ABSTRACT

Title:	CRIMINAL ONSET IN EMERGING ADULTHOOD
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Mainstream life course and developmental research focuses on the criminal careers of primarily youthful, male offenders. More recently, the increased feminist interest in gendered trajectories has shifted the research focus to the gendered criminal careers of adults. Forgotten among this research is a discussion about the criminal careers and influencing risk factors of a highly unstable population, emerging adults. In this study, I use a descriptive approach to determine if an emerging adult onset offending group exists in a nationally, representative sample of U.S. youth. Additionally, I explore the possibility of gendered offending trajectories and risk factors.

Emerging adulthood is characterized as a state of constant change and self-exploration. Yet, it is unknown whether this instability results in criminal onset. Additionally, it is unknown which emerging adult risk factors influence the offending of emerging adults. I use data from the National Youth Survey to explore these

issues. Group-based trajectory and between-wave comparison models are used to determine whether multiple, gendered and age-graded offending typologies exist among this nationally representative sample of youth. Conventional statistical tools and logistic regression models are used to identify influencing risk factors. Delinquency is measured using a ten-item variety scale.

I identify 10 gendered trajectories, five male and five female, and an emerging adult onset group made up of a very small number of individuals. For the most part, the offending trajectories and the associated risk factors of males and females are similar. However, two stable offending groups are found among the males and a group of low level risers are found among the female offending group. Gendered, emerging adult risk factors are also identified. Serious, long-term male offenders are influenced by employment variables. Serious, female offenders are influenced by their relationships with criminal associates. Emerging adult onset offending appears to be influenced by more proximate adolescent and emerging adult onset risk factors. Implications for criminal career research are discussed.

CRIMINAL ONSET IN EMERGING ADULTHOOD

By

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Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Doctorate of Philosophy
2009

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ACKNOWLEDGEMENTS

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CHAPTER 1: INTRODUCTION

When Britney Spears's released *"I'm not a girl, not yet a woman"* in 2001, it is unlikely that she was thinking about criminology in general, let alone life course and developmental research. However, at age 20, Ms. Spears's song title and lyric "I'm just trying to find the woman in me" identified and summarized a developmental stage rarely studied by criminologists, emerging adulthood.

Emerging adulthood is characterized as a state of constant change and self-exploration (Arnett 2000). For example, many emerging adults experiment with various career, relationship, and education choices. Some of these choices may have positive long term benefits, i.e. finding a life partner/spouse, obtaining a lucrative and rewarding career, etc., whereas other choices may be detrimental and lead to criminal involvement. Because emerging adults typically have less exposure to direct parental control and supervision as well as informal social controls instilled by adult roles such as marriage and careers, there may be fewer costs and deterrents to prevent the transition into crime and deviance (Arnett 2000). Criminal career research contradicts this assumption, suggesting that the opportunities introduced during emerging adulthood inspire desistance (Hagan and McCarthy 1998; Laub and Sampson 2004; Sampson and Laub 1993). Ironically, few criminologists have studied the criminal careers of emerging adults.

Traditionally, criminologists and their theories have focused on the frequency and prevalence of offending in the juvenile population (Blumstein, Cohen, Roth, and Visher 1986; Gottfredson and Hirschi 1986). More recently, life course and

developmental researchers have concentrated on explaining how within-individual change and between-individual differences account for variations in age of onset, length of criminal career, the desistance process, and level of offense seriousness (Blumstein et al. 1986; Gottfredson and Hirschi 1990; Laub and Sampson 2003; Moffitt 1993; Sampson and Laub 1993). In response to the increased availability of longitudinal data sets with adult samples, some researchers have begun to investigate the possibility of an adult onset offender. Specifically, studies have concentrated on learning more about life circumstances surrounding criminal transitions.   In particular, how similar or different are the life circumstances surrounding early, adolescent, and adult onset? How many typologies are there? And finally, does an adult onset typology exist? For the most part, careers of male offenders have dominated the investigation. This focus on males has left other lingering questions. Is crime gendered? And if so, which theory (or theories) best explain these differences? These same questions can be posed about emerging adults and their criminal careers. Furthermore, given the uniqueness of this developmental stage are there certain risk factors that increase the likelihood of offending for some emerging adults? Are *these* risk factors gendered?

