdisposition for the study index offense). Individuals who received probation averaged 0.63 new arrests per year, nearly half the rate of those placed in correctional settings. Similarly, individuals who were placed in an institution self-reported an average of 2.5 more offenses per each year in the community (10.9 versus 8.3 reported offenses per year) than individuals who received probation. One interpretation of this evidence is that more expensive and severe sanctions have criminogenic—not deterrent—effects.

Selection effect. However, an important theme of deterrence research in the Pathways study is that these kinds of comparisons are not sufficient to support the claim of criminogenic effects of severe sanctions. Essentially, comparing offenders placed in an institution with those placed on probation is not an equivalent comparison. This problem is often referred to in social science research as a “selection effect” (i.e., the highest risk offenders are selected for the most expensive and severe sanctions). A naive comparison of rates of recidivism among a group of offenders sentenced to probation versus a group of offenders sentenced to placement in

a correctional facility would be problematic because the group receiving the harsher penalty of placement would likely be composed of offenders who were repeat offenders, older, or guilty of more severe crimes. In other words, they would possess characteristics that would make them at greater risk to reoffend regardless of the punishment they receive. To rule out such selection effects, Loughran and colleagues (2009) matched offenders on a wide array of background characteristics by comparing similarly situated individuals who received different sanctions.

Matched-Group Comparisons of Offenders

The results were striking. First, after matching, there was essentially no difference between the institutional placement and probation groups in terms of either rearrest or self-reported offending. Contrary to the conclusions that might be reached from a simple comparison of the two groups, this result suggests that neither a specific deterrent effect nor a criminogenic effect of placement exists on average (although the researchers did observe a small average criminogenic effect that they could not rule out as merely the result of random sampling variability). Second, among the individuals in placement, there was no additional reduction in recidivism (either for rearrest or self-reported offending) as a result of institutionalizing individuals for longer time periods. Figure 2 shows expected rates of rearrest and self-reported offending for various lengths of stay. The authors calculated these rates after they accounted for the possible selection bias of more active and serious offenders (i.e., those more likely to recidivate) receiving longer stays in the first place. As figure 2 shows, rates do not diminish substantially for longer stays in either case.

The authors note a few important points regarding this set of analyses. First, the sample sizes for the effects of length of placement are very small for some categories of offenders (e.g., for some in placement for less than 30 days). This factor prevented the researchers from putting much faith in the large decrease in self-reported offending from 0–6 months in custody to 6–10 months in custody. In the analysis, however, the authors used different specifications to test the sensitivity of their findings, which reinforced these basic results. Still, the patterns found in the Pathways sample should be replicated in other samples, and one should interpret the findings with some caution. Second, these analyses offer no insight regarding the effect of length of stay on outcomes other than recidivism, and they do not account for the effects of treatment received during the stay.³

Increasing Deterrence Through Certainty: Offenders' Perceptions of Risk

Research consistently shows that the perception of certainty (or risk of apprehension) is a key mechanism of deterrence. The strength of the relationship between risk perception and offending, however, is related to several person-specific characteristics. Early studies on deterrence assumed that offenders knew the actual or objective risk of arrest, sanction, and punishment (Levitt, 1998; Ehrlich, 1975; Sampson and Cohen, 1988). These studies assumed that if there were more police, if police were more aggressive, or if the length of sentences were increased, then offenders would know the risks and behave accordingly. In fact, these assessments are subjective, based on perceptions of risk and decisions about how to use information concerning risk (Nagin, 1998; Matsueda, Kreager, and Huizinga, 2006). The average subjective probability may approach the objective or actual probability of detection across a sample of individuals, but one will observe quite a bit of variation in any sample. If offenders either fail to perceive risk subjectively or act on that perception even if the subjective risks approximate actual risks, punitive policies will have a weaker deterrent effect. Because of this subjective and experiential nature, a body of literature has developed around the idea that deterrence is a perceptually based—not purely objective—phenomenon (Geerken and Gove, 1975). Individuals must perceive sanction threats to be affected by them. Recent studies of deterrence have focused on how individuals form their perceptions of risk and how those perceptions are applied (Matsueda, Kreager, and Huizinga, 2006).

Studies Regarding Offender Perceptions of Risk

A substantial body of research has examined these perceptions, but it mainly uses samples of adults, nonoffenders, or primarily nonserious offenders (Grasmick and Bursik, 1990; Nagin, 1998; Nagin and Paternoster, 1993; Nagin and Pogarsky, 2001, 2003; Piquero and Tibbetts, 1996). This literature highlights a small but important relationship between individuals' beliefs about the likelihood of getting caught and the extent to which they offend. An important limitation of these studies is the relative lack of attention to active and serious offenders, the precise group for whom studies of deterrence are ultimately most relevant (Apospori, Alpert, and Paternoster, 1992; Decker, Wright, and Logie, 1993; Piquero and Rengert, 1999). The dearth of findings among serious offending adolescents presents a particularly important limitation, given this group's high level of criminal activity and the developmental deficits that may affect their cognition and decisionmaking ability with

respect to both sanction risk (Fagan and Piquero, 2007) and crime (Steinberg and Scott, 2003). As such, a critical policy question is whether adolescents who are more serious, chronic offenders consider and respond to threats of sanctions in their decisionmaking, or whether they can be deterred at all.

Analysis of Pathways Data Regarding Offenders' Perceptions of Risk

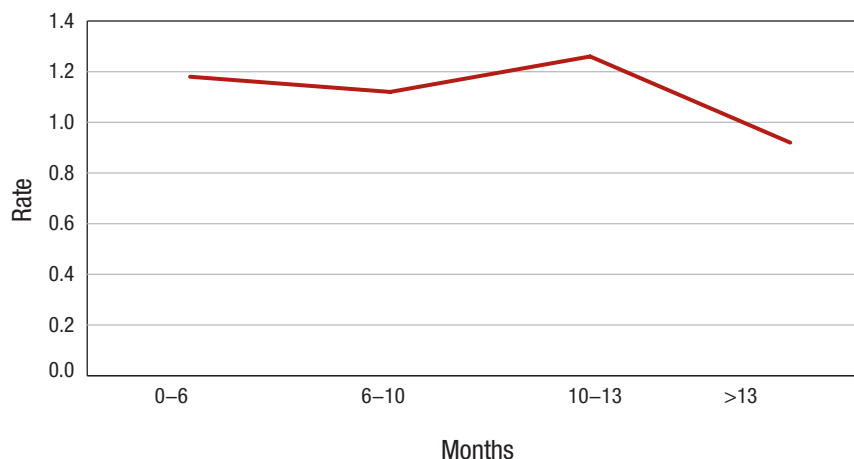
The Pathways data provide comprehensive information to support the study of offender perceptions and how serious youthful offenders think about the risks and benefits of crime. In this section, the authors consider several questions related to perceptions of certainty (and other perceptions, such as rewards) through recent analyses from the Pathways study:

- Do perceptions of the risks and rewards of crime differ based on the frequency of offending?
- Do these perceptions change over time?
- Does the experience of an arrest prompt changes in these perceptions?

