

RACE DIFFERENCES IN PERSISTENCE/DESISTANCE: A TRAJECTORY ANALYSIS OF  
SERIOUS YOUTHFUL OFFENDERS FOLLOWED INTO ADULTHOOD

By

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by

John David Reitzel

To my wife, Kuniko

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The emergence of the criminal career model marked a significant touchstone for academic criminology and reignited anew the long-standing age/crime debate within criminology. Since some offenders persist well past the aggregate peak age in offending, termed persistence, while others desist in a more normative manner as they move through their individual lives it suggests that there are different types of offenders with potentially different etiological underpinnings. To date, however, the literature on persistence and desistance in the context of the life-course or developmental perspective is thin and even thinner when race or ethnic differences were examined.

Building on this observation, this study seeks to contribute to the criminological literature on persistence and desistance within a developmental and life-course context by employing a semi-parametric group trajectory modeling design to examine adult violent and non-violent offending differences of a racially mixed sample of former juvenile offenders that were released from the California Youth Authority. Findings from this study showed significant race and ethnic differences in persistent violent offending and psychological and intelligence differences in non-violent offending.

## CHAPTER 1 INTRODUCTION

### **Historical Overview**

The emergence of the criminal career model (Blumstein, Cohen, Roth, and Visher, 1986) marked a significant touchstone for academic criminology. It reignited the long-standing debate over the age/crime relationship while providing important new mechanisms in which to isolate and link together different stages of the offending career. The criminal career model also called attention to salient concepts regarding offending careers, such as the prevalence of those committing crime and their individual rates of offending frequency (i.e., “Lambda”) (Farrington, 2003; Blumstein, 1986).

Developmental and life-course theories are extensions of the criminal career model (Nagin and Farrington, 1992) and along with it, embody the principle that there is continuity in offending over time such that relative offending rates in one age-period link to relative offending rates in others (Farrington, 2003; Moffitt, 1993; Nagin and Farrington, 1992; Blumstein et al., 1986). Continuity in offending is also the hallmark of the most high-rate persistent offenders that are thought to begin their offending careers earlier, have longer careers, and to commit more crimes over comparable periods than other types of offenders (Mazerolle et al., 2000; Moffitt, 1993, 1994). For instance, early onset of offending, a key predictor in the developmental and criminal career literatures, has been found to correlate to the development of problems earlier in childhood and links to continued and often increasing problems throughout each developmental stage of the life-course (Mazerolle et al., 2000; Moffitt, 1993, 1994).

Since some offenders persist well past the aggregate peak age in offending while others desist in a more *normative* manner in late adolescence/early adulthood, it suggests that there are different types of offenders with potentially different etiological underpinnings (Moffitt, Lynam,

and Silva, 1994; Moffitt, 1993; Barnett, Blumstein, and Farrington, 1989). It further suggests that persistence and desistance are not simply two sides of the same coin. Rather, they are separate but related consequences of individual criminality. Despite their seeming importance to our understanding of crime, persistence and desistance are understudied topics in criminology. As Laub and Sampson (2001: 1) recently wrote, “There have been relatively few long-term studies of crime over the full life-span. Consequently, relatively little is known about desistance and, for that matter, the processes of persistent criminal behavior throughout the life course.” Building on their observation and on the recent empirical literature on persistence and desistance, this study seeks to contribute to criminological knowledge in two important ways.

First, the primary objective is to investigate differences in persistence and desistance across violent and non-violent crime types. This study seeks to determine how factors drawn from the developmental and life-course literatures predict persistent offending or desistance from offending for a sample of young adults who had previously been incarcerated as juveniles. Examining how persistence and desistance function across violent and non-violent offending can add to the literature by determining if they operate in similar or dissimilar ways.

For example, persistence in crime has been linked to selective incapacitation. If there are offenders that definitively stop offending because of identifiable factors, then keeping them incarcerated beyond such time that they are no longer a threat to recidivate might be counterproductive. There is also evidence that the individuals most at-risk to reoffend are not necessarily the most serious offenders, much less violent offenders (Heilbrun et al., 2000; Clear, 1988; Petersilia, Greenwood, and Lavin, 1977). In addition, persistence and desistance situate at the center of the most recent theoretical discussions on criminal careers.

Second, although the criminology and sociology literatures on race and crime are extensive, few published studies investigate racial differences in persistence and desistance within a life-course/developmental framework (Piquero, McDonald, and Parker, 2002; Ge, Donnellan, and Wenk, 2001, Elliott, 1994). There are even fewer that consider offending trajectories between racial groups and none that consider ethnicity, particularly Hispanic/Latino ethnicity (Ge et al., 2001). Consequently, an equally important objective of this study is to investigate persistence and desistance with respect to differences in risk factors predicting offending trajectories across and within race and ethnicity.

### **Locating Persistence and Desistance**

Most earlier studies of persistence are predominantly investigations of recidivism, framed in such contexts as “time to first arrest” or “failure to desist” (Petersilia and Turner, 1993; Shover and Thompson, 1992). While these studies are longitudinal in nature, they only cover very short time spans, typically three years after release from incarceration. On the other hand, the empirical literature on desistance has generally approached it from a static perspective, employing a cutoff point in which to measure when individuals simply stop offending (Bushway et al., 2003). Or they are qualitative in nature that asked non-randomly selected samples of offenders about why or how they desist (e.g. see Maruna, 2001). Although these approaches have provided valuable insight for criminology, they have not been informative about the stability of long-term persistent offending patterns, changes in offending patterns, or persistent differences in offending. In addition, they have not shed much light on any shared patterns that explain why or how people come to desist, at least not from a systematic standpoint.

From a developmental standpoint, the key feature of persistence is its stability across the life-course for a small group of the most frequent offenders (Moffitt, 1993). This perspective holds that there is a small group of high-rate, frequent offenders whose offending trajectories are

steady across the life-course and whose offending etiology is also stable, but that it differs from others whose offending is limited to adolescence. Moreover, implicit in this position is heterotypic continuity of offending, which is the concept that persistent offenders typically exhibit increasing seriousness in offending as they age or they display a variety of behaviors that stem from a single underlying trait.

Desistance is the termination of offending. The criminal career model employs desistance as a way to measure career length, thus providing additional information for policy construction. The extant literature on the aggregate age/crime relationship suggests that most offenders begin offending during adolescence but desist by their mid-twenties. However, to what extent individual patterns of desistance reflect the aggregate pattern and at what point do individuals that are desisting become indistinguishable from non-offenders remain empirical questions (Benda, Toombs, and Peacock, 2003; Bushway et al., 2003). In other words, are most of these offenders getting married or finding gainful employment or other adult commitments that might lead them to terminate offending immediately or are other forces operating that causes them to reduce their offending frequency but not to terminate fully until years later? As is discussed more fully below, earlier theories have treated desistance as an event where people just quit offending (Bushway et al., 2003; 2001). Some researchers, however, have proposed measuring desistance as a process that leads to termination (Maruna, 2004; Bushway et al., 2003, 2001; Laub and Sampson, 2003).

Since both persistence and desistance potentially influence the age/crime relationship, consideration of both processes should be taken into account. If, for instance, there is an identifiable group of high-rate persistent offenders whose stability in offending can be tracked into late adulthood and whose risk factors differ from those limited to delinquency in

adolescence (or for those who might begin offending in adulthood), then there are compelling reasons to believe that individual trajectories would not necessarily comport with the aggregate age/crime curve.

What accounts for the stability of offending well past the aggregate decline in crime after peak age, and why and how offenders come to desist are important questions without sufficient answers. In this vein, developmental and life-course theories have taken on added importance since they specifically attend to the initiation and termination of offending and to the implications that identification of a persistent offending group might have for the age/crime relationship. Conversely, when set against Gottfredson and Hirschi's general theory, which posits that different groups of offenders do not exist but rather, variation in offending frequency is a result of underlying criminal propensity, it can help sharpen not only our understanding of the theoretical differences but of offending itself. Together these recent theories have the advantage of better addressing an array of unsettled issues about the development of criminality over time. Together, they have pressed researchers to rethink their conceptualizations of crime and criminality, and to consider the full length of the individual offending career.

### **Race, Ethnicity, Persistence/Desistance**

Noticeably absent in the empirical literature are studies that investigate potential race and ethnic differences in persistence and desistance. Racial or ethnic group membership plays an inextricable role in our understanding of crime Whether signifying potential socioeconomic class or residential antagonisms that correlate to race-differentiated crime rates or as a potential reflection of institutionalized racism in the criminal justice system, it is necessary to investigate the role of race and ethnicity in differences in offending across the life-course (Walker, Spohn, and Delone, 2004).

Black Americans comprise less than 15% of the total population yet they make up more than 37% of those under some form of correctional supervision (probation, jail, prison, parole) (Bureau of Justice Statistics, 2006) and nearly 64% of all inmates who leave prison (Petersilia, 1999). Punishment also distributes differently along ethnic lines. For instance, just as violent and property crime rates have dropped to levels not achieved since the 1960's, arrest and incarceration rates for Hispanic/Latino Americans of any race have increased more than any other comparable demographic group, which makes minorities of any color or ethnicity over three times more likely to be involved with the criminal justice system (Petersilia, 1999).

Racial and ethnic group membership has a strong bearing on how we think about crime, criminals, and criminal justice. That race and ethnic matters are among the most contentious social issues in the United States, particularly when discussions turn on biological, genetic, or cultural differences in propensity to offend or on the existence of institutionalized racism in the criminal justice system, signals to its central importance to criminological theory. As racial and ethnic issues converge on age and crime issues, the discussions become considerably more convoluted since the effects of race may be different from that of ethnicity, both of which might differ from the effects of age on propensity to offend or on the criminal justice systems response to offending.

### **Theoretical Foundation**

Earlier studies of offending have traditionally focused on differentiating between offenders and non-offenders but recent theories assert that it is important to make distinctions between offenders (Chung et al., 2002; Farrington, 1996). Moreover, delineating between theoretical models that until recently have been less than adequate in explaining racial or ethnic differences and that hold contrasting positions on the age/crime relationship is an important step toward reconciling unnecessary discord that has confronted criminology of late. Toward this end, there

are four theoretical models that inform this study: Blumstein and colleagues career criminal model, Moffitt's dual taxonomy, Gottfredson and Hirschi's general theory, and Sampson and Laub's life-course theory.

Blumstein and colleagues' (1986) criminal career model is first among these perspectives since it provides important theoretical constructs and a unifying conceptual underpinning on which the other theories extend. However, because it structures offending around a framework specifically intended to inform crime control policy—with somewhat dubious implications regarding selective incapacitation—its capacity as a theory of crime is constrained (Laub and Sampson, 2003; Tittle, 1988).

Moffitt's (1993) dual taxonomy, on the other hand, offers an explicit theoretical typology that moves beyond policy by offering more vibrant theoretical guidance in which to measure persistence and desistance. Grounded in the neuropsychological development of antisocial behavior over the life-course, Moffitt's theory provides two discrete pathways of offending. The first, termed life-course persistent antisocial behavior (LCP), places the roots of persistent antisocial behavior and offending over the life-course in pathological neuropsychological deficits. The second, termed adolescent-limited anti-social behavior (AL), applies to the typical juvenile offender who engages in crime during adolescence but then desists upon entering into adulthood. The roots of AL offending are found in adolescence where the coalescence of transient factors such as mimicking other offenders (particularly, mimicking LCP behavior) to fit in or rebelling as a result of a maturity gap, which prohibits them from engaging in behaviors that they enjoy as a result of legal or moral proscriptions. Both of which cause AL offenders to initiate and terminate offending.

Although it is with the career criminal model and Moffitt's developmental taxonomy that the current study originates, two other theories inform this research. Gottfredson and Hirschi's (1990) general theory of crime provides a useful counter position for interpreting the results because they deny the existence of different types/groups of offenders and they dismiss the notion that criminals have "careers" (Gottfredson and Hirschi, 1986). Rather, they argue that stable differences in levels of self-control underpin all differences in offending at all ages and therefore, criminologists must investigate the factors correlates of self-control. Importantly, it should be mentioned here that there are few indicators of low self-control aside from measures of criminal and analogous behaviors and thus, Gottfredson and Hirschi's position is more useful to this study in what they state about criminal careers and the non-existence of distinct offender groups.

Lastly, Sampson and Laub's (2004, 1993) age-graded theory of cumulative disadvantage is also relevant. To borrow from Merton (1949), it is helpful to consider their perspective as a theory of the "middle-range" since it brings together properties of Hirschi's original bonding theory and properties of labeling theory while also drawing from both developmental theories and general theory in application (Sampson and Laub, 2004). It provides practical constructs that can elucidate findings from a somewhat different perspective than both Moffitt or Gottfredson and Hirschi. For example, Sampson and Laub do not subscribe to the notion that there are "groups" of offenders, but they do believe that there is stability in offending across the life-course. They also consider change in offending and that anybody, given the right convergence of circumstances, can turn away from crime (or toward it). They assert that the effects of low socioeconomic status, unemployment, and human agency, and most importantly, that age-graded informal social controls play a significant role shaping or changing behavior over time (Sampson

and Laub, 2004); all of which call attention to the reasons why some offenders might continue offending even if the probability diminishes with age. Their theory also explains why others desist as adults.

This study assumes no preference toward any of the theories. Rather, the goal is to determine whether the outcomes support one, some, or all of the theories, and to investigate how such findings impact upon our understanding of continuity and termination of offending, particularly in how such patterns might comport with the age/crime relationship.

### **Study Format**

Beginning with Chapter 2, the historical backdrop of age and criminal careers was reviewed. Chapter 3 follows with a review of race issues in crime and criminal justice. Chapter 4 reviews the four theoretical perspectives informing this study. Included in this chapter is a relevant discussion about theoretical assumptions regarding crime and criminality and what each theory claims about the age/crime relationship. Chapter 5 is a review of the extant literatures on persistence and desistance, respectively. Chapter 6 is the methods and data chapter, which includes a detailed description of the data source and collection methods. In this chapter, the four research questions that underpin this study are presented and a comprehensive account of how both the independent and dependent measures were constructed is provided. This includes a thorough explanation of the methods employed to analyze the data and answer the research questions. Chapter 7 is an analysis of the results for the violent, non-violent, and total crime offending models. Lastly, Chapter 8 is a discussion of the findings and includes implications for our understanding of persistence and desistance in offending across race/ethnicity, crime types, relevant theory, and the age/crime relationship. The study concludes by taking account of the limitations as well as providing directions for future research.

CHAPTER 2  
AGE, CRIMINAL CAREERS, AND POSITIVISTIC CRIMINOLOGY

**Age/Crime Relationship**

Perhaps the most reliable observed phenomenon in positive criminology is the age/crime relationship, which across historical era, geographic locale, population variation, and a variety of violent and property crime types, consistently exemplifies the same basic distributional pattern of crime across age (Piquero et al., 2003; Tittle and Grasmick, 1998; Steffensmeier, Allan et al., 1989; Hirschi and Gottfredson, 1983). As illustrated below in Figure 2.1, aggregate crime rates sharply increase during the adolescence, peaking somewhere between 15 and 19, then decreasing steadily thereafter. (e.g., see aggravated assault in Figure 2.1) (Benda, 2003; Aguilar, 2000; Farrington, 2000, 1986; Gottfredson and Hirschi, 1988; Blumstein and Cohen, 1987). Although the exact shape of each curve differs by specific crime type. Goring (1913) claimed that the age/crime relationship obeyed a “law of nature” while Sampson and Laub (2003) called it “accepted wisdom.”

Although crime is not exclusively the domain of the young, the primacy of its relationship to youth can hardly be understated. Indeed, the age/crime relationship has ordered our thinking about crime and criminality since the 19<sup>th</sup> century (Cullen and Agnew, 2003; Sampson and Laub, 2003), and is now one of the most studied issues in criminology (Piquero, Farrington, and Blumstein, 2003; Tittle and Grasmick, 1997; Steffensmeier, 1989; Tittle 1988). The age/crime relationship is also a principal assumption on which many contemporary crime theories rest.

To the extent that the age/crime relationship is empirical fact, common theoretical accord has proved elusive. There are two immediate explanations for this. First, the interdisciplinary composition of criminological theory inhibits a cohesive overarching theoretical paradigm that most criminologists subscribe to like that of Darwinian evolution in biology (Cullen and Agnew,

2003; Montagu, 1941). While some criminologists suggest that it makes criminological theory intellectually rich (Cullen and Agnew, 2003), it does not encourage widespread consensus. Second, since theories of crime derive from a variety of academic disciplines they are often in opposition regarding the assumptions they make about the nature of criminality and human behavior (Gottfredson and Hirschi, 1990). Theoretical discord is also a result of uncertainty over the operationalization of concepts, which have different meanings for different disciplines. As a result, explanations of offending are often mired in complicated interactions of internal and external factors, situational determinants, time-dependent factors, and disciplinary differences.

Alternately, some researchers have challenged that the age/crime relationship is simply unexplainable with traditional social science variables, thus there is no interaction between other variables and age (Tittle and Grasmick, 1998; Gottfredson and Hirschi, 1990). This appears to have created an either/or scenario of explanations while ignoring a potential “both” explanation.

Three questions emerge when attempting to explain the determinants underpinning this seemingly easy to understand relationship. First, what causes crime rates to rapidly increase

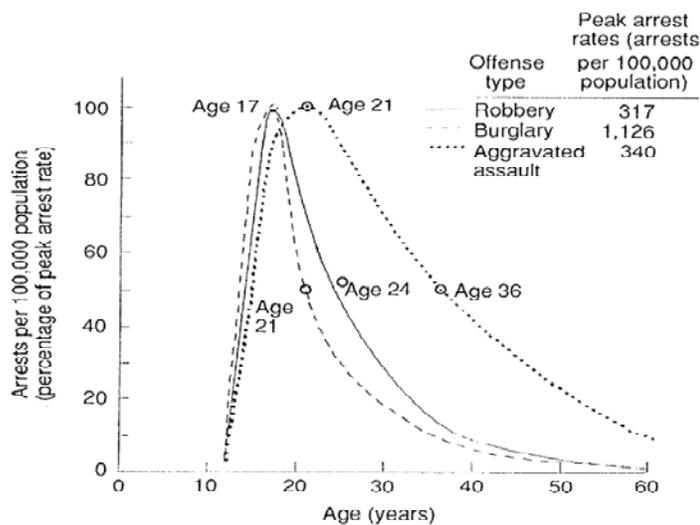


Figure 2.1. Age/crime curve for robbery, burglary, and aggravated assault (Federal Bureau of Investigation, 1984; reprinted with permission)

during adolescence in the first place? Second, what causes them to decrease steadily as soon as they peak (Piquero, Farrington, and Blumstein, 2003; Gottfredson and Hirschi, 1990)? Last, are there meaningful differences between the age/crime relationships for different crime types (e.g. as Figure 2.1 depicts, crime peaks later and drops off more gradually for aggravated assault than for other crimes) (Steffensmeier, Allan et al., 1989)?<sup>1</sup>

For whatever advancements have been made in over a century and a half of research on crime and criminality, the unsettled age/crime questions remain front and center of persistent discord. Sellin (1940) forewarned that the age/crime relationship might be unsolvable in writing, “The research student who is in pursuit of an answer to the relationship of age and crime . . . is doomed to disappointment” (Wolfgang, Figlio, and Sellin, 1972: 106).<sup>2</sup> He was prescient in his edict.

### **Age/Crime and Career Criminals**

The age/crime relationship converges with the popular notion of the habitual and irredeemable career criminal. Criminology’s adherence to the existence of both ideas can be traced back to the pioneering works of early social positivists. Most prominent of them was Belgian *social physics* and statistics luminary, Adolphe Quetelet.<sup>3</sup> Among Quetelet’s many noteworthy contributions to positivism, such as developing the concept of the average man, the body mass index, and other advances in statistical regression, he found that crime strongly correlated to young people less than age thirty and that age differentiated and individual’s

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<sup>1</sup> A more detailed discussion of the age/crime debate is in Chapter 4

<sup>2</sup> This quote was reproduced from a passage in Wolfgang, Figlio, and Sellin’s *Delinquency in a Birth Cohort*. Sellin made the original statement in an article entitled, “The Criminality of Youth,” which appeared in the American Law Institute in 1940.

<sup>3</sup> Quetelet employed the term social physics (*physique sociale*) to describe his positivistic social research. It is believed that Auguste Comte, who is considered the father of “sociology,” actually coined the term for positive social science but later invented the term “sociology” since he believed that Quetelet stole the social physics term from him.

propensity toward property and person crimes (Hankins, 1968; Quetelet, 1968). In a particularly telling passage that is illustrative of the value of age on criminal propensity, Quetelet (1968: 92) wrote:

Of all the causes which influence the development of the propensity to crime, or which diminish that propensity, age is unquestionably the most energetic. Indeed, it is through age that the physical powers and passions of man are developed, and their energy afterward decreases with age. Reason is developed with age, and continues to acquire power even when strength and passion have passed their greatest vigour.

Years later, Cesare Lombroso (1876) would make similar claims while simultaneously bringing to the forefront of positivistic crime research the notion of a biologically primitive criminal, which he labeled an atavist. Writing that every age had its own “age-specific criminality” and that crime rates were highest for people between ages 15 and 30, he considered factors that caused juvenile crime different from that which caused atavism, attributing juvenile criminality to the “virility” of youth and “instinctive tendencies toward law breaking” (Lombroso-Ferro, 1944: 152).

Lombroso and Quetelet viewed juvenile delinquency largely as a byproduct of youth, not of biological or other individual traits. Yet, there is an additional important theme common to each of their positions. Both suggest that criminal propensity is pliant (for most people); that it increases as individuals enter into and proceed through adolescence but declines in adulthood after having fully developed the ability to reason and appreciate the consequences of actions. This is notable since distinguishing between career criminals and *normative* juvenile delinquents, and in determining the extent to which criminal propensity changes or remains stable for each type of offender are core issues in criminology.

In the early part of the twentieth century, sociologists at the University of Chicago expanded the study of crime and age with their groundbreaking studies of Chicago urban life. Their numerous contributions to social science included developments in sociological and

criminological theory, empiricism, and methodology, all of which have important bearing for life-course criminology research. Of the various defining features characterizing Chicago sociology, a grand and multifaceted examination of urban social life certainly stands out. This is readily apparent by the emphasis placed on employing multiple methods and theories, fostering of collaborations that cut across academic disciplines, and in bringing activists, journalists, and other community members into the fold of examining social problems (Bulmer, 1984). For example, Robert Park was the first to apply plant life ecology to the social environment of a city, of which Ernest Burgess' concentric zone theory emerged. Park was also the first to write about the "collective effects" of neighborhood residency and that having a high number of young males in a community contributed to its crime rates (Bulmer, 1984: 107).

It was Thomas and Znaniecki's, *The Polish Peasant in Europe and America* (1920) and Shaw's, *The Jack Roller* (1930) that illustrated the importance of understanding social and criminal behavior over the life-course. For example, in following the maladaptive life-course development of a petty juvenile delinquent named Stanley, Shaw employed a combination of life-history diaries ("his own story"), field research, background checks of official records and, an empirical analysis of Chicago communities, to capture the origins and development of criminal behavior (Bulmer, 1984). In other words, he integrated a life-course approach with other methodological and theoretical approaches in investigating the forces that encouraged change in or continuation of offending behavior.

In the 1930s and 40s, Sheldon and Eleanor Glueck continued this "life-course approach" by initiating an important longitudinal study entitled *Unraveling Juvenile Delinquency*. The Gluecks' had matched 500 delinquent boys to 500 non-delinquent boys on community residency in poor neighborhoods, age, ethnicity, and "global intelligence" (Glueck and Glueck, 1950). The

goal was to understand why some boys became delinquent while others did not given similar residency in underclass neighborhoods and similar traits thought to be important in causing crime, which, as Sampson and Laub (1993) argue, is a central issue that still confronts criminological studies of delinquency and development. Their findings contributed to theory by highlighting the differences in the effects of community factors interacting with individual characteristics in causing delinquency among some youths but not others. From a life-course or developmental perspective, their findings pointed to the need for following people over time, preferably a very long time.

In the seventy plus years since the Gluecks' study, a number of other critical longitudinal investigations have emerged whose efforts have come to define the underpinnings of recent criminal career, life-course, and developmental criminology literatures. Chief among them was Wolfgang, Figlio, and Sellin's Philadelphia Birth Cohort Studies (1972), which stand as the seminal works in contemporary criminology (Piquero et al., 2003; Sampson and Laub, 2003; Morris, 1972). In their investigation of a juvenile cohort born in Philadelphia in 1949, the researchers' found that 6% of the cohort and 18% of the delinquent subset committed nearly 52% of all the crimes by the cohort. Even further, less than 3% of the delinquent subset committed over 70% of the most serious felonies (Piquero et al., 2003; Wolfgang et al., 1972). Wolfgang and colleagues study sent reverberations throughout criminology and was the catalyst for a flurry of empirical studies and new theories (Gottfredson and Hirschi, 1988). Their findings suggested that there was a small group of highly active criminals who were responsible for an extraordinary amount of serious crime. In other words, their findings suggested the existence of a small group of career criminals.

Other noteworthy longitudinal studies that were commissioned in the wake of the Wolfgang studies include the Cambridge-Somerville Project (1978); West and Farrington's Cambridge Youth Study (1961-present); Elliott's National Youth Survey (1972); Montreal Longitudinal-Experimental Study (Tremblay et al., 2003); Dunedin Multidisciplinary Health and Development Study (1972); Project on Human Development in Chicago Neighborhoods (1998); Seattle Social Development Project (1981); the trio of Office of Juvenile Justice and Delinquency Prevention (OJJDP) studies to include the Pittsburgh Youth Study (Loeber), Rochester Youth Development Study (Thornberry), and the Denver Youth Study (Huizinga); and, Sampson and Laub's (2005, 1993) reconstruction and update of the original Glueck data.<sup>4</sup> Although the scope and purpose varies for each study, they all share the underlying principle of investigating dynamic processes in the development of criminal behavior over time.

Since 1986, numerous critical theoretical developments have also taken place. Blumstein and colleagues' criminal career model was the first and paved the way by providing a framework for investigating the criminal career. Hirschi and Gottfredson, who had first written an important essay in 1983 on their interpretation of the age/crime relationship, which preceded the Blumstein and colleagues model, countered conventional age/crime interpretations with a new general theory of crime that set the root causes of offending and analogous behaviors in individual self-control. Others, such as Rowe, Osgood, and Nicewander (1990), Le Blanc and Loeber (1990)/Loeber and Le Blanc (1998), Hawkins and Catalano (1992), Moffitt (1993), Patterson, Capaldi and Bank (1993), Patterson and Yoerger (1997), and Farrington (2000), penned theories whose features draw from the criminal career model, but place offending causes in

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<sup>4</sup> Piquero, Farrington, and Blumstein (2003) provide a more detailed listing and explanation of the most notable longitudinal studies, including ones not mentioned here. Their coverage provides an excellent summary of the parameters and findings of each study.

developmental psychology, unobserved latent traits, or other individual risk factors that link the continuity of behavior over the life-course. Others still, such as Sampson and Laub (1992, 2005), Tittle (1995), Hagan (1997) and, Thornberry (1987, 1997), and Colvin (2000) reconsidered traditional sociological theory by integrating multiple theories or by fitting existing theories within a life-course framework.

### **Age/Crime Debate and Theory**

Hirschi and Gottfredson (1983) proposed their own explanation of the age/crime relationship arguing that it was invariant across social and cultural conditions, and that sociological theories should not be tied to explaining this relationship. In 1986 and 1987, Blumstein and colleagues published findings from their research on criminal careers and what they found ran counter to many prevailing beliefs in criminology and particularly, to Hirschi and Gottfredson's position. For instance, frequency of offending was relatively stable for active offenders and termination rates for those over 30 was low. That is, if they continued offending into their thirties they were less likely to stop. In addition, demographic factors that cross-sectional data demonstrated as important did not significantly link to offending frequency (Blumstein and Cohen, 1987).

Gottfredson and Hirschi (1988) contested these findings and the implications of the career criminal model in general by dismissing the utility of the entire model as being a fixed tool of policy such that Blumstein and colleagues had set out to identify career criminals for policy purposes and then designed the model in a way that found exactly what they wanted to find; which was the existence of career criminals (Gottfredson and Hirschi, 1988; Tittle, 1988). Furthermore, they argued that individual components of the criminal career model such as initiation and frequency did not have any theoretical significance and that their model—and most

criminological theories as well—neglect to account for the generality of crime (Pratt and Cullen, 2000).

Blumstein and colleagues (1988) responded to the criticisms by arguing that their position was mischaracterized regarding, among other things, the meaning of the criminal career and the value of Lambda in understanding criminality. In effect, they accused Gottfredson and Hirschi of setting up straw man type arguments in order to undermine the model's value. This drew additional responses and rejoinders, which further opened up criminology to a renewed discussion about the role of age in crime research as well as a debate over the use of cross sectional versus longitudinal methodologies to answer core criminological questions. Nagin and Land (1993) characterized the more recent dispute as reaching a level of contention not seen since the Gluecks' and Sutherland debate in the mid twentieth century.

Tittle (1988) offered an articulate commentary on this academic tit-for-tat, summarizing not only where the disagreements lie, but by pointing out the inconsistencies in each position (in both the assumptions they make about their respective positions and about each other's). He identified five basic disagreements, which include the validity of selective incapacitation policies, invariance of the age/crime relationship, utility of longitudinal and cross-sectional data, government "programmed" research, and the theoretical import of career criminal research (Tittle, 1988: 75).

In broad terms, the early age/crime debate centered on whether the underlying patterns of the age/crime curve reflect changes in participation or changes in frequency (Vold, Bernard, and Snipes, 2002). The traditional position was that offending frequency among active offenders drove the shape of the curve and therefore the sharp rise and later decline after peak offending represented changing rates of offending of those engaging in criminal behavior (Blumstein et al.,

1986). Conversely, the criminal career position suggests that the shape is predominantly a result of participation; that the curve represented an influx of offenders prior to peak and the aging out for most offenders by their mid twenties, albeit with a small group of persistent offenders whose offending frequencies remained stable at a high rate (Blumstein et al., 1986).

Somewhat of a paradigm shift occurred in the 1990's following the publishing of numerous life-course, developmental and general theories. It now centers on career criminals vis-à-vis criminal propensity (Vold et al., 2002). The career criminal position has not changed. Its emphasis still hinges on changes in participation with a small group of high-rate persistent offenders. However, the ascendance of criminal propensity and its relative hold for some regarding the age/crime relationship has become the prime counterpoint.

Specifically, criminal propensity position is a linchpin of Gottfredson and Hirschi's general theory and it holds that the effect of age on crime is invariant, particularly across crime types. Therefore theories of offending must explain the causes of differing but stable propensities of individual offenders (Sampson and Laub, 2005b; Warr, 1993; Gottfredson and Hirschi, 1990: 128). Tittle (1988: 76) points out, however, that both sides of the debate have assumed extreme positions with little evidence (twenty years ago) to substantiate either position. Specifically, he argues that their positions are empirical questions. This need not be nor is it necessarily the case. Studies by Rowe and Tittle (1977) and Steffensmeier and colleagues (1989) are two examples that challenge this invariance assertion, at least from the extreme position that Gottfredson and Hirschi have taken.

Rather than rehashing the debate since those differences and similarities have already been addressed above and extensively elsewhere, (see Vold et al., 2002; Blumstein et al., 1988, 1987, 1986; Gottfredson and Hirschi, 1988, 1987, 1986; Tittle, 1988) and since Moffitt's

developmental position toward the age/crime curve is quite similar to the criminal career's position, the discussion turns to how Moffitt's taxonomy and Gottfredson and Hirschi general theory measure up.

Both theories converge on the fact that they are at first trait-based and developmental theories; at least in part (Delisi, 2001). In effect, each assumes problems with parenting or irregular socialization in childhood that leads to the development of trait-based pathological behaviors. Whether the trait is a neuropsychological deficit or low self-control is not necessarily important. Rather, it is the fact that early childhood problems link to later problems in adolescence and adulthood.

For Moffitt, it begins at birth or during pregnancy where problems that could be the result of the mother's health or medical problems lead the child to sustain verbal and executive neuropsychological deficits. Treated, individuals can overcome such deficits, but in families where the parents lack the ability to handle the child's deficits or just do not properly socialize a child, they get worse. This eventually leads to a pathological antisocial personality disorder.

Alternately, Gottfredson and Hirschi leave open the possibility that low self-control could be the result of neuropsychological deficits and poor parenting, though the emphasis for them derives from Hirschi's earlier control theory, which places the problem nearly exclusively on parental bonds. To them, crime is "universally attractive," and children are more easily seduced by the seeming payoff of crime. Thus, offending behavior reflects an absence of "internal (low self-control) and external (opportunity) constraints, which are better developed in children who have been properly socialized by their parents (Tittle and Grasmick, 1998: 317). However, the fact remains that early childhood sets the stage for later criminal (and analogous) behavior during adolescence and adulthood.

It is in adolescence where these two theories divide. Moffitt echoes the criminal career position that the precipitous incline in aggregate offending during adolescence is a result of both LCP offending steadily and the large influx of AL offending as a form of rebellion or the mimicking of LCP types. Conversely the decrease in the late teens/early twenties is a result of AL offenders aging out since the status proscriptions they were rebelling against no longer apply. From her view, the age/crime relationship necessarily reflects the existence of two groups that contribute to the shape of the curve in different ways.

Gottfredson and Hirschi assert that the age effect on crime is invariant across time and space, but this leads them to a different conclusion about the age/crime relationship. For them, it demonstrates that the aggregate increase and decrease in offending during adolescence and early adulthood is necessarily a change in frequency across all ages even though criminal propensity does not change between individuals. It would follow that criminal propensity can only be explained by would vary between individuals, which are parenting factors that lead to stable differences in self-control. The only commonality that they seem to recognize between their position and Moffitt's or Blumstein and colleagues is that criminals have careers in the sense that there are stable differences in offending; a point that Nagin and Land (1993: 329) called "unassailable."