A majority of adult onset studies use first arrest or conviction to measure age of onset. This method is particularly problematic. For instance, such studies show a high prevalence of adult onset offenders in the offending population. Late age of first arrest or conviction does not necessarily equate to late onset of first offense. Instead, this method may better identify individuals with more successful criminal avoidance techniques.   This raises some relevant questions.   Do these studies successfully

identify late onset offenders? How prevalent would this group be if self-reported first offense was being measured?

Using self-report data, this dissertation takes a descriptive approach to examine the phenomenon of criminal onset and within-individual change in crime participation. Specifically, I investigate the prevalence of early, adolescent, and emerging adult onset offenders, as well as within-individual changes in offending frequency during emerging adulthood in a self-reported population. Additionally, investigations into the salient, and possibly gendered, risk factors related to age-graded typologies and changes in offending frequency are conducted.

RESEARCH OVERVIEW

Criminal norms: Youthful criminals

For the most part, criminological theory has been concerned with explaining the offending careers of juveniles. The perplexities relating to the prevalence and frequency of juvenile offending have driven this research focus. For instance, though early starters comprise a small percentage of the offending population (6%), this group appears to be responsible for a majority of the crime committed. In contrast, adolescent onset offenders appear to commit fewer crimes, but are more prevalent among the general and offending populations (See Moffitt 1993; Nagin and Land 1993; Nagin, Farrington, and Moffitt 1995; Patterson and Yoerger 1993). Of highest priority has been the study of risk factors influencing each type of offender.

Risk factors influencing early and adolescent offending appear to be more proximate in nature. Individuals exposed to early childhood predispositions/risks, such as pre- and peri-natal difficulties, maternal smoking during pregnancy, parental

criminality, abuse and neglect, etc., are at greater risk of early criminal onset (Laub and Sampson 2003; Moffitt 1993; Sampson and Laub 1993). However, empirical studies find a stronger correlation between adolescent onset and adolescent peer associations, and the strains, pressures, and frustrations related to the transition into adulthood (See Moffitt 1993; Nagin and Land 1993; Nagin, Farrington, and Moffitt 1995; Patterson and Yoerger 1993).

For the most part, male and female youthful offenders appear to be influenced by the same risk factors, irrespective of their criminal typology (Moffitt, Caspi, Rutter, and Silva 2001). Unique to female offenders is the higher concentration of criminal participation occurring during adolescent years rather than during early childhood. Though offending patterns of males and females are similar, empirical studies indicate mean-level differences, with males having a higher likelihood of offending earlier in life than females and generally offending at a higher rate (Moffitt et al. 2001; Silverthorn and Frick 1999).

Gendered investigations suggest that delayed, and in some instances increased, female offending is strongly correlated to romantic, male associations (Haynie, Giordano, Manning and Longmore 2005; Moffitt et al. 2001). One longitudinal study found that, after being exiled from same-age, same-sex peer groups, adolescent females experiencing early pubertal maturity frequently associate with delinquent, older males who introduce them to a criminal lifestyle (Moffitt et al. 2001). Similarly, a second longitudinal study found a strong correlation between romantic associations and adolescent minor delinquency for both sexes, net of the influence of peer associations (Haynie et al. 2005). The magnitude of the effect was

much stronger among females and adolescents in relationships that were longer in duration. Interestingly, peer relationships were found to have a stronger effect on male delinquency. Romantic relationships were not significantly related to serious delinquency for either males or females (Haynie et al. 2005).

Alternatively, the romantic partner/adolescent onset relationship may indicate a selection effect whereby females specifically select mates that resemble who they would like to be (Giordano et al. 2002; Haynie et al. 2005; Moffitt et al. 2001). Entrance into a relationship with a criminal male is a conscious decision to make the criminal transition (Giordano, Cernovich, and Rudolph 2002; Haynie et al. 2005; Moffitt et al. 2001). Finally, there is some evidence that delayed female offending is the result of an underlying trait which stays dormant until pubertal/hormonal changes occur in adolescence (Silverthorn and Frick 1999),   More empirical tests need to be conducted to better explain the correlates of delayed youthful female onset as well as male onset in general.