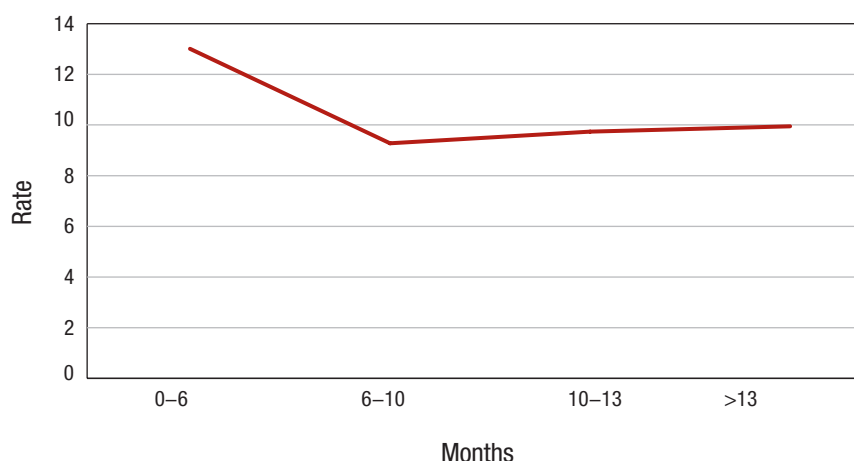
Fagan and Piquero (2007) consider the role of a rational choice framework—including perceptions of risk, reward, and social and personal costs—to explain individual offending trajectories in the Pathways data. They find evidence that rational choice perceptual measures are associated with differences in offending trajectories and desistance. Specifically, when individuals understand the risks and costs of punishment, crime rates tend to be lower over time—both risk perceptions and evaluations of experienced punishment compete with perceived and experienced rewards of crime to influence individual offending trajectories. Fagan and Piquero (2007:718) argue that these factors work through the mechanism of legal socialization (“the internalization of law, rules, and agreements among members of society, and the legitimacy of authority to deal fairly with citizens who violate society’s rules”) to directly influence decisions to offend. These results establish a necessary baseline for showing that even the most serious adolescent offenders can be deterred under certain conditions. Yet, even within

Figure 2. Expected Rate of Reoffending by Length of Stay

A. Expected Rate of Rearrest



B. Expected Rate of Self-Reported Offending



Adapted from Loughran, T.A., Mulvey, E.P., Schubert, C.A., Fagan, J., Piquero, A.R., and Losoya, S.H. 2009. Estimating a dose-response relationship between length of stay and future recidivism in serious juvenile offenders. *Criminology* 47:699–740.

this category of serious and more seasoned offenders, the responsiveness to deterrence varies. This work also suggests that a disconnect may exist between perceptual and actual cost-benefit calculations with regard to individual assessments of severity, as the placement and length of stay analyses suggest no effect exists whereas the perceptual analysis shows an effect exists.

Loughran and colleagues (2012a) explored heterogeneity in perceptions of risks, costs, and rewards for crime among the Pathways sample to extend this work. They show that perceptions may evolve over time differentially among adolescent offenders. Important and prospectively identifiable differences in the sample, based on perceptions of offending, suggest that amenability to deterrence varies widely. The researchers conclude that accumulated offending experience provides a simple way to divide



the sample into groups according to their perceptions of certainty of detection and punishment. Specifically, they identified a group of high-rate offenders who displayed lower perceived risks of detection and punishment for crime (and also higher perceived rewards from crime). Moreover, they identified a group of low-rate offenders who reported higher perceived risk and lower perceived rewards for offending. Finally, they identified a third group of medium-rate offenders whose perceptions of risks (and rewards) fell in between those of the first two groups. Interestingly, these differences seem to be stable over time—the average levels of perceptions of risks and rewards among the three types of offenders did not converge after 36 months. The differences, therefore, continued to be evident as young offenders grew older, persisting in spite of age or maturity effects that otherwise might have influenced group composition.

Findings Regarding Differences in Deterrent Effects

Considering their findings, Loughran and colleagues (2012a) advance the notion of *differential deterrence*, a term that characterizes the wide variation that exists across serious juvenile offenders' decisionmaking, perceptions of rational choice components, and involvement in criminal activity. A similar phenomenon has been observed in other settings. For example, research on adult domestic violence offenders in Milwaukee suggests that arrest acts as a deterrent to future violence among offenders with high stakes in conformity (married and employed), whereas it is criminogenic for offenders with low stakes in conformity (unmarried and unemployed) (Sherman and Smith, 1992). This underscores the notion that some serious offenders may be sensitive to changes in criminal justice tactics aimed at making crime less rewarding and more costly, whereas others, such as those with fewer stakes in conformity, may be less likely to respond to signals of increased risk and cost.

These results open the door to other questions regarding deterrability:

- Do these perceptions change over time in response to offending and its consequences, or do they remain static and largely insensitive to change and updating within individuals?
- Does the composition of cost-benefit perceptions matter to some offenders more than others, and how do these perceptions vary by individual characteristics and over time?
- Can influencing or changing perceptions affect offending for a group of serious adolescent offenders, or does it ultimately not matter in the decision to offend?

The next set of studies address some of the following questions: Do risk perceptions change over time? How do the changes lead to decisions to commit crime or avoid it? How do patterns vary in each group over time? A final item of concern is: What role do perceptions of risks and rewards of crime play in the long-term desistance from crime?

Increasing Certainty Through Arrest

An arrest will deter an individual only if two things happen: (1) The perception of the risk of detection must increase in response to an arrest, and (2) this increase must lead to a reduction in the likelihood of reoffending. Both of these links must be active for deterrence to operate (Pogarsky, Piquero, and Paternoster, 2004). By examining both responses among juveniles in the “deep end” of the system, researchers can determine if serious juvenile offenders, such as those involved in the Pathways study, are in fact deterrable.

Anwar and Loughran (2011) explore the first question in the Pathways data: Do adolescent felony offenders update their subjective beliefs about their perceived risk of detection as they accumulate additional information about

“Individuals who received probation averaged 0.63 new arrests per year, nearly half the rate of those placed in correctional settings.”

both offending and arrests, including undetected offenses? To test this hypothesis, the researchers used the concept of Bayesian learning. Bayesian learning posits that individuals will adjust or update their previously held subjective beliefs in response to newly observed information, known as a “signal” (in this case, the ratio of the number of arrests to self-reported crimes). Their analyses demonstrated that, as is the case with nonoffenders (Pogarsky, Piquero, and Paternoster, 2004; Lochner, 2007; Matsueda, Kreager, and Huizinga, 2006), individuals in the Pathways sample tend to adjust their risk perceptions upward slightly in response to an arrest—by about 5 percent on average, divided by each crime committed. This is a necessary condition for deterrence. However, when offending is undetected or avoids a legal reaction, individuals actually have lower risk perceptions.

Anwar and Loughran (2011) show two other interesting and policy-relevant extensions to this basic updating process. The first is an *experience effect*. Individuals who are far along in their criminal careers might become certain about their true arrest rate and will therefore no longer update their risk perceptions based on new experiences. These individuals may be “maxed-out” on information and, consequently, an arrest has no effect on their subsequent risk perceptions because they are quite certain in their perceptions already. This implies that a deterrent effect of arrests no longer exists, at least in the sense of increasing perceptions of sanction risk (i.e., an individual’s perceived likelihood of detection) for crime. In such instances where experience trumps new information, sanction threats may influence only certain subgroups of offenders (Parker and Grasmick, 1979; Pogarsky, 2002). The balance of this population might then be undeterrable. Anwar and Loughran (2011) present evidence that confirms such an experience effect. They suggest that for those offenders who are farther along in their criminal careers, arrests have a weaker perceptual deterrent effect; by extension, arrests early in an individual’s criminal career may produce a greater deterrent effect than those that occur later on (Smith and Gartin, 1989).

The second extension that Anwar and Loughran (2011) suggest concerns the observation that the risk-updating process may be crime specific. In this view, experiencing an arrest for one type of crime appears to affect perceptions for that type of crime only, rather than all crime risk perceptions, at least at the level of income-generating (e.g., stealing) versus aggressive (e.g., assault) crimes. The policy relevance of this possibility is clear. If risk-perception updating is crime specific, then police crackdowns on one type of crime are unlikely to deter other crimes. They may even encourage other crimes by shifting limited police resources away from detecting certain crimes or by inducing a substitution effect, in which offenders switch their preferences from crimes with a high likelihood of detection to crimes that are more likely to escape detection (Nagin, 1998). However, if risk perceptions are not crime specific, then cracking down on a specific type of crime will have a global deterrent effect.

At least for the adolescents in the Pathways study, crime-specific updating implies that policies targeting specific types of offending may be more effective at deterring individuals from engaging in these offenses than are general policies aimed at overall crime reduction. If a police force has limited resources and thus decides to target selected types of crime, it will likely have to shift its focus away from other types of crime. This shift in focus may result in a reduction in perceived risk of sanctions for the crimes that are not targeted. Results of Anwar and Loughran’s (2011) study support the notion that individuals, in response to targeted crime policies, may engage in crimes that police do not target and are thus at lower risk of detection.