Over the last two decades, several other theoretical and empirical issues have come to the forefront of the age/crime debate. Moffitt (1993) and Sampson and Laub (2003), for example, separately draw attention to some common problems with earlier theories. They argue that criminological theory's response to the age/crime relationship has been to focus almost exclusively on juvenile criminality at the expense of more extensive investigations of childhood and adulthood; two periods in the life-course that are undoubtedly important in *making* crime.

They also posit that most delinquency theories make assumptions about criminal behavior irrespective of age. By definition, this leads such theories to fail to link adolescent delinquency to childhood antisocial behavior or to offending in adulthood. Additionally, Moffitt (1994) suggests that the theoretical debates over juvenile offending are unnecessary. She acknowledges the validity of earlier delinquency theories in setting the scope of juvenile offending; that in their own way each captures important dynamics of delinquency. The main issues with earlier delinquency theories are that they do not anticipate changes in aggregate offending during adolescence. In other words, the massive increase in the prevalence of antisocial behavior that occurs during adolescence, which masks different types of offenders differing offending etiologies (Moffitt, 1993).

Another issue germane to the age/crime and criminological theory discussion centers on direction criminological theory is heading. This is similar to that which confronted sociological theory fifty years ago. Some criminologists have recently asked whether general theories serve criminological theory better as a whole than behavior or event-specific theories. As Gottfredson and Hirschi (1990) and Sampson and Laub (2005) have both argued, the influx of theories too narrowly tailored to specific behaviors or events (such as developmental theories) make it more difficult to achieve order out of seeming ever-increasing chaos.<sup>5</sup> To resolve this problem, they suggest that criminological theory needs to move toward more general explanations of offending.

However, as with general sociological theories, general criminological theories have yet to convincingly substantiate the universality of behavioral causes across time, cultural boundaries, and diverse situations (Horney, 2006; Geis, 2000, Birbeck and Lafree, 1993). Such general

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<sup>5</sup> Such reasoning by Gottfredson and Hirschi could explain why they were so strident and extreme in their initial criticisms of the criminal career model back in the 1980's (see Tittle's 1988 *Criminology* article for a good summary of the apparent underlying motivations of each side in advancing their position).

theories tend to be ethnocentric and they are often dismissive of the role of law in defining behavior (Geis, 2000). Most, however, are not well suited to capture changes in behavior in their quest to explain all behavior at all times.

On the other hand, it is clear that behavior or event-specific theories have added a dimension of complexity that ignores the generality of deviance and thus, fail to appreciate how behaviors transcend disciplinary understanding (Pratt and Cullen, 2000; Gottfredson and Hirschi, 1990). It seems counterintuitive to dismiss either approach, given that theories, by definition, must be fallible (and if it is not, then it is not a theory) and that the nature of human behavior—criminal or otherwise—can at once be both simple and complex. From a positivistic standpoint, it would be unthinkable to be so dismissive of either approach without having fully pursued the empirical side of the equation to some logical end.

In highlighting some of the persisting unanswered questions, Piquero, Farrington, and Blumstein (2003) addressed unresolved age/crime issues that bear import on criminological theory. In their review of the state of criminal career literature, they summarized seven unanswered questions age/crime. I add three more (questions 8-10) that I think are relevant:

1. [To what degree is] the aggregate pattern displayed in the age/crime curve similar to—or different from—the pattern of individual careers and is similar to—or different from—the pattern of individual careers and whether conclusions about individuals can be validly drawn from aggregate data?
2. How far does the observed peak of the aggregate age/crime curve a function of active offenders committing more crime or of more individuals actively offending during those peak years?
3. Within individuals, to what extent is the slowing past the peak age a function of deceleration in continued criminal activity or stopping by some of the individuals?
4. Across individuals, how much of the age crime curve can be attributed to the arrival/initiation and departure/termination of different individuals.
5. What about the role of co-offending?

6. How much of the continuation of offending by lone/solo offenders is attributable to identifying theirs as the key criminal careers of long duration with their co-offenders serving merely as transients with shorter careers?
7. How much of the age/crime curve for any particular crime type?
8. Could not the aggregate age/crime curve reflect both a change in participation and a change in frequency? Cannot the polar positions coexist in explaining the relationship or do their extreme positions encourage an either/or choice, thereby setting up a false dichotomy?
9. Assuming the effect of age on criminality is invariant for most offenders, does this necessarily diminish the potential importance of investigating career criminals in contributing to our understanding of age and crime?
10. Since the age crime curve differs somewhat across crime types in both when crime peaks and how sharply it increases or decreases before and after peak, what is the relevancy of the differences between specific crime types for criminological theory? (for an example, see Figure 1.1)

The answers to these questions, however, extend beyond arguments over the age/crime relationship and point to the uncertainty and pitfalls of the theoretical approaches that have come to define the debate. Many of the criticisms are empirical questions not incontrovertible fact. The only thing that does seem certain is that the entire debate needs to move past the extreme positions. It demands answers that are more as well as a reconciliation of the theoretical tribulations, to include an acknowledgement of the validity of both general and behavior-specific, and cross-sectional and longitudinal data in advancing theory (Tittle, 1988).

CHAPTER 3  
RACE/ETHNICITY AND CRIME

**Historical Overview of Race, Ethnicity, and Crime**

Obviously *Jim Crow* no longer exists in the U.S., officially, but Jim Crow racism certainly does. Indeed, W.E.B. Dubois' (1903) oft quoted decree that the "problem of the twentieth century is the problem of the color line" certainly endures to this day. In many critical ways, while the social and economic conditions for many black and ethnic minorities have improved over the past forty years, pervasive racism and economic disadvantage still exists (Thernstrom and Thernstrom, 1997).

In his book, *The Declining Significance of Race* (1978), W.J. Wilson wrote that the subordination of some blacks and the advancement of others is more a function of "economic class in the modern industrial period" than race. Societal changes have measurably diversified the nature of the black American experience despite opposition on the part of many white Americans to governmental intervention, such as with affirmative action programs that have helped ameliorate some racial and economic inequality (Bobo and Kluegal, 1993; Kluegal, 1990; Wilson, 1987). This has necessarily made discussions of race more complex since there is less of a universal black experience to speak of and because for a portion of black Americans the positive achievements of the civil rights era benefited them well. Yet, the economic and social progress made in recent decades is necessarily tempered by the reality that too many segments of the black population remain trapped in the pressing exigencies of concentrated poverty, de facto residential segregation, social and economic marginalization, and by their increasing over-representation in the criminal justice system (Sampson and Bean, 2006; Sampson and Morenoff, 2004; Walker, Spohn, and Delone, 2004; Feagin, 2000; Krivo, Peterson, Rizzo, and Reynolds,

1998; Kennedy, 1997; Sampson and Wilson, 1995; Massey and Denton, 1993; Eggleston and Massey, 1992; Wilson, 1987).

To illustrate the interaction of race and economic improvement, it is helpful to examine changes in poverty rates and median-household income for blacks compared to whites. U.S. Census Bureau data (2006) show that between 1960 and 1995 the percentage of blacks living below the poverty line decreased from about 55% to 32%. By 2000, the black poverty rate decreased to 22%. At the same time, household income increased for all groups. In 1971, the median household income for blacks was about 19,000 dollars compared to 32,000 for whites. By 2000, median household income had increased to 34,500 dollars for blacks and to 46,000 dollars for whites. However, in 2000 the racial disparity in median household income was still as large as it was forty years prior, which is troubling when considering that blacks had only achieved a median household income level by the year 2000 that equaled whites 1968 median household income (U.S. Census Bureau, 2006).

As informative as these numbers might be, they do not tell us about the causes of social and economic disparities confronting black Americans or about the social structure that have helped maintain such disparities. For instance, the correlation between socioeconomic deprivation and heightened criminal offending is one of the most widespread general findings in academic criminology (Fergusson, Swain-Campbell, and Horwood, 2004). In a rather striking finding, Sampson and Wilson (1995: 42) found that in 171 cities with populations greater than 100,000 the black-white racial disparity was so complete “that the ‘worst’ urban contexts in which whites reside are considerably better than the average context of black communities. Research by Massey and Denton (1993), Eggers and Massey (1992), and Krivo and colleagues (1998) are some of the numerous studies that support this general conclusion.

Findings from such research suggest that not only does general economic improvement not tell a complete story about changes in poverty; that concentrated disadvantage, particularly for poor blacks, is almost wholly worse for blacks than it is for whites. The societal changes that have improved the economic well-being for most Americans, especially those changes that brought a notable percentage of blacks out of poverty, did not operate evenly nor did they lessen the gap between median household incomes across race.

At the same time, while crime has declined in many minority communities, official statistics reveal that crime is still an omnipresent social problem. For example, the homicide rate for blacks at 24.1% is still nearly eight times higher than for whites at 3.6% while blacks and other minorities are still more likely to be victimized than are whites (Bureau of Justice Statistics, 2004). Predominantly black urban communities continue to have the highest crime rates in many major U.S. cities. Changes in criminal punishment also differentially affect minorities even though punishment trends have had a dramatic effect on the entire population (Travis and Visher, 2005; Tonry, 1995).

Since the 1980's, there has been nearly a four-fold increase in the number of people on probation, in jail or prison, or on parole in the United States (Bureau of Justice Statistics, 2006). For example, in 1980, there were 1,842,000 people under formal supervision but by 2004, it increased to 6,996,500. Statistics on federal and state prison populations show that there were 319,598 prisoners or 139 for every 100,000 persons but by 2000 there were over 1,421,900 people in prison. While blacks comprised less than 13% of the U.S. population, over 2,149,000 or 39% of all those who were in prison, jail, or probation by years end of 1997. Incidentally, Hispanics have had the fastest growing imprisonment rates and now comprise nearly 16% of the total prison population (Petersilia, 2005).

In addition, the black imprisonment rate is nearly five times higher than it is for whites and nearly two times higher than Hispanics. Based on first arrest statistics, one in every three black men will have been imprisoned in federal or state facilities during their lifetime (Bureau of Justice Statistics, 2006; Travis, 2005). Some researchers estimate that nearly 10% of all black males and 3% of all Hispanic males less than thirty years of age were in prison in the year 2000 (Travis, 2005; Beck and Harrison, 2001). Haney and Zimbardo (1998) and Mauer (1990) calculated that more black males were in prison than in college (see also Travis, 2005). These numbers suggest an alarming trend in punishment in the U.S. It is one that until recently has predominantly affected black Americans but is now having an increasing affect on Hispanic/Latino Americans as well.

### **Situating Hispanic/Latino Ethnicity**

The literature is replete with studies on race, crime, and punishment; however, the literature on ethnicity and crime is markedly less, particularly where ethnicity intersects with race (Rice, Reitzel, and Piquero, 2004). Sampson and Lauritsen (1997: 364) commented on the general condition of ethnicity and crime research stating that the “future picture of criminal justice processing may be closely tied to the experiences of race or ethnic groups that have heretofore been neglected by mainstream criminological research” (Rice et al., 2004).

Past studies examining ethnicity and crime have tended to take an implicitly reductionist approach by subsuming Hispanics and Latinos under racial classifications (Cheurprakobkit, 2000). Yet, as Herbst and Walker (2001: 30) point out, the experiences of Hispanics are different in significant ways from that of blacks. Research from the policing literature, for example, shows that views of law enforcement practices differ in important ways by race and by ethnicity (Rice et al., 2004). In addition, in much of the literature on ethnicity and crime shows that differences between various ethnic groups of *Latin* origin are often obscured by the absorption of such

groups under broad umbrella classifications such as Hispanic or Latino (Reitzel et al., 2005; Cheurprakbokit, 2000). It is hard to envisage that these generalized ethnic classifications can fully capture the diverse array cultural mechanisms that differentiate numerous ethnic Hispanic/Latino minority groups in the U.S. and which hold evident differences from the effects of skin color.

The potential dilemma when employing broad categories is that generalizations made from data on one Hispanic/Latino group do not necessarily apply to other Hispanic/Latino groups (e.g. Mexican Americans in Texas vs. Cuban Americans in Miami). Incidentally, in a development that portends well for criminological research, recent changes to the Census now allow individual multiple self-identification of racial and ethnic background. Classification categories thus allow for identify-specific combinations whereby individuals can report up to four racial/ethnic classifications (Rice et al., 2004; Logan, 2003). While it would be ideal to determine specific racial and ethnic combinations, much of the available data on crime does not allow such analyses beyond these umbrella groups. As in other studies on race, ethnicity and crime, the data for this study also does not allow for ideal intra-ethnic and racial classifications. That said, there is still much to be learned about Hispanic/Latinos and differences using such a classification scheme and it is better than not making a distinction at all.

### **Social Structure, Culture, and Race/Ethnicity**

For a time, criminological theory on race and ethnicity was lacking with respect to the changing landscape of social advancement for blacks. A decade ago Sampson and Wilson (1995: 37) asserted that theoretical discussions of race have been “mired in controversy and silence” and that many criminologists had only offered simplistic explanations for the racial link to crime out of fear of being labeled a racist (see also Wilson, 1987). Yet, there is another potential reason

aside from the threat of being labeled racist for criminological theory's sluggish response, which Bursik (1988) touches on in his social disorganization theory article.

In the 1970's and 1980's, when the social status for blacks and other minorities were beginning to generally improve, in many communities of color crime rates remained high or were rising. In seeking to explain this apparent paradox, researchers turned their attention toward structural and cultural theories of place. However, the structural view collided with an ongoing broader dialogue concerning structural-level theories such as those in the tradition of social disorganization (Bursik, 1988; Briar and Piliavin, 1965; Robinson, 1950; Shaw and McKay, 1942) vs. individual-level theories such as Merton's anomie theory, and more recently strain theories (Agnew, 2001; Bursik, 1988).

The nexus of this dilemma stemmed from what Robinson termed the ecological correlation (otherwise understood as an "ecological fallacy") when examining the properties of to infer upon properties of individuals (Bursik, 1988). Its exact bearing on structural explanations of the race/crime correlation stemmed from the fact that structural theories had lacked widespread acceptance in criminology. This seems to have also limited earlier structural explanations of race differences in offending, at least where many criminologists were not inclined to provide such explanations because of practical theoretical considerations. In retrospect, it appears that individual theories such as routine activities theory (Cohen and Felson, 1979), learning theories (Akers, 1977), and strain theories (Agnew, 2001, 1999) were more popular, even if they too received criticism. In a simpler elucidation, the resistance toward fully exploring structural factors was as likely to be a result of apprehensiveness to macro-level explanations as it was to fear of being labeled a racist.

Cultural theories have also been invoked to explain racial variations in crime rates (Anderson, 1999). Cultural theories generally suggest that the culture of a group leads individuals to accept violence or illegal behavior and internalize such attitudes toward these behaviors because of extreme deprivation and marginalization in their communities (Briar and Piliavin, 1965; Cloward and Ohlin, 1960; Wolfgang and Ferracuti, 1967; Blau and Blau, 1982; Anderson, 1999). Because blacks and other minorities are poor and subject to more extreme forms of persistent deprivation that other racial groups are not, they are more likely to handle disputes and public social relations in ways that might counter traditional societal norms even if they subscribe to middle-class values (Anderson, 1999). Anderson calls it “the code of the street,” where the values of the street (in inner cities) govern public behavior, to include violence and normative interactions that have their own peculiar significance.

### **Correlates of Race and Ethnic Differences in Crime**

The study of race/ethnicity, crime, and punishment situates within commingling of factors that differentiate both race/ethnic-specific crime and imprisonment rates (Walker et al., 2004; Krivo and Petersen, 2000). Sorting out how these effects operate across the crime and control spectrum is important to any study on race/ethnicity.

Criminological efforts to understand aggregate crime differences across race/ethnicity generally fall into three areas; group-based and individual differences in arrest rates and group-based differences in punishment (or attitudes thereof) (Cohn, Barkan, and Halteman, 1991). The main thrust of race/ethnic differences in crime have typically come from macro-structural and cultural explanations including society structural-level factors such as economic inequality and relative deprivation, extreme poverty, unemployment and, human and social capital; community factors such as residential segregation and community disorganization; family structure and processes including single-parent and female-headed households; and also, the impact of drugs

and gangs (Clear, Waring, and Scully, 2005; Walker et al., 2004; Krivo and Petersen, 2000; Parker and McCall, 1999; Sampson and Wilson, 1995; Harer and Steffensmeier, 1992; Bursik, 1988; Blau and Blau, 1982; Shaw and McKay, 1942). Moreover, recent cultural and structural theories of race have garnered a great deal of attention by prevailing over individual explanations. Theories by Sampson and Wilson (1995), Sampson and Bean (2006), and Anderson (1999) address factors such as community organization (i.e. collective efficacy) and the culture of the inner city that seem to hold important keys to understanding race and ethnic differences in offending.

On the crime control side, however, many of the explanations of racial differences in arrest and imprisonment rates given in the past have their roots in the historical legacy of racial discrimination and institutionalized bias in the criminal justice system, including potential discrimination in court or criminal processing proceedings (Pope, Lovell, and Hsia, 2002; Cohn et al., 1991; Klein, Petersilia, and Turner, 1990), differential law enforcement tactics targeting minority communities (Reitzel and Piquero, 2006, Walker, 2001; Weitzer and Tuch, 1999) and crime control policies differentially affecting minority populations (Tonry, 1995; Petersilia, 1983).

Yet, some have argued that victimization data undermine claims of systemic racism since they consistently show black over-involvement in crime (Gottfredson and Hirschi, 1990). Empirical studies, which investigate the correlates of specific theories, would therefore need to include a range of factors that address both race-based differences in offending, and differences in arrests and imprisonment, including differential treatment across the criminal justice system. All of which would inhere whether such factors affect different racial and ethnic groups in similar or dissimilar ways (Krivo and Petersen, 2000).

## **Dynamic Theories of Race/Ethnicity and Crime**

Moffitt, Gottfredson and Hirschi, and Sampson and Laub all consider race/ethnicity in their theories. Moffitt (1994) takes up the differences in sub-group offending, which illustrate that the crime rates for blacks, particularly young black males, is higher than for whites. She asserts the race differences in crime rates are identifiable by higher prevalence rates of black adolescent limited and life-course persistent offenders.

There are more black life-course persistent offenders (i.e. higher within race percentages) because of institutionalized prejudice and poverty. Moreover, because blacks are much more likely to be poor, they are more likely to suffer prenatal problems as an outcome of exposure to environmental toxins and coupled with mothers' poor nutritional habits, it places black children more at risk for maladaptive development. The higher rates of poverty also lead to more instances of family disruption and weaker bonds, trouble in school, unemployment, or underemployment, and other outcomes of poverty and marginalization that predispose children to "aggressive interpersonal behavior." Moffitt (1994: 39) stated, "for poor black children, the snowball of cumulative continuity is anticipated to begin rolling earlier, and it rolls faster downhill." In other words, persistent differences in crime are a matter of both degree and number. For Moffitt, the potential race and ethnic differences in persistent behavior derive from the higher rates and more extreme forms of social, economic and health problems that blacks and other minorities face compared to whites. This, in turn, leads to higher rates of pathological neuropsychological problems and other conditions that predict life-course persistent offending.

Sampson and Laub (2004, 1993) generally take a similar position on race as Moffitt; however, they put more emphasis on informal social controls rather than neuropsychological deficits. They suggest that because of weak bonds to family, authorities, and school, juvenile delinquents who become ensnared in the system are labeled, which also has a cumulative effect

throughout their lives. In other words, deficits in life pile up faster, which make it tough to “change” away from crime/criminality. The over-representation of blacks in official crime statistics would therefore be a result of blacks being more likely to suffer from pressing poverty and all that it encompasses.

Consistent with their self-control thesis and their deliberate “tension” causing style, Gottfredson and Hirschi (1990: 151) disagree with cultural and structural theories, systemic racism, and opportunity differences as reasons for racial variation in crime on the premise that victimization data refute such explanations. They suggest that research on racial differences in crime should focus on difference in child-rearing practices such as “monitoring, recognizing, and correcting evidence of antisocial behavior” (Gottfredson and Hirschi, 1990: 153).

At a time when the more controversial theoretical problems concerning race, structure, and culture, seems to have subsided, the empirical literature has yet to produce any overwhelmingly convincing explanations of race differences in crime (Gottfredson and Hirschi, 1990). Nevertheless, two things are clear. First, minority Americans, particularly blacks, continue to confront the impediments of discrimination inside and outside the criminal justice system. Second, racial (or ethnic) group membership alone cannot fully explain the intricate milieu of the American experience.

Overall, theories and empirical studies of race and crime would lead one to hypothesize that blacks and to a lesser degree Hispanics as being more likely to persist in offending than would whites. This is not a hypothesis bourn out of speculation but based on a large body of evidence. The concentration of poverty and disadvantage, which correlate to higher rates of offending and arrests for minorities, suggests that active offenders of color face additional burdens or more extreme forms of burdens that lead to race differentiated crime rates. Thus, the

predictors used in this study's models are ones that have been found to affect all offenders, but not equally. For example, family disruption and psychological status factors should have more influence on black and Hispanic offending rates than whites simply because they are more likely to affect minorities (i.e. family disruption is more likely to occur in black and Hispanic families than white families). They are more likely to incur more extreme forms of negative factors than whites are.

## CHAPTER 4 THEORETICAL FRAMEWORK

### **Four Theoretical Models**

Concerned with the high crime rates in New York City in the 1970s, two engineers, Avi-Itzhak and Shinnar (1973) (see also Shinnar and Shinnar, 1975) created a relatively simple stochastic model to predict the reductive effects of incapacitation on crime (Nagin and Land, 1993: 329). In turn, their predictive model partly served as the model for the development of the criminal career model.

In 1986, a National Research Council panel of experts, which comprised a group of nationally recognized criminologists headed by Alfred Blumstein, came together to develop the criminal career model. From this NRC collaboration, the scholars' produced a two-volume publication, *Criminal Careers and "Career Criminals,"* that offered a new model for understanding criminal offending over time (Blumstein, Cohen, Roth, and Visher, 1986).

The NRC panel addressed important questions about two separate, but related concepts: criminal careers and career criminals (Blumstein et al., 1986). This came on the heels of rapidly increasing imprisonment rates in the United States—doubling between 1972 and 1983—and the crime rate surpassing 13 million for index crimes. The heightened political focus on the national crime problem and the seemingly vain incapacitation policies for reducing crime rates led policy-makers and academics to join in developing new measurement tools for policy development.

The applicability of the criminal career model was critical in a variety of ways. It provided academic criminology with a model for classifying and measuring the criminal career by emphasizing the need to investigate different dimensions of offending such as prevalence, frequency, duration, initiation, and termination (Farrington, et al., 2003). It also provided a

complimentary tool for identifying career criminals. Under this definition, a unique sub-group of offenders that exemplify the most frequent and stable criminal behavior across the life-course.

Insofar as the criminal career model is a prospective model for examining the dimensions of criminal career, it can be considered a life-course or developmental model. However, Blumstein and colleagues (1988) argue that it should not be considered a theory. Where the criminal career model has an admitted policy orientation and clear explanatory limitations, life-course and developmental theories better address behavioral causes that link childhood and adolescent development to adulthood behavior. Laub and Sampson (2001) suggest elsewhere that the criminal career framework may be stagnant in terms of advancing our knowledge of criminal behavior because of its specific policy focus. The criminal career model is, nevertheless, an important starting point for this study despite its limited theoretical vitality.

### **The Criminal Career Model**

Blumstein colleagues (1986) define the criminal career as the longitudinal pattern of crimes by individuals from the time they commit their first crime to the time they commit their last (see also Piquero et al., 2003). Career criminals, on the other hand, are the highest rate, persistent offenders who contribute most to aggregate crime rates (Blumstein et al., 1986: *ix*). Policy implications notwithstanding, the importance of distinguishing between the two is critical to the task of understanding the model's utility and structuring research around it (Blumstein et al., 1988).

<sup>1</sup> The former is the primary focal point for which the authors engaged in the NRC panel while the latter is a potential outcome of the former. Indeed, the very idea of a career criminal

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<sup>1</sup> In the past, Blumstein and colleagues have argued that Gottfredson and Hirschi “obfuscate” the contextual differences between the criminal career and career criminal constructs (see Blumstein et al., 1988).

has a longstanding history in criminology, extending back to Quetelet in 1831 and underscored by Wolfgang and colleagues in 1972.

Piquero and colleagues (2003: 377) state that the criminal career model “recognizes that individuals start their criminal activity at some age, engage in crime at some individual crime rate, commit a mixture of crimes, and eventually stop.” It does not propose, as Gottfredson and Hirschi (1988) have suggested in the past, that offenders *make a living* through criminal activity, such as with a more conventional understanding of a career (although some might). Nor does it suggest any “particular patterned trajectory” (Blumstein, Cohen, and Farrington, 1988b: 60). Rather, the criminal career model serves as a framework for systematically arranging research around sequential criminal events (Piquero et al., 2003: 378, Blumstein et al., 1988). The criminal career model encompasses four key components: participation, frequency, career length, and seriousness, as well as a number of other important dimensions, such as prevalence and co-offending. Each dimension is discussed below.

Blumstein and colleagues define participation as the “distinction between those who engage in crime and those who do not” or “the fraction of a population that is criminally active” before some designated age or during some particular observation period (Blumstein et al., 1986: 1, 17). Assessing participation is dependent upon the scope of criminal acts under consideration and sensitive to the length of observation. For example, measuring participation for more serious criminal acts such as violent offenses should decrease the number of active offenders while employing longer observational periods should increase the number of participants, since more offenders that only commit crime rarely and more offenders that initiate offending during the observational period will be included (Blumstein et al., 1986: 18). Blumstein and colleagues found that the most glaring disparities were between males and females (1986). In a 1989 study,

Farrington found that 96% of the sample had reported committing at least one offense from a list of ten offenses by age 32.

Frequency is an individual's offense rate and represented by the Greek letter "λ" (Lambda) (Blumstein et al., 1986: 55). Since frequency centers only on active offenders identified through the participation measure, it is useful to think of aggregate crime rates as being partitioned into two components, participation and frequency; for which frequency derives from an active criminal subset of any given population (Piquero et al., 2003). Moreover, because of the relative irregularity of individual offending for most offenders, the distributions of individual frequencies are highly skewed. Blumstein and colleagues (1986: 94) report that the "median offender engages in only a few crimes per year, but the most active 10 percent of offenders commit crimes at rates that may exceed 100 per year." Ultimately, this has led most researchers to concentrate on chronic offenders (Piquero et al., 2003: 379; see also Greenwood and Turner, 1987; Blumstein, Farrington, and Moitra, 1985; Chaiken and Chaiken, 1982).

Duration is the length of time between the initiation into criminal offending and its cessation. It encompasses initiation (age of onset), termination, and persistence. Duration and its ancillary components have significant implications with respect to modification of criminal careers (Blumstein et al., 1986). Typically measured as the commission of at least one crime per year, high-rate offenders may commit as much as one-hundred crimes per year and low rate offender might skip years intermittently (Blumstein et al., 1986). Past research shows that age of onset typically occurs between 8 and 15 years of age (Farrington, 2003).

There is also a link between early onset of offending and the duration and frequency of a criminal career. Generally, those who begin offending earlier have longer and more intense careers (i.e., they commit more crimes when active) (Farrington, 2003; Le Blanc and Frechette,

1989). Since there are potential causal differences that affect intensity of offending, it might be necessary to make distinctions between high rate and low rate persistent offenders, or at a minimum, to investigate whether risk factors operate similarly or differently across different offending rates.

The termination of a criminal career has considerable salience as well but the definition of what constitutes desistance from a criminal career is unclear. Individuals may commit crime at different rates but then also stop in different ways and for different reasons. Some offenders might slowly deescalate, eventually stopping. Others might intermittently commit more or less crimes while showing a pattern of desistance, while others still might abruptly stop. Laub and Sampson point out that desistance, although addressed widely in the theoretical literature, is treated as an event where people just stop; what smokers might call going “cold turkey.” Most empirical studies have also treated desistance as a “discrete state” (Bushway, Piquero, Broidy, Cauffman, and Mazerolle, 2001: 491-492). However, some researchers have recommended treating it as a process [that culminates in termination from offending] (Bushway et al., 2001; Maruna, 2000). In other words, it is a process where the pattern of desisting overtime is itself desistance.

Part of the reason why termination of a criminal career is important, besides the obvious theoretical implications, stems from the reality that criminologists have yet to agree on the meaning of desistance or how to measure it. Sampson and Laub (2001) argued that defining desistance has been hindered by conceptual and measurement problems. Piquero et al. (2003: 379) noted, “There is much less research on the duration of criminal careers, primarily because of the difficulty involved in determining the true end of an individual’s criminal career.” More

recently, Piquero and colleagues (2004) report that the average career duration among a sample of serious offenders was about seventeen years.

The seriousness/crime-type dimension centers on the varying offense types committed by active offenders. Differentiating serious or predatory criminal offenders from less serious offenders has particular implications for theory and policy (Blumstein et al., 1986: 76). Equally important is the pattern of offenses for any particular offender. Questions about dynamic processes such as offending specialization or the tendency for offenders to move to more serious offense types as offending continues (Piquero et al., 2003: 380), and escalation, which is the propensity for criminals to progress toward committing more serious crimes over time, hold considerable meaning in the criminal career model. Research has shown a tendency for offenders to escalate in crime seriousness and to specialize within broadly defined crime types (e.g. property crime or violent crime) even though they may “engage in a great diversity of crime types” (Piquero et al., 2003: 380; Blumstein et al., 1986: 94).

The co-offending feature situates the offender within groups or accomplices in offending. In Volume II of *Criminal Careers and “Career Criminals*, Reiss suggests that positive reductive effects on crime depends not only on addressing individual offenders but also on diminishing the status of the offender within the group and that of the other member’s behaviors (Reiss, 1986). From a policy standpoint, the co-offending dimension is important, especially with younger (juvenile) offenders since research has shown that co-offending is more typical in adolescence than in adulthood (Reiss, 1986). Furthermore, co-offending seems to decrease as offenders’ age, not as a result of incapacitation. Piquero and colleagues (2003: 380) stated, “Although the decline in co-offending might, at first glance, be attributed to co-offenders dropping out, it seems to occur because males change from co-offending in their teenage years to lone offending in their

twenties.” In other research, Reiss and Farrington (1991) found that co-offending decreased with age, not because of “selective attrition” but because the offenders themselves changed. They further concluded that there is a tendency to either offend solo or to co-offend and that the most persistent offenders did both about equal (Reiss and Farrington, 1991).

### **Dual Developmental Taxonomy**

In 1993, Terrie Moffitt presented a dual taxonomic theory in order to settle what she argues are two logically inconsistent facts. The first is that antisocial behavior is a stable trait over the life course and the second is that its prevalence alters over time; temporarily increasing sharply during adolescence (Moffitt, 1993). To Moffitt, because there is such a high prevalence of delinquency during adolescence, it masks two etiologically discrete groups. The first, *life-course persistent antisocial behavior* (LCP), predicts that the collective effects of neuropsychological problems during childhood interacts with criminogenic environments (that could be a result of having an antisocial child in the first place), which produces a pathological antisocial personality or continuity in antisocial behavior across the life-course. The second, *adolescence-limited antisocial behavior* (AL), predicts that for most people, anti-social behavior is a result of typical youthful rebellion and status discord, and it is limited to adolescence.

The defining characteristic of the LCP is stability across ones lifespan. The seeds of antisocial behavior are present at or soon after birth and there is a marked gradation in seriousness of antisocial behavior as the child develops. For example, they might bite or kick often at age 4 but by age 16, they are stealing cars. Other children/adolescents might commit many of the same crimes as the LCP depending on the situation or a specific conflation of conditions, however, for the LCP; there is a definitive gradation in maladaptive behavior that is underpinned by a single antisocial tendency, termed *heterotypic continuity* (Moffitt, 1993).

Moffitt asks what explains the variability of antisocial behavior in this typology. Her answer is that the gradation in seriousness links to neuropsychological factors, which are outcomes of early (even prenatal) developmental problems. The disruption of neural development of the fetus during pregnancy, infancy, or early childhood development eventually leads to a host of negative outcomes later in life. She cites a number of studies that link neuropsychological deficits with complications during pregnancy, physical abnormalities and fetus or mother's exposure to environmental toxins (Moffitt, 1993). In fact, she argues, the relationship between neuropsychological problems and antisocial behavior is among the most robust findings in developmental criminology (Moffitt, 1993: 102).

There are two primary types of neuropsychological deficits that correlate with persistent antisocial behavior. The first is verbal functioning, which centers on problems with listening, reading, and expression of speech (Moffitt, 1993:103). The second is an executive function deficit. Typically, those with executive function deficits suffer from "comportmental learning disabilities," which are indicative of impulsivity or inattentiveness.

According to her theory, neuropsychological deficits do not necessarily translate into life-course persistent antisocial behavior since many children who suffer from such deficits go on to lead normal, law-abiding lives. The interaction of bad poor parenting of a child with neuropsychological deficits eventually leads to pathological conditions. She writes that the challenge of coping with such a situation can trigger a series of disastrous interactions between parent and child, which may vary by social class or other group-level factors (i.e. factors that contribute to bad parenting) but ultimately serves as the mechanism for continued offending.

Her second typology, adolescence-limited anti-social behavior, is distinguished by discontinuity or intermittency. AL types are typically delinquent during their teens when

aggregate offending rates are highest but do not typically exhibit evidence of persistent antisocial behavior beyond childhood. Although discontinuity is the “hallmark” of the AL type, it does not undermine the fact that they often commit very serious crimes or a large number of crimes during adolescence (1993: 113). By definition, brief offending career of an AL is limited to adolescence and is often inconsistent in that there are usually periods of inactivity. Moreover, AL types are primarily distinguished by their personality. They show signs of more rational thought prior to committing crimes. They are also opportunists and may make choices dependent on a cost/benefit analysis.