Criminal anomalies: emerging adult and adult offenders

Little is known about risk factors stimulating offending during emerging adulthood. Research on adult offenders complicates matters as most of this research classifies all sample participants over the age of 18 as "adult," ignoring possible differences in the life circumstances and criminal careers of emerging and older adults. Findings from such empirical studies convolute that which is known about this unique group. Despite the lack of distinction, it can be assumed that emerging adult offenders have survived their adolescent years and the corresponding stresses, as well as had enough time to react to any early childhood predispositions, prompting the

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question: who are these criminal anomalies and why do they start or increase their offending so late in life? Studies focusing on older adult offenders provide hints to the answers of some of these questions.

An estimated 50.2% of the adult offending population is hypothesized to be non-delinquent youths who developed into adult offenders (Blumstein et al. 1986: 88). The limited research surrounding adult onset offending indicates that the criminal careers and life trajectories of this special offending population differ significantly from that of youthful offenders. For example, one study of employed adult offenders revealed that a majority at the time of offending were married homeowners with personal histories of steady employment and a college education (Weisburd, Waring and Chayett. 2001). Similarly, a study using the Racine data (Shannon 1994) found continual employment actually *increased* the probability of adult onset among males (Eggleston and Laub 2002).

The criminal careers of adult women also contradict information gained from mainstream criminal career research about youthful offenders. Data drawn from self-reports and official records suggest that a large number of females experience adult onset offending (Block, Blokland, Nieuwbeerta, van der werff 2007; Daly 1994; Farrington and Painter 2004; Kratzer and Hodgins 1999). For example, 54% of the women interviewed while detained in the Baltimore Detention Center self-reported commencing criminal activity after their eighteenth birthday (Simpson et al. 2008). Similar patterns have been found among other sample populations including: a sample of women and men convicted in New Haven Felony Court (Daly 1994), longitudinal studies of males and females in both Sweden (Kratzer and Hodgins

1999) and the Netherlands (Block et al. 2007), and official prison data (See Beck et al. 1993 and Greenfeld and Snell 1999).

The profiles of the studied women revealed that their life circumstances were similar to offenders found in Weisburd et al.'s (2001) and Eggleston and Laub's (2002) studies. More specifically, in addition to having a later age of onset and more stable conventional lifestyles and histories than those with juvenile onset, this subset of offenders had accumulated higher levels of social capital, specifically marital social capital (Simpson et al. 2008). In contrast to those with earlier ages of onset, the backgrounds of individuals in all three samples would not suggest a high risk of criminal conduct.

Adult risk factors and issues with traditional criminological explanations

Empirical tests of informal social control have revealed that both stable, quality employment and quality marriages decrease the prevalence of adult male offending and encourages crime desistance. Both employment and marriage act as protective factors by: (1) reducing or eliminating opportunities for committing street crimes; (2) providing informal social control in the form of social capital; (3) increasing one's exposure to direct social control; and (4) establishing a sense of self-worth (Horney, Osgood, and Marshall 1995; Laub and Sampson 2003; Sampson and Laub 1993; Shover 1996; Uggen 2000). Adults choosing to continue in a life of crime run the risk of damaging current and, with regards to employment, future relationships and opportunities, and devaluing/undermining current achievements (Horney et al. 1995; Laub and Sampson 2003; Sampson and Laub 1993; Shover 1996; Uggen 2000).

Findings about adult onset challenge the idea that social capital gained from quality employment and marriage insulates conforming adults from criminal behavior in adulthood (Laub and Sampson 2003; Sampson and Laub 1993). Weisburd, et al. (2001) justify the inconsistency found among their employed sample by utilizing the traditional strain approach, i.e. financial stress leads to criminal offending. While this is one explanation, it may not be the only explanation. The question remains, why do these individuals begin offending so late in life?