Behavioral Responses to Changes in Risk Perceptions: The Certainty Effect

Individuals updating their subjective risk perceptions in response to arrest is a necessary condition for deterrence. Yet, this connection between arrest and risk perceptions

may ultimately be insufficient if these changes in risk perceptions do not result in changes in offending. Thus, it is important to consider whether changes in risk perceptions are associated with subsequent changes in behavior among serious juvenile offenders and, if so, how these changes manifest across different levels of risk perceptions. It is important to examine this policy question in the Pathways sample, especially because most prior research has been based on samples of nonoffenders (and other low-risk groups) and the effects tend to be small (Pratt and Cullen, 2005). Moreover, even if such risk-certainty/deterrent effects exist, it is not known whether the effects are constant across the risk spectrum or if there is a “tipping point” above which changes in risk deter crime but below which they do not.

Loughran and colleagues (2012b) investigated the presence and salience of a certainty effect among the serious offenders in the Pathways study. The researchers report strong evidence of a negative association between risk and self-reported offending. They reveal some important features of the functional form of this relationship; that is, its shape along different points of the risk continuum. The data show strong evidence of nonlinearity in the risk-offending relationship. Linearity implies that increases in the perception of risk would be associated with corresponding decreases in reported offending regardless of the individual’s prior risk perception; for example, a 10-percent increase in risk from 10 to 20 percent would reduce offending by the same magnitude as a change from 50 to 60 percent or from 80 to 90 percent. The analyses indicate that this is not the case. Instead, the researchers found that, although increases in risk for individuals in the midrange of the risk continuum (i.e., 30 to 90 percent) are associated with a linear decline in the likelihood of offending, the

likelihood of offending for individuals in the lower end of the risk continuum (i.e., less than 30 percent) is relatively insensitive to sanction risk.

The researchers found no evidence of any certainty effect among the members of this group; that is, increases in sanction risk were not associated with a reduction in offending. There appears to be a detection probability threshold that must be reached before any deterrent effect can be realized. This phenomenon has been observed previously but not at the individual level (Tittle and Rowe, 1974; Chamlin, 1991). Individual offenders deem law enforcement capabilities and the perception of sanction threats to be credible only when they are above that threshold. By extension, greater sanction risks are not likely to deter offenders who do not deem such threats credible in the first place. Loughran and colleagues (2012b) also observed that, for juveniles who perceive offending to be very high risk (i.e., perceived risk greater than 90 percent), the rate of decline in offending likelihood increases dramatically with changes in risk. Such “overweighting,” or treating high probabilities as certainty, is again inconsistent with a linear risk-offending relationship and suggests that there is a threshold at which an individual’s perceived risk is so high that they are at virtually no risk of offending. As such, policies aimed at such individuals with high perceptions of risk are perhaps inefficient or unnecessary. Figure 3 summarizes the relationship between levels of perceived risk and potential deterrent effects for these different risk-based categories of offenders.

The Deterrent Effect of Ambiguity in Offender Risk Perceptions

These analyses of the Pathways data also show that considerable ambiguity exists in offender risk perceptions. Loughran and colleagues (2011) investigated not only whether average risk perceptions deter would-be offenders but also whether the variability, or degree of uncertainty, of such perceptions is also important. This concept comes from the literature on behavioral decision theory, where an important distinction is made between risk—or probabilities, known to decisionmakers—and uncertainty,

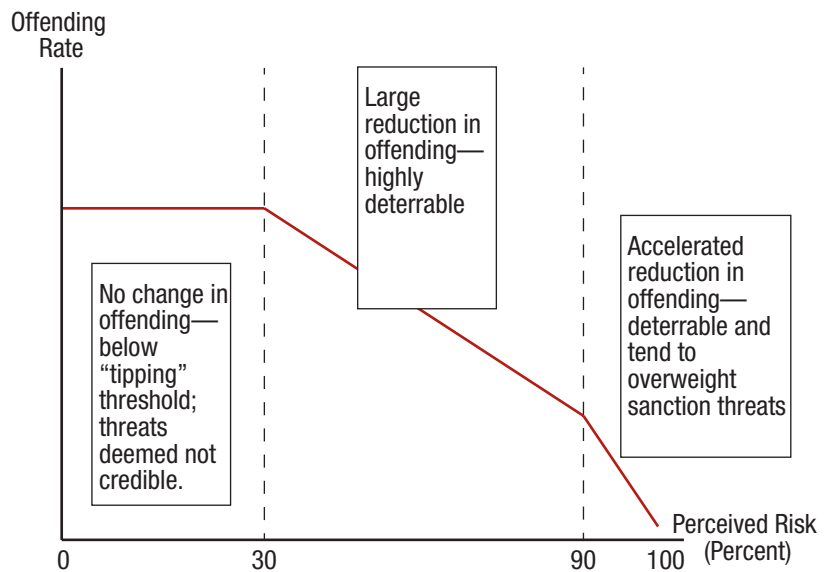


where such risks are unknown and are formed subjectively. This literature has shown that individuals tend to prefer known gambles over more uncertain ones, even for similarly valued outcomes (Camerer and Weber, 1992). For example, when offered the choice between a gamble with a known 50-percent chance to win versus the same gamble with anywhere between a 0- and 100-percent chance to win, individuals tend to prefer the former (where the risk is known) as opposed to the latter (which, on average, is the same gamble but the exact risk is unknown and may be either lower or higher) (Ellsberg, 1961). It is this type of ambiguity, or uncertainty about the subjective risks of detection on the part of the offender, that the authors studied for its relationship to deterrence.

Uncertainty in perceptions of detection probabilities may actually enhance the deterrent effect of increases in perceived certainty. For example, Sherman (1993) noted that it is not possible to raise punishment certainty to very high levels because of limited resources. Yet, as he argues, although the mean level of punishment certainty might continue to be low, it could be unpredictably variable—at times it would be very high in some areas but very low in others. This natural variability would lead to ambiguity regarding the certainty of punishment, thereby increasing its deterrent potential. Thus, Sherman argued that random police activity provides vague or ambiguous information about the risk of punishment, exploiting this natural uncertainty about the risk. Although the overall level of detection may be low, creating uncertainty about specific detection probabilities with respect to certain areas, crime types, or other factors may generate a larger perceived risk of getting caught as compared to a constant, low rate of detection.

To test this idea in the Pathways data, Loughran and colleagues (2011) examined the role of ambiguity in offender risk perceptions and its relationship to the certainty effect. The researchers characterized uncertainty

Figure 3. Differential Offending Responses to Changes in Risk Perceptions by Risk-Class



for each individual as the amount of variability in his or her crime-specific risk perceptions. These results show that, for income-generating crimes, the deterrent effect of offender risk perceptions was enhanced for individuals who reported higher uncertainty in their perceptions near the lower end of the risk continuum. This result is consistent with Sherman’s hypothesis and the concept of “ambiguity aversion” in decision theory, which suggests that individuals are generally adverse to uncertainty (Camerer and Weber, 1992); that is, individuals tend to prefer known risks to unknown risks, even when considering gambles of equally expected payoffs.

The implications of these findings are both considerable and controversial. By increasing the amount of uncertainty about the rate of detection, the deterrent effect of potential detection increased dramatically. This finding argues for the introduction of randomization into police surveillance and patrol—changes that do not necessarily require any additional law enforcement resources. For example, police could rotate their enforcement across both offenses and places so that the risk of punishment is far more unpredictable to active offenders than it normally

“[G]reater sanction risks are not likely to deter offenders who do not deem such threats credible in the first place.”



would be (Harcourt and Meares, 2010). Thus, with the same level of resources, modifying police practice to increase uncertainty could enhance overall deterrence. The implications are controversial because they would require police agencies to substantially rethink how they deploy their scarce resources. The idea is that a random police presence creates a widespread sense of being monitored, wherein the certainty of sanction threats is heightened because offenders will not know where or when they might be caught.