AL types also differ from LCP types in both when and why they initiate and terminate offending. The pathway to AL offending begins with imitation of LCP behavior and, because AL types are more sensitive to the gap in maturity such that their sexual drives, and financial and social dependency upon parents, conflicts with the status proscriptions that are placed upon them (e.g. age restrictions on such behaviors). The disjuncture ultimately reinforces delinquency and leads to rebellion as a means to show independence. However, the AL typology suggests that this period of antisocial behavior is short-lived and often inconsistent. AL types eventually assume conventional roles as the gap in their status diminishes because they reach the legal age to make important decisions for themselves and to engage in behaviors that are socially, if not legally prohibited when they are minors. Moreover, the structure and culture of modern U.S. society pressures them to take on roles that are reflective of adulthood during this period and coincides in part with their maturational development. In short, Moffitt’s typology predicates the existence of two distinct types of offenders and that, despite some potential similarities in behavior during adolescence, each type of offender offends for very different reasons.

## **Life-Course Theory**

Sampson and Laub's (2004, 1993) life-course theory centers on the structural and process risk factors, formal and informal social controls, and age-graded life events that affect criminal offending. Though they recognize that there can be stability between early childhood antisocial behavior, adolescent delinquency, and adult criminality, they argue that throughout the life-course, important age-graded and non age-related life events can alter an individual's trajectory toward or away from crime (Sampson and Laub, 2004; Benda, 2003; Uggen and Staff, 2001; Warr, 1998). For example, a high-rate offender might get married, which increases their stake in conforming to societal rules. It could also be that someone who abides by the rules might experience a traumatic event that sets them on a course of law-breaking.

Recently, the two scholars have recently come to claim that they conceive their theory as occupying a middle ground in the realm of criminological theory because it does not predict the existence of groups as do many developmental theories. That is, the same theoretical model holds for all offenders. Alternatively, it also requires more than simply age in determining offending probabilities (see Sampson and Laub, 2003).

There are three main features to Sampson and Laub's age-graded theory, which partly builds upon a reconsideration of Hirschi's control theory in a dynamic combination with labeling theory. First, the social bonds element considers the significance of bonding with others, especially intimate others and those in authority, on criminal propensity. Important informal and formal social institutions such as family, school, marriage, and work affect individual's social bonds differently at different points across the life-course. They also posit that "early (and distal) precursors to adult crime (e.g. conduct disorder, low self-control) are mediated in developmental pathways by key age-graded institutions of informal and formal social control, especially in the

transition to adulthood (e.g., via employment, military service, official sanctions)” (Sampson and Laub, 1993).

Second, Sampson and Laub unite “continuity and change within the context of a sociological understanding of crime through life” (Sampson and Laub, 1993). This feature delineates how trajectories and transitions interact to produce turning points in the life-course (Sampson and Laub, 1993). Again, even though they agree with the notion that there is behavioral stability over time, they contend that turning points can modify trajectories (or criminal propensity) thereby redirecting one’s path. Importantly, they conceptualize a turning point as being “incremental and age-related progressions and events, which carry forward or set in motion dynamic processes that shape future outcomes” (Sampson and Laub, 1993).

This final feature offers a different lens for viewing trait-based explanations of persistent offending. Here, Sampson and Laub reconsider both labeling theory and Hirschi’s (1969) control theory within a developmental framework. They begin by questioning why psychological traits such as temperament or activity level, which are typically thought to be primarily rooted in biology, show relatively low stability over time whereas aggression, which is thought to be less biologically based, shows relatively high stability. Their answer lies in the response to aggression such that because of its antisocial effects aggression tends to be met with severe retaliatory actions. It also centers on the cumulative disadvantage from the progression of negative outcomes of antisocial interaction. When maladaptive interactions begin in childhood, the negative effects accumulate over time, which then produces negative developmental effects. In the process, both cumulative continuity and interactional continuity are sustained.

Sampson and Laub also borrow from Nagin and Paternoster’s (1991) state dependence argument—which is that past participation in crime is a strong predictor of future participation—

but employ it in a developmental framework. Whereas Nagin and Paternoster suggest that prior criminal offending has a strong and direct behavioral effect on the probability of future offending, Sampson and Laub offer that prior delinquency systematically erodes individual's social bonds to various institutions and to society in adulthood, in turn, affecting adult criminal offending (Sampson and Laub, 1993; Nagin and Paternoster, 1991).

More recently, however, Laub and Sampson (2004) extend their theory to include personal human agency and the effects of routine activities on crime. They assert that the underlying causes of crime are the same for all people, though there may be a single pathway or multiple pathways to either persistence or desistance. And, even if the specific manifestations are different in leading to different types of crime, the pathways leading toward or away from crime result from the convergence or absence of informal social control mechanisms, human agency, and routine activities. In other words, individuals will commit crime when there is an absence of these mechanisms but when present, such as at a particular turning point in life; it will put them on a trajectory toward desistance (Laub and Sampson, 2004).

### **General Theory**

Gottfredson and Hirschi are, perhaps, the two biggest critics of the criminal career/developmental/life-course perspectives, and if not, they are at least the most vocal. This becomes apparent when considering their general theory along a theoretical continuum with theirs' on one end, developmental and criminal career approach at the other end, and life-course and integrated theories somewhere near the middle. For Gottfredson and Hirschi, explaining the age/crime relationship does not require elaborate theory or sophisticated longitudinal data such as in the case of developmental and life-course theories. Also, they summarily dismiss the need to differentiate between prevalence and frequency. They argue that there is not much to be gained by making such a distinction.

Gottfredson and Hirschi assume that when children are not properly socialized to resist immediate gratification, they will be more likely to indulge in criminal or analogous behaviors. This is because crime typically offers immediately gratifying rewards and requires little planning or proficiency (Pratt and Cullen, 2000; Gottfredson and Hirschi, 1990). They also focus on behaviors analogous to crime such as drinking, smoking, drug use, physicality, and thrill seeking, which they claim predict criminal behavior. Though it is not clear exactly when such behaviors would occur, even when presented with opportunity, their argument that such behaviors predict or are predicted by some underlying trait is suspect. In fact, those most likely to engage in such behaviors do because of one all-inclusive trait—low self-control—that, accordingly, is the root cause of all crime and analogous behaviors.

Low self-control can reflect the absence or inefficiency of socializing institutions (e.g. the family and schools) to properly socialize children before they reach offending age or it can indicate neuropsychological impairments (Mitchell and MacKenzie, 2006). Their conceptualization of low self-control draws partly from the classical school perspective that humans are all rational actors concerned primarily with their own self-interest as well as Hirschi's (1969) earlier control theory, which places the emphasis on institutions and bonds in socializing children. This seems to point to two reciprocating elements of low self-control.

First, low self-control signals an individual's inability to choose pro-social, legal behavior. Second, it also indicates pathological deficiencies in resisting the seduction of crime or immediate gratification when criminal opportunities present themselves (Pratt and Cullen, 2000). As a property of the offender, low self-control is a trait established in early childhood, usually by age eight, and even though it is believed to reflect a stable, underlying propensity toward crime, it does not necessarily follow that crime will automatically result (Pratt and Cullen, 2000;

Gottfredson and Hirschi, 1990). Rather, Gottfredson and Hirschi argue that impulsivity, thrill-seeking, short temperedness, self-centeredness, inclination toward physicality, and opportunism characterize low self-control individuals and that such individuals always be more likely to take advantage of opportunities when they present themselves (Mitchell and MacKenzie, 2006; Gottfredson and Hirschi, 1990; Piquero and Bouffard, Forthcoming ).

Gottfredson and Hirschi's theory has received a prodigious amount of attention by criminologists, however, with this attention has come increased, and at times, very sharp criticism (Piquero and Bouffard, Forthcoming; Geis, 2000). Some of the more prominent criticisms suggest that general theory is tautological (Akers, 2000), that it dismisses Hirschi's earlier bonding theory or subsumes individual self-control under the attachment bond (Longshore, Chang, Hsieh, and Messina, 2004; Akers, 2000); that it contradicts itself in defining and applying criminal behavior (Geis, 2000); that it is not portable across different situations, cultures, or crime types, particularly white-collar crime (Horney, 2006; Simpson and Piquero, 2002; Geis, 2000; Reed and Yeager, 1996). In other words, it is not general. Also, within-individual levels of self-control and between-individual levels of self-control are stable throughout the life-course irrespective of whether or not individuals' are committing crime (Mitchell and Mackenzie, 2006; Turner and Piquero, 2002; Akers, 2000); and finally, that they make dubious assumptions based on questionable or lone studies (Geis, 2000; Warr, 1993).

Despite that their theory is, perhaps, the most empirically investigated over the last decade, overarching all these criticisms or linking to all of them at least, is the problem of how to measure self-control, which clearly stems from its conceptualization. Gottfredson and Hirschi suggest that it should be measured with behavioral variables indicative of low-self control because of the problems with self-report attitudinal measures, such as Grasmick and colleagues

self-control index (Piquero and Bouffard, Forthcoming; Grasmick, Tittle, Bursik, and Arneklev, 1993). However, disagreement over measurement methodology has led to further blurring of what self-control actually captures, even though most studies seem to find some support for it (regardless of how it is operationalized). These problems have subsequently led Hirschi to submit a modified version of low self-control (Piquero and Bouffard, Forthcoming; Hirschi, 2004), which appears to capture not just individual self-control, but draws from Hirschi's original bonding theory, rational choice, and the experiential effect. Hirschi now asserts that self control is basically the ability (or tendency) to consider the full array costs of specific behaviors, which in turn, shifts the focus from "long-term implications of the act to its broader and often contemporaneous implications" (Hirschi, 2004: 543).

## CHAPTER 5 LITERATURE REVIEW OF PERSISTENCE AND DESISTANCE

### Overview

Research on persistent offending and desistance from offending within the criminal career framework is growing. Identifying risk factors for those most likely to persist and desist bear import on theoretical and policy considerations. For example, identifying a career criminal subgroup would lend credence to developmental theorists' contentions that the distribution of the age/crime curve is chiefly due to this small group of high-rate offenders. At the same time, it would challenge the propensity theorists' contention that the distribution of crime by age is simply a function of age by calling into question their lack of explanation of different types of criminals.

From a policy standpoint, identifying individual persistent offenders and related risk factors can help shape prevention or intervention measures before such an offender becomes ensconced in a lifetime of crime, this review of the research has identified nearly a dozen studies that examine the causes and correlates of life-course persistent offending. Most have found some evidence of association between early childhood aggression, neuropsychological impairments or poor childhood environments and later criminal behavior. Many of the studies have examined age of onset and offending, although the results are mixed. This might be partly an outcome of differing conceptualizations of the starting point.

For example, prior research by Moffitt (1993) and Dean and colleagues (1996) posit a somewhat different conception of age of onset. They characterize early delinquency as occurring at the beginning of adolescence, closer to 13-14 year age range than 17-18 year range. Ge and colleagues (2001) conceptualization of early onset as beginning prior to age 17 and that late onset occurs after age 17 is a relative distinction. Indeed, it is certainly early and late onset as

conceptualized. However, with respect to the developmental framework put forth by Moffitt and others, which might not detect important and nuanced differences between certain types of offenders, it could be that a conceptualization based upon an earlier age might yield stronger results. In short, what follows is a review of the important research on persistence and desistance that has emerged in the extant literature recently. Many of these studies focus, not only on persistence and desistance, but on the issues of age and age/onset that have come to characterize this line of research.

### **Empirical Studies of Persistence**

Paternoster analyzed a sample of 1,600 sophomore and junior high school students with respect to relatively minor delinquent offenses (marijuana or alcohol use, petty theft, and vandalism). He was interested in the effects of two types of sanction threats; absolute and restrictive deterrence. Absolute deterrence is a sanction threat that deters people from first time or continued offending and restrictive deterrence is that which might dampen or attenuate the rate of offending for participants' current offending (Paternoster 1986: 291).

A longitudinal panel design of students from nine high schools in the Columbia, South Carolina area who were surveyed at the beginning of their freshman and sophomore years was employed. The survey instrument included exogenous background factors pertaining to participation and frequency such as gender, family structure, and welfare assistance. The models also included variables relating to opportunity (e.g. parental supervision, peer delinquency) to non-delinquency, bonding, informal sanctions, formal legal and moral beliefs in opposition to specific delinquent acts (Paternoster, 1986: 294).

No explanatory factors achieved statistical significance across the four offenses except for prior criminal participation. This might reflect different causal mechanisms operating for different types of offenses or a latent delinquency construct operating across delinquency types.

His analysis did, however, uncover two distinct groups based on whether respondents had prior experience in a given offense or not, which relates directly to the onset of offending and decisions to persist or desist thereafter. A broad interpretation of the findings suggests that persistence in and desistance from offending is influenced by the onset of offending.

Nagin and Farrington (1992) studied whether the inverse relationship between onset age and persistent offending remained after controlling for unobserved persistent heterogeneity. They found that onset age and offending persistence could be attributed to persistent heterogeneity, which is actually consistent with Gottfredson and Hirschi's position. They also found that onset did not vary with intelligence or a daring disposition while parental behavior showed a definite effect on the probability of participation, which correlated inversely with onset age. Similarly mixed, parental separation and interaction measures of parental separation and parental criminality differed in both direction and significance. Specifically, parental separation was positively correlated with onset age while the interaction term was negatively correlated with onset. The researchers also looked at the effects of poor child-rearing behavior of the parents, which they found to be positive and significant with early onset but insignificant for late onset.

In 1994, Moffitt, Lynam, and Silva also investigated the relationship of onset age, neuropsychological risk factors, and male delinquency using a birth cohort aged 13-18 from the Dunedin Multidisciplinary Health and Development Study. They attempted to determine the predictive strength of neuropsychological test scores on delinquent behavior and whether poor neuropsychological status predicts delinquency commenced or accelerated after age 13, whether it indicated early onset age, and whether delinquency was stable across ages 13, 15, and 18 (Moffitt, Lynam, and Silva, 1994).

Their analyses found a link between early neuropsychological status and later delinquency and that the driving factor in IQ on later delinquency was poor verbal ability. Regarding persistence, they reported that early poor neuropsychological status predicted later delinquency and that delinquency was stable over time. However, it should be noted that the age range for this study was censored at age 18 and therefore, while it does not necessarily diminish their findings, it would be useful to study the stability of offending or antisocial behavior through later adulthood.

Dean and colleagues (1996) studied the criminal propensities of discrete groups of offenders and their persistence in crime using a cohort of offenders past age 16. The sample for the study was drawn from a population of releasees from the North Carolina Division of Youth training schools from 1988 to 1989. They found some support for the typological position (i.e. Moffitt and Patterson's theories) as well as some support for the criminal propensity position (i.e. Gottfredson and Hirschi's theory).

For example, they found that higher numbers of prior adjudication increased the risk of criminal persistence in the late adjudication group but it decreased for the early adjudication group. They also found that child abuse was criminogenic for the early first adjudication group but not for the late group. As such, the non-findings for the later age groups seemingly lend support to the criminal propensity hypothesis. They did not find support for the other variables in the model such as early learning disabilities or single parent households (Dean et al., 1996).

Bartusch and colleagues (1997) pitted Moffitt's taxonomy versus Gottfredson and Hirschi's general theory. Recognizing, as others have, the similarities between the theories, they suggest that for developmental theories to better explain crime than more parsimonious general theories, they must be "demonstrably superior" in empirically explaining the same data

(Bartusch et al., 1997: 17). The authors examined underlying structures of risk factors that impact upon antisocial behavior by garnered from a variety of different reporting sources. They tested whether one underlying trait that is age independent versus two traits derived from Moffitt's theory. They found stronger support for Moffitt's since the same trait did not predict offending in childhood and adolescence as Gottfredson and Hirschi would suggest. Moreover, they found that the patterns of behavior that spring from underlying propensity were important for childhood but that adolescents were influenced more by peer factors.

Finally, they also found support that earlier signs of antisocial behavior linked to more violent behavior in adolescence while late starters (in this case, those who began in adolescence) predicted non-violent offending. Thus, they found support for the notion that underlying traits matter; however, they also argue that qualitative differences are meaningful. That is, whereas Gottfredson and Hirschi suggest that low self-control explains all crime at all ages whereas from Moffitt's perspective, this might be true for some types of offenders but other factors are important, particularly for those who begin offending in adolescents. In short, they found support for the idea of persistence through adolescence for a particular type of offender; an early starter offender more prone to violence who suffers from neuropsychological problems.

Aguilar and colleagues (2000) investigated age of onset and neuropsychological to in investigating persistence. Their sample of 180 participants of normative and non-normative development in a high-risk urban population of firstborn children and their mothers was drawn from an ongoing 20-year longitudinal study (Aguilar, Sroufe, Egeland, and Carlson, 2000: 112). Independent measures comprised a wide variety of neuropsychological scale measures such as the Brazelton Behavioral and Neurological Assessment Scale, Casey Infant Temperament Scale,

Wechsler Preschool and Primary Intelligence Scale, and the Peabody Individual Achievement Test.

Their analysis yielded important findings. They found support for Moffitt's typology in that there can be distinctions made between LCP and AL behavior types. However, perhaps more importantly, the strongest effects were not adolescent temperament or neuropsychological factors but rather, measures of psychosocial history. Furthermore, they reported that neuropsychological functions within the first four years were not significant in distinguishing differences in antisocial groups, which is inconsistent with earlier studies. This held even in the presence of numerous different measures such as early temperament predictors. Psychosocial environment measures, however, did predict risk probabilities differences between LCP and AL types (Aguilar et al., 2000).

In short, their findings seem to suggest that early psychosocial environment (such as family problems) seem to play more of a role in predicting antisocial behavior in the short run. Given that the researchers did not employ a longer time period for their models, it is not possible to infer beyond the young adolescent years in predicting antisocial behavior. Likewise, since they did not look at the relationship between antisocial behavior during the formative years and later criminal behavior, no conclusions beyond the presence of two distinct groups can be drawn.

Piquero and White (2003) studied the relationship between neuropsychological factors (cognitive ability) and life-course persistent offending but among black residents in Philadelphia (from birth to the late 30s). Data analyzed for the study came from the Philadelphia subset of the National Collaborative Perinatal Project (NCP). The basis of the study was to test empirically Moffitt's developmental taxonomy in predicting life-course persistent offending. The dependent variable was operationalized in several ways such as 'earliness of onset', 'individual stability

across developmental stages', 'rate of offending' while the independent predictors included measures of 'cognitive ability or neuropsychological risk'.

Employing a series of logistic regression models, they found substantial support for Moffitt's typology. For example, males, participants who had more disciplinary problems, and those born to single mothers were more likely to persist in offending over time. These findings held even after operationalizing alternative measures of persistent offending, and for different measures of cognitive ability. Put differently, those who had high disciplinary problems and low cognitive ability scores were more likely to persist in offending compared to those who had higher cognitive ability scores and less disciplinary problems. In addition, they reported that their findings replicated those of Kratzer and Hodgins' (1999) study of Swedish longitudinal cohort in differentiating effects of similar measures between life-course persistent offenders from other offenders and non-offenders alike (Piquero and White, 2003).

Recently, Piquero and colleagues (2001) suggested the importance of studying incapacitation time in longitudinal studies of criminal offending. They argue that most longitudinal studies of behavior have not accounted for the amount of time individuals are imprisoned, which is essential for accurately measuring within-individual offending differences. Not accounting for exposure time can lead to possible underestimates of individual offending rates since the highest rate offenders are likely to have been incapacitated. Using the CYA data, they analyzed a sample of male parolees from the California Youth Authority.

The researchers first examined arrest rates for the entire sample as a whole. They then investigated trends in arrest rates with and without adjustments for exposure time. Lastly, they analyzed arrests by utilizing latent class models (see also Nagin and Land, 1993) to account for potential arrest rate heterogeneity across the sample (Piquero et al., 2001). Their analysis

identified a number of key findings. First, they found that there is evidence of a relationship between exposure time and criminal trajectories with exposure time having a greater impact on younger parolees than older ones. This suggests that arrest rates are higher at younger than older ages. Second, their latent class analysis revealed that 92% of the population reached the highest arrest activity in the late teens through early twenties. However, after controlling for exposure time, the percentage of those having higher activity up to age 33 declined to 72%. They note that this finding is important since the remaining 28% were still persistent in offending. Lastly, the researchers also argued that controlling for exposure time should yield the greatest proportion of persistent offenders however, when controls were eliminated from the model the percentage of persistent offenders decreased to 7%; a finding that suggests the importance of exposure adjusting for exposure time (Piquero et al., 2001: 69).

Interestingly, very few studies, to date, have examined race differences in persistent offending. Only three studies were found that have done so and none employed trajectory models to study within-individual differences. The first, by Elliott (1994) examines data from the National Youth Study. The NYS is a longitudinal study of a probability sample of 1,725 youths between the ages of 11-17. He reported that the last interviews of the sample were conducted in 1993 when the individuals were between 27 and 33 years old and had a total of nine waves. Background information on the youths were obtained from both self-reports and official records and official data were obtained on parents or primary caretakers.

In studying the self-reports of whites versus non-whites, he found that ever-prevalence to age 24 for whites and non-whites were similar, indicating very little, if any, substantive race differences in propensity for violence. He also found that any differences between races were not enough to explain the “5-1 differences in arrest rates for violent offense over the adolescent

years. Although, the disjuncture between self-reports and official data diminished in the late twenties (Elliott, 1994: 18). However, with regard to persistence in violent offending, blacks were more likely to persist in offending into adulthood than were whites. He concluded that variations in career length and “spacing of the career over the lifespan” accounted for the significant change in prevalence race differences in violence in adulthood (Elliott, 1994: 19).

The second study examining race differences was by Ge, Donnellan, and Wenk (2001). The researchers investigated persistent offending among young males using California Youth Authority data. Employing a 20-year longitudinal study of 4,146 wards committed to the Deuel Vocational Institution (DVI) of the CYA between 1964 and 1965, they analyzed the effects of family environment, cognitive ability, and early anti-social behavior factors in predicting later persistent offending. Specifically, the researchers analyzed 2,363 of the original 4,146 wards for which they had complete records. Detailed data was had been obtained from a combination of self-report data, case worker interviews, and official records. There were a number of key factors employed in the study such as measures of drug/alcohol abuse, family environment, cognitive ability, antisocial tendencies, onset age, age upon leaving school, and offending rates (Ge et al., 2001).

Their analysis identified that family environment was significantly related to age at first arrest and the frequency of arrest prior to age 17. In addition, while alcohol or drug abuse was not related to onset age, drug abuse was significant and positive in predicting frequency of arrest before age 17. In other words, as the authors note, alcohol and drug abuse may not be as important in predicting when someone begins to offend, but it is related to late onset offending frequency. Antisocial behavior was significant in predicting both age of onset and offending frequency before age 17.

In their second model, the researchers employed a longitudinal design in examining factors related to persistent offending. Using arrest frequency amongst different age periods, they found that cognitive ability was significant and negative in predicting persistence amongst all age groups except age 33 and over. In other words, they found that higher cognitive ability was related to lower rates of persistence. Antisocial behavior was positive and significant for only the youngest age period (18-20) and none of the family environment scales were significant across any of the age periods. They propose that the lack of significance for the family environmental scales may suggest that an adverse family environment as a juvenile does not influence adult criminality but may be responsible for “launching” juveniles in offending at earlier ages and that leaving school earlier may have a more pronounced effect on later criminality.

Importantly, and relative to this current undertaking, Ge and colleagues also examined racial differences in offending over time and uncovered some interesting findings. Up to age 21, there were no statistically significant differences in arrest frequencies between whites and blacks, but past 21 years old, blacks were arrested more frequently. Similarly, Hispanics were also arrested more frequently than whites but only after age 25. Asians did not differ in arrest frequency from whites.

Up to this point, the above studies examined persistence using several different analytical schemes. However, none employed semi-parametric group modeling (SGM) developed by Nagin and Land (1993), (see also Nagin 1999, Nagin and Tremblay, 1999, and Jones, Nagin, and Roeder, 2001; Nagin, 2005). Chung, Hill, Hawkins, Gilchrist, and Nagin (2002) did utilize SGM in their investigation of childhood predictors of offense trajectories on a sample of 808 youths drawn from the Seattle Social Development Project.

In their study, they identified five offense trajectories: non-offenders, late onsetters, desisters, escalators, and chronic offenders. They also employed multinomial logistic regression models to estimate childhood predictors (ages 10-12) to delineate the groups. Their analyses indicated support for developmental theories. For example, they found that the trajectory for the most chronic group of offenders comported with life-course persisting behavior and early onset of criminality while the late onset group shared characteristics of adolescent limited behaviors. However, the late onset group did not desist by age 21 and they showed substantive signs of heterogeneity between them. Moreover, many of them continued offending, drinking, fighting, and committing other such minor offenses after adolescence.

With respect to desistance, the group identified as a desisting group shared offending seriousness characteristics at younger ages but by age 21, they had desisted from offending altogether. Interestingly, further examination of these groups showed that the desisters, although also being early onsetters, were influenced by having fewer anti-social peers, healthier school attachments, and having less availability to drugs in the neighborhood. Lastly, their multinomial logistic regression revealed significant differences in initial crime seriousness between all groups and consistency amongst independent measures in predicting crime escalation (Chung et al., 2002).

In their study of California Youth Authority (CYA) wards data, Lattimore and colleagues (2004) examined arrest frequencies amongst 3,586 young, paroled offenders in California. Using random samples of parolees released in the 1980s, the researchers investigated specific factors associated with past criminal history including individual and familial factors in predicting individual offending trajectories. For example, because the CYA data had collected data on

offenders from a number of different sources, the researchers had access to data linked to different levels of analysis such as individual, family, and demographic variables.

Their analysis elicited a number of significant findings. They found that risk factors associated with prior antisocial behavior in predicting post-release arrest and its variance were evidence of prior violent behavior and alcohol use (Lattimore, MacDonald, Piquero, Linster, and Visser, 2004:47). Particularly noteworthy was the negative sign of the coefficients, which indicated that those who had evidence of prior violence and alcohol abuse were less likely to be rearrested than those with no prior evidence of either. More specifically, offenders who had prior alcohol problems had an 11% lower expected post-release arrest rate and a concomitant 13% lower variance to the expected value ratio, all else equal.

Applicable to persistence and desistance, they found no significant effect for earlier sibling criminality or for most other familial or personal factors (e.g. history of physical or sexual abuse). They attributed the null effects to a masking effect of earlier extensive controls on criminal experience in the models they employed. Findings were significant for school dropout, race/ethnicity, and geographic location. For instance, the school dropout effect was positive, suggesting that higher dropout rates increased the probability of post-release frequency and its variance by 5 percent. They reported that the race effect showed Whites having a 28 percent and Hispanics having a 17 percent lower expected frequency while Blacks had higher expected arrest frequencies. Finally, their analysis showed a small but significant effect for age at release in predicting arrest frequencies. They found that a one-year increase in the average age at the time of release from the CYA increased the three-year post-release arrest rate by 2 percent, which they argue that “the sample appears to be sorting itself into low and high frequency offenders” (Lattimore et al., 2004).

In sum, while studies of persistence continue to show up in the literature, there are a number of important points that should be discussed. First, there has been a lack of attention in race differences in developmental criminal behavior. There are only a few in the current literature. Both studies found that blacks persisted longer than whites. Specifically, Ge and colleagues found that Hispanics persisted longer than whites. However, neither study examined persistence/desistance utilizing race-specific trajectory models. Equally important, most studies on persistence and desistance have failed to control for exposure time or mortality. Accounting for exposure time and mortality are important considerations in longitudinal studies of this nature since they potentially underestimate individual offending rates (Piquero et al., 2001). This can lead to premature conclusions. Lastly, more studies need to be done on persistence in general.

### **Empirical Studies of Desistance**

Desistance from offending is one of the least understood processes in criminology (Laub and Sampson, 2001). Questions about why offenders start offending or continue offending far surpass questions about why they stop (Laub and Sampson, 2001). One might think that the dearth of empirical studies reflects a lack of interest; however, Sampson and Laub (2001: 2) point out, criminological theories are anything but “silent.” From Matza’s (1964) maturational reform to Akers’ (1977) differential association with law-abiding peers and now, Sampson and Laub’s (1993) own turning points in the life-course; desistance has been given ample theoretical attention. The question becomes, why such little empirical attention to comport with the theoretical side of the equation? The most likely reason appears to be that measuring desistance has been hindered by unclear conceptualization and methodological inadequacies (Laub and Sampson, 2001). Bushway and colleagues (2001: 129) wrote “Despite the theoretical and policy importance of understanding why people stop offending, we do not have robust conceptual models or rich empirical investigations of desistance.”

Desistance also has important implications to the age-crime phenomenon. In the aggregate, crime declines with age (Sampson and Laub, 2001, Gottfredson and Hirschi, 1990), however, the developmental approach suggests that is why we must study within-individual differences over time, since it might not be that crime declines with age for everyone. Instead, it could remain stable or increase for a small percentage of the population (Moffitt, 1993). From this perspective, understanding the age-crime relationship means not only understanding risk factors for persistence, but those risk factors that would predict who desists as well. Some have suggested that the risk factors predicting desistance are the converse of those predicting persistence (Sampson and Laub, 2001; Le Blanc and Loeber, 1993). However, that remains an empirical question.

In their review of the desistance literature, Laub and Sampson (2001) identified several areas within criminology that have empirically investigated desistance. They also identify researchers who have attempted to wrestle with conceptualizing it. Immediately, however, the problem arises in the broadly varying definitions of desistance. Several researchers including Clarke and Cornish (1985), Loeber and Le Blanc (1990), Farrington and Hawkins (1991), Shover (1996), Warr (1998), Uggen and Piliavin (1998), Bushway and colleagues (2001) and Maruna (2001) have all defined desistance in different, if similar ways.

In line with the developmental approach and in agreement with Laub and Sampson, a fitting conceptualization of desistance posited by Bushway and colleagues (2001) is to study desistance as a process. That is, contrary to earlier studies of study desistance, which treat it as a discrete event that just happens, researchers should investigate it as a process that whereby the frequency of offending slows down over time (Bushway et al., 2001). Although this is certainly a

compelling perspective, because of its novelty it has yet to elicit many empirical studies analyzing desistance in this way.

One of the earliest studies that addressed desistance from a developmental perspective was the Glueck's Unraveling Juvenile Delinquency Study (1950). The Gluecks' followed 510 male reformatory juveniles over 15 years and found that the percentage of those desisting increased by twenty percent. Likewise, Wolfgang, Thornberry and Figlio (1987) studied a cohort sample of Philadelphia up to age 30. Their analysis revealed stability in offending during the juvenile years but decreased after age 16, however, they also found that the mean of offenses committed remained relatively stable into adulthood. In addition, they looked at onset age relative to the probabilities of becoming delinquent and found that blacks had higher probabilities of initiating into offending earlier and persisting longer, while whites initiated later and desisted earlier (Wolfgang, Thornberry and Figlio, 1987).

Paternoster (1989) studied decisions to participate or desist from four types of common delinquency. As covered earlier in the persistence literature review, he examined data from nine public high schools in the area of a mid-sized southern city. His analysis found that concerning relatively minor offenses (marijuana use, alcohol, petty theft, and vandalism), decisions to desist from offending were offense specific and not related to any sanction threats. Moreover, in examining the effects of changes in moral tolerance and moral beliefs, he found that changes in moral tolerance were significantly associated with decisions to desist. That is, those who developed lower tolerances for offending over the four measures were more likely to desist from offending than those who did not (Paternoster, 1989).

Loeber and colleagues (1991) examined a variety of different criminal career dimensions including initiation, escalation, and desistance, using data from the Pittsburgh Youth Study. They

reported that low disruptive behaviors such as scores on a low physical aggression scale, low oppositional defiant symptoms, and low attention deficit/hyperactivity scale were associated with desistance in offending. Moreover, they were related to higher scores on attitudes toward schooling. When they broke the sample down by broad age groups (younger, middle, older), they found that amongst younger juveniles, they found that shyness was also correlated with desistance from offending while for the middle and older groups trustworthiness, low truancy, good school motivation, caretaker enjoyment of child, good relationships with caretaker, and caretaker discipline correlated with desistance.

The researchers also employed models that partitioned desisters (“stable non-delinquents”) from de-escalators (Loeber et al., 1991: 73). Their findings revealed that 51% of the de-escalators at younger ages showed signs of aggressive behavior whereas only 10% of the desisters were categorized as aggressive. In short, their findings suggest that across the three age groupings, low disruptive behavior, good educational achievement, negative attitudes toward problem behaviors, association with conforming peers, and positive interactions with caretakers were important predictors in juveniles desisting from delinquency (Loeber et al., 1991).

Uggen and Staff (2000) examined work as a turning point toward desistance from crime using data from the National Supported Work Demonstration Project between 1975 and 1977. They analyzed the data on over 3,000 participants from nine U.S. cities. Employing random assignment, they assigned participants to either an experimental or control group to investigate whether an experiment that gave jobs to adult offenders served as a turning point toward desistance. The researchers found that work for those over age 26 did in fact serve as a turning point for life course persistent offenders. This held even for those gaining marginal employment.

The findings support Sampson and Laub's (1993, 2003) contention that informal social controls and human agency are important influences in redirecting offenders away from crime.

## CHAPTER 6 DATA AND METHODS

### Data

The data for the study comes from the National Institute of Justice Data Resource Program study entitled “Continuity and Change in Criminal Offending by California Youth Authority Parolees Released 1965—1984” (CCCO) (Piquero, Brame, Mazerolle, and Haapanen, 2001).

<sup>1</sup> CCCO is part of a larger project on the offending careers of serious juvenile offenders who were incarcerated in the California Youth Authority juvenile justice system (Piquero et al., 2002; Haapanen, 1990). The data comprise a particularly criminal juvenile offending population that was housed at the CYA Preston facility. Information was collected on 524 individual juvenile offenders paroled by 1984. The parolees ranged in age from their late teens to early twenties at the time of their release—a period in the life-course that researchers have termed “emerging adulthood”—and were tracked for seven years thereafter (Piquero et al., 2001).