Much like the research on adolescent female offending, feminists adopt a differential association/social learning approach to explain the gendered phenomenon of the marriage/crime relationship. Specifically, these explanations center on the influence bad males have on adult female offending. Prior to offending, most adult females have little exposure to criminal associations *except* those linked to criminogenic male partners through dating, cohabitation, and marriage (Pettiway 1987; Ritchie 1996; Slocum, Simpson and Smith 2005; Steffensmeier and Allan 1996). For instance, pre-sentence interviews of women processed by the New Haven felony court suggest that criminal techniques, specifically those related to drug crimes, are learned from male associates (Daly 1994). Self-reports from another sample of females indicate that many women view their delinquent mates as a means to transition into a self-desired lifestyle with a self-desired identity. The males provide the skills and associations needed to make that change (Giordano et al. 2002). While this may explane the criminal onset of some women, it may not explain the criminal onset of all women. Again the question, "why do these individuals begin offending so late in life," is left unanswered.

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Challenging researchers' ability to explain risk factors correlated with emerging adult offending is the use of arrest or conviction data. This body of research indicates that this group has an average age of onset ranging between 20 and 30 years of age, the age classified as emerging adulthood (See Block, Blokland, and Nieuwbeerta, van der Werff 2007; Simpson et al. 2008; Weisburd et al. 2001). However, these adult onset offenders could have started offending prior to the documented offense, but avoided police detection. Assumptions of developmental theory suggest this may be the case.

According to developmental theorists, the majority of the general population suffers from adolescent strains, which result in teenage rebellion, implying that the majority of individuals in the general population are adolescent onset offenders (Moffitt 1993; Moffitt et al. 2001). Findings from empirical works comparing self-report and arrest data of the same sample population support this notion, revealing a crime displacement effect. Specifically, youthful offenders increase or decrease their offending frequency and level of offense seriousness during emerging adulthood (Massagolia 2006; Nagin, Farrington, and Moffitt 1995). Those increasing their offense frequency and seriousness are also more likely to increase their likelihood of police detection. If never arrested, these individuals would be classified as new offenders even though they are not.

While further research is needed to determine if an emerging adult onset offender exists, it is apparent that emerging adults are introduced to certain risk factors that influence their individual offending patterns. What emerging adulthood risk factors are more likely to encourage the criminal transition or perhaps increase

offending for some individuals? Do these risk factors vary from those affecting early and adolescent offenders? Are these risk factors gendered?

THE CURRENT STUDY

This research uses data from the National Youth Survey (Elliott 1977; Elliott 1978; Elliott 1986; Elliott 1988; Elliott 1989; Elliott 1992; Elliott 1995) to study which risk factors act as catalysts for various offending typologies in a self-reported, nationally representative sample of youth. In particular, I use semi-parametric and between-wave comparison models to determine which offending typologies, i.e. early, adolescent, or emerging adult offenders, exist in a self-reported population. Next, I determine whether these patterns are similar for both males and females. Finally, I explore whether similar risk factors are related to male and female offending among emerging adults.

In chapter 2, I review criminal career research and relevant feminist literature relating to differences in offending among the sexes and various offending typologies. Additionally, I summarize previous research using the semi-parametric trajectory model. The basis for this descriptive approach is derived from this literature. Chapter 3 details the data and statistical methods used in the dissertation. First, a description of the NYS dataset and its limitations are provided including sample characteristics, data structure, and variables used in my analysis. Finally, I use the anticipated strategy to explore the life trajectories of this group of offenders. Chapter 4 presents results of the analysis and Chapter 5 contains a discussion of the results.

CHAPTER 2: REVIEW OF THE LITERATURE

Using a descriptive approach, this dissertation explores the criminal typologies and possibly gendered risk factors influencing a representative sample of emerging adults in the United States. In this next section, I will draw from the criminal career literature and feminist work on gendered crime patterns to develop the saliency of this dissertation.

INTRODUCTION

The popularity of criminal career research exploded in the 1980s when the age-crime curve debate challenged a stagnated criminological discipline (Blumstein et al. 1986). Traditionally, criminologists interpreted the age-crime distribution as a representation of the criminal participation of the aggregate with crime appearing to be a more prevalent behavior during adolescence (Gottfredson and Hirschi 1986). Opponents disagreed claiming that, when disaggregated, age-crime curves revealed variation in the frequency of criminal participation amongst individuals, suggesting distinct types of young offenders (Blumstein et al. 1986; Farrington 1986). This interpretation gave rise to criminal career research and the search for the career criminal.