Policy Implications

From a policy perspective, this recent work from the Pathways study has the following important implications:

- Even within a group of serious juvenile offenders, the certainty of punishment can play an important role in deterring future crime. However, the deterrent effect of more severe punishments seems to be limited, in terms of both institutional placement and longer stays.
- This process does not operate in the same way for all offenders—policies that assume a “one size fits all” approach will fail for some offenders.
- Frequency of self-reported offending seems to be an important way to distinguish groups of offenders who may be more or less deterrable.
- Arresting youth before they have gained a sizable reservoir of offenses appears to have the greatest potential to prompt perceptual changes that may curtail future offending. However, those changes in perception are greatest in relationship to the crime associated with the arrest (e.g., perceptions of the risk for getting caught for robbery are likely to increase when the individual has been arrested for robbery).

- Policies that target specific types of offending may be marginally more effective at curbing the targeted offenses than general policies aimed at a widespread reduction in crime levels.
- Changes in offender perceptions of risk may be related to offending, yet the individual’s prior perception is an important determinant of how this change in risk perception will be related to offending. For example, there may be a threshold that an offender must cross for the threat to seem credible.
- Perceived uncertainty in offenders’ subjective interpretations of risk may be utilized to enhance the deterrent effect. This has direct policy implications; for example, unpredictable variability in policing may lead to some additional deterrent effects along with a fixed level of police presence.

Conclusion

The Pathways study has revealed some important relationships between offending and perceptions of risk and rewards of crime in a sample of serious adolescent offenders; these relationships are relevant on both a theoretical and a policy level. For example, the results thus far have shed light on the mechanisms that govern how justice system sanctions may contribute to changes in juvenile offenders’ perceptions of the risks of engaging in crime and the certainty and severity of punishment; this, in turn, may lead these offenders to change their behavior. The findings provide further support for efficiency- and deterrence-oriented police patrol strategies by providing a heightened sense of supervision and, subsequently, of risk (Sherman and Weisburd, 1995; Koper, 1995). Results from the Pathways study are in line with advocates of “justice reinvestment” strategies. The authors’ findings show that severity of punishment (i.e., incarceration) has little specific deterrent effect. Therefore, the authors advocate for shifting resources from prisons to areas that are related to offenders’ perceptions of risk.

The understanding of these mechanisms can be linked to well-developed work in other social sciences dealing with how individuals make decisions. This work also sets the stage for future investigations regarding the following questions:

- Does an identifiable threshold of offending frequency exist above which arrests no longer have an impact on perceptions of risk?
- Are optimal changes in risk perceptions associated with subsequent changes in behavior?

The study investigators will continue to explore these and other areas.

As a whole, the results from the Pathways sample paint a rich picture of how policymakers may begin to think of deterring serious adolescent offenders. However, this picture is incomplete. On the one hand, the results discussed in this bulletin suggest the possibility of effective deterrence for a subgroup of offenders. Many of these offenders contemplate and weigh risk, cost, and rewards when deciding to offend. They tend to adjust these perceptions according to recent sanction experiences and react to these changes in ways that may reflect deterrence. However, what is known about offenders' sanction threat perceptions, and how these perceptions relate to subsequent offending decisions, explains only a small portion of their decisionmaking. The challenge ahead in deterrence research on serious adolescent offenders is to learn more about offenders' decisionmaking so that policies can more efficiently and effectively deter these offenders from crime.

Endnotes

1. OJJDP is sponsoring the Pathways to Desistance study (project number 2007–MU–FX–0002) in partnership with the National Institute of Justice (project number 2008–IJ–CX–0023), the John D. and Catherine T. MacArthur Foundation, the William T. Grant Foundation, the Robert Wood Johnson Foundation, the William Penn Foundation, the National Institute on Drug Abuse (Grant Number R01–DA019697), the Centers for Disease Control and Prevention, the Pennsylvania Commission on Crime and Delinquency, and the Arizona State Governor's Justice Commission. Investigators for this study are Edward P. Mulvey, Ph.D. (University of Pittsburgh), Robert Brame, Ph.D. (University of North Carolina–Charlotte), Elizabeth Cauffman, Ph.D. (University of California–Irvine), Laurie Chassin, Ph.D. (Arizona State University), Sonia Cota-Robles, Ph.D. (Temple University), Jeffrey Fagan, Ph.D. (Columbia University), George Knight, Ph.D. (Arizona State University), Sandra Losoya, Ph.D. (Arizona State University), Alex Piquero, Ph.D. (University of

Texas–Dallas), Carol A. Schubert, M.P.H. (University of Pittsburgh), and Laurence Steinberg, Ph.D. (Temple University). More details about the study can be found in a previous OJJDP fact sheet (Mulvey, 2011) and at the study website (www.pathwaysstudy.pitt.edu), which includes a list of publications from the study.

2. Interestingly, deterrence theorists often speak of the need to maximize the certainty of sanctions while ensuring that their severity is well matched to the seriousness of the crime. This leads to the idea that the severity of sanctions should be meaningfully related to the seriousness of crime so that more serious crimes result in more severe sanctions. Until recently, these proportionality principles were part of the expressive function of punishment (Feinberg, 1965).

3. To the extent that one believes that the juvenile justice system has the dual responsibility to treat as well as to punish, this is an important consideration. Certain types of treatment have best-practices standards regarding length of stay to realize their full effect. For example, National Institute on Drug Abuse standards suggest that treatment for substance use should continue for 90 days to produce stable change (National Institute on Drug Abuse, 2012), and an analysis of this duration effect with the Pathways sample indicates that treatment that does not meet this threshold is not effective in reducing marijuana use (Chassin et al., 2009). Comparing these standards to reports—stating that the average length of stay in juvenile residential settings is 180 days for a person offense (Butts and Adams, 2001)—reveals that more consideration of current practices regarding youth's length of stay in confinement is warranted. Unfortunately, short-term shock incarceration programs (frequently called boot-camp prisons) are known to be ineffective in reducing recidivism (MacKenzie, Wilson, and Kider, 2001). Researchers have also found that exceedingly long incarceration periods are harmful—for example, material restrictions and freedom costs (Fagan and Piquero, 2007); perverse effects, such as increased offending (Agnew, 1992); and increased defiance (Piquero, Langton, and Gomez-Smith, 2004). However, researchers do not know the optimal length of stay that will promote the most positive effects of treatment at the same time it advances deterrence.

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OJJDP JUVENILE JUSTICE BULLETIN

Working for Youth Justice and Safety

March 2015

Robert L. Listenbee, Administrator

Pathways to Desistance

How and why do many serious adolescent offenders stop offending while others continue to commit crimes? This series of bulletins presents findings from the Pathways to Desistance study, a multidisciplinary investigation that attempts to answer this question.

Investigators interviewed 1,354 young offenders from Philadelphia and Phoenix for 7 years after their convictions to learn what factors (e.g., individual maturation, life changes, and involvement with the criminal justice system) lead youth who have committed serious offenses to persist in or desist from offending.

As a result of these interviews and a review of official records, researchers have collected the most comprehensive dataset available about serious adolescent offenders and their lives in late adolescence and early adulthood.

These data provide an unprecedented look at how young people mature out of offending and what the justice system can do to promote positive changes in the lives of these youth.

Psychosocial Maturity and Desistance From Crime in a Sample of Serious Juvenile Offenders

Laurence Steinberg, Elizabeth Cauffman, and Kathryn C. Monahan

Highlights

The Pathways to Desistance study followed more than 1,300 serious juvenile offenders for 7 years after their conviction. In this bulletin, the authors present key findings on the link between psychosocial maturity and desistance from crime in the males in the Pathways sample as they transition from midadolescence to early adulthood (ages 14–25):

- Recent research indicates that youth experience protracted maturation, into their midtwenties, of brain systems responsible for self-regulation. This has stimulated interest in measuring young offenders' psychosocial maturity into early adulthood.
- Youth whose antisocial behavior persisted into early adulthood were found to have lower levels of psychosocial maturity in adolescence and deficits in their development of maturity (i.e., arrested development) compared with other antisocial youth.
- The vast majority of juvenile offenders, even those who commit serious crimes, grow out of antisocial activity as they transition to adulthood. Most juvenile offending is, in fact, limited to adolescence.
- This study suggests that the process of maturing out of crime is linked to the process of maturing more generally, including the development of impulse control and future orientation.