Upon incarceration, the CYA compiles comprehensive background and incarceration records on all wards. Information on each individual comes from a variety of sources including youth authority electronic data, ward hard-copy master files, California Department of Justice (CDOJ) criminal history files, and the California Department of Vital Statistics. Relevant background information was collected such as childhood living arrangement; family structure; whether the family received welfare; and parent and sibling criminality. Records on each ward’s childhood prior to incarceration include age at first arrest and at first imprisonment,

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<sup>1</sup> The data used in this study are twenty years old. “Period-specific factors” that may no longer have influence on contemporary patterns need to be acknowledged in interpreting results (see Piquero et al., 2002). Nevertheless, the author agrees with others who have used ‘aged data’ that the findings from studies such studies can be squared with the results from other empirical studies that utilize more contemporary data (see Piquero et al., 2002: 146 for a more detailed reasoning; also see Laub et al., 1998) .

psychological, educational, and intelligence evaluations, prior drug and alcohol use, and juvenile offending history.

Comprehensive incarceration data were also provided on each ward including their length of confinement to the CYA, number of escape attempts, gang affiliation, whether or not they had known enemies, and whether or not they received vocational or educational training.<sup>2</sup> CYA researchers also compiled post-release data that included whether wards were assigned to probation or parole, had any psychological or medical afflictions and if so, what type of treatment was required, whether they were dependent upon drugs or alcohol, and whether or not they required treatment for substance addictions.

Detailed time-dependent data were also collected each year for seven years after release from the CYA. The data contain information on their offending behaviors including violent and non-violent crime arrests. Arrests for violent crime include murder, rape, aggravated assault, robbery, kidnapping, and extortion. Arrests for non-violent offenses include grand theft and grand theft of an automobile, burglary, receiving stolen property, and forgery. Data on drug and alcohol use/abuse were collected at each year and were categorized by the type of drugs used, if any, such as heroin, mind altering substances, or upper/downers. Information on post-release drug use was also collected at each of the seven time periods. Post-release data includes measures thought to affect the ward's reentry into the community such as whether they were gainfully employed, whether they were married, cohabitating, or single, and their living arrangements such as with family, relatives, or in other institutions.

Finally, data from the CDOJ rap sheets are provided on the amount of "exposure time" or time spent on the street (i.e. not incarcerated) during each of the seven waves. Exposure time is

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<sup>2</sup> Not all the data noted above are included in the analytic models.

coded within each period as free for the number of months not spent in jail/prison/CYA  
detainment or they are coded as under correctional supervision. Piquero and colleagues (2002:  
147) explain exposure time coding in this way “an individual who was in prison for eight months  
during a particular year would be coded as having exposure time equal to four months.”  
Controlling for exposure or “street time” is necessary to reduce bias in modeling the semi-  
parametric group trajectories since SGM would treat all parolee offending the same regardless of  
whether or not they were eligible to commit further crimes.

### **Dependent Variables**

For each parolee, there are count data on criminal arrests for violent, non-violent, and total  
crimes. The violent arrest measure is the sum of arrests for person crimes, which includes the  
following offenses: attempted murder, manslaughter (including vehicular), robbery, aggravated  
assault, rape, and extortion/kidnapping. Non-violent arrest measures are the sum of property  
offenses, which includes the following offenses: attempted burglary/burglary, grand theft auto,  
receiving stolen property, and forgery. Total crime is simply the sum of both violent and non-  
violent offenses. The operative definition of crime in this study derives from official legal  
statutes that the parolee was determined to have violated. In this case, the crimes for which the  
parolee was arrested. Arrest data used for analysis do not include arrests for parole violations nor  
for any arrests for attempting an escape while confined to the CYA. Arrest measures were  
compiled from new arrests for the violent and non-violent crimes detailed above.

Operationalization of the dependent measures occurred in a multi-step procedure. First,  
semi-parametric group (SGM) modeling was employed to obtain offending trajectories for each  
of the twelve models in this study. SGM was then repeated for the entire sample for violent, non-  
violent, and total crimes, as well as within race/ethnicity-specific samples for blacks, whites, and

Hispanics by each of the three crime categories.<sup>3</sup> In addition to providing actual group-based trajectories, SGM also provides other critical information for the second stage in operationalizing the dependent variable. It provides separate group-based posterior membership probabilities for every parolee belonging to each of the individual trajectories in each model. For instance, if there are four trajectories in a model, then SGM produces four posterior membership probabilities.

SGM also determines group placement based upon these probabilities. Typically, a probability of .7 or higher is considered sufficient evidence of belonging to that group (Nagin, 2005). As such, based on this placement, group membership becomes the dependent variable in the second stage. Depending on the number of group-based trajectories, the dependent variable for each model is either a binary or a polytomous categorical group-membership measure. Thus, the dependent variables for analyses are trajectory group memberships determined by individual posterior membership probabilities for each of the following crime categories:

- Count of violent crimes committed between Time 1 and Time 7
- Count of non-violent crimes committed between Time 1 and Time 7
- Count of violent and non-violent crimes committed between Time 1 and Time 7

### **Independent Variables**

Crime theories addressed in this study propose certain factors that correlate to offending at various stages in the life-course. Childhood and adolescent factors such as age of onset, antisocial personality disorders, neuropsychological impairments, aggression, low IQ, and drug or alcohol abuse. Many are thought or have been found to correlate to life-course persistent offending (Moffitt, 1993, Loeber, 1993, Patterson and Yoerger, 1993; Sampson and Laub, 1993). For example, Moffitt (1993) posits that the inability to socialize properly an antisocial child as a

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<sup>3</sup> Semi-parametric group modeling is discussed in detail later in the chapter.

result of all or some of these risk factors further exacerbates the child's problems whereby antisocial behavior becomes entrenched or pathological. Such pathologies link to initiation into offending at younger ages, typically higher rate and more serious offending throughout the life-course, even after the majority of other youthful offenders have matured out of crime.

On the other hand, Sampson and Laub (1993) also focus on criminality in adulthood, though they differ on how this occurs. They posit that the quality of informal social controls exerted by community sanctions, marital bonds, and employment can function as a factor correlating to criminal behavior or as a turning point away from crime (or toward conformity/conventional behavior) at each age-graded step of the life-course. They also suggest that social control mechanisms differ at each age grade. For example, whereas young children are typically influenced more by parents and authority figures, during adolescence peers increase in importance. They, as well as Hirschi (1969), have argued that for adults, having bonds to others, especially functional marital bonds and social capital, are necessary mechanisms for conventional behavior. In other words, informal social control mechanisms link to critical stakes in conformity. The more meaningful bonds adults have the more they have a stake in conforming to social norms and societal laws.

There are numerous studies that utilize a wide range of both individual and familial/structural risk factors for studying criminal careers. For example, age of onset is thought to be a critical determinant in numerous studies of the criminal career (Piquero and Chung, 2001). Earlier manifestations of antisocial behavior have been linked to a higher likelihood of later antisocial/criminal behaviors (Blumstein et al., 1986; Piquero and Chung, 2001; Chung et al., 2002; Moffitt, 1994). The assumption is that those who are arrested earlier have higher

probabilities of even earlier antisocial or criminal behavior and therefore, are more likely to come to the attention of the criminal justice system at an earlier age.

Other measures employed in this study are also drawn from the criminology literature (see Loeber, 1993; Moffitt, 1993; Patterson and Yoerger, 1993; Sampson and Laub, 1993; and Blumstein et al., 1986). Key demographic and family measures include race/ethnicity, welfare reception, and family structure. Childhood risk factors include juvenile alcohol and drug use, intelligence, and academic grade. Family criminal history includes mother, father, and sibling criminality. Ward's incarceration history factors include the length of confinement in the CYA, number of escape attempts, vocational training, and educational training.

There are also measures on the ward after release from the CYA. Data from this portion of their history includes whether they suffered from mental illness or some form of personality defect, and whether they received drug/alcohol treatment, and post-release drug and alcohol, which are measured at each time period. Finally, structural level stake in conformity measures that are employed include whether the ward was married or employed full time. The following is a description of each independent measure in the models:

***Race/Ethnicity*** was coded as (1) White, (2) Black, and (3) Hispanic. Since race was discussed at length above, it is only necessary to note that prior research by Ge and colleagues (2002) and Elliott (1994) found that blacks and Hispanics persisted longer than whites did. However, neither used the trajectory models proposed in this study. Furthermore, Elliott's study only examined race differences using broad categories of white/non-white thereby excluding Hispanics (or subsuming them within the black/white dichotomy); the largest minority group in the United States at 38.8 million people (U.S. Census Bureau, 2006). As a predictor in the full models and as a complete sample in the race/ethnicity-specific models, race/ethnicity serves as a

key component in understanding persistence and desistance in this study. Incidentally, race and ethnicity could not be further broken down to investigate intra-ethnic or racial differences. Therefore, whether any one parolee was biracial or of mixed race or ethnic heritage cannot be determined from this data.

*Age of Onset* is a reliable continuous variable denoting the age in which individuals first initiate delinquency or first come to the formal attention of criminal justice system. In this study, it is measured as the *age at first arrest*, although other studies employ a variety of constructs such as self-reported initiation or age at first contact with the criminal justice system.

Age of onset is perhaps the most widely reported correlate in the career criminal/developmental criminology literature. Most life-course and developmental theories are premised on the belief that factors inducing early chronic offending manifest earlier in life than factors leading to late onset infrequent offending and thus making some individuals more prone to offending earlier in life (Chung et al., 2002; Sampson, Laub, and Nagin, 1998; Moffitt, 1993). Other theoretical perspectives such as Hirschi's (1969) bonding theory and Akers' (2000) social learning-social structure theory are premised on early onset of delinquency. For Hirschi, the lack of effective parenting will lead to behavioral problems in unrestrained juveniles while for Akers, it leads to an imbalance of definitions favorable toward delinquency rather than conformity (see also Simons, Chyi-In, Conger, and Lorenz, 1994).

Empirical studies reflect somewhat consistent results for the early onset of offending for many of the most high-rate persistent offenders (Tremblay et al., 2004; Sampson et al., 1998; Wolfgang et al., 1972) and the most serious offenders (Chung et al., 2002; Loeber and LeBlanc, 1990). However, in studies that measured age of onset in general terms it becomes less clear as to whether it predicts general involvement in crime (Farrington, 2003). In the criminology

literature, age 14 seems to be the generally referenced cut point; however, such a determination is not unyielding (McGloin and Pratt, 2003; Tibbets and Piquero, 1999; Moffitt et al., 1994).

Relative to other age of onset measures, there are both advantages and disadvantages in using age at first arrest as an indicator of age of onset. Eggleston and Laub (2002) point out that using official reports poses a disadvantage in that there are many people that offend (even at very high rates) but do not come to the attention of the criminal justice system. Conversely, Weis (1986) and Eggleston and Laub (2002) suggest that the advantages of using official records is that they are typically more reliable than other forms of information on offenders and that they provide other important data that might not be available otherwise

*Juvenile risk factors* comprise the following three variables: *Intelligence (IQ)*, *Claimed Grade*, and *Psychological Diagnosis*. Intelligence is a reliable construct measured as a continuous variable ranging from 64-135. It is thought to be negatively correlated with crime such that individuals with lower IQs are more likely to be criminal than those with higher IQs. However, while IQ tests are well established, gaps in our understanding remain as to whether psychometric tests of intelligence actually measure innate intelligence or something else such as achievement, reading ability or test ability (Vold et al., 2002). Moreover, there are different types of intelligence that people possess including performance and verbal intelligence (Wright, 2002).

Notwithstanding these issues, the current literature reveals a link between IQ and a variety of crime types. In 1977, for example, Hirschi and Hindelang concluded that the “weight of the evidence” suggest that differences in intelligence were more important than both race and class, noting that measurements of intelligence are not racially or culturally biased. They further reported that having a low IQ increased the likelihood of arrest and imprisonment through its effects on school failure. Wilson and Herrnstein (1985) take a similar position but argue that the

relationship is indirect; that low intelligence leads to poor school performance, which in turn, increases the probability of criminal behavior.

Issues of intelligence and race are controversial. Much of the controversy stems from the manifest effects of racism in the U.S. However, this should not preclude discussions of IQ, race, and crime, if only since it could lead to a better understanding of how structural and other factors might lead to such differences. Yet, those who oppose this line of research, aside from the history of people using purported genetic differences as a means of power and control over others, and for justifying racially discriminatory laws, oppose it because many studies fail to properly account for structural, cultural and historical factors that have entrenched a social hierarchy in the U.S.

In their oft discussed but much criticized book, *The Bell Curve*, Herrnstein and Murray (1994) claim that there are direct differences in offending that correlate to racial differences in intelligence. They also give primacy to the belief that intelligence is mostly an inherited trait, which suggests that inherited intellectual ability is a source of all differentiation in offending. Similar to previous studies in the first half of the twentieth century, where researchers such as Sutherland (1931) criticized the methodology, validity, and racist underpinnings of studies on intelligence and other biopsychological based research, their findings provoked an especially sharp outcry for the perceived or real racial bias in their research (Cullen, Gendreau, Jarjoura, and Wright, 1997; Gould, 1996).<sup>4</sup>

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<sup>4</sup> Criticism of Herrnstein and Murray's research is well documented. There are no less than a dozen academic and non-academic critiques of their work that raise serious challenges to both the validity and reliability of their findings but, perhaps, the single most prominent criticism is with the conclusions they draw from their research. Their conclusions have led to serious charges of racism. Criticisms notwithstanding, their findings to some degree comport with findings in other research on intelligence even if the authors draw very different conclusions about what they mean.

Yet, there is other evidence of racial differences in IQ scores and crime. Blacks and other minorities consistently score on average 15 points less on IQ tests than whites while offenders scored eight points less than non-offenders (Moffitt, 1994), not to mention that blacks and to a lesser degree, Hispanics, have higher self-reported rates of criminality. There are compelling links between low verbal intelligence and antisocial behavioral differences in childhood (Gibson et al., 2001; Moffitt, 1994; Patterson, 1990). Patterson (1990) suggests that it manifests in non-compliance and other antisocial behaviors that prohibit the development of proper social and cultural skills (see also Aguilar et al., 2000). Kandel and colleagues assert that high IQ can as buffer children from antisocial behavior during childhood (Kandel et al., 1988). Research on IQ and adult offending, on the other hand, has not found any consistent links (Lynam, 1993) while, some researchers suggest that IQ does not predict who will desist from crime (Laub et al., 1998).

For whatever IQ is tapping into, it seems that perhaps those with higher IQs are simply equipped to avoid better official detection by the criminal justice system than are those with lower IQs. To what extent heredity or group-based factors have on purported differences in intelligence or that intelligence itself is an immutable condition that directly correlates to variations in criminal propensity, and to what extent it predicts participation in any particular crime type still remains an opaque but hot button issue.

**Grade** is a reliable continuous scale of the juvenile's academic achievement ranging from 1.9 to 13.6. Academic achievement negatively correlates to crime, which suggests that those with lower scores are more likely to participate in criminal behavior than those with higher scores. The research on education and crime reveals strong evidence of educational differences in offending, particularly in adolescence and early adulthood (Robins, 2006; Hong and Ho, 2005;

Jajoura, 2005; Sampson and Laub, 1993; Hirschi, 1969). One of the strongest educational predictors of crime is high school graduation (W.T. Grant Foundation, 1988).

Across a number of different educational indicators, however, the research reveals that students that perform poorly on tests, are marginalized by others, are less motivated to succeed academically, and do not graduate from high school, are more likely to be criminal (W.T. Grant Foundation, 1988). The literature also shows correlations between education and employment (Cernkovich and Giordano, 2001), effective parenting (Hay, 2001; Simons et al., 1988; Hirschi, 1969), and racial differences in offending (W.T. Grant Foundation, 1988).

*Psychological Diagnosis* is a dichotomous variable measured as (1) presence or (0) absence of a psychological or personality condition. It is a rough indicator of neuropsychological health in that it measures the presence or absence of diagnosed psychological problems in adolescence. This measure was collapsed from a multiple item index. Unfortunately, it is not a direct measure of parolee's neuropsychological condition as a juvenile because it does not give us any information about the presence of many clinically assessed neuropsychological conditions or any information about the physical health of the brain (Moffitt, 1993). It might even be more appropriate to consider this measure simply a psychological condition since the assessment is more in line with traditional psychology than neuropsychology. Regardless, proper brain functioning is an important correlate of offending and developmental neuropsychology has been given considerable attention over the past century.

Neuropsychological and psychological measures offer predictive power beyond intelligence by providing information on the physical condition of the brain (Moffitt, 1994: 278). Verbal ability, hyperactivity, impulsive personality, visual-spatial analysis, language processing, poor memory, and an array of other neuropsychological impairments link to criminality,

especially across individuals with similar IQ scores (Piquero, 200; Bartusch et al., 1997; Moffitt, 1994; Caspi, Elder, and Bem, 1987).

In addition, neuropsychology focuses on particular areas of the brain, including the frontal and temporal lobe impairment, by using a multitude of different tests including the Wechsler Intelligence Scales for Children (WISC-R), Rey Auditory Verbal Learning Test, and many others (Brooker, 2005; Moffitt, 1994). Importantly, this study is not purporting measuring *actual* neuropsychological deficits but rather it poses a simple proposition that differences in measured psychological diagnoses, along with IQ, and academic ability, signify potential neuropsychological differences in offending. In short, it seems that many types of psychological disruptions or physical brain abnormalities that link to a variety of different antisocial behaviors. And though the variables employed in this study do not provide direct measures neuropsychological deficits, together they are better than not employing any measure.

***Drug Use and Alcohol Use*** comprises a total of four variables in this study. The first two are simple dichotomous variables that determine whether or not the juvenile used any drugs or alcohol prior to incarceration. The second ones are post-release indices that indicate post-incarceration drug or alcohol. The post-incarceration alcohol and drug use indices were calculated by summing alcohol and drug use for each of the seven years post-release, respectively.

Although illicit drug use itself is a criminal act, the research on drug use linking to other crime, including repeat and long-term association with offending, is abundant. However, there are still many elements of the relationship that are unclear (White et al., 2002; Huang et al., 2000). Past research shows links between drug use and other problem behaviors in adolescence including increasing the likelihood of quitting school early, earlier sexual participation, and other

delinquent behaviors (Wallace and Bachman, 1991). In addition, studies on recidivism consistently report upwards of 80% of repeat offenders had prior drug or alcohol issues with about 25% using a substance in the month prior to the criminal act and over 30% committing a crime while on drugs or alcohol (Travis and Visher, 2005; Lattimore et al., 2004;). For those who have committed five or more crimes, the number increases to over 80% (Travis and Visher, 2005). Findings such as these are quite robust in criminology, irrespective of methodology employed.

The link between drug use and crime, however, is not necessarily one-way (LaFree et al., 2000). White and Gorman (2000) discuss three different relationships between drug use and crime: 1) drug use is a cause of crime, 2) crime is a cause of drug use, and 3) the relationship is spurious; both are linked through other factors (LaFree, 2000). The numerous relationships are indicative of multiple pathways to drug use and crime, and for that matter, different types of crime. For example, drug use is linked a variety of violent and property crimes and many forms of delinquency (Kerner, 2005; Thornberry, 2005; Wright et al., 2004; Jessor, Donovan, and Costa, 1991) and it is also closely related to crime through other factors such as gang involvement (Thornberry, 2005).

Alcohol use, conversely, is not necessarily synonymous with drug use, although the two are correlated. Nearly 20% of state and federal prisoners self-report committing violent crimes on alcohol alone (Travis and Visher, 2005). Some criminologists suggest drug and alcohol use, especially heavy use, contributes to the early onset of antisocial behavior and delinquency in adolescence (Thornberry, 2005; Sampson and Laub, 1993). There are other negative outcomes for those who use both drugs and alcohol. Numerous studies, particularly those published in

recent decades, show how drug and alcohol use impairs critical brain functioning, which leads to addiction and to further complications such as chronic health problems (Blumstein, 1998).

In short, drug and alcohol abuse is thought to affect not only the immediate lives of individuals who abuse them but that it might have long-term consequences on future employment and success. Furthermore, research has shown that there are racial/ethnic differences in drug and alcohol use among teens; that black youths are less likely to abuse drugs and alcohol than their white counterparts are (Wallace and Bachman, 1991).

*Family* measures comprise a related grouping of six variables: *Family Structure*, *Number of Siblings*, *Economic Well-being*, and three *Family Criminality* measures (there are separate variables for father, mother, and sibling criminality). Family measures are employed to get a sense of the structure and influences of the family on juvenile and adult offending. *Family structure* is a dichotomous variable that indicates whether the juvenile's family was intact. In other words, whether or not both parents were in the same household during the parolees' childhood. *Number of siblings* is a continuous variable employed to determine the relationship between family size and crime. *Family Economic Well-being* is a rough indicator of socio-economic status of the family prior to the juvenile's incarceration. In this case, whether the family received public welfare subsidies or not. The three family criminality indicators are all separate dichotomous variables measuring whether the juvenile's father, mother, or siblings had committed crimes.

Family factors are among the most important and consistently investigated correlates of juvenile offending (Gibson et al., 2001; Wells and Rankin, 1991), and they strike to the core of the theories framing this study. Take, for example, Gottfredson and Hirschi's general theory (1990), and Hirschi's (1969) bonding theory, which links offending to the strength of bonds

between juveniles and parents or authority figures. Sampson and Laub's age-graded theory (1993) similarly includes the strength of juvenile social bonds with parents, but also addresses changes in adult pro-social bonds family bonds, most prominently, marital bonds. Moffitt's (1993) typology suggests that the development of life-course persistent offending is chiefly the result of a "transactional" process of ineffectual parenting of a child with neuropsychological deficits, which then leads to pathological antisocial behavior.

There are numerous studies that illustrate the importance of family in adolescent development and aggressive behavior (Tremblay, 2005; McCord, 2001). Parent-child relationships are thought to be one of the most robust predictors of adolescent delinquency. Juvenile delinquency, for example, has been associated with large family size (Blumstein, 1986), economic disadvantage (Sampson and Wilson, 1995; Massey and Denton, 1993), and parental and sibling criminality (Blumstein, 1986). Family factors operate in numerous ways during a child's development. The confluence of many negative factors such as single-parent headed households, parental criminality, family disruption, and economic marginalization, correlate with a broad range of negative outcomes for juveniles (Eggleston and Laub, 2002).

Single-parent families and those from broken homes have been associated with increased risk of offending (Gibson et al., 2001) and with economic disadvantage, which also leads to an increased risk of offending (O'Brien, 2003; Slovanien, 2000; Loeber and Farrington, 1993). Family disruption is particularly stressing on lower-class minority families, where the trappings of poverty and residential segregation increases the marginalization of single mothers (and fathers) and inhibits the proper monitoring and socialization of young children (Thornberry, 2005; Sampson and Morenoff, 2004). Individuals from large families are more at risk to offend, even

during adulthood (Eggleston and Laub; 2002, Farrington and Loeber, 1993) and those whose parents or siblings offend are also more likely to offend.

***Prison Impact*** variables measure the effects of imprisonment on the parolee's post-release offending. Four variables are employed to measure prisonization: *Length of Stay*, *Escape Attempts*, *Educational Training*, and *Vocational Training*. *Length of Stay* is a continuous variable measured as the number of months the parolee was incarcerated. *Escape Attempt* is a dichotomous variable indicating whether or not the parolee had attempted to escape from the CYA. *Educational* and *Vocational Training* are two separate dichotomous variables indicating whether the parolee received educational training, vocational training or both while incarcerated.

There is a belief among many criminologists that imprisonment negatively affects the lives of the prisoner upon their reentry into society. Walters (2003: 400) defines prisonization as the adoption of the "folkways, mores, customs, and general culture of the penitentiary" (see also Clemmer, 1970: 270). There is little doubt that imprisonment leads individuals to develop certain attributes and manners in order to *get by* and that they can also learn new criminal techniques (i.e. prisons as "schools of crime") (Maruna, 2005). On the other hand, imprisonment might make individuals realize the error of their ways. However, individuals come to experience prison, one thing is clear: prisonization is decidedly more complicated and individualistic than it is often treated in the literature (Maruna, 2005).

Similar to Sampson and Laub's (1993) view of life-course transitions, individuals experience incarceration differently, even if there are certain shared experiences. Individual experiences not only include differences based upon age, personality, and external factors that shaped the individuals behavior patterns prior to incarceration but they also vary across institutions, space and time (Maruna, 2005; Walters, 2003). There are two models that have

guided research on prisonization over the past few decades (Walters, 2003). The first is the importation model developed by Sykes (1971), which holds that prisoner's develop a subculture in order to attenuate the "pain and mortification of prison" (Walters, 2003: 400). The other, by Irwin and Cressey (1962) argues that prison subcultures develop as a hybrid of other subcultures, each reflecting the communities in which they came from (Maruna, 2005; Walters, 2003: 401). Yet, according to both Maruna (2005) and Walters (2003), the empirical findings only show moderate support for either of these theories.

The imprisonment variables in this study were employed to provide at least some indication of how imprisonment correlates to adult persistence and desistance in adulthood. For example, it seems theoretically plausible that the longer one is imprisoned, the more likely they will suffer deleterious prisonization effects and thus, more they would be more likely to return to offending after incarceration. Lars and Nelson (1984) offer support for such a hypothesis. They found that the length of time served positively correlates to later offending and is more powerful than prior criminal behavior in predicting later offending. Likewise, escape attempts might also indicate a negative impact of imprisonment. It might also be indicative of low self-control such that those who attempt escapes are more likely to be risk takers or thrill seekers than those who do not (all else equal).

Conversely, the educational and vocational training variables could signify the positive effects of imprisonment. In this respect, those who have received training would be more likely to desist from crime after release than those who did not. And, while these variables say nothing about how that training was conducted or the quality of the training—for instance—if the ward was trained to cut lettuce rather than being comprehensively trained in a marketable job skill, nor does it tell us how effective the training program was. The simple effect of receiving one or both

of the types of training could signify differences in post-release ability to acquire desist from crime.

*Stakes in conformity* comprise two measures: marriage and employment. They were calculated by summing whether the parolee was married or employed at each year for the seven years after release. These two variables comprise a cornerstone of Sampson and Laub's life-course theory of offending. Explicit in their theory is that all individuals can change and that the adoption of conventional behaviors occurs because of the development of different informal social controls such as marriage or employment in adulthood.

Employment is an essential predictor for many empirical studies of crime. However, the effect of employment on crime is not fully clear and the empirical evidence is mixed (Piehl, 1998). One explanation of the mixed results is that employment might affect adolescent delinquents differently than adults because adolescents cannot formally work prior to age 15. Even if they are, opportunities are often limited to part-time employment. On the other hand, adult employment, along with other adult responsibilities, holds much more significance, particularly when considering familial support responsibilities and because social pressure dictates legitimate employment as an expectation of full adulthood (Ness and Dasori, 1998).

In addition, the type of employment could hold importance as well. Jobs that barely pay living wages or do not provide enough employment (i.e. underemployment) might not have the desired effect on crime. Traditionally, employment has been thought to affect crime through a rational choice mechanism by increasing the likelihood that individuals will turn toward criminal activity when fewer legitimate jobs for teens are available, and it decreases crime when legitimate opportunities are available Blumstein (1998).

From a developmental standpoint, Horney and colleagues (1995) suggest that in the short term, even temporary employment will reduce future criminal behavior. Some research has found support for the link between employment and crime. For example, Farrington, Gallagher, Morley, St. Ledger, and West (1986) found that unemployment increased the probability of conviction for adults (Farrington, Loeber, Yin, and Anderson, 2002). Likewise, Blumstein (1998) found that increased employment opportunities played a role in reducing crime during the crack epidemic in the 1980's. In a review of the economic and crime literature, Piehl (1998) found that even when there is a significant relationship; decreases in unemployment only reduced crime by less than two percent.

Marriage, on the other hand, is thought to break the cycle of crime and other behaviors such as binge drinking and drug use, which occurs much more amongst youths while also making former offenders more "risk averse" (Sampson and Laub, 2004). Similarly, meaningful employment can change one's outlook and lead to other conventional opportunities and the development of social capital. In a recent symposium on life-course and developmental theory, Sampson and Laub suggested that marriage could have an effect on one's propensity to offend and on their opportunities (Sampson and Laub, 2005). They also assert that marriage is more dynamic given that the "state" of marriage can be a causal mechanism that changes within individual's propensity. However, the mechanism that activates such a change is still unknown.

As such, stake in conformity measures can be viewed as turning points for prior offenders, which suggests that those who score higher on the indices will more likely belong to grouped-based trajectories that indicate desistance or de-escalation rather than persisting or escalating offending.

*Age at release* is a continuous variable that measures the age at which the parolee was released from the CYA and is conceptualized as being closely related to the stake in conformity measures. Its relevance for understanding post-release offending patterns is based in part on the sample itself. All of the parolees were in their very late teens to mid twenties, or just past peak age of offending. This period of emerging adulthood is when many, if not, most young adults move past earlier youthful indiscretions and by taking on adult roles. Moffitt (1993) suggests this is due to the closing of the maturity gap while Sampson and Laub (2004) suggest it is because of the development of stakes in conformity. In fact, age or aging seems to have an effect beyond both of these claims. Sampson and Laub (2004) and Shover and Thompson (1992) both argue that this is because aging increases the changes in perceptions of risk of being caught and perhaps their experiences with being confined. It may also be that aging increases perceptions of risk of incarceration, lessening of ability to commit some types of crime and, coupled with gainful employment, less rewards relative to the risks (Shover and Thompson, 1992).

### **Research Questions**

The criminal career model emphasizes isolating the various dimensions of offending from onset to termination (Farrington, 2003; Chung et al., 2002; Blumstein et al., 1986). Similarly, the current crop of developmental and life-course theories all impart the necessity of examining potentially differential offending patterns between active offenders. If these positions are valid, then risk factors predicting offending should not only differentiate between who participates in crime and who does not, but they should predict important differences between active offenders (Sampson and Laub, 2003; Chung et al., 2002; Moffitt, 1993; Patterson and Yoerger, 1993; Loeber and Le Blanc 1990). Sampson and Laub suggest that these claims require that the existence of unique offending groups as identified by similar group-based offending patterns and should therefore possess different causal mechanisms. For juvenile delinquents in California, the

CYA is the “last ‘stop’ in the juvenile justice system,” and the Preston facility population from which the sample is drawn comes from a particularly criminal/seriously delinquent element CYA wards (Lattimore et al., 2004). Accordingly, the CYA adequate for investigating offending trajectories between previously active offenders and for isolating distinctive etiologies for different types of offenders should such different etiologies exist.

Distinguishing the offending trajectories of more serious persistent offenders versus those who desist or fail to recidivate could have important theoretical and policy implications. First, many developmental theories of crime like those noted above explicitly call for such an examination and second, if it turns out that there is a group of persistent offenders then policies can be formed that deal with offender types. Furthermore, differences in types of crimes, not just patterns of offending, are important for policy and academic reasons. Thus, it is not only sufficient but also necessary to examine offending trajectories across different crime types, as this study does. While it is possible to examine individual crimes such as robber or assault, because there are many zeroes

Additionally, amongst the recent studies on persistence and desistance employing trajectory models in order to answer similar questions, few have attempted to isolate the effects within and between different races or ethnicities, while others have only investigated particular types of crime. Therefore, with this in mind, four separate, but related questions are addressed:

1. What do violent, non-violent, and total crime trajectories look like in the full sample, as well as across racial/ethnic-specific samples?
2. Do the models reveal patterns of persistence in or desistance from offending as predicted by the theories?
3. Do childhood, adolescent, and adult risk factors, including formal and informal social control mechanisms, which are regarded as important in predicting individual criminal offending predict trajectory differences amongst a population of post-release juvenile offenders who were released as young adults?

4. Do those same risk factors operate similarly or differently in predicting trajectories across and within racial/ethnic groups?

### **Method of Analysis**

The empirical foundation for this project rests on investigating the correlates of persistence in and desistance from offending with the underlying assumption that there are discrete groups of offenders with heterogeneous trajectories. This raises an important question: do offending trajectories that reveal patterns of stable persistent behavior or desisting behavior (or other potential types of offending such as escalating or intermittent) have different risk factors that predict group membership in these trajectories?

With the advent of contemporary developmental, life-course, and general theories, understanding the risk factors that cause some people to persist or desist and the dynamic relationships that these processes entail takes on added significance given that, in one respect, theoretical positions diverge on these very concepts. Differences that also encompass what these theories say about other important factors such as race and gender and about the relationship between age and crime. The critical objective of this study, therefore, is to investigate persistence and desistance between blacks, whites, and Hispanics during a period of the life-course that has come to be termed “emerging adulthood” (Piquero et al., 2001).

Toward this end, there are three phases to this study. In the first phase, group-based trajectories were modeled using semi-parametric group modeling design, which in turn provided the dependent variables for the analytic models. In the second phase, analysis of variance (ANOVA) was calculated to ensure variation of the demographic variables across the dependent variables. In the last phase, using the group memberships identified through SGM as the dependent variables, binary and multinomial logistic regression models were employed to

examine how the independent variables predict trajectory group membership. Given the unsettled nature of SGM, what follows below is a brief account of its methodological underpinnings.

### **Semi-Parametric Group Modeling**

A fitting method to address theoretical questions posed above would be to employ a semi-parametric group modeling design (SGM) that estimates trajectories for discrete groups of offenders based upon similar offending behavior (Nagin, 2005, Jones et al., 2001; Nagin, 1999; Nagin and Land, 1993). SGM was developed by Nagin and colleagues (Nagin and Land, 1993; Nagin, 1999; Jones et al., 2001) and provides a flexible and simple means of obtaining trajectories for which similar offending clusters belong. SGM is therefore a logical choice to answer the study's questions for three reasons.