Over the past two decades, much knowledge has been gained about criminal careers and the transition into crime. However, the surge in knowledge has been accompanied by several more puzzles. Of particular interest is how many offender subgroups comprise the offending population. Some theorists suggest that the offending population is homogeneous with one causal process and one set of risk

factors influencing criminal onset, continuation, and desistance from offending for all individuals (Gottfredson and Hirschi 1990).

In contrast, early developmental/typological studies entertain the possibility of a heterogeneous criminal population with different offending groups following different offending trajectories (See Massagolia 2006; Moffitt 1993; Nagin and Land 1993; Nagin, Farrington, and Moffitt 1995; Patterson and Yoerger 1993). The specific number of offending patterns that exist among the offending population is currently unknown, as is the precise pattern of their offending trajectories. A survey of trajectory research revealed that, depending on the number of observation points and individuals included in sample populations, anywhere between two and six offending groups may exist (Piquero 2008). Constant in this research is the identification of three specific offending groups: chronic early starters, the less serious (low rate) adolescent onset offenders, and one small (depending on the sample) group of non-offenders (Piquero 2008).

Chronic early starters demonstrate antisocial and delinquent behavior at an early age. Predispositions during childhood, i.e. abuse, neglect, maternal smoking during pregnancy, delinquent siblings, etc., combined with an ill-accepting environment at later ages, i.e. disapproving peers, teachers, employers, etc., amplify the effects of these disadvantages, cutting off future pro-social opportunities (Moffitt 1993; Sampson and Laub 1993). The criminal behavior of these individuals increases in seriousness and frequency, until the offenders naturally age-out of crime (Piquero 2008). Comparatively, adolescent onset offenders do not begin offending until their teenage years. Commencement of adolescent onset has been found to be more highly

correlated with increased delinquent peer association and decreased parental supervision (Haynie et al. 2005; Moffitt et al. 2001; Warr 2002). This group of offenders is less likely to suffer from early childhood predispositions and the cumulative effects of a harsh or unaccepting environment (Piquero 2008). Consequently, the criminal careers of adolescent onset offenders are shorter and less serious.

More recently, when using a semi-parametric model to identify offending trajectories, researchers have observed a third group of offenders, late onset offenders. Commencing their criminal careers at a later age than their adolescent and early starting counterparts, this group of offenders demonstrates steady, but increasingly serious, criminal participation into their thirties (Piquero 2008). The criminal behavior of this group is unrelated to early childhood or adolescent risk factors. Instead, individual characteristics such as exposure to certain neighborhood environments influence the commencement of a late onset criminal career (Chung, Hill, Hawkins, and Gilchrist 2002). A similar group of offenders has been identified in studies using conviction or arrest data (Eggleston and Laub 2002), and in female specific studies (Daly 1994; Ritchie 1996; Simpson et al. 2008), but the validity of these findings is questionable.

Empirical work comparing self-reported offending and arrest data for individuals within the same sample suggests that the phenomenon of adult onset is a mirage (Massagolia 2006; Nagin, Farrington, and Moffitt 1995). Studies suggest that the "adult onset offenders" are actually younger offenders experiencing the phenomenon of crime displacement upon entrance into early adulthood. Through

crime displacement, within-individual changes in frequency of offending and level of offense seriousness occur (Massagolia 2006; Nagin, Farrington, and Moffitt 1995). While the frequency and level of offense seriousness of most youthful offenders decreases upon entrance into early adulthood, others experience an increase in both (Massagolia 2006; Nagin, Farrington, and Moffitt 1995). For these individuals, the likelihood of law enforcement detection and arrest increases. If never arrested for prior offending, these individuals would appear to be suffering from adult onset, when in fact they are not. In a nutshell, what is late in arriving or onsetting is detection (arrest) and not offending.