MARCH 2015

Psychosocial Maturity and Desistance From Crime in a Sample of Serious Juvenile Offenders

Laurence Steinberg, Elizabeth Cauffman, and Kathryn C. Monahan

Involvement in delinquent and criminal behavior increases through adolescence, peaking at about age 16 (in cases of property crime) or age 17 (in cases of violent crime) and declining thereafter (Farrington, 1986; Piquero, 2007; Piquero et al., 2001). Although a small number of youth persist in antisocial behavior across this developmental period, the vast majority of antisocial adolescents desist from criminal behavior as they enter adulthood (Laub and Sampson, 2001; Piquero, 2007; Sampson and Laub, 2003). Understanding why most juvenile offenders desist from antisocial activity as a part of the normative transition into adulthood may provide important insights into the design of interventions aimed at encouraging desistance. This bulletin describes findings from the Pathways to Desistance study, a multisite, longitudinal sample of adolescent (primarily felony) offenders (see “About the Pathways to Desistance Study”).¹ This study explores the processes through which juvenile offenders desist from crime and delinquency.

Theories of the Psychosocial Maturation Process

Both sociological and psychological theories suggest that one reason most adolescents desist from crime is that they mature out of antisocial behavior, but sociologists and psychologists have different ideas about the nature of this maturation. A traditional sociological view is grounded in the notion that the activities individuals typically enter into during early adulthood—such as full-time employment, marriage, and parenthood—are largely incompatible with criminal activity (Sampson and Laub, 2003). Thus, according to this view, individuals desist from antisocial behavior as a consequence of taking on more mature social roles, either because the time and energy demands of these activities make it difficult to maintain a criminal lifestyle or because embracing the socially approved roles

of adulthood leads individuals to adopt more conventional values and attitudes.

The conventional psychological view describes a different scenario. According to this view, desistance from antisocial behavior is the product of psychosocial maturation (Cauffman and Steinberg, 2000; Steinberg and Cauffman, 1996; Monahan et al., 2009), which includes the ability to:

- Control one’s impulses.
- Consider the implications of one’s actions on others.
- Delay gratification in the service of longer term goals.
- Resist the influences of peers.

Thus, psychologists see that much juvenile offending reflects psychological immaturity and, accordingly, they view desistance from antisocial behavior as a natural consequence of growing up—emotionally, socially, and intellectually. As individuals become better able to regulate their behavior, they become less likely to engage in impulsive, ill-considered acts.

Although the sociological and psychological explanations of desistance from antisocial behavior during the transition to adulthood are not incompatible, there has been much more research in the sociological tradition, largely because psychological maturation during young adulthood has received relatively little attention from psychologists. Indeed, most research on psychological development during adolescence has focused on the first half of the adolescent decade rather than on the transition from adolescence to adulthood (Institute of Medicine, 2013), perhaps because social scientists widely assumed that there was little systematic development after midadolescence (Steinberg, 2014). However, recent research indicating protracted maturation (into the midtwenties) of brain

systems responsible for self-regulation has stimulated interest in charting the course of psychosocial maturity beyond adolescence (Steinberg, 2010). Because juvenile offending is likely to wane during late adolescence and young adulthood (age 16 through age 25), it is important to ask whether desistance from crime and delinquency is linked to normative processes of psychological maturation.

Psychologist Terrie Moffitt (1993, 2003) has advanced the most widely cited theory regarding psychological contributors to desistance from antisocial behavior during the transition to adulthood. She distinguished between the vast majority of individuals (90 percent or more, depending on the study) whose antisocial behavior stopped in adolescence (adolescence-limited offenders) and the small proportion of individuals whose antisocial behavior persisted into adulthood (life-course persistent offenders). Moffitt suggested that different etiological factors explained these groups' involvement in antisocial behavior. Moffitt hypothesizes that adolescence-limited offenders' involvement in antisocial behavior is a normative consequence of their desire to feel more mature, and their antisocial activity is often the result of peer pressure or the emulation of higher status agemates, especially during midadolescence, when opposition to adult authority may confer special prestige with peers. In contrast, she thinks that antisocial behavior that persists into adulthood is rooted in early neurological and cognitive deficits that, combined with environmental risk, lead to early conduct problems and lifelong antisocial behavior. Although the identification of variations in these broad patterns of antisocial behavior has led Moffitt to refine her framework (Moffitt, 2006; Moffitt et al., 2002), the scientific consensus is that the distinction between adolescence-limited and life-course persistent offenders is a useful one.

Although Moffitt never explicitly outlined the role of normative psychosocial maturation in her framework, it follows from this perspective that growth in psychosocial maturity underlies adolescence-limited offenders' desistance from antisocial behavior. That is, if adolescence-limited offenders engage in antisocial behavior to appear and feel more mature, the genuine process of maturation should lessen their need to engage in antisocial behavior to achieve this end, thereby contributing to desistance from crime and delinquency. Moreover, juvenile offenders who are relatively more mature for their age, or who mature faster than their peers, should "age out" of offending sooner than others. Indeed, there is some evidence to suggest that this is the case. In a previous analysis of earlier waves of data from the Pathways study, the researchers found that youth whose antisocial behavior persisted into their early twenties were significantly less psychosocially mature than youth who desisted from antisocial behavior (Monahan et al., 2009). In this bulletin, the researchers

explore whether this pattern characterizes trajectories of antisocial behavior through age 25.

Models of Psychosocial Maturity

Many psychologists have proposed theoretical models of psychosocial maturity (e.g., Greenberger et al., 1974). The researchers' approach to measuring psychosocial maturity is based on a model advanced in the 1990s (Steinberg and Cauffman, 1996), which suggested that during adolescence and early adulthood, three aspects of psychosocial maturity develop:

- **Temperance.** The ability to control impulses, including aggressive impulses.
- **Perspective.** The ability to consider other points of view, including those that take into account longer term consequences or that take the vantage point of others.
- **Responsibility.** The ability to take personal responsibility for one's behavior and resist the coercive influences of others.

Previous studies have demonstrated that youth with lower temperance, perspective, and responsibility report greater antisocial behavior (Cauffman and Steinberg, 2000) and that, over time, deficiencies in developing these aspects of psychosocial maturity are associated with more chronic patterns of antisocial behavior (Monahan et al., 2009).

The researchers' model of psychosocial maturation maps nicely onto one of the most widely cited criminological theories of antisocial behavior: Gottfredson and Hirschi's (1990) General Theory of Crime, which posits that deficits in self-control are the cause of criminal behavior. Gottfredson and Hirschi's definition of self-control, like the definition of maturity, includes components such as orientation toward the future (rather than immediate gratification), planning ahead (rather than impulsive decisionmaking), physical restraint (rather than the use of aggression when frustrated), and concern for others (rather than self-centered or indifferent behavior) (Gottfredson and Hirschi, 1990). Although the General Theory of Crime is useful in explaining which adolescents are more likely to engage in antisocial behavior (i.e., the ones with poor self-control), it does not explain why most antisocial adolescents desist as they mature into adulthood. From a developmental perspective, it may be variability in both individuals' level of maturity during adolescence and their degree of change in maturity over time that distinguishes between those whose antisocial behavior wanes and those whose antisocial behavior persists during the transition to adulthood. The General Theory of Crime predicts that, at any point in time, individuals who are less mature than their peers would be more likely to engage

ABOUT THE PATHWAYS TO DESISTANCE STUDY

The Pathways to Desistance study is a multidisciplinary, multisite longitudinal investigation of how serious juvenile offenders make the transition from adolescence to adulthood. It follows 1,354 young offenders from Philadelphia County, PA, and Maricopa County, AZ (metropolitan Phoenix), for 7 years after their court involvement. This study has collected the most comprehensive dataset currently available about serious adolescent offenders and their lives in late adolescence and early adulthood. It looks at the factors that lead youth who have committed serious offenses to persist in or desist from offending. Among the aims of the study are to:

- Identify initial patterns of how serious adolescent offenders stop antisocial activity.
- Describe the role of social context and developmental changes in promoting these positive changes.
- Compare the effects of sanctions and interventions in promoting these changes.