There are other reasons why SGM is an appropriate analytic tool for this study. First, SGM is quite versatile in handling different types of dependent variables. For example, it can fit semi-parametric mixtures of Poisson and Zero-inflated Poisson, censored normal, and Bernoulli distributions to longitudinal data (Chung et al., 2002; Jones et al., 2001). As with most crime, data, even amongst populations of known offenders, offending is a relatively rare event. Since the dependent variables are group memberships based on offending counts, Zero-inflated Poisson (ZIP) distributions were employed. ZIP models are appropriate for modeling count dependent variables that contain many zeros and better fit this data since individual crime patterns that comprise each of the crime types contain an over-dispersion of zeroes.

SGM also uses a mixture of defined probabilities to identify discrete trajectories based upon a priori conceptualizations in order to determine if such conceptualizations are present in the models (Chung et al., 2002; Jones et al., 2001; Nagin, 1999). Third, SGM also fully utilizes the data by modeling trajectories of all individuals with at least two data points and thus, is well suited for longitudinal data. Based on this procedure, SGM produces posterior membership

probabilities that determine group membership within a trajectory, which in turn, are used as the dependent variable in the analytic models.

### **Posterior Membership Probabilities and Bayes Information Criteria**

SGM produces posterior membership probabilities, which indicate the probability of each individual being assigned to each of the groups identified from the SGM outcomes. Determining group membership using this procedure has been shown to be quite effective and a valid means of group selection because membership probabilities are based upon objective criteria that best fits the behaviors determining the trajectories (Nagin, 2005; Jones et al., 2001; Nagin, 1999). However, SGM allows the researcher to choose, within software limitations, the number of trajectories for each model.

Nagin and others have addressed optimal group number selection and procedures have been developed for selecting the most favorable model (Chung et al., 2002; Nagin, 1999; D'Unger et al., 1998). In a detailed account, Nagin reports that there are two possible choices for selecting groups. The first, a likelihood ratio test, is inappropriate for this study since it is only suitable for problems in model selection where the alternative models are nested. The second option utilizes Bayes Information Criterion for selecting the optimal model (Land, McCall, and Nagin, 1996). Kass and Rafferty (1995) and Rafferty (1995) suggest that BIC is suitable for comparing both nested and non-nested models.

Bayes probability functions have a long history in scientific inquiry. Numerous studies in criminology demonstrate the utility of the BIC for optimizing trajectory selection in SGM models (Chung et al., 2002; Land et al., 1998). However, even though minimizing the absolute BIC is typically adhered to, it is not necessary that one select the lowest absolute BIC (Nagin, 2005; Chung et al, 2002). Parsimony and theoretical considerations factor into determining optimal number of trajectories. But, as with any innovative methodological development, there

are going to be questions about its validity or utility. In such cases, caution must be taken interpreting and presenting results.

The current literature has identified four logical groups based upon developmental theory. Two groups have been given the lion's share of attention, early onsetters-late desisters and late onsetters-early desisters. Chung and colleagues, and Nagin and colleagues also suggest that there are two other logically distinct groups that can be assumed; those who initiate and terminate earlier and those who initiate and terminate later (Chung et al., 2002; D'Unger et al., 1998; Tolan and Gorman-Smith, 1998). These other groups have been given scant attention in the literature (Chung et al., 2002). This study departs from these distinctions insofar as determining trajectories based upon offending initiation and termination. Rather, the trajectories are modeled using crime patterns and street time. Offending initiation (age of onset) employed as an independent variable.

There are twelve analytic models in this study: one model for each racial/ethnic group by each crime type and a full model by each crime type. Moreover, exposure time in each model is accounted for in SGM modeling by including the variables within the SAS procedures that identify the trajectories. Analyzing individual trajectories enabled determining what theoretical constructs best predicted trajectory group membership (i.e. persistence or desistance or some other pattern). If there is heterogeneity between trajectories for different groups and the risk factors culled from the developmental theories that were employed in this study differ in predicting different group membership (e.g. onset age predicting persistent offending for high rate offenders), then the findings should have important theoretical and methodological implications since they would lend support to the developmental perspective. However, if the risk factors do not hold in predicting group membership, but rather, operate similarly across

groups even though there might be significant heterogeneity between offending trajectories, the findings could better support other theories.

### **Current Focus**

There are two objectives for this study. First, it is to investigate how variables employed in this study predict offending group membership of a sample of serious juvenile offenders that were on parole from the CYA. Second, it is to determine the optimal number of trajectory groups. As discussed above, SGM model selection occurred using Bayes Information Criteria, however, what this means for persistence and desistance within a life-course/developmental/career criminal framework is still an open question. Nevertheless, in this scheme, membership in such trajectories is the result of similar offending patterns after release from the CYA. One would expect that risk factors drawn from Moffitt's developmental taxonomy to significantly predict membership in high-rate persistent groups, net of all other factors.

On the other hand, if there were trajectories that show desisting or deescalating behavior, than one would expect factors indicative of Sampson and Laub's theory to emerge as significant. Even further, if variables operate similarly across different trajectories, even those that suggest markedly different patterns (or rates) of offending, one could interpret such a finding as perhaps supporting Gottfredson and Hirschi assertion that there are no group differences.

There are threats of creating a false dichotomy with such a scheme; however, recall that a major claim that Gottfredson and Hirschi make is that there are no career criminals. They argue against the need to disentangle various indicators across the life-course since the only factor that causes variation in offending is low self-control. If this were true, than the risk factors employed here should not operate differently for different trajectory types. This would not be conclusive

evidence of Gottfredson and Hirschi's position but it would undermine the developmental contention of different risk factors being important for different types of offenders.

Turning toward specific predictions of each theory, Moffitt (1993) posits that there are only two groups of offenders: LCP and AL. Accordingly, the strongest predictors of LCP would be measures of individual and family characteristics, which include health, gender, temperament, cognitive abilities, school achievement bonds, child-rearing practices, parent and sibling deviance, and socioeconomic status, "but not age" (Moffitt, 1993: 132). This study includes direct and indirect measures of some of her predictions including psychological status, academic grade, family structure and economic status, and family deviance. Though these may not be precise measurements, particularly regarding psychological status, it is conceivable that their combined effects would emerge as significant predictors if Moffitt were correct, net of all other factors.

Herein this study builds on prior research in four ways. First, using carefully selected independent variables, risk factors were investigated to determine how they operate across and within racial/ethnic groups. Studies by Elliott (1994) and Ge and colleagues (2001) show that blacks persist in offending longer than whites persist but they did not model persistence as studied here, nor did they include Hispanics in their research. Second, even if similar results to earlier studies are found, it remains that further investigation is needed as to how risk factors comport with persistence in and desistance from offending. Third, it is important to restate the point that these data come from a particularly criminal/serious population of juvenile offenders. Finding significant differences amongst a group of high-risk offenders could help illuminate our understanding of differences in offending after incarceration. Finally, because the data have variables from competing theories of crime, it was possible to investigate the tenets of such

theories within the same statistical models thereby adding to our collective knowledge about the validity or practicality in understanding of criminal offending over time. The academic value and potential policy implications in addressing such suggestions make this study an important contribution to the literature.

## CHAPTER 7 RESULTS

### **Data Analysis**

Data analysis took place in two phases. The first phase presents descriptive and bivariate analyses (descriptive statistics are shown below in Table 7.1) to get an overall sense of the composition of parolees across important measures in the study. Attention was then turned toward the multivariate models where analysis of offending trajectories over the seven-year post-incarceration period are presented.

### **Descriptive Statistics**

Of the 524 parolees in the sample, white parolees comprised the largest racial or ethnic group with 254 (49%), followed by black parolees with 174 (34%) and lastly, Hispanic parolees with 87 (16%). Although it is preferable to have a more even distribution across race and ethnicity, SGM identified over 3,600 observations for data analysis since it is a person by period data set (i.e.  $517 \text{ parolees} \times 7 \text{ time-periods} = 3,619 \text{ observations}$ ).

An examination of IQ scores revealed that the overall sample was skewed. IQ scores ranged from a low of 64 to a high of 135. The average IQ score was 97 while the median was 97.99. About one-third of the parolees had above average IQ scores and nearly 12% had an IQ of over 112, which was greater than one standard deviation from the mean. This stands in contrast to nearly 20% of the sample that had IQ scores greater than one standard deviation below normal. About 4% of the population scored a 75 or less, which is greater than two standard deviations below normal and generally considered the cut point for mental retardation (Kanaya, Scullin, and Ceci, 2003). When examined across race and ethnicity, white parolees had the highest average IQ at 101.81 while Hispanic parolees had the second highest average IQ at

97.43. Black parolees had the lowest average IQ at 93.79. Analysis of variance revealed that IQ differences between racial groups were significant at the .05 level.

Table 7.1. Descriptives for parolees across independent measures and race/ethnicity

<b>Independent Measures</b>	<b>All Parolees</b>	<b>White</b>	<b>Black</b>	<b>Hispanic</b>
<b>RACE/ETHNICITY</b>	N= 517	N= 254	N= 173	N= 87
<b>JUVENILE MEASURES</b>				
IQ Score [64-135]***	97.99 (12.44)	101.81 (12.04)	93.79 (12.03)	97.43 (11.90)
Grade [0-14]**	10.34 (1.87)	10.29 (2.04)	10.65 (1.60)	9.86 (1.82)
Psychological Status **	47.10%	50.30%	48.50%	34.40%
Juvenile Alcohol Use	35.60%	36.50%	31.90%	42.20%
Juvenile Drug Use **	62.20%	58.80%	68.00%	62.50%
Age at First Arrest [6-19]	12.59 (2.39)	12.73 (2.43)	12.43 (2.47)	12.60 (2.18)
<b>FAMILY MEASURES</b>				
Family Intact	46.80%	51.80%	43.50%	40.60%
Family Welfare**	18.60%	11.80%	21.70%	29.70%
Number of Siblings [0-12]***	4.5 (2.73)	3.79 (4.00)	5.09 (3.09)	4.98 (2.62)
Father Criminality**	15.20%	19.40%	8.70%	18.80%
Mother Criminality***	6.60%	5.90%	8.00%	6.30%
Sibling Criminality	54.30%	45.30%	65.20%	53.10%
<b>CYA MEASURES</b>				
Length of Incarceration [2-147]***	30.38 (24.95)	27.45 (21.50)	36.87 (26.78)	24.69 (19.93)
Escape Attempts***	52.50%	63.90%	37.30%	53.20%
Job Training	37.50%	37.10%	34.80%	45.30%
Educational Training*	43.10%	36.50%	50.00%	46.90%
<b>POST-RELEASE MEASURES</b>				
Post Release Alcohol Use [1-7]**	1.76 (2.74)	1.65 (2.65)	1.46 (2.60)	2.46 (3.03)
Post Release Heroine Use [1-7]***	2.12 (2.64)	2.02 (2.61)	1.64 (2.34)	3.47 (2.88)
Post Release Marriage [1-7]**	1.62 (2.23)	1.85 (2.34)	1.36 (2.11)	1.37 (2.04)
Post Release Employment [1-7]*	1.10 (1.56)	1.26 (1.66)	.93 (1.36)	1.03 (1.62)
Age at Release [16-22]	18.82 (1.07)	18.90 (1.14)	18.73 (.96)	18.79 (1.05)

Percentages are shown for dummy variables

Standard deviations are parenthesized for continuous variables

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

Of the parolees that were diagnosed with a psychological disorder, 47% had a personality disorder while the rest of the sample spread out among seven other diagnostic categories.

Psychosis was the second most diagnosed at 3.6% followed by substance abuse at 2.1%. The

remaining categories had less than 2%. Within race, both whites and blacks were evenly split between being diagnosed with a disorder or not. On the other hand, Hispanic parolees were almost twice as likely not to have been diagnosed with a psychological disorder.

Regarding substance use, the parolees were more likely than not to have used drugs and alcohol while juveniles. Slightly over half used both alcohol and drugs prior to incarceration. Most parolees who had used drugs as a juvenile did between two and five different types of drugs with the average and median being two. Hispanic parolees were the most likely to use drugs compared to blacks and whites, respectively. Differences between racial groups were significant.

The parolees were quite young when they were first arrested as juveniles. They ranged in age from 6 years old to 19 years old. The mean age of first arrest was 12.6 and the mode was 13. In other words, half the parolees were early onsetters. Across race, white parolees' had a mean age of 12.73, which was slightly older than both Hispanic parolees at 12.60 and black parolees at 12.43.

Given that family and individual risk factors such as drug or alcohol use have been linked to early onset, an examination of how the juvenile risk factors predicted age at first arrest was conducted. In a model not shown here, the results of OLS regression identified a number of relationships. All else equal, parolees whose families were not intact prior to incarceration were more likely to begin offending at younger ages than those whose families were intact. Parolees with more siblings were more likely to be arrested at an earlier age than those with fewer siblings. In other words, for every additional sibling, there was a -.12 decrease in age at first arrest. Though this decrease is seemingly small, it was significant at the .05 level.

Adolescent drug use also significantly predicted age at first arrest. Parolees who had used drugs as juveniles were more likely to be arrested at younger ages than those who had not. Lastly, parolee grade was significant but at the .10 level. Parolees with lower a grade were more likely to be arrested earlier than were those with a higher grade. Although race was not a significant predictor in this model, some of the factors thought to be important in the life-course and developmental literature were significant and they moved in the predicted direction.

Turning to imprisonment history, parolees averaged 30 months in the CYA with a median of two years and a range between two months and 147 months. The positively skewed distribution was a result of nearly 19% of the parolees serving more than 48 months and 5% serving more than 72 months. In other words, a quarter of the sample was more than one and two standard deviations from the mean, respectively. In contrast, half of the parolees that served two years or less were all within one standard deviation. Bivariate analysis by racial and ethnic group indicates that black parolees averaged 31.83 months in the CYA, which was over ten months more than white parolees who averaged 21.43 and over one year longer than the Hispanic parolee average of 17.5 months.

Nearly half of the parolees attempted at least one escape from the CYA with a majority of them never attempting an escape, and one parolee attempting ten. Differences across race and ethnicity were not statistically significant. Parolees differed by educational and job training received while in the CYA. Of the 524, 26% of the parolees received vocational training and over 30% received educational training. Only 16.6% of the parolees received both types of training. Differences by race were not significant for vocational training but were for educational training. Within respective racial/ethnic groups, black parolees and to a lesser degree, Hispanic

parolees were more likely than white parolees to have received some form of educational training.

An examination of all five post-release variables showed that they were positively skewed. For example, 31.3% of parolees used alcohol at least once during the seven-year follow up. The mean was less than two and the mode was zero. Less than 16% of the parolees used alcohol over all seven years with a quarter of the sample using alcohol for four or more years.

Within race and ethnicity, Hispanic parolees had the highest average of 2.46 followed by white parolees at 1.65 and black parolees at 1.46, respectively. Differences in alcohol use by race were statistically significant. In contrast, slightly less than half of the parolees (48%) used heroin at least once after release with a third of the parolees using two or more times. Similar to alcohol use, Hispanic parolees had a mean heroin use of 3.47, which made them more likely to use heroin than both white parolees at 2.02 and black parolees at 1.65. Differences between racial/ethnic groups in heroin use were statistically significant.

Two post-release stakes in conformity measures were employed in the study: marriage and employment. Regarding marriage, 44% of the parolees were married at some point during the seven year follow-up period (it was also the modal category). Parolee marriage had a mean of 1.62 and a standard deviation of 2.23. Less than a quarter of the parolees (115) were more than one standard deviation from the mean. Although the differences were statistically significant, white parolees, with an average of 1.85, were only slightly more likely to be married than Hispanic parolees or black parolees who had equal means, which were 1.37 and 1.36, respectively.

The parolees were somewhat less likely to be employed during this period. Only 53% of the parolees were employed at some point during the seven years after release. Fewer than 50

parolees (9%) were employed at times four through seven and only 5% of the parolees were employed the entire time under study. When examined across race, employment seemed to follow what has been reported in the literature. White parolees, with a mean of 1.26, were the most likely to be employed. Hispanic parolees had the second highest mean of 1.03. Black parolees were not likely to be employed even once during the seven years. The black parolee employment mean was .093. Differences between racial and ethnic groups were statistically significant at the .10 level.

**Analysis of Variance**

Table 7.2 presents the one-way ANOVA and mean offending by race and ethnicity results for trajectory models for all crime types. One-way ANOVA was employed to ensure that there was significant variability between race and ethnicity across the full sample of parolees for total, non-violent, and violent crime types. Variability was statistically significant for violent and non-violent offending by race at  $p < .10$  but was not statistically significant for total offending.

Table 7.2. Mean number of offenses by crime type and race

Race	CRIME TYPE		
	Total	Non-violent	Violent
White Parolees (n=253)	14.28	1.32	12.95
Black Parolees (n=172)	14.26	2.96	11.29
Hispanic Parolees (n=87)	16.10	2.07	13.91
All Parolees (n=512)	14.58	2.02	12.55
F	1.23	26.68 **	2.70 *

**Multivariate Analysis**

Figures 7.1 through 7.12 show the results of SGM for all crime types by each racial and ethnic group. Tables 7.3 through 7.14 are a series of binomial and multinomial logistic regression analyses, each of which examines separate outcomes for trajectory group membership

for total, non-violent, and violent crime. For each crime type, there are four models: a full model that includes race/ethnicity as an independent measure and three separate models that examine trajectory group membership for the white, black, and Hispanic samples.

Notably, in a similar study by Chung and colleagues (2002), SGM trajectory identification was constructed according to age of onset and desistance. However, this study diverges from the Chung and colleagues study and other similar studies by identifying trajectories based on the seven-year offending patterns. Age of onset was employed as an independent variable not as a factor in determining trajectories in the first place.

Furthermore, an examination of the different trajectory models appears to show very similar trajectory patterns, however, this is not necessarily the case. Based upon group percentages, which indicate the percentage of the sample belonging to each group and are illustrated at the bottom of each trajectory figure, and the fact that similar appearing trajectories occur at different rates of offending, leads to interpretations. This is an important distinction because the conclusions drawn from the offending trajectories must be sensitive to the percentage of those in the offending group and the level of offending. Within trajectory models and across trajectory models in this study, there were similar trajectories of offending, but as discussed below, a more thorough analysis reveals that the group percentages and levels of offending markedly differ.

Moffitt's theory addresses this issue. Her theory is predicated on the size of the offending group and the type of offending patterns different groups' exhibit. A particular example of this can be found in the violent crime trajectory models section below, which identified a two-group model for each of the samples. Both the percentages in each model differ by group and by the

offending levels of the individual trajectories. In turn, differences in levels of offending led to different conclusions.

### Total Crime

Figures 7.1 through 7.4 and Tables 7.3 through 7.6 present the results for total crime trajectories. Total crime is the sum of both non-violent and violent crimes employed in the later models. Offending patterns were identified using SGM for the full sample and for separate samples of white, black, and Hispanic parolees.

### Total Crime Full Sample

Illustrated in Figure 7.1, SGM identified a four-group trajectory model for the total crime full sample model. Although a five-group trajectory model had a marginally lower absolute BIC and because nearly identical patterns of two of the trajectories, a four-group trajectory was employed in this model.

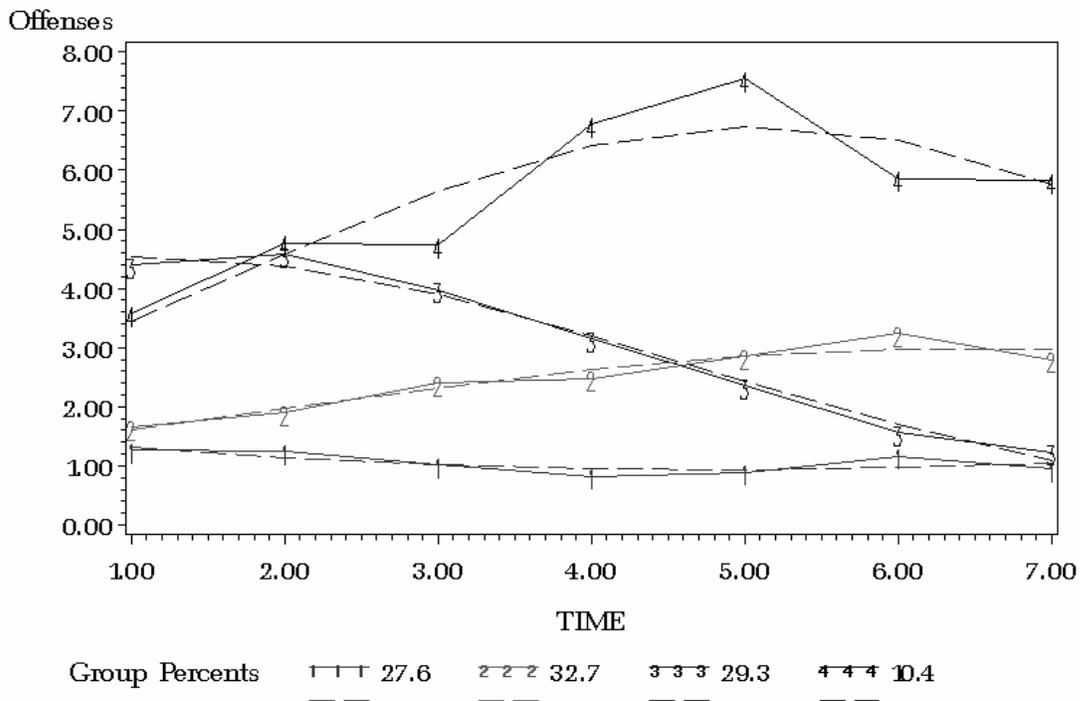


Figure 7.1. Total crime full sample trajectory model

There is a second compelling statistical reason for choosing the four-group as well. Long (1997) points out that from a statistical standpoint, increasing the categorical values in the dependent variable decreases the power of the model. This is a result of how multinomial logistic regression operates. Simply, a series of binary logistic regressions are regressed on one of the categorical groups. That is, if there are five values, then each value in the dependent variable is a 0/1 binary category. In the ensuing iterations, multinomial logistic regression uses one of the categories as a reference group for which the other categorical values are compared. Thus, the more categories in the dependent variable the more complex the underlying statistical process becomes. Thus, the less predictive power it has. Restricting the groups for this reason is not only theoretically acceptable but statistically supported.

As shown in Figure 7.1, SGM identified four trajectory groups. Group 1 is a chronic group that steadily committed at least one crime per year over the seven years. Group 2 is an escalation group. At Time 1, they committed about 1.7 crimes but by Time 7 they had increased to nearly three crimes. Group 3 was an initial high rate group that deescalated in offending. At Times 1 and 2, they were committing over four crimes per year, but by Time 7 their offending decreased to about one crime. Finally, Group 4 is a high-chronic group. They started out at over four offenses at Time 1 and were at nearly six offenses by Time 7. The groups are labeled as follows: 1) Low Chronic, 2) Escalation, 3) De-escalation, and 4) High Chronic.

Table 7.3 presents the results of multinomial logistic regression of total crime for the full sample. Eight variables emerged as significant. Race/Ethnicity was significant for the white parolees in Group 3. The coefficient was positive, indicating that white parolees were more likely to be in the De-escalation group compared to the High-Chronic group.

Among the juvenile measures, IQ, Juvenile Alcohol Use, and Juvenile Drug Use were significant. The sign of the coefficient for IQ was significant and positive for Group 1. This indicates that parolees with higher IQs were more likely to be in the Low-Chronic group compared to the High-Chronic group. Juvenile Alcohol Use was positive and significant for Group 3. This suggests that parolees that were more likely to use alcohol when they were juveniles were more likely to be in the De-escalation group compared to the High-Chronic group. Conversely, Juvenile Drug Use was significant but negative for Group 3. This would indicate that parolees that were less likely to use drugs as a juvenile were more likely to be in the De-escalation group than the High-Chronic group.

Next, among the Family Measures only Number of Siblings was significant for the full sample. The positive sign of the coefficient for Group 1 indicates that parolees that had more siblings were more likely to be in the Low-Chronic group compared to the High-Chronic group.

Among the CYA Measures, Escape Attempts was significant for Group 2. The coefficient was negative, which indicates that parolees that were less likely to attempt an escape while incarcerated were more likely to be in the Escalation group compared to the High-Chronic group.

Finally, among the Post-release Measures, only two variables emerged as significant. Both Post-release Heroin Use and Marriage were significant but for two different groups and in a different direction. The coefficient was negative for Heroin Use for Group 1, which indicates that parolees that were less likely to use heroin after release were more likely to be in the Low-Chronic group compared to the High-Chronic group. For Marriage, the sign of the coefficient for Group 2 was positive. This indicates that parolees that were more likely to be married after release from the CYA were more likely to be in the Escalation group compared to the High-Chronic group.

Table 7.3. Total crime full sample multinomial logistic regression model

	GROUP 1 Low Chronic (n=143)			GROUP 2 Low Escalation (n=169)			GROUP 3 De-escalation (n=151)		
	B	Exp(B)	Wald	B	Exp(B)	Wald	B	Exp(B)	Wald
<b>RACE/ETHNICITY</b>									
White	0.612	1.845	0.806	0.773	2.167	1.483	<b>1.176</b>	<b>3.240</b>	<b>3.339 *</b>
Black	-0.192	0.825	0.065	0.384	1.468	0.327	0.327	1.387	0.230
<b>JUVENILE MEASURES</b>									
IQ Score	<b>0.061</b>	<b>1.063</b>	<b>6.936 **</b>	0.008	1.008	0.151	0.031	1.032	2.175
Grade	0.005	1.005	0.001	0.114	1.121	0.736	-0.039	0.961	0.093
Psychological Status	0.224	1.251	0.164	0.768	2.156	2.254	0.381	1.464	0.548
Juvenile Alcohol Use	0.513	1.669	0.739	0.166	1.181	0.093	<b>0.892</b>	<b>2.441</b>	<b>2.586 *</b>
Juvenile Drug Use	-0.704	0.495	1.098	-0.954	0.385	2.211	<b>-1.064</b>	<b>0.345</b>	<b>2.771 *</b>
Age at First Arrest	0.121	1.129	1.257	0.072	1.075	0.525	0.016	1.017	0.028
<b>FAMILY MEASURES</b>									
Family Intact	0.432	1.540	0.690	-0.150	0.861	0.102	0.539	1.714	1.266
Family Welfare	-0.731	0.481	1.081	-0.476	0.621	0.514	-0.404	0.667	0.364
Number of Siblings	<b>0.317</b>	<b>1.373</b>	<b>8.781 **</b>	0.120	1.128	1.471	0.111	1.117	1.211
Father Criminality	0.370	1.448	0.298	0.131	1.140	0.046	0.881	2.414	2.019
Mother Criminality	-3.191	0.041	1.305	-3.734	0.024	1.846	-3.387	0.034	1.508
Sibling Criminality	0.757	2.132	1.929	-0.023	0.977	0.002	0.414	1.512	0.686
<b>CYA MEASURES</b>									
Length of Incarceration	-0.007	0.993	0.395	-0.011	0.989	1.281	-0.006	0.994	0.309
Escape Attempts	-1.207	0.299	1.072	<b>-1.157</b>	<b>0.315</b>	<b>5.593 **</b>	-0.928	0.395	2.469
Job Training	-0.865	0.421	2.504	-0.401	0.669	0.646	-0.379	0.685	0.554
Educational Training	-0.025	0.976	0.002	-0.528	0.590	1.232	-0.595	0.551	1.527
<b>POST RELEASE MEASURES</b>									
Post Release Alcohol Use	-0.045	0.956	0.240	-0.048	0.953	0.338	0.067	1.069	0.652
Post Release Heroin Use	<b>-0.312</b>	<b>0.732</b>	<b>7.878 **</b>	-0.067	0.936	0.457	-0.198	0.820	1.897
Post Release Marriage	0.131	1.139	1.052	<b>0.204</b>	<b>1.226</b>	<b>3.047 *</b>	-0.020	0.980	0.026
Post Release Employment	0.286	1.331	2.375	-0.087	0.917	0.224	0.066	1.068	0.132
Age at Release	0.160	1.173	0.459	-0.208	0.812	0.936	0.194	1.214	0.807

Group 4 (High Chronic) is the reference group (n=54)

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

## Total Crime White Sample

Figure 7.2 presents the SGM results of the total crime white parolee sample. SGM identified a four-trajectory group model as having the lowest absolute BIC. Group 1 was a low-rate chronic group that committed about one crime per year across all seven years. Group 2 was a de-escalating group that initially committed about three crimes at Time 1 but by Time 7 they decreased in offending to about one crime. Group 3 was a high-chronic de-escalating group that committed over six crimes at Time 1 but de-escalated to just under three crimes by Time 7. Group 4 was an escalating group that started out at about 2.5 crimes at Time 1 but by Time seven they increased to about 5 crimes. Based on the offending trajectories, the groups were labeled as follows: 1) Low Chronic, 2) De-escalation, 3) High Chronic De-escalation, and 4) Escalation.

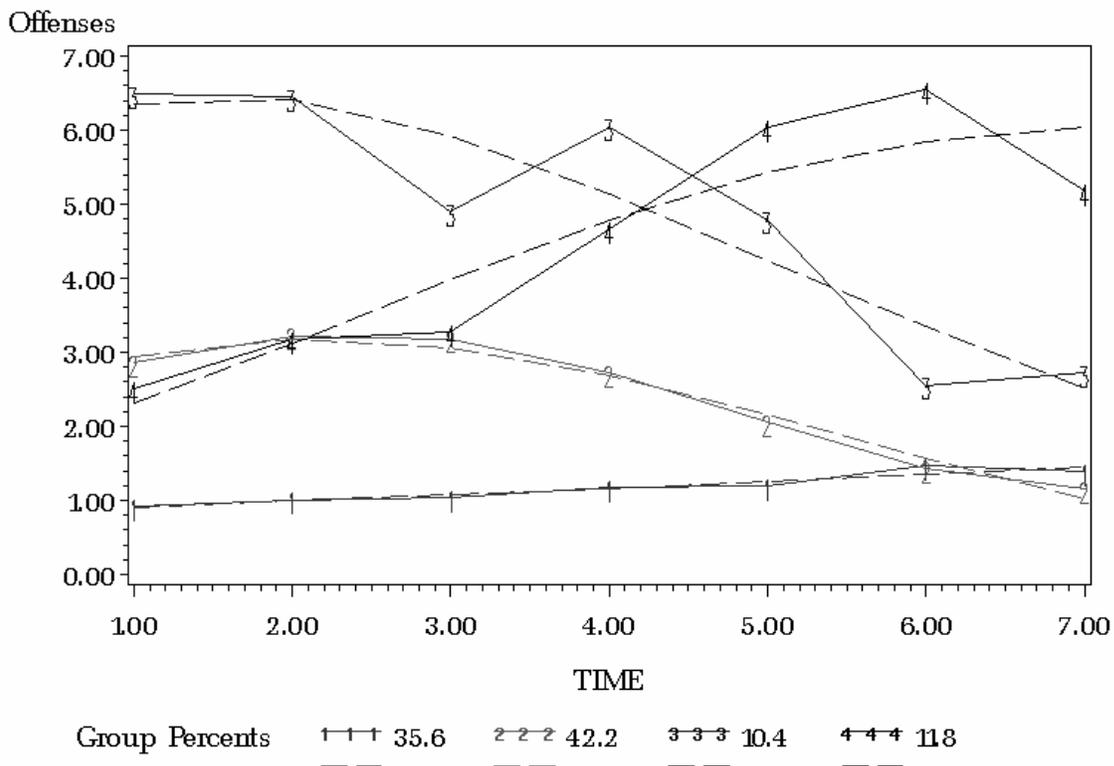


Figure 7.2. Total crime white sample trajectory model

Table 7.4 presents the results of multinomial logistic regression for total crime white parolee sample. Nine variables emerged as significant. Among Juvenile Measures, IQ and Age at

First Arrest were significant. The sign of the coefficient for IQ was positive for Groups 1 and 2, indicating that white parolees with higher IQ scores were more likely to be in the Low Chronic or De-escalation groups compared to the Escalation group. The coefficient for Age at First Arrest was positive for Group 1, indicating that white parolees that were older at first arrest were more likely to be in the Low-Chronic group compared to the Escalation group.

Among Family Measures, both Father Criminality and Sibling Criminality were significant and negative for white parolees. This indicates that white parolees whose father and siblings that were less likely to be criminal were more likely to be in the High-Chronic De-escalation and De-escalation groups, respectively, compared to the Escalation group.

Only one independent variable emerged as significant among CYA Measures. Job Training was significant for Group 1. The sign of the coefficient was negative for offending Group 1. This would indicate that white CYA parolees that were less likely to receive job training while incarcerated in the CYA were more likely to be in the Low-Chronic group compared to the Escalation group.

Among the Post-release measures, three variables emerged as significant. Heroin Use was significant and negative for Group 2, which indicates that white parolees that were less likely to use heroin were more likely to be in the De-escalation group compared to the Escalation group. Marriage was positive and significant for Group 1, indicating that white parolees that were more likely to be married were more likely to be in the Low-Chronic group than the Escalation group. The last significant independent variable in the white sample full model was Age at Release. The coefficient was negative for Group 3, which indicates that younger white parolees at time of release from the CYA were more likely to be in the High-Chronic De-escalation group compared to the Escalation group.