Despite the unsolved puzzles posed by recent criminal career research, scholars debate the saliency of studying between-individual differences in offending (Gottfredson and Hirschi 1986; Laub and Sampson 2003). For example, after reviewing results from one follow-up study of delinquent males at age 70, it was concluded that studying multiple offending patterns, while fruitful for organizational purposes, should be interpreted cautiously as offending groups may not be as distinguishable as previously hypothesized (Laub and Sampson 2003). These results indicated that while offenders could be categorized into one of four typologies at age 32, at age 70 no significant differences existed between offenders (Laub and Sampson 2003). Because this is the only longitudinal study following male offenders into the late ages of adulthood, it is unknown whether this is a cohort effect, gendered effect, etc. More research needs to be conducted before accepting this conclusion. Specifically, more research is needed to determine if a late onset trajectory exists in a representative U.S. sample, whether female trajectories vary from male trajectories,

and what risk factors influence different offending patterns for both males and females. Using a semi-parametric trajectory model, this dissertation will help clarify some of these issues.

MALES AS THE NORM

Historically, criminologists have focused on explaining the criminal behavior of males. This is not surprising given that the field of criminology itself has been a male-dominated arena and the offending population is disproportionately comprised of male offenders (Belknap 2001; Chesney-Lind and Faith 2001; Kruttschnitt 1996; Simpson and Herz 1999). Consequently, criminological theories were developed with males in mind and later generalized to the female offenders (Simpson and Hertz 1999). The feminist work of the 1970s shifted this male-centered mindset with more recent works investigating gendered pathways into crime (Daly 1994, Simpson et al. 2008; Steffensmeier and Allan 1996). This theoretical transition contributed not only to knowledge gained about female offenders, but also knowledge gained about another less studied offender population, conforming youths who later transition into crime as adults.

PREVALENCE AND SERIOUSNESS OF ADULT OFFENDING

Official arrest, conviction, and court data suggest a high prevalence of adult onset offenders amongst the offending population. For example, an analysis of the pre-sentence interviews (PSI) of forty adult women and forty adult men convicted in New Haven felony court revealed that more than one third of sampled women, and one fourth of sampled males, reported that their first arrest was also their current

arrest (Daly 1994). Similarly, a review of conviction records of men and women born in Stockholm between 1953 and 1963 demonstrated that 78% of female offenders, and 55.2% of male offenders, were adult starters (Kratzer and Hodgins 1999: 68).

Though a somewhat problematic proxy for measuring onset, official correction data corroborate the above results. State Court Processing Statistics indicate that 46% of the female prison population and 39% of the male prison population had been convicted for their first offense during adulthood (Greenfeld and Snell 1999: 9). Additionally, 28% of adult women and 19% of adult males participating in the 1991 Survey of Inmates in State Correctional Facilities were serving their first sentence (Beck et al. 1993: 12).

The prevalence of adult onset offenders as measured with self-reports is a bit more difficult to gauge. For example, the high prevalence (54%) of adult onset offenders included in Simpson et al.'s (2008) Baltimore sample is comparable to the findings in official data. However, of the 225 males and females included in a longitudinal study in London, 6% had been registered with an official conviction during adulthood. Yet, all of these "late onset offenders" self-reported at least one delinquent act committed in early childhood or adolescence, questioning whether an adult onset offender really exists (Elander, Rutter, Simonoff, and Pickles 2000).

Explanations for the variation in the prevalence of adult onset offenders vary. First, some researchers suggest that the usage of official arrest and conviction data distorts the results (Elander et al. 2000; Moffitt et al. 2001). These records fail to acknowledge early offenders that successfully evaded law enforcement action, some of which end up experiencing crime displacement (Massogolia 2006). Other

researchers hint that using self-reports from already convicted offenders or offenders awaiting trial or sentencing may be biased in favor of the offender. For instance, offenders may fail to tell the truth about past behavior fearing it will be used against them at trial (Simpson et al. 2008).