Characteristics of Study Participants

Enrollment took place between November 2000 and March 2003, and the research team concluded data collection in 2010. In general, participating youth were at least 14 years old and younger than 18 years old at the time of their study index petition; 8 youth were 13 years old, and 16 youth were older than age 18 but younger than age 19 at the time of their index petition. The youth in the sample were adjudicated delinquent or found guilty of a serious (overwhelmingly felony-level) violent crime, property offense, or drug offense at their current court appearance. Although felony drug offenses are among the eligible charges, the study limited the proportion of male drug offenders to no more than 15 percent; this limit ensures a heterogeneous sample of serious offenders. Because investigators wanted to include a large enough sample of female offenders—a group neglected in previous research—this limit did not apply to female drug offenders. In addition, youth whose cases were considered for trial in the adult criminal justice system were enrolled regardless of the offense committed.

At the time of enrollment, participants were an average of 16.2 years old. The sample is 84 percent male and 80 percent minority (41 percent black, 34 percent Hispanic, and 5 percent American Indian/other). For approximately one-quarter (25.5 percent) of study participants, the study index petition was their first petition to court. Of the remaining participants (those with a petition before the study index petition), 69 percent had 2 or more prior petitions; the average was 3 in Maricopa County and 2.8 in Philadelphia County (exclusive of the study index offense). At both sites, more than 40 percent of the adolescents enrolled were adjudicated of felony crimes against persons (i.e., murder, robbery, aggravated assault, sex offenses, and kidnapping). At the time of the baseline

interview for the study, 50 percent of these adolescents were in an institutional setting (usually a residential treatment center); during the 7 years after study enrollment, 87 percent of the sample spent some time in an institutional setting.

Interview Methodology

Immediately after enrollment, researchers conducted a structured 4-hour baseline interview (in two sessions) with each adolescent. This interview included a thorough assessment of the adolescent's self-reported social background, developmental history, psychological functioning, psychosocial maturity, attitudes about illegal behavior, intelligence, school achievement and engagement, work experience, mental health, current and previous substance use and abuse, family and peer relationships, use of social services, and antisocial behavior.

After the baseline interview, researchers interviewed study participants every 6 months for the first 3 years and annually thereafter. At each followup interview, researchers gathered information on the adolescent's self-reported behavior and experiences during the previous 6-month or 1-year reporting period, including any illegal activity, drug or alcohol use, and involvement with treatment or other services. Youth's self-reports about illegal activities included information about the range, the number, and other circumstances of those activities (e.g., whether or not others took part). In addition, the followup interviews collected a wide range of information about changes in life situations (e.g., living arrangements, employment), developmental factors (e.g., likelihood of thinking about and planning for the future, relationships with parents), and functional capacities (e.g., mental health symptoms).

Researchers also asked participants to report monthly about certain variables (e.g., school attendance, work performance, and involvement in interventions and sanctions) to maximize the amount of information obtained and to detect activity cycles shorter than the reporting period.

In addition to the interviews of study participants, for the first 3 years of the study, researchers annually interviewed a family member or friend about the study participant to validate the participants' responses. Each year, researchers also reviewed official records (local juvenile and adult court records and FBI nationwide arrest records) for each adolescent.

Investigators have now completed the last (84-month) set of followup interviews, and the research team is analyzing interview data. The study maintained the adolescents' participation throughout the project: At each followup interview point, researchers found and interviewed approximately 90 percent of the enrolled sample. Researchers have completed more than 21,000 interviews in all.

in antisocial behavior. In this bulletin, the researchers examine this proposition but also ask whether individuals who mature more quickly over time compared to their peers are more likely to desist from crime as they get older.

To investigate whether and to what extent changes in psychosocial maturity across adolescence and young adulthood account for desistance from antisocial behavior, it is necessary to study a sample of individuals who are known to be involved in antisocial behavior. The Pathways study affords an ideal opportunity to do this because it is the first longitudinal study that examined psychosocial development among serious adolescent offenders during their transition to adulthood. As a result, the researchers examined whether the majority of juvenile offenders demonstrate significant growth in psychosocial maturity over time, as the psychological theories of desistance predict, and whether individual variability in the development of psychosocial maturity accounts for variability in patterns of desistance. They also examined whether differential development of psychosocial maturity over time is linked to differential timing in desistance; presumably, those who mature faster should desist earlier. Because individuals generally cease criminal activity by their midtwenties (Piquero, 2007), this extension of a previous analysis through age 25 allows greater confidence in any conclusions drawn about the connection between psychosocial maturation and desistance from antisocial behavior.

Measuring Psychosocial Maturity

As noted earlier, in the researchers' theoretical model, psychosocial maturity consists of three separate components: temperance, perspective, and responsibility (Steinberg and Cauffman, 1996). Each of these components was indexed by two different measures. For more detail on the psychometric properties of the measures, see Monahan and colleagues (2009).

Temperance

The measures were self-reported impulse control (e.g., "I say the first thing that comes into my mind without thinking enough about it") and suppression of aggression (e.g., "People who get me angry better watch out"), both of which are subscales of the Weinberger Adjustment Inventory (Weinberger and Schwartz, 1990).

Perspective

The measures were self-reported consideration of others (e.g., "Doing things to help other people is more important to me than almost anything else," also from the Weinberger Adjustment Inventory; Weinberger and Schwartz, 1990) and future orientation (e.g., "I will keep

working at difficult, boring tasks if I know they will help me get ahead later") (Cauffman and Woolard, 1999).

Responsibility

The measures were self-reported personal responsibility (e.g., "If something more interesting comes along, I will usually stop any work I'm doing," reverse scored) from the Psychosocial Maturity Inventory (Greenberger et al., 1974), and resistance to peer influence (e.g., "Some people go along with their friends just to keep their friends happy, but other people refuse to go along with what their friends want to do, even though they know it will make their friends unhappy") (Steinberg and Monahan, 2007).

In addition to examining each indicator of psychosocial maturity independently, the researchers also standardized each measure across the age distribution and then calculated the average to create a global measure of psychosocial maturity.

Measuring Antisocial Behavior

Involvement in antisocial behavior was assessed using the Self-Report of Offending, a widely used instrument in delinquency research (Huizinga, Esbensen, and Weiher, 1991). Participants reported if they had been involved in any of 22 aggressive or income-generating antisocial acts (e.g., taking something from another person by force, using a weapon, carrying a weapon, stealing a car or motorcycle to keep or sell, or using checks or credit cards illegally). At the baseline interview and the 48-through 84-month annual interviews, these questions were asked with the qualifying phrase, "In the past 12 months have you ...?" At the 6- through 36-month biannual interviews, these questions were asked with the qualifying phrase, "In the past 6 months, have you ...?" The researchers counted the number of different types of antisocial acts that an individual reported having committed since the previous interview to derive the measure of antisocial activity. So-called "variety scores"² are widely used in criminological research because they are highly correlated with measures of seriousness of antisocial behavior yet are less prone to recall errors than self-reported frequency scores, especially when the antisocial act is committed frequently (such as selling drugs). In the Pathways sample, self-reported variety scores also were significantly correlated with official arrest records (Brame et al., 2004).

Identifying Trajectories of Antisocial Behavior

The first task was to see whether individuals followed different patterns of antisocial behavior over time. The



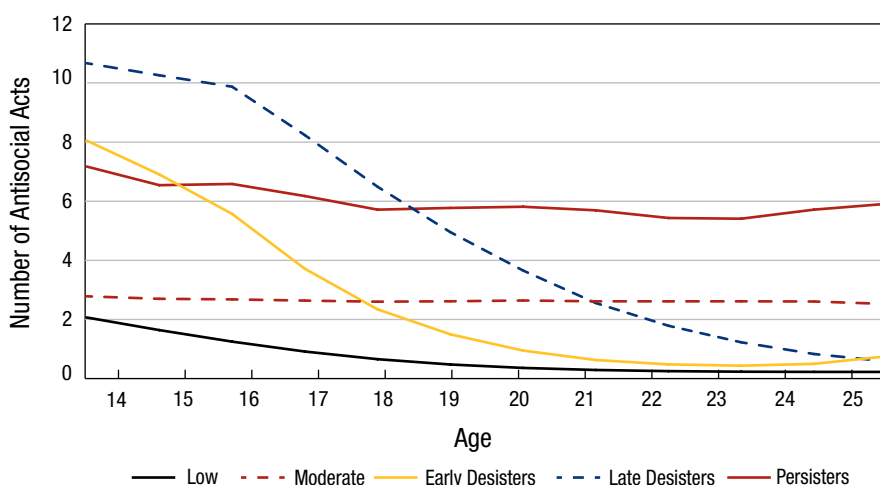
research team used a type of analysis called group-based trajectory modeling (Nagin, 2005; Nagin and Land, 1993) to determine whether they could reliably divide the participants into distinct subgroups, each composed of individuals who demonstrated a common pattern of antisocial behavior. This analysis indicated that there were five different patterns, which are shown in figure 1.