Table 7.4. Total crime white sample multinomial logistic regression model

	GROUP 1			GROUP 2			GROUP 3		
	Low Chronic			De-escalator			High Chronic De-escalator		
	(n=90)			(n=107)			(n=25)		
	B	Exp(B)	Wald	B	Exp(B)	Wald	B	Exp(B)	Wald
<b>JUVENILE MEASURES</b>									
IQ Score	<b>0.101</b>	<b>1.107</b>	<b>7.266 **</b>	<b>0.097</b>	<b>1.101</b>	<b>6.828 **</b>	0.014	1.014	0.091
Grade	0.188	1.207	0.909	0.280	1.323	2.395	0.018	1.019	0.007
Psychological Status	0.024	1.024	0.001	-0.702	0.495	0.671	-0.289	0.749	0.086
Juvenile Alcohol Use	0.283	1.328	0.090	-0.402	0.669	0.189	0.769	2.157	0.464
Juvenile Drug Use	-0.017	0.983	0.000	0.846	2.329	0.513	-1.656	0.191	1.073
Age at First Arrest	<b>0.330</b>	<b>1.391</b>	<b>3.016 *</b>	0.074	1.076	0.170	0.238	1.269	1.163
<b>FAMILY MEASURES</b>									
Family Intact	-0.124	0.883	0.023	-1.027	0.358	1.681	0.446	1.561	0.218
Family Welfare	-0.278	0.757	0.052	0.729	2.072	0.369	-0.444	0.641	0.101
Number of Siblings	0.227	1.255	1.551	0.143	1.154	0.639	0.055	1.057	0.074
Father Criminality	-3.088	0.046	2.354	-2.752	0.064	2.351	<b>-3.383</b>	<b>0.034</b>	<b>3.175 *</b>
Mother Criminality	1.008	2.740	0.265	2.121	8.336	1.078	1.692	5.430	0.584
Sibling Criminality	-1.118	0.327	1.413	<b>-1.815</b>	<b>0.163</b>	<b>3.910 **</b>	-1.277	0.279	1.376
<b>CYA MEASURES</b>									
Length of Incarceration	-0.002	0.998	0.007	0.022	1.023	0.966	-0.048	0.954	1.875
Escape Attempts	0.203	1.225	0.049	-0.073	0.929	0.007	-0.029	0.972	0.001
Job Training	<b>-1.685</b>	<b>0.185</b>	<b>3.960 **</b>	-0.897	0.408	1.188	-1.484	0.227	2.031
Educational Training	1.178	3.249	2.021	0.997	2.710	1.590	0.447	1.563	0.240
<b>POST RELEASE MEASURES</b>									
Post Release Alcohol Use	-0.012	0.988	0.005	0.076	1.079	0.252	0.138	1.147	0.576
Post Release Heroin Use	-0.271	0.762	1.916	<b>-0.440</b>	<b>0.644</b>	<b>5.683 **</b>	-0.125	0.883	0.381
Post Release Marriage	<b>0.346</b>	<b>1.413</b>	<b>3.363 *</b>	0.172	1.188	0.859	-0.195	0.823	0.655
Post Release Employment	0.316	1.372	1.267	0.314	1.369	1.250	0.058	1.059	0.031
Age at Release	0.672	1.958	2.084	0.567	1.762	2.165	<b>0.836</b>	<b>2.307</b>	<b>3.440 *</b>

Group 4 is Reference Group (n=32)

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

## Total Crime Black Sample

Figure 7.3 and Table 7.5 present the results of the total crime black parolee sample. SGM identified a four trajectory group model based on the lowest absolute BIC. Based on the individual patterns of offending trajectories, Group 1 was a low-chronic offending group that committed about one crime per year across all seven time periods. Group 2 was an escalating group that committed two crimes at Time 1 but by Time 7 they were committing more than three crimes. Group 3 was a de-escalating group that started out at a high rate of five crimes at Time one but by Time 7 they decreased to about one crime. Group 4 was a high-chronic escalation group that started at two crimes at Time 1 but by Time 7 they were committing over eight crimes.

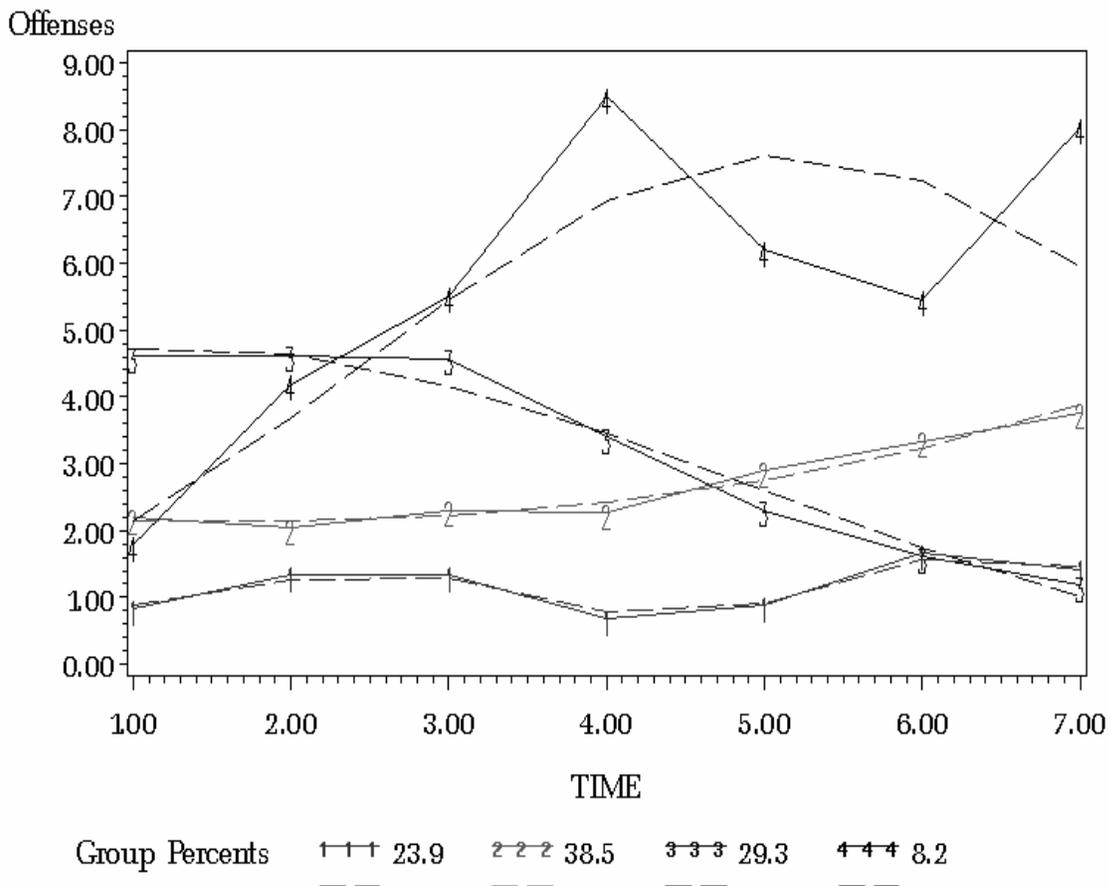


Figure 7.3. Total crime black trajectory model

Table 7.5. Total crime black sample multinomial logistic regression model

	GROUP 1 Low Chronic (n=47)			GROUP 2 Escalation (n=67)			GROUP 3 De-escalation (n=50)		
	B	Exp(B)	Wald	B	Exp(B)	Wald	B	Exp(B)	Wald
<b>JUVENILE MEASURES</b>									
IQ Score	0.053	1.055	0.909	0.023	1.023	0.225	0.068	1.071	1.733
Grade	0.571	1.771	1.546	-0.018	0.982	0.002	0.304	1.355	0.533
Psychological Status	0.130	1.139	0.007	-0.102	0.903	0.006	-0.110	0.895	0.006
Juvenile Alcohol Use	-2.009	0.134	1.141	-0.314	0.731	0.054	0.953	2.594	0.431
Juvenile Drug Use	0.429	1.536	0.077	-1.014	0.363	0.662	-0.809	0.445	0.353
Age at First Arrest	0.364	1.440	0.909	-0.181	0.834	0.483	-0.308	0.735	1.107
<b>FAMILY MEASURES</b>									
Family Intact	<b>2.647</b>	<b>14.113</b>	<b>3.013 *</b>	0.432	1.540	0.134	1.163	3.201	0.883
Family Welfare	<b>-4.952</b>	<b>0.007</b>	<b>2.567 *</b>	-3.129	0.044	1.138	-3.639	0.026	1.508
Number of Siblings	0.339	1.404	1.401	0.047	1.048	0.035	0.275	1.316	1.087
Father Criminality	2.057	7.821	0.615	0.297	1.346	0.028	2.672	14.466	1.362
Mother Criminality	-1.102	0.332	0.053	-2.335	0.097	0.286	-1.469	0.230	0.111
Sibling Criminality	1.701	5.477	1.188	-0.700	0.497	0.304	0.218	1.244	0.026
<b>CYA MEASURES</b>									
Length of Incarceration	<b>-0.041</b>	<b>0.960</b>	<b>2.835 *</b>	<b>-0.029</b>	<b>0.971</b>	<b>2.667 *</b>	<b>-0.052</b>	<b>0.949</b>	<b>5.038 **</b>
Escape Attempts	<b>-3.268</b>	<b>0.038</b>	<b>3.716 *</b>	-0.987	0.373	0.795	-0.726	0.484	0.390
Job Training	1.528	4.610	0.840	0.600	1.822	0.206	-0.010	0.990	0.000
Educational Training	-2.008	0.134	1.441	-1.947	0.143	2.033	<b>-2.550</b>	<b>0.078</b>	<b>3.138 *</b>
<b>POST RELEASE MEASURES</b>									
Post Release Alcohol Use	-0.126	0.881	0.364	-0.169	0.845	1.158	-0.006	0.994	0.001
Post Release Heroin Use	<b>-1.191</b>	<b>0.304</b>	<b>6.458 **</b>	-0.297	0.743	1.158	-0.262	0.770	0.783
Post Release Marriage	<b>-1.105</b>	<b>0.331</b>	<b>5.498 **</b>	-0.123	0.884	0.218	-0.250	0.779	0.739
Post Release Employment	<b>1.712</b>	<b>5.541</b>	<b>4.347 **</b>	-0.553	0.575	1.250	-0.465	0.628	0.757
Age at Release	<b>-1.326</b>	<b>0.265</b>	<b>3.066 *</b>	-0.297	0.743	0.257	0.265	1.303	0.172

Group 4 is Reference Group (n=14)

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

As illustrated in Table 7.5, eleven variables emerged as significant. None of the Juvenile Measures achieved statistical significance at either the .05 or .10 level, however, two Family Measures did; Family Intact and Family Welfare. The coefficient for Family Intact was positive and significant for Group 1, which indicates that black parolees that were raised in households with both parents were more likely to be in the Low-Chronic group than the High Chronic Escalating group. Family welfare was significant but the sign of the coefficient was negative for Group 1. This indicates that black parolees that had a family more likely to not receive welfare when they were juveniles were more likely to be in the Low-Chronic group compared to the High-Chronic Escalating group.

Among CYA Measures, three variables emerged as significant. Length of Incarceration was significant and negative for Groups 1 through 3, which indicates parolees that were incarcerated for shorter periods were more likely to be in the Low-Chronic, Escalation, or De-escalation group compared to the High-Chronic Escalation group. Escape Attempts was also significant for Group 1. The negative coefficient indicates that parolees that were less likely to attempt an escape while in the CYA were more likely to be in the Low-Chronic group than the High-Chronic Escalation group. Educational Training was significant and negative for Group 3, which suggests that black parolees that were less likely to receive educational training were more likely to be in the De-escalation group compared to the High-Chronic Escalation group.

Four variables were significant among Post-release Measures. Heroin Use, had a negative coefficient for Group 1. This would indicate that black parolees that were less likely to use heroin after release were more likely to be in Low-Chronic group compared to the High-Chronic Escalation group. Likewise, Marriage was also negative and significant, which indicates that black parolees that were less likely to be married were more likely to be in the Low-Chronic

group than the High-Chronic Escalation group. Employment was also significant. The negative coefficient for Group 1 would suggest that black parolees that were less likely to be employed were more likely to be in the Low-Chronic group compared to the High-Chronic Escalation group. Finally, Age at Release was also significant and negative, which indicates that black parolees that were released from the CYA at a younger age were more likely to be in the Low-Chronic group compared to the High-Chronic Escalation group.

### **Total Crime Hispanic Sample**

Figure 7.4 and Table 7.6 present the results of the total crime Hispanic parolee sample. Three trajectory groups were identified by SGM based on the lowest absolute BIC. Group 1 was a low-chronic offending group that committed about one crime per year in each of the seven years after release. Group 2 was a de-escalating group that committed about four crimes at Time 1 but by Time 7 they decreased to about one crime. Group 3 was a high-chronic offending group that initially committed about three crimes at Time 1 but by Time 5 they increased to nine crimes and then decreased to about five crimes by Time 7. As such, the three groups are labeled as follows: 1) Low-Chronic, 2) De-escalation, and 3) High-Chronic.

As shown in Table 7.6 three variables emerged as significant in the total crime Hispanic parolee multinomial logistic regression model. This is perplexing given the amount of crime committed and the strong probabilities of Hispanic parolees belonging to their respective trajectory groups. On the other hand, as discussed below in the violent and non-violent offending models, disaggregation of offending by crime type seems to illustrate stronger correlations between the independent variables and trajectory group membership.

Among Juvenile Measures, only one independent variable emerged as significant. Juvenile Drug Use was significant and negative for Group 2. The negative coefficient for Group 2

indicates that Hispanic parolees who were less likely to use drugs as juveniles were more likely to be in the De-escalation group compared to the High-Chronic group.

Escape Attempts was the only independent variable that emerged as significant among the CYA Measures. The negative sign on the coefficient for Group 1 indicates that Hispanic parolees who were less likely to attempt an escape were more likely to be in the Low-Chronic group than the High Chronic group.

Finally, among the Post-release Measures, only Heroin Use emerged as significant. The negative sign on the coefficient for Group 1 suggests that Hispanic parolees that were less likely to use heroin after release from the CYA were more likely to be in the Low-Chronic group compared to the High-Chronic group.

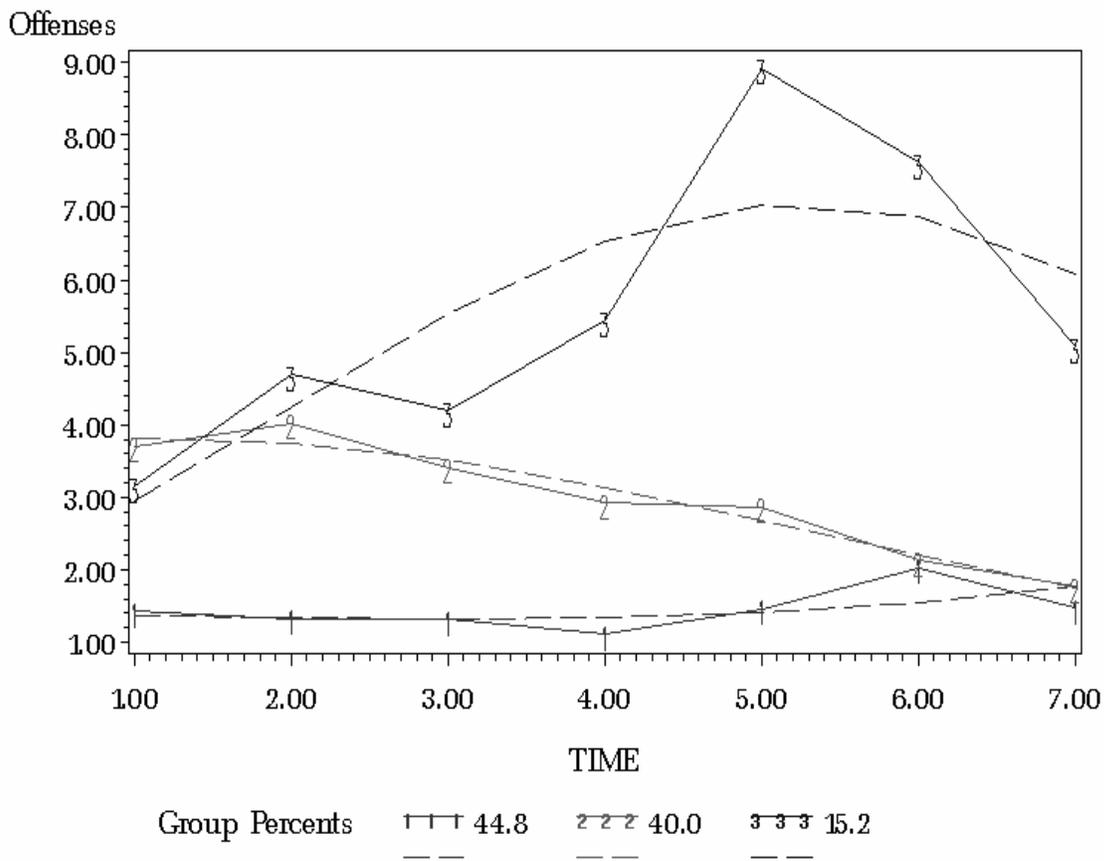


Figure 7.4. Total crime Hispanic sample trajectory model

Table 7.6. Total crime Hispanic sample multinomial logistic regression model

	GROUP 1 Low Chronic (n=38)			GROUP 2 De-escalation (n=35)		
	B	Exp(B)	Wald	B	Exp(B)	Wald
<b>JUVENILE MEASURES</b>						
IQ Score	0.062	1.064	0.561	0.071	1.074	0.870
Grade	0.306	1.357	0.167	-0.467	0.627	0.574
Psychological Status	2.517	12.390	0.969	-1.439	0.237	0.446
Juvenile Alcohol Use	2.162	8.688	1.007	1.705	5.499	0.946
Juvenile Drug Use	-2.450	0.086	0.775	<b>-4.194</b>	<b>0.015</b>	<b>2.825 *</b>
Age at First Arrest	0.433	1.542	0.810	0.253	1.288	0.731
<b>FAMILY MEASURES</b>						
Family Intact	-2.451	0.086	0.758	-0.225	0.798	0.015
Family Welfare	0.341	1.406	0.024	0.012	1.012	0.000
Number of Siblings	0.251	1.285	0.332	-0.320	0.726	0.656
Father Criminality	1.366	3.921	0.343	2.423	11.276	1.399
Mother Criminality	-4.688	0.009	0.663	-5.015	0.007	0.762
Sibling Criminality	-1.150	0.316	0.232	1.030	2.801	0.337
<b>CYA MEASURES</b>						
Length of Incarceration	0.044	1.045	0.421	-0.050	0.951	0.888
Escape Attempts	<b>-3.917</b>	<b>0.020</b>	<b>4.307 **</b>	-0.947	0.388	0.413
Job Training	-2.486	0.083	1.486	-1.976	0.139	1.351
Educational Training	-0.727	0.483	0.182	-0.667	0.513	0.183
<b>POST RELEASE MEASURES</b>						
Post Release Alcohol Use	-0.328	0.720	0.911	0.209	1.233	0.593
Post Release Heroin Use	-0.909	0.403	2.421	-0.595	0.552	1.686
Post Release Marriage	0.473	1.605	0.886	-0.466	0.627	0.983
Post Release Employment	0.969	2.635	1.626	-0.382	0.682	0.482
Age at Release	-0.812	0.444	0.416	1.252	3.499	1.815

Group 3 is the Reference Group (n=13)

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

### Non-violent Crime

As illustrated in Figure 7.5, SGM identified a four-group trajectory model. However, noticeably different than earlier models was the amount of variation of the actual trajectory around the expected trajectory for one of the groups. Unlike the first three groups, Group 4 deviated much more around the expected trajectory (the dashed line). This is mostly like because Group 4 is a very small trajectory group in terms of group size (see Table 7.3). Although this should not affect interpretation of the models, the literature indicates that trajectory models are

stronger when there is less error between the expected and actual trajectories. In any event, this was not a problem in this study since there were very few individual trajectory groups that noticeably varied around their expected trajectories.

### **Non-violent Crime Full Sample**

As illustrated in Figure 7.5, there are four trajectories. Group 1 was a low-rate chronic offending group that steadily committed about one non-violent crime per year for each of the seven years after release. Group 2 was an escalating offending group that initially committed less than two non-violent crimes at Time 1 but by Time 7 they were committing more than three offenses per year. Group 3 was a deescalating offending group. Between Time 1 and Time 3 they committed more than three non-violent crimes per year but by Time 7, their offending decreased by more than half to about one per year. Group 4 was a high-rate chronic offending group. This group initially began offending at slightly more than four non-violent crimes at Time 1. They then increased to over five crimes by Time 2, decreased slightly by Time 3 but then increased sharply between Times 3 and 5 to nearly eight non-violent offenses per year. Between Times 5 and 7, they decreased back to about five crimes but were still the highest rate offenders in the model. As such, the four groups are labeled as follows: 1) Low Chronic, 2) Escalation, 3) De-escalation, and 4) High Chronic.

Table 7.7 summarizes the results from multinomial logistic regression for the non-violent crime full sample. Nine variables emerged as significant. Race was significant and positive for blacks in the Escalation group compared to the High Chronic group. Specifically, black parolees were more likely to be in the Escalation group compared to the High-Chronic group . Among the juvenile risk factors, two variables were significant. IQ was positive and significant for Group 1, which suggests that parolees with higher IQs were more likely to be in the Low-Chronic group than the High-Chronic group. Age at first arrest (age of onset) was also significant

and positive, which indicates that parolees that were arrested for a later in adolescence were more likely to be in the Escalation group compared to the High Chronic group.

Among the family measures, only Number of Siblings was significant at either the .05 or .10 level. The positive sign indicates parolees that had more siblings were more likely to be in the Escalation group compared to the High-Chronic group.

Two incarceration variables were significant. Both Escape Attempts and Job Training were positive and significant. This indicates that parolees that attempted more escapes from the CYA were more likely to be in the Low-Chronic group . Likewise, parolees that received job training were more likely to be in the Low-Chronic group compared to the High-Chronic group.

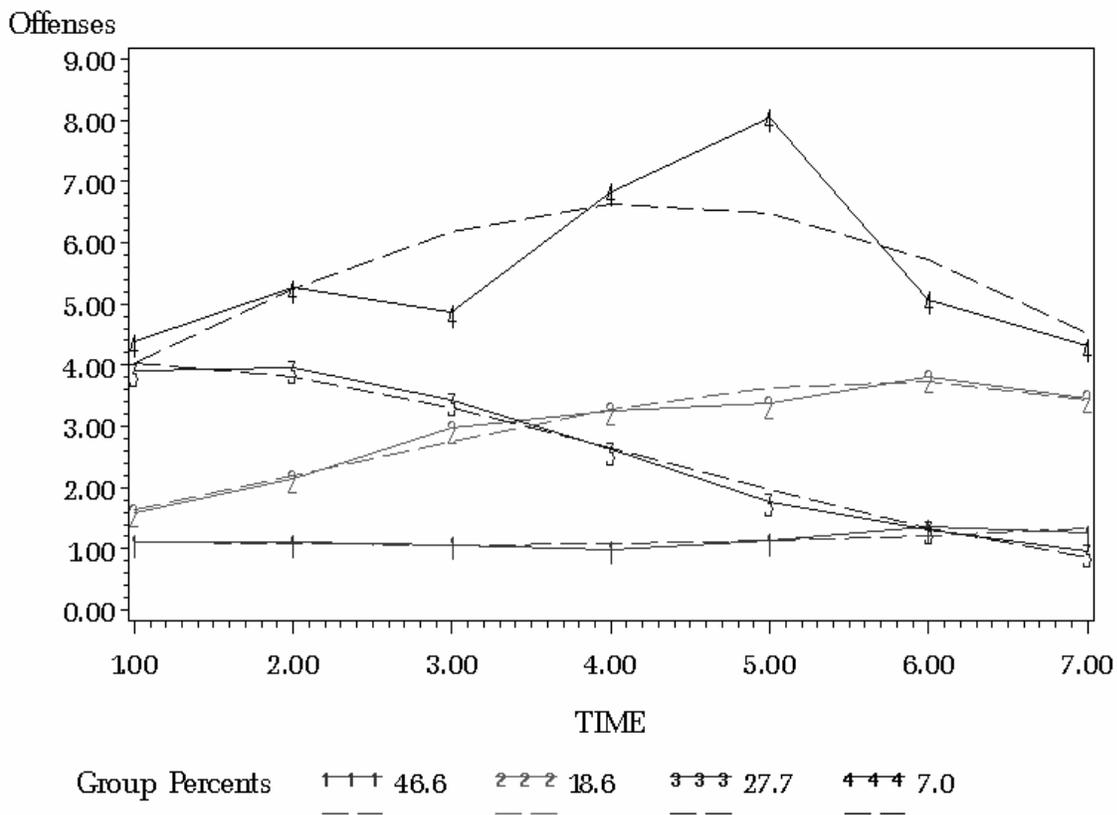


Figure 7.5. Non-violent crime full sample trajectory model

Table 7.7. Non-violent crime full sample multinomial logistic regression model

	Group 1 Low Chronic (n=241)			Group 2 Escalation Group (n=96)			Group 3 Deescalation Group (n=143)		
	B	Exp(B)	Wald	B	Exp(B)	Wald	B	Exp(B)	Wald
<b>JUVENILE MEASURES</b>									
White	0.314	1.369	0.199	1.256	3.511	2.516	0.677	1.968	0.852
Black	0.339	1.403	0.175	<b>1.689</b>	<b>5.416</b>	<b>3.701 *</b>	1.033	2.808	1.586
IQ Score	<b>0.050</b>	<b>1.052</b>	<b>3.914 **</b>	0.014	1.014	0.257	0.037	1.038	2.092
Grade	0.106	1.112	0.597	0.142	1.152	0.873	0.060	1.062	0.183
Psychological Status	0.734	2.083	1.471	0.524	1.689	0.656	0.275	1.316	0.196
Juvenile Alcohol Use	-0.022	0.978	0.001	-1.022	0.360	2.135	0.222	1.248	0.110
Juvenile Drug Use	-0.704	0.495	0.929	-0.462	0.630	0.324	-0.923	0.397	1.481
Age at First Arrest	0.150	1.162	1.791	<b>0.221</b>	<b>1.248</b>	<b>3.199 *</b>	0.070	1.073	0.383
<b>FAMILY MEASURES</b>									
Family Intact	0.058	1.059	0.011	0.335	1.398	0.323	0.580	1.785	1.039
Family Welfare	0.194	1.214	0.076	0.278	1.321	0.134	0.462	1.587	0.400
Number of Siblings	<b>0.182</b>	<b>1.199</b>	<b>2.552 *</b>	0.083	1.086	0.462	0.053	1.054	0.204
Father Criminality	-0.664	0.515	0.644	-0.812	0.444	0.847	-0.239	0.788	0.079
Mother Criminality	-3.217	0.040	1.370	-1.852	0.157	0.430	-2.510	0.081	0.821
Sibling Criminality	0.224	1.251	0.139	0.506	1.659	0.629	0.585	1.794	0.935
<b>CYA MEASURES</b>									
Length of Incarceration	0.008	1.008	0.408	-0.019	0.981	1.729	-0.011	0.989	0.634
Escape Attempts	-1.598	0.202	6.587	-1.009	0.365	2.387	-0.942	0.390	2.211
Job Training	<b>-1.020</b>	<b>0.361</b>	<b>2.774 *</b>	-0.735	0.480	1.267	-0.575	0.562	0.839
Educational Training	0.349	1.417	0.394	0.728	2.071	1.480	-0.190	0.827	0.113
<b>POST RELEASE MEASURES</b>									
Post-Release Alcohol Use	0.072	1.075	0.466	0.015	1.015	0.018	0.112	1.118	1.082
Post-Release Heroin Use	<b>-0.221</b>	<b>0.802</b>	<b>3.439 *</b>	-0.071	0.932	0.315	<b>-0.222</b>	<b>0.801</b>	<b>3.343 *</b>
Post-Release Marriage	0.190	1.210	1.752	0.124	1.132	0.673	0.023	1.023	0.023
Post-Release Employment	<b>0.437</b>	<b>1.548</b>	<b>3.106 *</b>	0.138	1.148	0.270	0.335	1.398	1.793
Age at Release	-0.062	0.940	0.061	<b>-0.462</b>	<b>0.630</b>	<b>2.908 *</b>	0.111	1.118	0.192

Group 4 High Chronic (n=36) is the Reference Group

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

Among the post-release measures, Heroin Use and Post-release Employment significantly predicted membership in the Low-Chronic group compared to the High-Chronic Group. Heroin use was negative, suggesting that parolees that were less likely to use heroin were more likely to be in the Low-Chronic group. Heroin Use was also significant and negative for Group 3, which indicates that parolees that were less likely to use heroin after release were more likely to be in the De-escalation group compared to the High-Chronic group. Employment was also negative. Parolees that were less likely to be fully employed were more likely to be in the Low-Chronic group compared to the High-Chronic group.

### **Non-violent Crime White Sample**

Figure 7.6 and Table 7.8 summarize the results of SGM and multinomial logistic regression for the non-violent crime white parolee sample. SGM identified four offending trajectory groups based on the lowest absolute BIC. Group 1 was a low-chronic offending group that committed one crime per year for all seven years. Group 2 was an escalating trajectory group that initially offended at one crime at Time 1 but by Time 6, increased to about four crimes. By Time 7, this group decreased to about three crimes. Group 3 was a de-escalating trajectory group that initially committed between three and four crimes at Time 1 but by Time 7 they decreased to about one crime. Group 4 was a high chronic offending group that committed between four and six crimes each year between Times 1 and 7, however, as Figure 7.6 illustrates, the actual trajectory varied around the expected trajectory more noticeably than the other groups. This did not affect interpretation of the results or the trajectory group model. Further analysis revealed that nearly all of the parolees had a .7 or higher posterior membership probability. Nonetheless, based on the trajectory patterns illustrated in Figure 7.6, the four trajectory groups as were labeled as follows: 1) Low Chronic 2) Escalation 3) De-escalation 4) High Chronic.

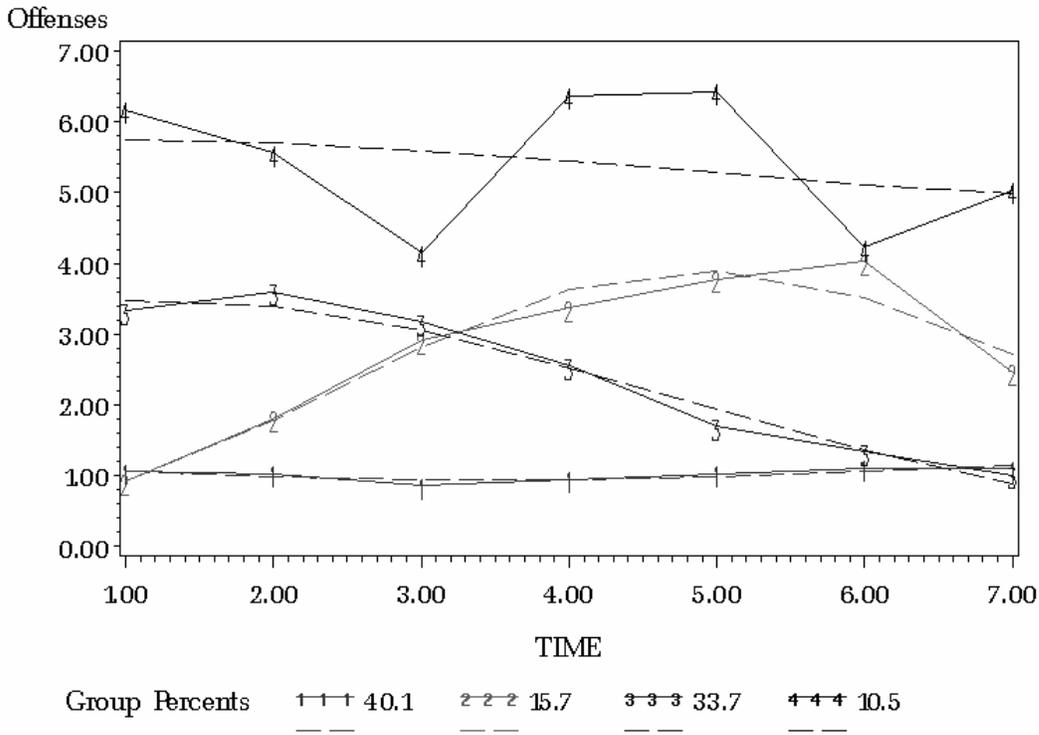


Figure 7.6. Non-violent crime white sample trajectory model

Table 7.8 presents the results of multinomial logistic regression for the non-violent crime white sample. Thirteen variables emerged as significant in the model. Among Juvenile Measures, IQ and Juvenile Drug Use were both significant. IQ was positive, which indicates that white parolees that had higher IQ scores than lower IQ scores were more likely to be Low Chronic offending group than in the High-Chronic offending group. Likewise, white parolees that were more likely to use alcohol as a juvenile were more likely to be in the Low-Chronic offending group than the High-Chronic offending group.

Among the family measures, only Sibling Criminality was significant, but it was for both the Low-Chronic group and the Escalation group. The positive sign for suggests that white parolees whose siblings were more likely to have a criminal record were more likely to be in the Low-Chronic and Escalation offending groups than the High-Chronic offending groups.