It is important to determine who these offenders are as they appear to be responsible for a significant portion of adult crime. For instance, female adult starters included in the Swedish study were responsible for 45% of all female perpetrated crimes and 41% of female-perpetrated violent crimes (Kratzer and Hodgins 1999: 68). Comparatively, the percentage of overall female perpetrated crimes and female perpetrated violent crimes credited to early and adolescent starters was significantly less. Early starters committed 33% of all female crime and 30% of female violent crime (Kratzer and Hodgins 1999: 68). Adolescent starters were responsible for 22% of all female perpetrated crimes, and 29% of female perpetrated violent crimes (Kratzer and Hodgins 1999: 68).

The frequency of offending for adult onset males appears to be lower than that of female adult onset offenders, yet comparable to the frequency of adolescent male starters. Adult onset males were responsible for 13% of all male perpetrated crime and 17% of male perpetrated violent crimes (Kratzer and Hodgins 1999: 62-63). Adolescent starters were credited with 17% of all offenses and 12% of all violent offenses (Kratzer and Hodgins 1999: 62-63). Early starters contributed to the majority of all male crime (70% of all male offenses, and 71% of all violent crimes) (Kratzer and Hodgins 1999: 62-63).

This group's high prevalence and frequency of offending magnify the need for a better understanding of the criminal careers of these individuals. Specifically, are these individuals true adult onset offenders, or are they youthful offenders that transition into more serious offending patterns? The lack of criminal career research focusing on late offenders makes it difficult to answer these questions.

CRIMINAL CAREER RESEARCH

Criminal career research entails studying the "longitudinal sequence of crimes committed by an individual offender" (Blumstein et al. 1986: 12). This "longitudinal sequence" includes the onset of offending, first offense, point of desistance, last offense, and the duration of time in between (Blumstein et al. 1986). Variations in age of onset and age of desistance are hypothesized to elicit diversity in seriousness and frequency of offending (Moffitt 1993).

Subsets of criminal career research and criminal onset

Two major subsets of criminal career research include the life course and developmental perspectives. Each subset provides explanations for observed heterogeneity in offending patterns found across the offending population, as well as changes in individual behavior over time.

Developmental theorists suggest that variations in criminal participation, frequency and seriousness result from early ontogenetic differences, i.e. birth defects, abuse, etc., that stunt later development (Dannefer 1984). Early life events occurring after a certain developmental stage or age are not considered influential on future behavior (Dannefer 1984). This static approach provides explanations for not only

within-individual differences, but also distinctions in the age of onset, length of criminal career, and even offense seriousness between offenders.

Life course theorists do not refute the existence of between-individual differences. However, between-individual differences are credited to more proximate sociogenic factors, i.e. exposure to delinquent peers, weak parental bonds, etc., suggesting the possibility for within-individual change (Dannefer 1984). This dynamic approach allows human agency, the intersection of human lives, geographical and historical location, and maturational timing to influence the continuity and change of individual behavior (Giele and Elder 1998). Consequently, the primary concern of life course theories is to describe how transitions, i.e. life events, shape and define life trajectories and how certain transitions, i.e. marriage and employment, influence criminal desistance for younger offenders.

RISK FACTORS INFLUENCING JUVENILE OFFENDING

Life course and developmental research suggests that early and adolescent offenders are influenced by early childhood and adolescent risk factors, respectively. For example, empirical tests of Moffitt's (1993) dual taxonomy theory and Sampson and Laub's (1993) age-graded theory of informal social control have found that early starters suffer from sociological and/or biological predispositions, i.e. psycho-neurological limitations, ineffective parenting, disruptive/abusive households, and so forth. The cumulative effects of such predispositions isolate early starters from the conforming segment of society, promote truancy and school drop-out, and increase the likelihood of delinquency prior to adolescence. These disadvantages minimize future opportunities and maximize the duration and seriousness of the criminal career

(See also Hagan and McCarthy 1998; Laub and Sampson 2003; Nagin and Land 1993; Nagin, Farrington and Moffitt 1995; Patterson and Yoerger 1993).