The first group (low, 37.2 percent of the sample) consisted of individuals who reported low levels of offending at every time point. The second group (moderate, 13.5 percent) showed consistently moderate levels of antisocial behavior. The third group (early desisters, 31.3 percent) engaged in high levels of antisocial behavior in early adolescence, but their antisocial behavior declined steadily and rapidly thereafter. The fourth group (late desisters, 10.5 percent) engaged in high levels of antisocial behavior through midadolescence, which peaked at about age 15 and then declined during the transition to adulthood. The fifth group (persistent offenders, 7.5 percent) reported high levels of antisocial behavior consistently from ages 14 to 25.

Several points about these patterns are noteworthy:

- As expected—and consistent with other studies—the vast majority of serious juvenile offenders desisted from antisocial activity by the time they were in their early twenties. Less than 10 percent of the sample could be characterized as chronic offenders. This statistic is similar to that reported in other studies.
- More than one-third of the sample were infrequent offenders for the entire 7-year study period. Although all of these individuals were arrested for a very serious crime during midadolescence, their antisocial behavior did not continue.
- Even among the subgroup of juveniles who were high-frequency offenders at the beginning of the study (about 40 percent of the sample), the majority stopped offending by the time they reached young adulthood. Indeed, at age 25, most of the individuals who had been high-frequency offenders when they were in midadolescence were no longer committing crimes. This, too, is consistent with previous research showing that very few individuals—even those with a history of involvement in serious crime—were engaging in criminal activity after their midtwenties.

Figure 1. Five Trajectories of Antisocial Behavior



Patterns of Change in Psychosocial Maturity Over Time

The researchers next examined patterns of change in psychosocial maturity. Was adolescence a time of psychosocial maturation for these juveniles? Was it a period of continued growth in temperance, perspective, and responsibility? To answer these questions, they used an approach called growth curve modeling. This statistical technique examines whether, on average, individuals matured over the course of the study and whether there was significant variability within the sample

“As expected—and consistent with other studies—the vast majority of serious juvenile offenders desisted from antisocial activity by the time they were in their early twenties.”

in the level, degree, and rate of change in psychosocial maturation.

Across each of the six individual indicators of psychosocial maturity—impulse control, suppression of aggression, consideration of others, future orientation, personal responsibility, and resistance to peer influence—and the global index of psychosocial maturity, the pattern of results was identical. Individuals showed increases in all aspects of psychosocial maturity over time, but the rate of increase slowed in early adulthood.

Figure 2 illustrates this pattern; it shows the growth curve for the composite psychosocial maturity variable and steady psychosocial maturation from age 14 to about age 22, and then maturation begins to slow down. The researchers investigated whether psychosocial maturation actually stopped by the end of adolescence and found that it did not. Rather, they found that, across each of the six indicators of psychosocial maturity and the global measure of psychosocial maturity, individuals in the Pathways sample were still maturing psychosocially at age 25. At this age, individuals in the sample continued to increase in impulse control, suppression of aggression, consideration of others, future orientation, personal responsibility, and resistance to peer influence—indicating that psychosocial

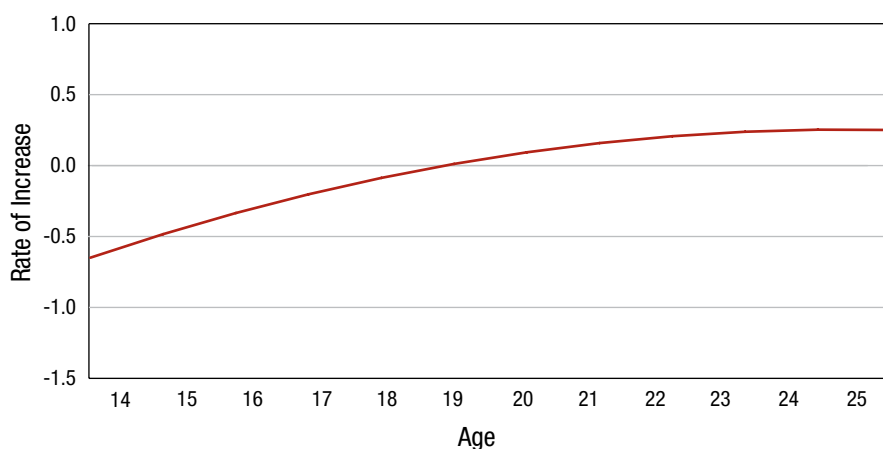
development continues beyond adolescence. This finding is consistent with new research on brain development, which shows that there is continued maturation of brain systems that support self-regulation—well into the midtwenties. It is important to note that this pattern of growth was seen in a sample of serious juvenile offenders, a population that is often portrayed as “deviant.”

Although these analyses indicate that, on average, adolescence and (to a lesser extent) early adulthood are times of psychosocial maturation, the analyses also indicated—not surprisingly—that individuals differ in their level of psychosocial maturity (i.e., some are more mature than others of the same chronological age) and in the way they develop psychosocial maturity during adolescence and early adulthood (i.e., some mature to a greater degree or faster than others) (see Monahan et al., 2009, for a fuller discussion). These results confirm that the population of juvenile offenders—even serious offenders—is quite heterogeneous, at least with respect to their psychosocial maturation. This variability also leads to the question of whether differences in patterns of offending are linked to differences in patterns of psychosocial development.

Psychosocial Maturation and Patterns of Offending

If it is true that desistance from crime during the transition to adulthood is due, at least in part, to normative psychosocial maturation, then there should be a connection between patterns of offending and patterns of psychosocial growth. Juvenile offenders vary in their patterns of offending and their patterns of psychosocial development. Are the two connected? More specifically, is psychosocial maturation linked to desistance from antisocial behavior? To explore this question, the researchers compared patterns of development in psychosocial maturity within each of the

Figure 2. Rates of Psychosocial Maturity Across Adolescence and Early Adulthood



antisocial trajectory groups (figure 3). They selected age 16, the average age of participants when first enrolled in the study, to compare analyses that examined absolute levels of maturity with those that examined changes in maturity over time across the entire age range (ages 14–25).

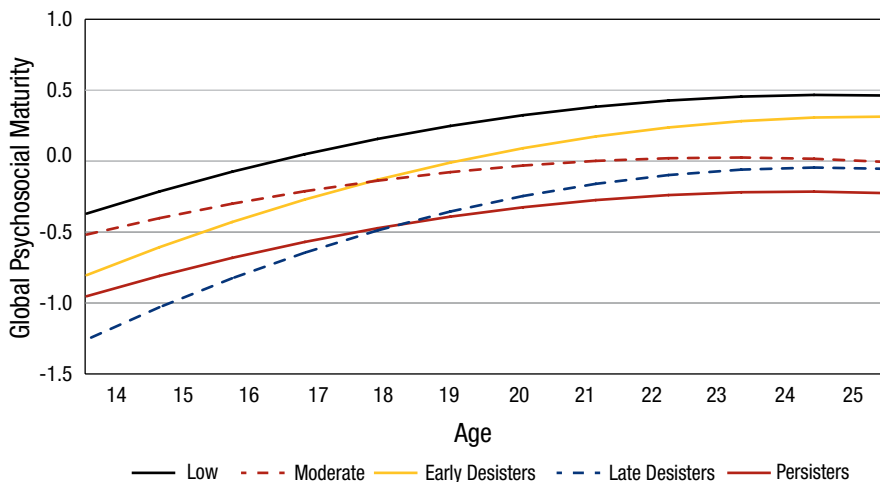
As hypothesized, individuals in different antisocial trajectory groups differed in their absolute levels of psychosocial maturity and the extent to which their psychosocial maturity increased with age. The pattern of group differences was similar for the different psychosocial maturity subscales and for the composite psychosocial maturity index. At age 16, persistent offenders were significantly less mature than individuals in the low, moderate, and early desister groups and were not significantly different from those in the late desister group. Moreover, at age 16, late desisters, who did not start desisting from crime until about age 17, were significantly less mature than early desisters, whose desistance from crime was evident before they turned 16. The findings regarding changes in maturity over time were consistent with the concept that desistance from antisocial activity is linked to the process of psychosocial maturation. As expected, offenders who desisted from antisocial activity

during adolescence showed significantly greater growth in psychosocial maturity than those who persisted into adulthood.