Table 7.8. Non-violent crime white sample multinomial logistic regression model

	GROUP 1 Low Chronic (n=102)			GROUP 2 Escalation (n=40)			GROUP 3 De-escalation (n=86)		
	B	Exp(B)	Wald	B	Exp(B)	Wald	B	Exp(B)	Wald
<b>JUVENILE MEASURES</b>									
IQ Score	<b>0.087</b>	<b>1.091</b>	<b>4.080 **</b>	0.005	1.005	0.014	0.020	1.020	0.239
Grade	-0.111	0.895	0.229	-0.002	0.998	0.000	-0.177	0.838	0.690
Psychological Status	0.643	1.903	0.418	0.977	2.657	0.918	-0.021	0.979	0.001
Juvenile Alcohol Use	-0.720	0.487	0.526	-0.923	0.398	0.763	-0.292	0.747	0.097
Juvenile Drug Use	<b>2.169</b>	<b>8.747</b>	<b>2.586 *</b>	0.004	1.004	0.000	0.653	1.922	0.254
Age at First Arrest	0.020	1.020	0.009	-0.023	0.977	0.011	0.001	1.001	0.000
<b>FAMILY MEASURES</b>									
Family Intact	-0.244	0.784	0.063	0.276	1.318	0.072	0.143	1.154	0.024
Family Welfare	-0.979	0.376	0.527	-0.133	0.875	0.009	0.308	1.361	0.049
Number of Siblings	0.254	1.289	1.518	0.089	1.093	0.159	0.092	1.096	0.217
Father Criminality	-1.576	0.207	1.360	-2.016	0.133	1.898	-1.353	0.259	1.089
Mother Criminality	-1.520	0.219	0.899	-0.572	0.565	0.083	3.747	42.405	0.699
Sibling Criminality	<b>1.706</b>	<b>5.505</b>	<b>3.165 *</b>	<b>1.689</b>	<b>5.413</b>	<b>2.673 *</b>	0.757	2.131	0.734
<b>CYA MEASURES</b>									
Length of Incarceration	0.048	1.049	2.428	-0.027	0.974	0.583	0.024	1.025	0.670
Escape Attempts	<b>-1.768</b>	<b>0.171</b>	<b>3.086 *</b>	-0.063	0.939	0.003	-1.259	0.284	1.648
Job Training	<b>-2.237</b>	<b>0.107</b>	<b>4.868 **</b>	-0.384	0.681	0.128	-1.021	0.360	1.178
Educational Training	<b>2.370</b>	<b>10.694</b>	<b>5.761 **</b>	1.289	3.629	1.525	1.156	3.179	1.552
<b>POST RELEASE MEASURES</b>									
Post-Release Alcohol Use	0.063	1.066	0.118	<b>0.301</b>	<b>1.352</b>	<b>2.592 *</b>	0.216	1.241	1.613
Post-Release Heroin Use	-0.079	0.924	0.186	0.016	1.016	0.006	-0.132	0.876	0.616
Post-Release Marriage	<b>0.535</b>	<b>1.708</b>	<b>4.863 **</b>	<b>0.548</b>	<b>1.731</b>	<b>4.674 **</b>	0.229	1.258	0.961
Post-Release Employment	<b>0.908</b>	<b>2.479</b>	<b>3.628 *</b>	<b>0.819</b>	<b>2.269</b>	<b>2.875 *</b>	<b>0.906</b>	<b>2.475</b>	<b>3.889 **</b>
Age at Release	-0.226	0.797	0.387	-0.582	0.559	0.559	-0.208	0.380	0.380

Group 4 High Chronic offending is the Reference Group (n=26)

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

Three variables emerged as significant among the CYA Measures. Escape Attempts was negative, which indicates that white parolees that were less likely to attempt an escape from the CYA were more likely to belong to the Low-Chronic offending group than the High-Chronic group. Both Job Training and Educational Training were also significant. The sign for Job Training was negative, which indicates that white parolees that did not receive job training were more likely to be in the Low-Chronic group than the High-Chronic group., On the other hand, white parolees that did receive educational training were also more likely to be in the Low-Chronic group than the High-Chronic group.

Six variables were significant among the Post-release Measures. Alcohol Use was positive and significant for group two, which indicates that white parolees who were more likely to use alcohol after release were more likely to be in the Escalation group compared to the High-Chronic group. Post-release Marriage was positive and significant for Group 1 and Group 2. This indicates that white parolees that were more likely to be married after release from the CYA were more likely to be in the Low Chronic and Escalation groups compared to the High-Chronic group. Post-release Employment was significant and positive for groups 1 through 3. This indicates that white parolees that were more likely to be employed after release from the CYA were more likely to be in the Low-Chronic, Escalation, or De-escalation groups compared to the High-Chronic group.

### **Non-violent Crime Black Sample**

Figure 7.7 and Table 7.9 present the results of SGM and multinomial logistic regression for non-violent crime trajectory groups for the black parolee sample. SGM identified a three trajectory group model based on the lowest absolute BIC. Group 1 was a low-chronic offending group that committed about one crime per year in each of the seven years after release. Group 2 was a de-escalating group that initially committed four crimes at Time 1 but by Time 7 they

decreased to one crime. Group 3 was an escalating group that initially committed one crime at Time 1 but increased to over five crimes by Time 4. They remained at about four crimes through Time 7. Based on the offending patterns the three groups were labeled as follows: 1) Low Chronic, 2) De-escalation, and 3) Escalation.

Table 7.9 presents the results of multinomial logistic regression for the non-violent crime black parolee sample. In the entire model, six variables in this model emerged as significant. Among Juvenile Measures, only Psychological Status was significant but it was for both the Low chronic and De-escalation groups. The positive sign of the coefficient for both Group 1 and Group 2 indicates that black parolees that were diagnosed with a psychological problem were more likely to be in both the Low Chronic and De-escalation groups compared to the Escalation group.

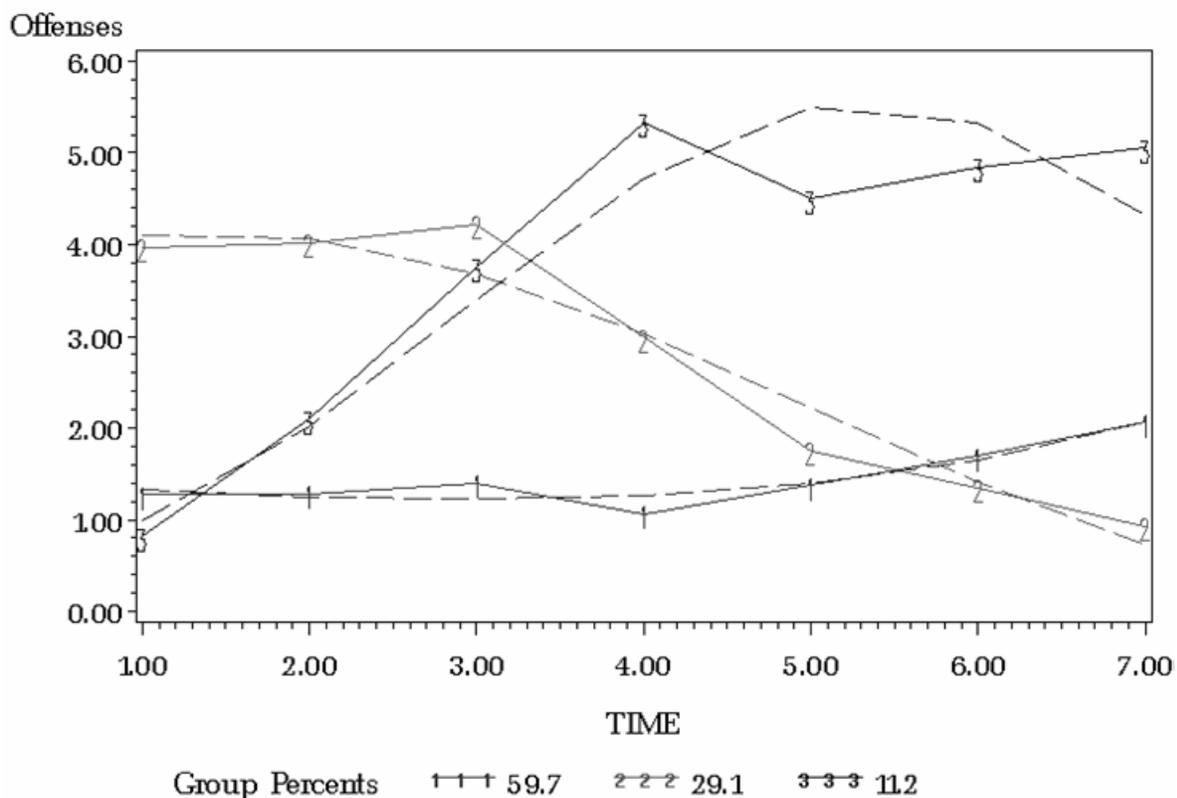


Figure 7.7. Non-violent crime black sample trajectory model

Table 7.9. Non-violent crime black sample multinomial logistic regression model

	GROUP 1 Low Chronic n=103			GROUP 2 Deescalation n=50		
	B	Exp(B)	Wald	B	Exp(B)	Wald
<b>JUVENILE MEASURES</b>						
IQ Score	0.004	1.004	0.010	0.002	1.002	0.003
Grade	-0.225	0.798	0.709	-0.139	0.870	0.207
Psychological Status	<b>2.839</b>	<b>17.101</b>	<b>6.371 **</b>	<b>2.903</b>	<b>18.235</b>	<b>5.610 **</b>
Juvenile Alcohol Use	1.369	3.931	1.870	1.364	3.913	1.547
Juvenile Drug Use	-1.083	0.339	1.128	-0.250	0.779	0.048
Age at First Arrest	0.126	1.134	0.425	-0.010	0.990	0.002
<b>FAMILY MEASURES</b>						
Family Intact	-0.018	0.982	0.001	0.688	1.989	0.554
Family Welfare	0.239	1.270	0.034	0.153	1.165	0.013
Number of Siblings	0.098	1.103	0.332	0.100	1.105	0.299
Father Criminality	-0.449	0.638	0.075	0.266	1.304	0.018
Mother Criminality	-3.648	0.026	0.949	-3.681	0.025	0.940
Sibling Criminality	-0.169	0.845	0.036	<b>1.526</b>	<b>4.600</b>	<b>2.407 *</b>
<b>CYA MEASURES</b>						
Length of Incarceration	-0.016	0.984	1.140	<b>-0.041</b>	<b>0.960</b>	<b>3.414 *</b>
Escape Attempts	-0.311	0.733	0.144	-0.190	0.827	0.045
Job Training	-0.053	0.949	0.003	0.144	1.154	0.019
Educational Training	<b>-1.643</b>	<b>0.193</b>	<b>2.780 *</b>	<b>-2.705</b>	<b>0.067</b>	<b>6.089 **</b>
<b>POST RELEASE MEASURES</b>						
Post Release Alcohol Use	0.082	1.086	0.315	0.044	1.045	0.069
Post Release Heroine Use	-0.034	0.966	0.031	0.033	1.033	0.021
Post Release Marriage	-0.249	0.780	1.605	-0.241	0.786	1.049
Post Release Employment	-0.012	0.988	0.001	0.104	1.109	0.057
Age at Release	-0.396	0.673	0.842	0.211	1.235	0.188

Group 3 Escalation is the Reference Group (n=20)  
 Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

One Family Measure was also significant. Sibling Criminality was positive and significant for Group 2, which indicates that black parolees that were more likely to have siblings that committed crime were more likely to be in the De-escalation group than the Escalation group.

Three CYA Measures were also significant in this model. Length of Incarceration was significant and negative for the De-escalation group, which indicates that black parolees that were incarcerated in the CYA for a shorter period were more likely to be in the De-escalation group compared to the Escalation group. Educational Training was also significant and negative

for Group 1 and Group 2. This indicates that black parolees that were less likely to receive educational training while in the CYA were more likely to be in the Low Chronic and De-escalation groups compared to the Escalation group.

### **Non-violent Crime Hispanic Sample**

Figure 7.8 and Table 7.10 illustrate the results of SGM and multinomial logistic regression for the non-violent offending Hispanic parolee sample. A three trajectory group model was identified based on the lowest absolute BIC. Group 1 was a low-rate chronic offending group that committed between one and two crimes per year for across all seven years after release. Group 2 was a de-escalating group that initially committed about four crimes at Time 1 but decreased to about one crime by Time 7. Group 3 was a high chronic escalating group that initially committed about three crimes at Time 1, increased to about seven crimes by Time 4, but decreased to about four crimes by Time 7. Based upon offending patterns in the model, the three groups were labeled as follows: 1) Low Chronic, 2) De-escalation and 3) High Chronic.

Table 7.10 illustrates the results of multinomial logistic regression for the Hispanic non-violent offending sample. Ten variables emerged as significant. Among Juvenile Measures, IQ was significant for Group 2. This indicates that Hispanic parolees that had higher IQ scores were more likely to be in the De-escalation group compared to the High-Chronic group. Juvenile Alcohol Use was also significant and positive but for Group 1. This indicates that Hispanic parolees that were more likely to use alcohol after release were more likely to be in the Low Chronic group compared to the High Chronic group.

Among Family Measures, two variables emerged as significant. Family Welfare was negative, which indicates that Hispanic parolees whose families were less likely to receive welfare were more likely to be in the De-escalation group than the High Chronic group. Father Criminality was also significant but positive for Group 2. This indicates that Hispanic parolees that were less

likely to have a father that was criminal were more likely to be in the De-escalation group compared to the High Chronic group.

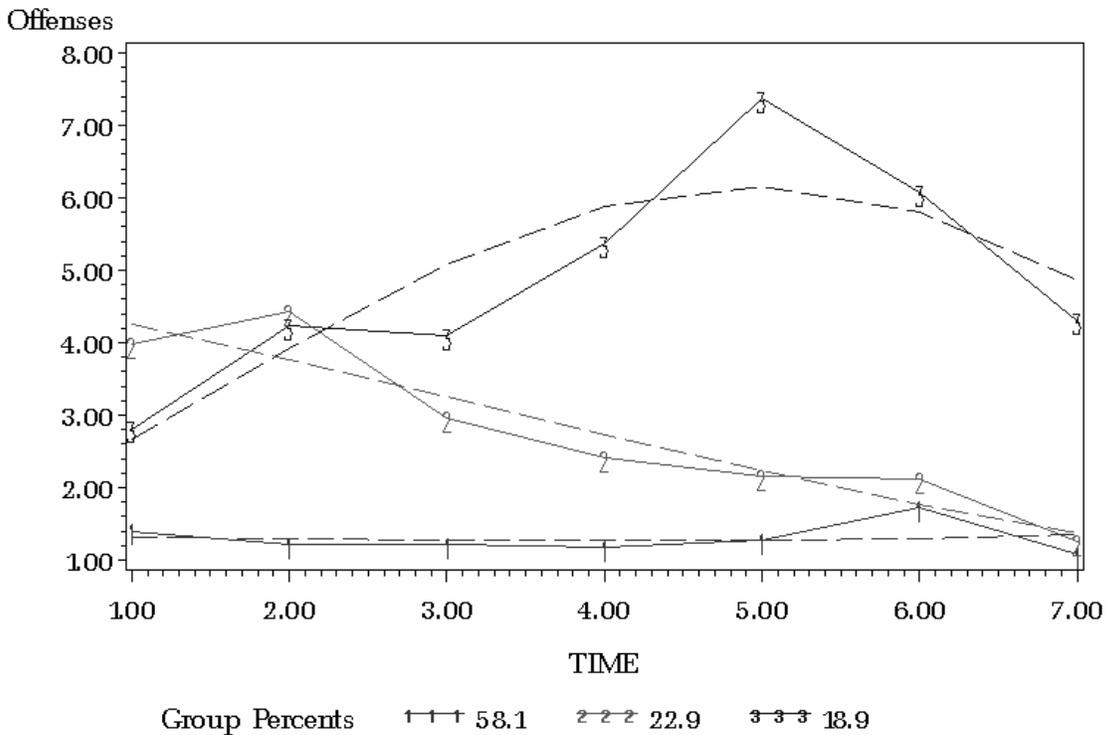


Figure 7.8. Non-violent crime Hispanic sample trajectory model

Among CYA Measures, only Length of Incarceration significant. The negative sign of the coefficient for Group 2 indicates that Hispanic parolees that were incarcerated in the CYA for a shorter period were more likely to be in the De-escalation group compared to the High Chronic group.

Among Post-release Measures, four variables were significant. Post release Heroin Use was significant and negative for both the Low Chronic and De-escalation groups, which indicates that Hispanic parolees that were less likely to use heroin after release from the CYA were more likely to be in the Low Chronic or De-escalation groups compared to the High Chronic group. Post- release Marriage was significant and negative for group two, indicating that Hispanic

parolees that were less likely to be married were more likely to be in the De-escalation group compared to the High Chronic group. Post-release Employment was significant and positive for Group 2. This indicates that Hispanic parolees that were more likely to be employed were more likely to be in the De-escalation group compared to the High-Chronic group. Likewise Age at Release was also significant and positive for Group 2. This indicates that older Hispanic parolees that were released from the CYA when they were older parolees were more likely to be in the De-escalation group compared to the High Chronic group.

Table 7.10. Non-violent crime Hispanic sample multinomial logistic regression model

	GROUP 1 Low Chronic (n=50)			GROUP 2 De-escalation (n=20)		
	B	Exp(B)	Wald	B	Exp(B)	Wald
<b>JUVENILE MEASURES</b>						
IQ Score	0.189	1.208	1.279	<b>0.386</b>	<b>1.472</b>	<b>2.924 *</b>
Grade	0.589	1.802	0.171	-1.948	0.142	1.420
Psychological Status	6.405	604.738	2.058	-4.882	0.008	0.768
Juvenile Alcohol Use	<b>6.003</b>	<b>0.824</b>	<b>2.908 *</b>	-1.362	0.256	0.144
Juvenile Drug Use	-1.799	0.166	0.105	-2.399	0.091	0.099
Age at First Arrest	1.123	3.074	1.238	0.006	1.006	0.000
<b>FAMILY MEASURES</b>						
Family Intact	-2.414	0.089	0.135	-8.547	0.000	1.828
Family Welfare	3.900	0.399	0.995	<b>-11.707</b>	<b>0.000</b>	<b>5.372 **</b>
Number of Siblings	0.484	1.622	0.402	<b>-3.462</b>	<b>0.031</b>	<b>6.398 **</b>
Father Criminality	-1.809	0.164	0.114	<b>11.375</b>	<b>1.979</b>	<b>4.008 **</b>
Mother Criminality	-3.673	0.025	0.127	-7.741	0.000	0.498
Sibling Criminality	1.734	5.665	0.180	6.744	0.095	2.182
<b>CYA MEASURES</b>						
Length of Incarceration	0.035	1.036	0.070	<b>-0.364</b>	<b>0.695</b>	<b>2.882 *</b>
Escape Attempts	-3.425	0.033	1.272	-2.406	0.090	0.319
Job Training	-5.957	0.003	2.267	-7.374	0.001	3.610
Educational Training	-3.499	0.030	0.851	-4.585	0.010	1.468
<b>POST RELEASE MEASURES</b>						
Post Release Alcohol Use	-0.695	0.499	1.522	-0.415	0.660	0.497
Post Release Heroin Use	<b>-1.886</b>	<b>0.152</b>	<b>2.748 *</b>	<b>-1.867</b>	<b>0.155</b>	<b>2.693 *</b>
Post Release Marriage	0.552	1.736	0.551	<b>-2.090</b>	<b>0.124</b>	<b>3.359 *</b>
Post Release Employment	-0.059	0.942	0.003	0.365	1.440	0.033
Age at Release	-2.828	0.059	1.842	<b>3.736</b>	<b>1.930</b>	<b>2.781 *</b>

Group 3 High Chronic is the Reference Group (n=17)

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

## Violent Crime

Figures 7.9 through 7.12 present the results of the SGM trajectories. Tables 7.11 through 7.14 present the results of binary logistic regression for violent offending. For all four samples, a two-trajectory group model was identified.

### Violent Crime Full Sample

As illustrated in Figure 7.5, SGM identified a two trajectory group model based on the lowest absolute BIC. Group 1 was a desisting group. Group 2 was a low-rate offending group. Because it remained steady at around one crime per year for all seven years, it was considered a Low Chronic group. The two groups were labeled as follows: 1) Desister, 2) Low-Chronic. Table 7.11 summarizes the results of violent offending for the full sample. Seven variables emerged as significant. Race/Ethnicity was significant and positive, which indicates that black and Hispanic parolees were more likely to be in the Low-Chronic group than in the Desister group.

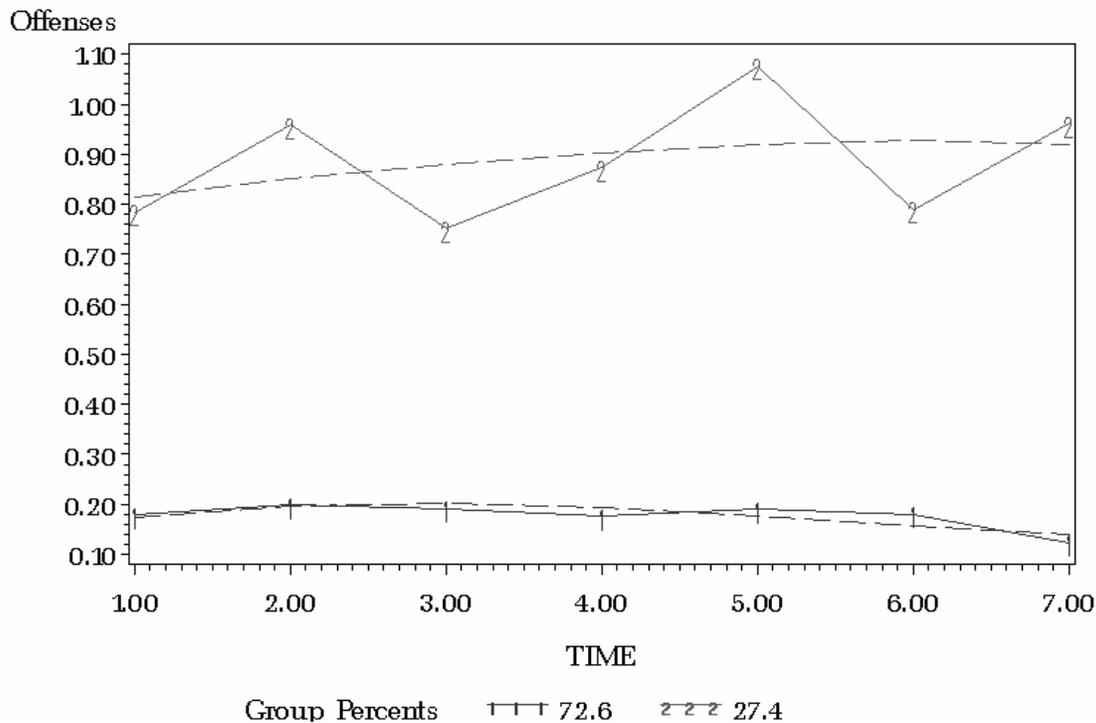


Figure 7.9. Violent crime full sample trajectory model

Race was positive and significant for the violent crime full model. This indicates that Hispanic and black parolees were more likely to be in the Low-Chronic offending group compared to the Desister group. Notably, this finding requires more scrutiny in the disaggregated models. Only Juvenile Drug Use was significant among the Juvenile Measures. The negative sign of the coefficient indicates that parolees that were less likely to use drugs were more likely to be in the Low-Chronic group compared to the Desister group.

The Family Measures had two variables emerge as significant in the full sample. Family Intact was positive, which indicates that those parolees whose families were more likely to be intact when they were juveniles were more likely to be in the Low-Chronic group compared to the Desister group. Likewise, Sibling Criminality was also positive and significant, indicating that parolees that had criminal siblings were more likely to be in the Low-Chronic group than the Desister group.

Among the CYA Measures, only Length of Incarceration was significant. The positive sign of the coefficient indicates that the longer the parolee was incarcerated in the CYA the more likely they were to belong to the Low-Chronic violent offending group than the Desisting group. Lastly, Alcohol Use and Heroin Use were significant among the Post-release Measures. The positive sign for alcohol use suggests that the more likely the offender was to consume alcohol after release, the more likely they were to belong to the Low-Chronic violent offending group compared to the High Chronic group.

Heroin use was also significant. However, the sign of the coefficient for post-release Heroin Use was negative. This indicates that parolees that were less likely to use heroin at any point after release were more likely to belong to the Low-Chronic violent offending group compared to the Desister group.

Table 7.11. Violent crime full sample logistic regression model

	<b>B</b>	<b>Exp(B)</b>	<b>Wald</b>
<b>RACE/ETHNICITY</b>	<b>0.506</b>	<b>1.659</b>	<b>6.949 **</b>
<b>JUVENILE MEASURES</b>			
IQ Score	-0.009	0.991	0.516
Grade	0.127	1.135	2.485
Psychological Status	-0.446	0.640	2.066
Juvenile Alcohol Use	0.298	1.347	0.819
Juvenile Drug Use	<b>-0.084</b>	<b>0.920</b>	<b>3.706 *</b>
Age at First Arrest	-0.059	0.943	1.056
<b>FAMILY MEASURES</b>			
Family Intact	<b>0.441</b>	<b>1.554</b>	<b>2.643 *</b>
Family Welfare	-0.288	0.750	0.685
Number of Siblings	-0.061	0.941	1.295
Father Criminality	0.213	1.237	0.337
Mother Criminality	0.153	1.166	0.089
Sibling Criminality	<b>0.477</b>	<b>1.612</b>	<b>2.898 *</b>
<b>CYA MEASURES</b>			
Length of Incarceration	<b>0.017</b>	<b>1.017</b>	<b>8.981 **</b>
Escape Attempts	-0.178	0.837	0.453
Job Training	-0.261	0.770	0.853
Educational Training	-0.232	0.793	0.670
<b>POST RELEASE MEASURES</b>			
Post Release Alcohol Use	<b>0.110</b>	<b>1.117</b>	<b>5.169 **</b>
Post Release Heroin Use	<b>-0.113</b>	<b>0.893</b>	<b>3.855 **</b>
Post Release Marriage	-0.015	0.985	0.052
Post Release Employment	-0.057	0.944	0.298
Age at Release	-0.057	0.945	0.199

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

### Violent Crime White Sample

Figure 7.10 shows the violent crime trajectories and Table 7.12 illustrates the results of binary logistic regression for the sample of white parolees. Model selection for the white parolee sample, however, was not based on the lowest absolute BIC because there would not have been any variation in the dependent variable with a one trajectory group model. Thus, because the BIC for the two-group model was only marginally higher, the two-group model was selected. The two groups identified by SGM were a desisting group that averaged less than .2 crimes per year and a low-chronic group that fluctuated between .8 and 1.1 crimes per year across all seven years.

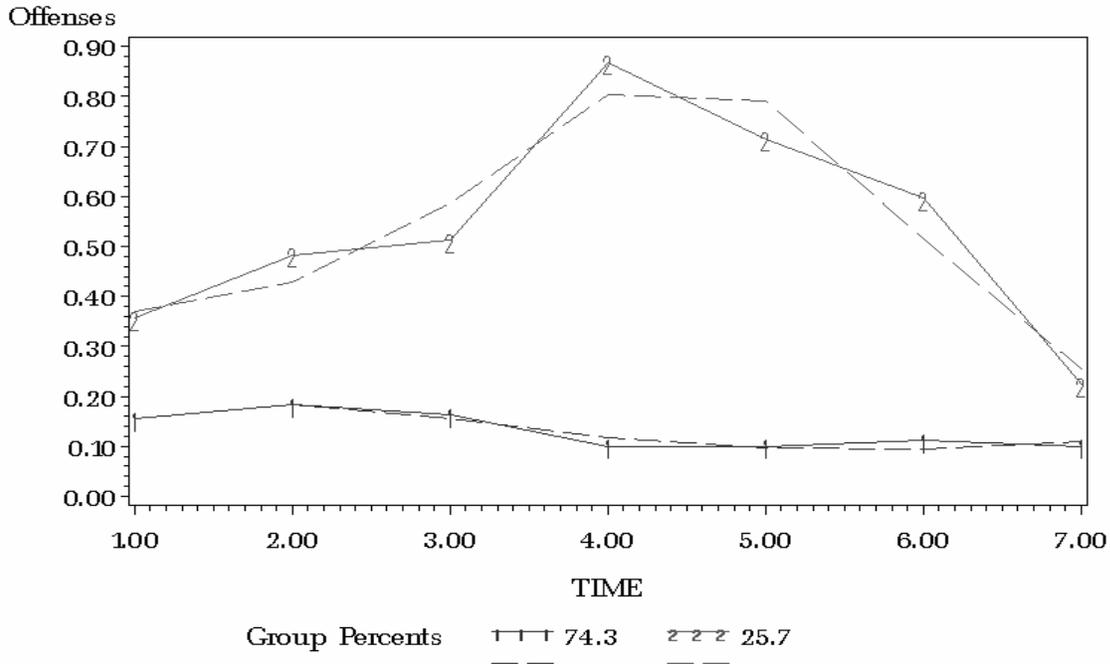


Figure 7.10. Violent crime white sample trajectory model

Based on the patterns of offending identified by SGM, the two groups were labeled as followed:

- 1) Desister and 2) Low-Chronic.

Table 7.12 presents the results of binary logistic regression of white parolee violent offending. Three variables emerged as significant. Among the Juvenile Measures, Psychological Status was the only significant variable. The coefficient was positive, which indicates that white parolees that were more likely to be diagnosed with a psychological disorder were more likely to belong to the Low-Chronic group compared to the Desister group.

Among the Juvenile Measures, only Mother Criminality as significant. The sign on the coefficient was positive, which indicates that white parolees whose mothers were more likely be a criminal when they were juveniles were more likely to belong to the Low-Chronic group compared to the Desister group. Of the remaining variables, only Escape Attempts was significant. The negative sign of the coefficient suggests that parolees that were less likely to

attempt an escape from the CYA were more likely to be in the Low-Chronic violent offending group.

Table 7.12. Violent crime white sample logistic regression model

	<b>B</b>	<b>Exp(B)</b>	<b>Wald</b>
<b>JUVENILE MEASURES</b>			
IQ Score	-0.015	0.985	0.332
Grade	0.093	1.097	0.458
Psychological Status	<b>1.977</b>	<b>7.223</b>	<b>9.690 **</b>
Juvenile Alcohol Use	-0.129	0.879	0.042
Juvenile Drug Use	0.732	2.080	0.853
Age at First Arrest	-0.016	0.984	0.019
<b>FAMILY MEASURES</b>			
Family Intact	-0.054	0.948	0.008
Family Welfare	0.304	1.356	0.158
Number of Siblings	0.017	1.017	0.019
Father Criminality	-1.171	0.310	2.042
Mother Criminality	<b>2.906</b>	<b>18.284</b>	<b>6.308 **</b>
Sibling Criminality	-0.080	0.923	0.020
<b>CYA MEASURES</b>			
Length of Incarceration	0.021	1.021	2.354
Escape Attempts	<b>-1.182</b>	<b>0.307</b>	<b>4.065 **</b>
Job Training	0.211	1.236	0.151
Educational Training	-0.332	0.717	0.386
<b>POST RELEASE MEASURES</b>			
Post Release Alcohol Use	0.042	1.043	0.173
Post Release Heroin Use	-0.049	0.952	0.146
Post Release Marriage	-0.061	0.940	0.279
Post Release Employment	0.081	1.085	0.230
Age at Release	0.291	1.338	1.392

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

### **Violent Crime Black Sample**

Figure 7.11 illustrates the results of SGM for the black parolee violent crime sample and Table 7.13 presents the results of binary logistic regression. Two trajectories were identified by SGM. Group 1 was a desisting group that averaged less than .2 crimes per year for all seven years. Group 2 was a low-rate chronic group that averaged between .78 and 1.0 crime per year for all seven years. They were labeled as follows: 1) Desister and 2) Low Chronic.

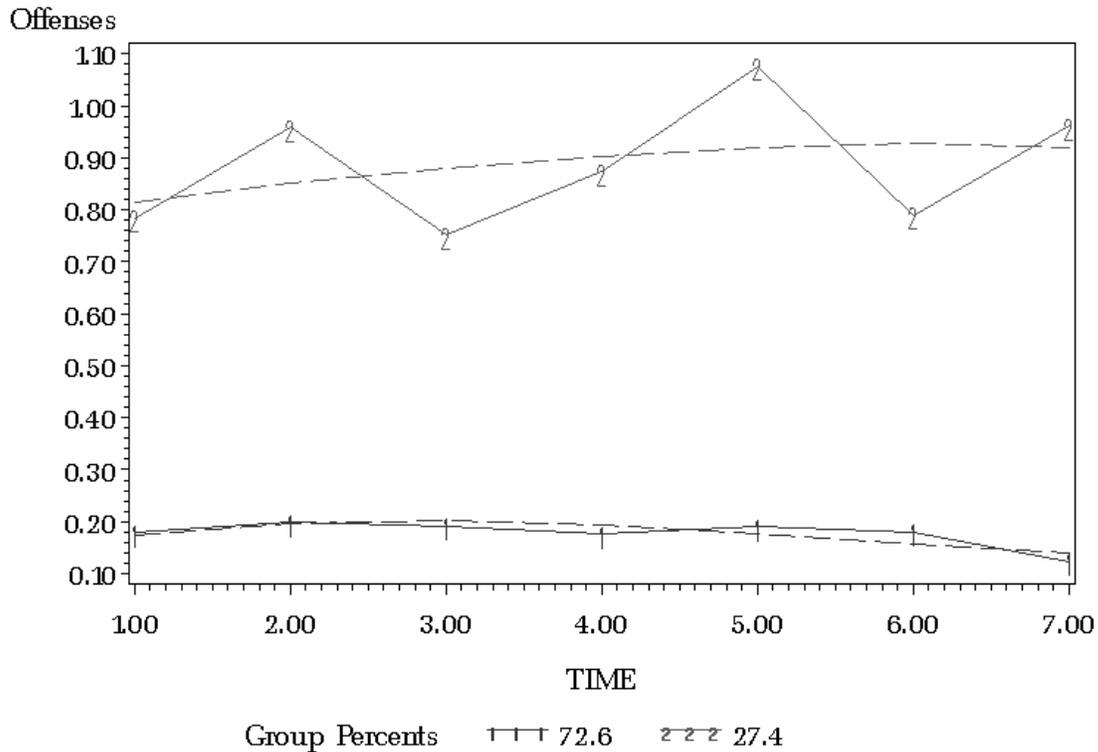


Figure 7.11. Violent crime black sample trajectory model

Table 7.13 illustrates the binary logistic regression results for the violent crime black sample. Three variables were significant in this model. Among Juvenile Measures, only Grade was significant. The positive sign of the coefficient indicates that black parolees who had higher reading and math scores were more likely to be in the Low Chronic group compared to the Desister group.