These findings are important for several reasons:

- Even in a population of serious juvenile offenders, there were significant gains in psychosocial maturity during adolescence and early adulthood. Between ages 14 and 25, youth continue to develop an increasing ability to control impulses, suppress aggression, consider the impact of their behavior on others, consider the future consequences of their behavior, take personal responsibility for their actions, and resist the influence of peers. Psychosocial development is far from over at age 18.
- Although the rate of maturation slows as individuals reach early adulthood (about age 22), it does not come to a standstill. Individuals are still maturing socially and emotionally when they are in their midtwenties; much of this maturation is probably linked to the maturation of brain systems that support self-control.
- There is significant variability in psychosocial maturity within the offender population with respect to both how mature individuals are in midadolescence and to what extent they continue to mature as they transition to adulthood.
- This variability in psychosocial maturity is linked to patterns of antisocial activity. Less mature individuals are more likely to be persistent offenders, and high-frequency offenders who desist from antisocial activity are likely to become more mature psychosocially than those who continue to commit crimes as adults. The association between immature impulse control and continued offending is consistent with Gottfredson and Hirschi's General Theory of Crime, which posits that poor self-control is the root cause of antisocial behavior

Figure 3. Trajectories of Antisocial Behavior and Global Psychosocial Maturity



"New research on brain development ... shows that there is continued maturation of brain systems that support self-regulation—well into the midtwenties."

(Gottfredson and Hirschi, 1990), and with Moffitt's theory of "adolescence-limited offending," which suggests that most antisocial behavior in adolescence is the product of transient immaturity (Moffitt, 1993, 2003, 2006; Moffitt et al., 2002).

Summary

Far more is known about the factors that cause young people to commit crimes than about the factors that cause them to stop committing crimes. The Pathways to Desistance study provides evidence that, just as immaturity is an important contributor to the emergence of much adolescent misbehavior, maturity is an important contributor to its cessation. This observation provides an important complement to models of desistance from crime that emphasize individuals' entrance into adult roles and the fact that the demands of these roles are incompatible with a criminal lifestyle (Laub and Sampson, 2001; Sampson and Laub, 2003).

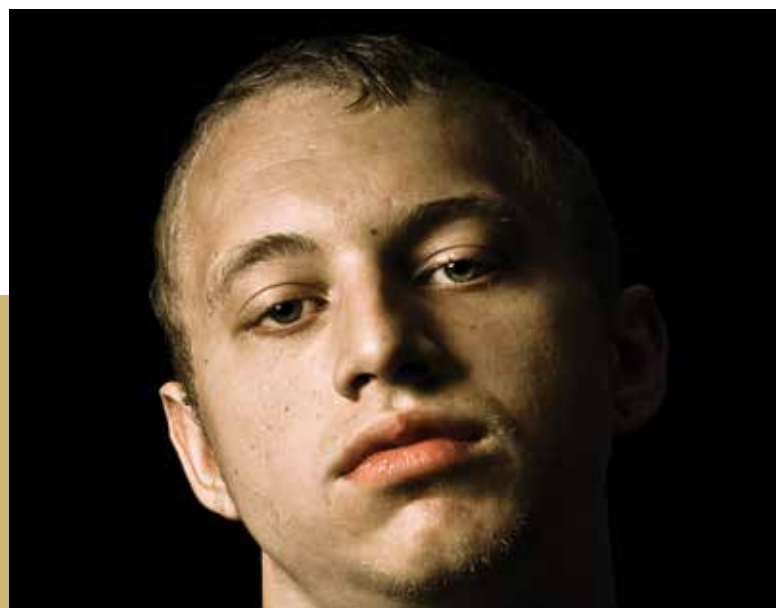
The results of the analyses suggest that the transition to adulthood involves the acquisition of more adultlike psychosocial capabilities and more adult responsibilities; however, not all adolescents mature to the same degree. Youth whose antisocial behavior persists into early adulthood exhibit lower levels of psychosocial maturity in adolescence and also demonstrate deficits in the development of psychosocial maturity compared with other antisocial youth. In a sense, these chronic offenders show a lack of psychosocial maturation that might be characterized as arrested development. Although it is reasonable to assume that this factor contributed to persistent involvement in criminal activity, researchers do not know the extent to which continued involvement in crime impeded the development of these individuals. To the extent that chronic offending leads to placement in institutional settings that do not facilitate positive development, the latter is certainly a strong possibility. In all likelihood, the connection between psychosocial immaturity and offending is bidirectional; that is, each factor affects the other factor. One important implication for practitioners is that interventions for juvenile offenders

should be aimed explicitly at facilitating the development of psychosocial maturity and that special care should be taken to avoid exposing young offenders to environments that might inadvertently derail this developmental process. More research is needed that examines outcomes of interventions for antisocial youth that go beyond standard measures of recidivism.

Perhaps the most important lesson learned from these analyses is that the vast majority of juvenile offenders grow out of antisocial activity as they make the transition to adulthood; most juvenile offending is, in fact, limited to adolescence (i.e., these offenders do not persist into adulthood). Although this is well documented, the researchers believe that the Pathways study is the first investigation to show that the process of maturing out of crime is linked to the process of maturing more generally. It is therefore important to ask whether the types of sanctions and interventions that serious offenders are exposed to are likely to facilitate this process or are likely to impede it (Steinberg, Chung, and Little, 2004). When the former is the case, the result may well be desistance from crime. However, if responses to juvenile offenders slow the process of psychosocial maturation, in the long run these responses may do more harm than good.

Endnotes

1. OJJDP is sponsoring the Pathways to Desistance study (project number 2007-MU-FX-0002) in partnership with the National Institute of Justice (project number 2008-IJ-CX-0023), the John D. and Catherine T. MacArthur Foundation, the William T. Grant Foundation, the Robert Wood Johnson Foundation, the William Penn Foundation, the National Institute on Drug Abuse (grant number





R01DA019697), the Centers for Disease Control and Prevention, the Pennsylvania Commission on Crime and Delinquency, and the Arizona State Governor's Justice Commission. Investigators for this study are Edward P. Mulvey, Ph.D. (University of Pittsburgh), Robert Brame, Ph.D. (University of North Carolina–Charlotte), Elizabeth Cauffman, Ph.D. (University of California–Irvine), Laurie Chassin, Ph.D. (Arizona State University), Sonia Cota-Robles, Ph.D. (Temple University), Jeffrey Fagan, Ph.D. (Columbia University), George Knight, Ph.D. (Arizona State University), Sandra Losoya, Ph.D. (Arizona State University), Alex Piquero, Ph.D. (University of Texas–Dallas), Carol A. Schubert, M.P.H. (University of Pittsburgh), and Laurence Steinberg, Ph.D. (Temple University). More details about the study can be found in a previous OJJDP fact sheet (Mulvey, 2011) and at the study website (www.pathwaysstudy.pitt.edu), which includes a list of publications from the study.

2. The variety score is calculated as the number of different types of antisocial acts that the participant reported during the period that the interview covered, divided by the number of different antisocial acts the participant was asked about.

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