Father Criminality was the only significant variable among the Family Measures. The positive sign of the coefficient indicates that black parolees that had a father that was criminal when they were juveniles were more likely to belong to the Low-Chronic group compared to the Desister group.

Although no CYA Measures were significant, one Post-release Measure was. Post-release Employment was significant and the coefficient was negative, which indicates that black

parolees that were less likely to be gainfully employed after release were more likely to be in the Low-Chronic group compared to the Desister group.

Table 7.13. Violent crime black sample logistic regression model

	<b>B</b>	<b>Exp(B)</b>	<b>Wald</b>
<b>JUVENILE MEASURES</b>			
IQ Score	-0.010	0.990	0.220
Grade	<b>0.414</b>	<b>1.513</b>	<b>3.393 **</b>
Psychological Status	0.857	2.357	2.097
Juvenile Alcohol Use	-0.108	0.897	0.758
Juvenile Drug Use	-0.896	0.408	1.927
Age at First Arrest	0.784	2.191	1.243
<b>FAMILY MEASURES</b>			
Family Intact	0.350	1.419	0.445
Family Welfare	0.282	1.326	0.197
Number of Siblings	0.013	1.013	0.018
Father Criminality	<b>1.633</b>	<b>5.120</b>	<b>2.619 *</b>
Mother Criminality	0.492	1.635	0.347
Sibling Criminality	-0.746	0.474	1.721
<b>CYA MEASURES</b>			
Length of Incarceration	0.001	1.001	0.016
Escape Attempts	0.350	1.419	0.463
Job Training	-0.816	0.442	2.196
Educational Training	-0.232	0.793	0.151
<b>POST RELEASE MEASURES</b>			
Post Release Alcohol Use	0.130	1.138	1.985
Post Release Heroin Use	0.054	1.055	0.185
Post Release Marriage	0.079	1.083	0.328
Post Release Employment	<b>-0.431</b>	<b>0.650</b>	<b>2.843 *</b>
Age at Release	0.033	1.034	0.016

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

### Violent Crime Hispanic Sample

The final violent crime model examines trajectory group membership for the Hispanic parolee sample. Figure 7.12 illustrates the trajectory groups identified by SGM. Table 7.14 shows the results of binary logistic regression for trajectory group membership. Based on the lowest absolute BIC, a two trajectory group model was selected. The trajectory patterns reveal that group one averaged between .2 and .4 crimes between Times 1 and 2, decreasing steadily until nearly reaching zero by Time 7. This appears to be a desisting group. On the other hand, at

Time 1, Group 2 initial offending was nearly .45, and then it decreased slightly to .2 crimes at Time 4 than increased to 1.7 crimes by Time 7. Based on these patterns the two groups were therefore labeled as follows: 1) Desister and 2) Escalation.

As illustrated in Table 7.10, six variables emerged as significant. Among Family Measures, three variables were significant. Family Intact was positive and significant, which indicates that parolees whose families were more likely to be intact when they were juveniles were more likely to be in the Escalation group compared to the Desister group. Family Welfare was also significant. The positive sign of the coefficient suggests that Hispanic parolees whose family received welfare when they were juveniles were more likely to be in the Escalation group compared to the Desister group. Number of Siblings was also significant but the coefficient was negative, which indicates that Hispanic parolees with fewer siblings were more likely to be in the Escalation group than the Desister group.

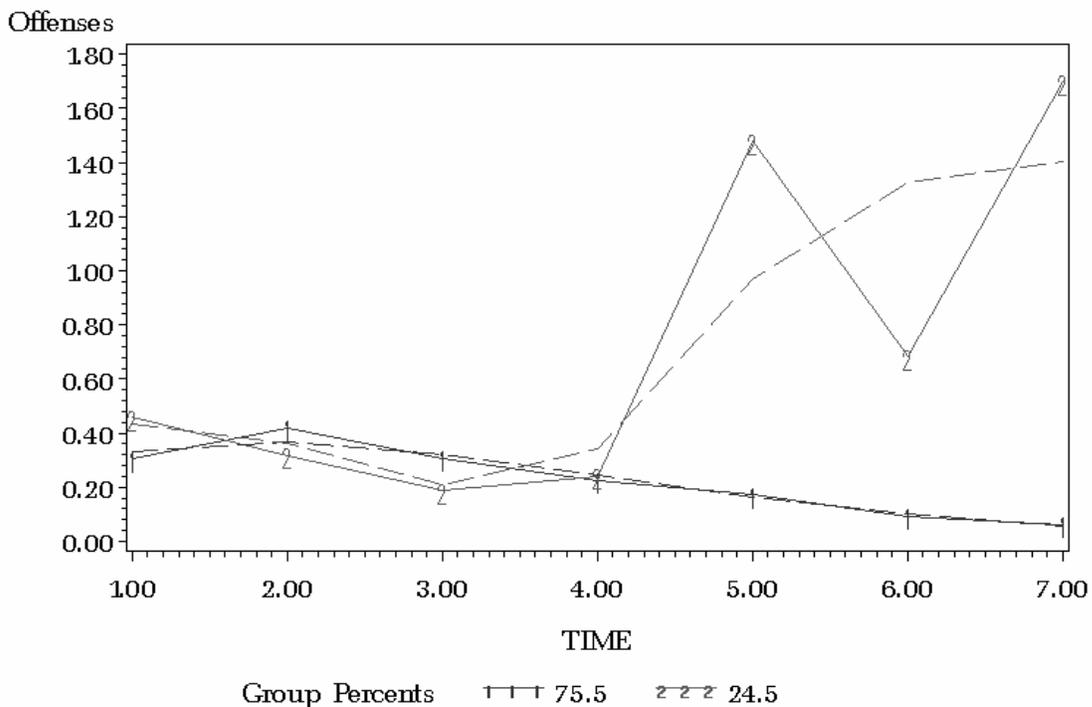


Figure 7.12. Violent crime Hispanic sample trajectory model

Table 7.14. Violent crime Hispanic sample logistic regression model

	<b>B</b>	<b>Exp(B)</b>	<b>Wald</b>
<b>JUVENILE MEASURES</b>			
IQ Score	0.076	1.079	1.053
Grade	-0.625	0.535	1.972
Psychological Status	-1.582	0.206	1.057
Juvenile Alcohol Use	-1.266	0.282	0.691
Juvenile Drug Use	-0.560	0.571	0.136
Age at First Arrest	-0.012	0.988	0.002
<b>FAMILY MEASURES</b>			
Family Intact	<b>2.582</b>	<b>13.229</b>	<b>2.774 *</b>
Family Welfare	<b>3.570</b>	<b>35.518</b>	<b>3.086 *</b>
Number of Siblings	<b>-0.553</b>	<b>0.575</b>	<b>2.679 *</b>
Father Criminality	2.006	7.432	1.521
Mother Criminality	0.929	2.532	0.167
Sibling Criminality	1.084	2.958	0.365
<b>CYA MEASURES</b>			
Length of Incarceration	0.014	1.014	0.080
Escape Attempts	-1.502	0.223	1.339
Job Training	<b>-2.886</b>	<b>0.056</b>	<b>2.668 *</b>
Educational Training	<b>4.300</b>	<b>73.685</b>	<b>4.541 **</b>
<b>POST RELEASE MEASURES</b>			
Post Release Alcohol Use	0.354	1.424	1.561
Post Release Heroin Use	-0.178	0.837	0.301
Post Release Marriage	<b>0.872</b>	<b>2.391</b>	<b>3.424 *</b>
Post Release Employment	-0.245	0.783	0.231
Age at Release	-0.065	0.937	0.013

Statistical significance: \*  $p < .10$ , \*\*  $p < .05$

Among CYA Measures, two variables were significant. Job Training had a negative coefficient, which indicates that Hispanic parolees that were less likely to receive job training while incarcerated in the CYA were more likely to belong to the Escalation group. Conversely, the coefficient for Educational Training was positive, indicating that parolees that were more likely to receive educational training while incarcerated in the CYA were more likely to belong to the Escalation group than the Desister group.

Only Marriage was significant among Post-release Measures. The positive sign of the coefficient indicates that the more likely Hispanic parolees were to be married the more likely they were to be in the Escalation group compared to the Desister group.

## CHAPTER 8 DISCUSSION AND CONCLUSION

### **Discussion**

The objective of this study was to examine offending trajectories among a group of young adults who were previously incarcerated for committing serious violent and non-violent crimes as juveniles and tracked for seven years after release from the California Youth Authority. The data were adequate for investigating key correlates of violent and non-violent offending while also comprising an adequate demographic breakdown along racial and ethnic lines, to include black, white, and Hispanic parolees. This made it possible to investigate subgroup racial/ethnic comparisons on all the independent measures across the non-violent, violent, and total crime types. Toward this end, the results produced some notable findings that bear import for current theoretical debates in life-course criminology.

First, a broad consideration of the trajectory patterns across all twelve models revealed that—consistent with prior research—this sample of offenders were more likely to commit non-violent crimes after release rather than violent crime. Not one trajectory group in any of the four non-violent models averaged less than one crime during the seven year follow-up period. Conversely, only the highest-rate violent offending groups in the full and black models consistently averaged slightly less than one violent crime over the seven years. These groups comprised only 27% and 37% of all offenders in each model, respectively.

Trajectory group modeling also revealed that overwhelmingly this sample comprised persistent offenders. Examination of the total crime full model shows that nearly 100% of the sample committed at least one crime each year for the seven years after release with only 8% of the sample averaging less than one crime per year. Only one group in this model, only the de-escalation group (29% of the sample) steadily de-escalated in offending during the follow-up

period. At Time 1 and Time 2, the de-escalation group was committing over four crimes per year, but by Time 7 they decreased to one crime. On the other hand, Group 2 and Group 4, which comprised about over 44% of offenders actually escalated in offending from Time 1 to Time 7, while Group 1 persisted steadily at about one crime per year. Indeed, only two offenders in the entire sample remained crime free the entire seven-year post follow-up while over half of the individuals in the sample committed at least fourteen crimes or more.

Examination of the non-violent models elicited some important findings as well. First, for all four non-violent offending models, there were at least three heterogeneous trajectory groups. This would suggest that there are multiple types of offenders generally and within race and ethnicity. Most notable about the non-violent offending patterns is that, similar to the total offending models, not one trajectory group averaged less than one crime per year for any of the seven years after release. For the full and white samples, over 53% and 60% of the samples, respectively, were committing over two non-violent crimes per year. For the black and Hispanic models, there were only three trajectory groups, though they too all committed over one crime per year.

The non-violent offending models also showed de-escalation in offending that steadily headed toward desistance. Each of the four distinct non-violent de-escalation groups (one group in each model) started out offending at a very high rate at Time 1, between three and four crimes, but by Time 7, they were down to one or less crimes. Alternately, there were also multiple high-rate persistent and escalating non-violent offending groups that illustrate the high frequency of non-violent offending for over 60% of the full and white samples and over 40% of the black and Hispanic samples.

## **Race/Ethnic Trajectory Differences**

The race/ethnic-specific group models showed somewhat similar patterned offending for all crime types but with important differences in violent offending rates. For the violent offending models, there were clearly two different trajectories in each racial/ethnic samples and for the overall model. However, the black sample contributed most to the overall model. Whereas both trajectory groups in the white model averaged less than one crime per year (less than .6 crimes per year for four of the years), the persistent offending group in the black sample (37% of all black parolees) averaged over one violent crime per year. The Hispanic violent crime model showed escalating offending for a small group of offenders; however, it was not significant in the overall model.

For non-violent crime, the white parolee sample had four distinct offending trajectories, while the black and Hispanic models had three each. However, in each of the racial and ethnic samples, the low-chronic persistent offending group offended at about one crime per year and they each had a de-escalation group that started offending at high rates in Time 1 (over three crimes per year) but by Time 7 they were all down to about one crime per years. The white non-violent offending model also had a high-chronic trajectory group who alternated between four and six crimes per year for the entire seven years.

## **Risk Factor Effects**

The developmental criminology literature places an emphasis on a relatively small cadre of causal mechanisms. Most prominent among them is age of onset or age of initiation into offending. In this study, as in others, age of onset was measured by the parolee's first arrest. It was significant for the non-violent full sample model only but more importantly, the direction went against what the literature would predict. That is, all else equal, those that were arrested

later were more likely to persist in offending—in this case—escalate in non-violent offending after incarceration than those that were arrested at younger ages.

Table 8.1. Summary of trajectory groups for each models and significant risk factors

	Number of Trajectories		
	Total Crime	Non-violent Crime	Violent Crime
Full Sample	4	4	2
White Sample	4	4	2
Black Sample	4	3	2
Hispanic Sample	3	3	2
	Significant Risk Factors		
	Total Crime	Non-violent Crime	Violent Crime
Full Sample	White, Black, IQ, J Drug Use, J Alcohol Use, Number of Siblings, Escape Attempts, Heroin Use, Marriage	IQ, Age at First Arrest, Escape Attempts, Job Training, Heroin Use, Employment	Race/Ethnicity, J Drug Use, Family Intact, Sibling Criminality, Length of Incarceration, Heroin Use, Alcohol Use
White Sample	IQ, Age at First Arrest, Father Criminality, Sibling Criminality, Job Training, Age at Release, Heroin Use, Marriage	IQ, J Drug Use, Sibling Criminality, Escape Attempts, Educational Training, Job Training, Alcohol Use, Marriage, Employment	Psychological Status, Mother Criminality, Escape Attempts
Black Sample	Family Intact, Family Welfare, Length of Incarceration, Escape Attempts, Education Training, Heroin Use, Marriage, Employment, Age at Release	Psychological Status, Sibling Criminality, Length of Incarceration, Educational Training	Grade, Father Criminality, Employment
Hispanic Sample	J Drug Use, Escape Attempts, Heroin Use	IQ, J Alcohol Use, Family Welfare, Number of Siblings, Father Criminality, Length of Incarceration, Heroin Use, Age at Release	Family Intact, Family Welfare, Number of Siblings, Job Training, Educational Training, Marriage

The lack of significant correlation in other offending models is at first impression a bit surprising given the importance that has been placed upon it in earlier studies. One explanation for the weak correlation across the models is that age of arrest was not tapping into differences in unexplained childhood risk factors that might lead to antisocial or aggressive behavior for some offenders or to differences in age of onset in the first place. However, the best explanation seems to be that in this sample the parolees were overwhelmingly similar regarding early onset, at least as measured by age at first arrest. Over 80% had been arrested prior to age 15, which is the low end of what is generally considered the peak age range in offending (see Farrington, 1994;

Steffensmeier and Allan, 2000). It appears that other factors such as IQ and psychological diagnosis played a more important role than the early onset of delinquency. Subsequent analysis of variance revealed only significant effects at Time 4.

Race/ethnicity was significant in all three full sample models. It predicted persistent violent offending for white and black parolees but not for Hispanics. Compared to whites, blacks were much more likely to persist steadily in violent offending at over one crime per year for all seven years, while whites did not average even one violent crime per year and were at .20 by Time 7.

Among the rest of the juvenile measures, IQ score and psychological diagnosis were both significant in five of the twelve models, which reflect some of the strongest effects on post-release offending. For example, IQ predicted persistent offending for the non-violent crime full, white and Hispanic samples, and for the total crime full and white samples. The link between IQ and offending was negative in that parolees who had higher IQs tended to display lower persistent offending or de-escalating trends relative to the higher rate or escalating trends.

On the other hand, psychological diagnosis consistently predicted persistent non violent offending for black and Hispanic parolees and deescalating violent offending for the full and white parolee models. Taken together the violent black model and total crime white model, it appears that there is some support for underlying psychological factors that link to persistent offending. I would add here that this does not definitively suggest neuropsychological deficits per Moffitt's theory, nor immutable differences in IQ as Herrnstein and Murray claim. Rather, my interpretation of the results reflects what I see as the overall pattern among these three variables, which is supported by the consistent, though not overwhelming findings.

Turning to the family measures, the results were somewhat consistent although fewer. For example, number of siblings correlated to non-violent full, total full and violent Hispanic models. Having more siblings predicted overall non-violent and total offending, but having less siblings for Hispanics linked to de-escalation in non-violent offending. However, de-escalation should not be confused with termination because the trajectory group had a high initial rate of offending at Time 1 and though it steadily declined by Time 7, the parolees were still being arrested of one non-violent crime per year. Finally, family criminality also played a small, but relatively isolated role; mainly father's and sibling's criminality. The best that could be interpreted here is that it was generally steady in predicting persistent or deescalating behavior, but not by racial/ethnic group or crime type.

Next, a further examination of the incarceration measures revealed some noteworthy findings. Length of incarceration, escape attempts, and training (both job and educational) played significant roles in predicting persistent and escalating offending. The findings suggest that the longer the parolee was incarcerated, the more persistent likely they were to persist in non-violent offending. Likewise, the more escapes the parolees attempted linked to persistent non-violent offending and total offending; of which non-violent offending shapes part of the total offending trajectories. Job training also related to non-violent offending in the way that would be predicted. Those who did not receive the training correlated to overall persistent nonviolent offending. This held for both the white and Hispanic samples.

Not receiving training also predicted an escalation in violent crime in the black parolee model. Although educational training was significant across four models, the conflicting signs on the coefficients make it difficult to interpret, especially when receiving educational training increased the likelihood of persistent non-violent offending and escalation of violent offending

for Hispanics. As a result of limitations on the data, the effects of the type or extent of job or educational training that the parolees received was not measurable. In this regard, we are left with more distal measures about the significance of training on future offending. It could very well be that they really did not receive the type of portable training that can be employed in the marketplace or that there were other factors in the parolee's lives that undermined such training.

For the post-release measures, the results highlight the significance of heroin use in offending. Parolees who were less likely to use heroin were more likely to be in a low chronic or low persistent non-violent and total crime offending trajectories. It did not correlate to any violent crime models but was significant for all total crime models in predicting persistent offending. Such findings might seem to point to the relationship between property crimes and drug use where one commits crime to support a habit.

The marriage effect was significant for four models, but went against what the literature would predict (Sampson and Laub, 2004, 1993). Generally speaking, those who were more likely to be married across the seven time periods were more likely to actually escalate in offending. This was true for white parolees' non-violent offending, and for all the total offending models. Finally, age at release was a fairly strong predictor of non-violent and total offending. Overall, those who were younger when they were released from the CYA were more likely to belong to a persisting or escalating non-violent offending group while those who were older were more likely to belong to a de-escalating offending group.

Lastly, I turn now toward investigating in a bit further detail the findings within the different racial/ethnic-specific samples. Three models stand out. First, the significant predictors in the white parolee non-violent crime model largely predicted persistent and escalating offending. For instance, the significant incarceration measures correlated with low chronic

offending for whites and the significant post-release measures more or less predicted escalating offending. On the other hand further examination of the violent Hispanic models shows that the significant predictors—in this case family measures and incarceration measures—predicted escalation in offending for Hispanic parolees. All of the independent measures, except marriage, predicted in the direction that the literature would suggest. Finally, the total crime black parolee model revealed a correlation between the post-release and family predictors and low chronic offending. They too went in the direction that the literature would predict.

### **Conclusion**

In a recent response to Sampson and Laub (2005) in *Criminology*, Nagin (2005: 875) asserted the difficulty in explaining behavioral changes over time using group-based developmental trajectories; that the difference is akin to the difference between “photography” and “cinema.” This is, to be sure, only one of numerous issues revolving around developmental studies of crime and the methodological tools used to investigate behavior over time. Setting aside for a moment some other problems with trajectory group modeling, which Sampson and Laub (2005: 905) termed misconceptions (that individuals actually belong to the trajectory groups, that the number of trajectory groups is immutable, and that “trajectories of group members follow the group-level trajectory in lock-step) these findings revealed only mixed support for any of the theories employed in this study.

For example, Moffitt (1994, 1993) posits that there are only two types of offenders, life-course persistent and adolescent-limited. Following her premise it is clear from this data that this might not be the case, at least with respect to non-violent and overall offending. In both the non-violent and total crime trajectory models, there were multiple distinct trajectories across all models, which convincingly showed different levels of offending. Moreover, the rough independent measures used to approximate Moffitt’s theory, did not perform exceptionally well.

That is, although together, Psychological status, IQ, Grade, and Age at First Arrest predicted membership in persistent offending groups, they were mainly in the non-violent and total models, and they mostly predicted low-level chronic behavior, not high-chronic behavior.

On the other hand, the violent crime trajectories clearly showed two groups of offenders for all models; one group that persisted in offending for the entire seven years and another group that showed very little or intermittent offending. The overall violent crime model was significantly influenced by black violent offending, and to a much lesser extent, white violent offending. Black parolees were more likely to show persistent behavior than whites. Yet, only one indicator, psychological status, used to predict Moffitt's theory was significant in the violent crime model, which was for the persistent offending trajectory group for black parolees. Again, the lack of empirical support for the risk factors could be the result of them not tapping into actual neuropsychological deficits or the transactional nature of family problems in dealing with children with neuropsychological deficits that makes having such deficits pathological or it could be that there are other unmeasured factors that are important to offending. There is support for Moffitt in terms of groupings. The best violent crime models (i.e. those with the lowest absolute BIC) were two-group models. There is a strong indication that there are different types of violent offenders.

Yet, mixed support for Moffitt's dual taxonomy does not necessarily mean support for self-control or age-graded theories. If anything can be extrapolated from the findings is that these theories did not fair too well either, at least with respect to the independent predictors employed in this study. Marriage, for instance, while significant in five of the models, did not predict any real change in offending, such as desistance or de-escalation. Employment was overwhelmingly insignificant and in the one model it was significant, the sign predicted opposite what theory

would predict. In addition, Gottfredson and Hirschi's contention that there are no groups is undermined somewhat, at least with respect that these were serious juvenile delinquents that had been incarcerated, all of them still offended, and there were still differences in their patterns, if not etiologies. Nevertheless, this was not necessarily a study of self-control and others might examine this same data and come to different conclusions.

With respect to the age/crime relationship, given that all of them were past the peak age in offending while showing few signs of slowing down, it seems less likely that it is simply low-self control or age-specific differences in propensity that generated their offending behavior. These offenders were all in their twenties, most in their late-twenties and thirties, thus they were past aggregate peak age in offending. Moreover, the trajectories only revealed a small percentage that seemed to be heading toward desistance and only two that actually desisted, thus also making it less likely that, at least with this sample, declines in crime is a matter of changes in frequency. These offenders showed pretty solid persistent offending into their late twenties and while it is unknowable from this data what they did after the seven years of tracking, there is a strong possibility given their prior histories that most continued to offend after Time 7.

Findings from this study point to the need for further investigation of race and ethnic differences in offending, particularly for violent crime. That marriage, for example, decreased violent offending for Hispanics but not for blacks or whites or that drug and alcohol use were significant in violent offending are important findings. With the latter, it is unclear why this would be. Perhaps cultural expectations placed on Hispanic/Latino families have a more pronounced effect when individuals marry. Conversely, the ravages of inner-city black communities that have rendered many black men unsuitable for marriage would be less likely to have an effect even if they do marry. Likewise, drug and alcohol use was an important predictor

in the full model. This should come as no surprise given the well-documented link between drug and alcohol use and offending.

As discussed in Chapter 6, drug and alcohol use links to other criminal behavior in numerous ways, that is, both directly and indirectly. Inasmuch as these parolees were as likely to be using some sort of intoxicant further substantiates the correlation. However, what cannot be inferred from the data is whether drug or alcohol use actually caused violent offending or their subsequent arrests after release from the CYA.

Non-violent trajectory patterns also revealed similar offending behaviors such that there were at least three groups of offenders across race/ethnicity. Although there was not much consistency with respect to how the risk factors operated, the findings did show strong similarities across the dependent variables in the models. On the other hand, while SGM identified two trajectory groups across race and ethnicity, it also revealed that black parolee violent behavior was largely the driving force such that further examination of these differences is necessary. However, mine is not the last word. Further analysis that takes into account residential, familial and other exogenous factors that can go a long way in further uncovering specific variation in offending that differentiates racial differences in arrests.

To be sure, there are a number of limitations in this study. Recall that Sampson and Laub (2005) recently identified three misconceptions about trajectory group modeling. In carrying out this study, these misconceptions were certainly a concern. Take the first one, that individuals actually belong to the trajectory group they are assigned (Sampson and Laub, 2005: 907). SGM is based on probabilities, which is not a problem in quantitative research. However, the degree to which individual trajectories varied from group trajectories is unknown. With any recent methodological developments, more empirical studies need to be conducted that seek to better

understand how individual trajectories comport with group trajectories. Second, group selection has been called into question. As with this study, other trajectory studies have employed Bayes Information Criteria to optimize group selection (Chung et al., 2001). Yet, some still see this as a problem because relative differences in BIC can change the outcomes in the model, thus group numbers are not “immutable” (Sampson and Laub, 2005: 907). Nevertheless, this study adhered relatively closely to the BIC, except where parsimony made logical sense to collapse groups.

There were also limitations in the data. First, the data comprised all males. The fact that females have been increasingly represented in official arrest statistics points to the importance of investigating their trajectory patterns. This takes on even more importance since they appear to be committing crimes that have been traditionally thought of as male dominated such as robbery and assault. Large-scale structural changes that have occurred during a time of increased gender equality have led to more convergence of male/female behaviors. Gender roles have been changing and more women are now in the workforce and out of their homes than at any point in history. It would follow that we would also witness changes in gendered criminal behavior. Unfortunately, this study was not suited to investigate hypotheses about female persistence and desistance.

This study was also limited by the fact that information on offending was somewhat dated. That is, these offenders were released in the 1970s and 1980s, thus there might be period-specific effects that could have potentially affected the outcomes. To fully realize the vitality of recent life-course and developmental theories, data that cover an extended period of time that goes deeper into adulthood is needed. Findings such as these should thus be historically placed. This was a period of notably increasing crime rates in the U.S. in general and in many urban centers in California. For example, total index crimes increased by over 600,000 crimes between 1970 and

1980 (violent and property crime rates increased as just as dramatically) (Bureau of Justice Statistics, 2006). Racial and economic inequality, gang activity and new drug markets such as the rise of the turf wars over crack cocaine lines also flourished.

Arguably, these findings could thus be understood better as a reflection of the problems throughout California, particularly regarding racial and ethnic differences. That black parolee violent crime drove the full sample violent crime trajectory model should not be surprising. As noted in Chapter 3, the crime rates for blacks and Hispanics have been consistently higher than whites, especially for serious crimes such as robbery and homicide. In racially and ethnically segregated places such as Los Angeles, this has been linked to notable racial differences in offending and arrests and therefore, one would expect that trajectories for blacks and to some degree, Hispanics would be more likely to reflect the overall racial and ethnic differences in offending. Yet, this was not necessarily the case for the non-violent crime model where race was insignificant for in the full sample.

Another way to place these findings in context would be to look at arrest rates, which these models are based. The “get tough” era that began in the 1970s marked a dramatic increase in arrests (see Chapter 3 for a more detailed discussion). While change in arrest patterns has affected whites, blacks, and Hispanics, they have had an especially pernicious effect on blacks and Hispanics (Petersilia, 2005; Tonry, 1995). Mandatory three-strikes laws and other such punitive legislation that has targeted serious repeat violent, property, and drug offenders seems to have played a partial, if not, substantial role in racial variations in arrest.

In addition, if this sample had been drawn from a contemporary population of offenders it is plausible that differences in offending trajectories would be even starker. There would probably be many more blacks and Hispanics in the sample than whites and their arrest rates

would be higher thus showing more persistent offending for both violent and non-violent crimes. If anything, the data for this study might underestimate offending even though overall crime rates have decreased over the past thirteen years. The structural changes discussed in Chapter 3 suggest that the black and Hispanic population in the inner city has been left worse off even while other blacks and Hispanics have benefited.

The independent measures in this data were also only rough indicators of the theories that framed this study and as the analysis revealed, they did not particularly fit the theories all that well. I recognize that there are inherent problems in using only proxy measures rather than direct measures. For example, an ideal investigation of Moffitt's theory would be to use more precise indicators of verbal and executive deficits in individuals as they interact with familial processes. This study was limited by the use of psychometric measures of IQ and personality disorders to infer about potential neuropsychological deficits and as such, linkages between them are still rather unclear in the literature.

One potential issue in that has been raised in these findings concerns juvenile alcohol use compared to juvenile drug use. Only about 36% of the sample had documented alcohol use, which was far less than the drug use of 62%. Aside from being curious, these numbers are at odds with the large body of literature on drug and alcohol use and crime. Pure speculation would lead one to possibly conclude that there is a stronger link between drug use and crime and more serious juvenile offending. Also, it could be that there were residential issues that lead to many of the parolees to choose perhaps more easily accessible drugs compared to alcohol. Most likely, it is that the juvenile drug use was a composite measure of numerous types of drugs, thus allowing for a higher probability of offenders having used drugs (of any kind) compared to alcohol. In any case, from this data a strong conclusion is unknowable.

Furthermore, family discord and other family measures are important components of Moffitt, Gottfredson and Hirschi, and Sampson and Laub's theories. For example, family criminality links in important ways to individual offending (Sampson and Laub, 1993). As such, both Sampson and Laub, and Moffitt recognize the importance of family criminality as being a potential indicator of family discord. There were few measures that link to low self-control beyond the notion that all criminality is an indicator of low self-control, a point that Aker's criticized as being tautological. There were also numerous indicators such as the family variables that each of the three theoretical positions encompass. Thus, teasing out which position was supported by such variables seems to indicate that a broad conclusion supports Gottfredson and Hirschi's contention that there is no systematic linkage of such variables to offending. That it is about one's ability to control their behavior in the presence of multiple and changing opportunities.

Lastly, since this study drew substantially from Moffitt's developmental taxonomy, the fact that all but two offenders continued offending at relatively high rates after release from the CYA indicates that they were all potential life-course persistent offenders. Despite inconclusive evidence of Moffitt's predictions about what causes LCP vs. AL offending, it would be a stretch of logic to conclude that any of the parolees except the two complete desisters were LCP. Put another way, this study did not have a comparison group of AL offenders in which to draw stronger conclusions. Moffitt's AL typology is certainly important in understanding criminal careers, particularly in making distinctions—should they exist—between different types of offenders, however it could be that Moffitt is wrong and that all offenders are potential LCP.

This investigation, however, was not only about such indicators since the theoretical and methodological disputes currently underway concerning life-course and developmental theories

are also over the existence (and number) of group differences based on patterns of offending, change, in addition to risk factors associated with them. As Sampson and Laub (2005) and Nagin (2005) debated, arguably the SGM methodology employed here might be well suited for testing Moffitt's developmental taxonomy. Whatever the merits of this methodology relative to developmental theory, it is obvious that this study is not going to settle this issue. Much more empirical work needs to occur before SGM becomes a well-entrenched, more widely accepted (and understood) methodological tool similar to that of OLS regression or other conventional techniques.

Toward this end, this study set out to examine persistence and desistance under a criminal career and developmental/life-course framework. The findings certainly revealed persistent offending, particularly for non-violent and total crime for nearly the entire sample. It also found persistence in violent offending, but it was only significant for the black and white samples, and even further, the black sample, which is arguably the strongest racial/ethnic difference in the entire study. At the same time, a substantial percentage of the sample exhibited less violent behavior patterns. This could be interpreted as proceeding toward desistance; that is, assuming they were violent before hand. Conversely, non-violent offending showed substantial persistence and a small, but notable group of de-escalators that seemed to be in the process of desisting. As mentioned above, there were only two offenders in the entire sample who did not offend after release.

In sum, this study was not meant to convincingly answer the many issues surrounding the recent developments in life-course and developmental theory nor the many questions that remain unanswered regarding the age/crime relationship. Future research will want to head in that direction by examining how exogenous factors influence persistence criminal behavior and,

likewise, how factors influence desistance or termination from offending. In keeping a narrow focus, the goal was to better understand the processes of persistent offending and desistance from offending and how extant theory predicted such processes. Notwithstanding the limitations, the findings produced only mixed results. Whether this was an effect of using only rough theoretical indicators, unsettled problems with SGM, or problems with extant theory is a matter to be taken up in future endeavors.

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## BIOGRAPHICAL SKETCH

John David Reitzel is a native New Yorker and was born in Astoria, Queens, New York City. He grew up in Astoria and in the beautiful Hudson Valley region just north of New York City. After graduating from Minisink Valley Central High School in 1987, John enlisted in the United States Navy and served aboard two ships: Commander Sixth Fleet flagship, USS Belknap (CG-26), home-ported in Gaeta, Italy and the USS Fulton (AS-11), home-ported in New London, CT. While aboard the Belknap, he was fortunate to visit numerous countries and historical sights and to have taken part in the historic Malta Summit between Mikhail Gorbachev and George H. W. Bush. John earned a number of medals and awards while in the Navy including a National Defense Service Medal, Navy Expeditionary Medal, Navy/Marine Corps Overseas Deployment Ribbon, Captain USS Fulton Letter of Commendation, and a Commander, Submarine Group Two Letter of Commendation.

After his stint in the Navy, John headed to SUNY Cortland to pursue a degree in physical education but was hooked by his first sociology course. Following some uneven years of college where he left school twice, John returned to Cortland in 1999 to finally earn his Bachelor of Arts in Sociology in May 2001. Encouraged by his professors at Cortland, John entered graduate school in May 2001 to study sociology/criminology at the University of Florida. He completed his Master of Arts in Sociology in May 2003 and his Doctorate of Philosophy in Criminology, Law & Society in December 2006. He is the author of several published journal articles and book chapters, and is currently Assistant Professor of Criminal Justice at Illinois State University. In his spare time John enjoys spending time with his wife, Kuniko, and four cats, playing sports, biking, traveling, and watching Florida Gators football and New York Yankee baseball.