Much research supports this hypothesis. For instance, results from longitudinal analyses of data gathered from 1,265 males and females included in the Christchurch Health and Development study (Fergussion, Horwood, and Nagin 2000), 500 delinquent males included in the Glueck sample (Laub and Sampson 2003; Sampson and Laub 1993), and a number of analyses of the Dunedin data (Moffitt 1993; Moffitt et al. 2001; Moffitt et al. 1995) suggest that offending groups can be distinguished by early childhood disadvantages such as maternal education, parental drug use and marital conflict, and early conduct and attention problems. Further research indicates that, as adults, early onset offenders, compared to late onset offenders, are more likely to have unstable, low skilled jobs and more turbulent romantic relationships. Consequently, early onset offenders are more likely to be of lower socioeconomic status, live in deteriorated housing, and have failing, as well as violent, relationships (Nagin et al. 1995).

Unique to developmental theories is the hypothesis that an older, adolescent onset, criminal typology exists (Moffitt 1993). According to the assumptions of the dual taxonomy theory (Moffitt 1993), adolescent onset offending is an artifact of the adolescent search for autonomy, respect, and responsibility acquired in adulthood (Moffitt 1993; Moffitt et al. 2001). Upon reaching adult status, adolescent onset offenders desist as the adolescent strains dissipate (See Moffitt 1993; Nagin and Land 1993; Nagin et al. 1995; Patterson and Yoerger 1993).

Research suggests that peers are a significant force promoting adolescent delinquency. During this turbulent developmental period, peers offer a sense of belonging, status, identity and anonymity (Warr 2002). While trying to disassociate themselves from the direct control of their parents, adolescents seek out friends and relationships which they identify with, would like to develop into, or resemble their own sense of self (Haynie et al. 2005). Criminal participation amongst peers during this time has been hypothesized to be an example of adolescent experimentation, a means for retaining friends, or a chance to transition into a desired lifestyle (Haynie et al. 2005).

RISK FACTORS INFLUENCING ADULT OFFENDING

For the most part, it is unclear whether adult offending is determined by early childhood and adolescent risk factors or more proximate adult risk factors. This confusion can be contributed to the lack of clarity regarding their age of onset. For example, analyses of the criminal histories of male offenders included in the Cambridge Study in Delinquent Development indicated that an estimated 25% of male offenders sampled had a mean onset age of 26 years or older (Farrington and Painter 2004). Their female siblings also had a mean age of onset of 26 years (Farrington and Painter 2004). Similarly, the average age of onset for criminal mothers was 32.51 years (Farrington, Lambert, and West 1998). These findings are consistent with other research that estimates the average age of onset for this group ranges between 20 to 30 years of age (See Beck et al. 1993; Daly 1994; Kratzer and Hodgins 1999; Farrington and Painter 2004; Greenfeld and Snell 1999; Simpson et al. 2008).

Other developmental research suggests that these individuals are not true onset offenders, but instead adolescent offenders experiencing crime displacement. For example, while most studies indicate that adolescent onset offenders desist from crime, results from a longitudinal analysis of 411 males from a working-class area of London suggest otherwise. As predicted, adolescent onset offenders were found to transition into higher skilled, more stable jobs by age 32 (Nagin, Farrington, and Moffitt 1995). With regards to desistance, an analysis of official data indicated that this group was less likely to be arrested and convicted as adults, yet self-reports revealed a high rate of white-collar offending, drug usage, and assault, contradicting the hypothesis that adolescent onset offenders desist (Nagin et al. 1995).

Given the data surrounding youthful offenders, the criminal transition for emerging adults should be highly correlated with more proximate risk factors relating to strains, transitions, and other social factors experienced by individuals entering into emerging adulthood (Arnett 2000). Emerging adulthood is defined as the transitional and explorative period between 20 and 30 years of age. For many, careers, life partners/spouses, etc., have yet to be determined (Arnett 2000). Researchers suggest that the abundance of self-exploration and lack of informal and direct control during these volatile years ease the transition into crime and deviance (Arnett 2000). However, there is contradictory evidence that factors influencing criminal onset during this developmental stage do not vary from those influencing more youthful onset, supporting the notion that emerging adult onset does not exist.

A study using data from the Philadelphia portion of the National Collaborative Peri-natal Project, Gomez-Smith and Piquero (2005) found that cognitive ability,

mental retardation, disciplinary problems, family size, and maternal socio-economic status, age of mother at birth, education, marital status, or marital changes predicted both late and early onset (Gomez-Smith and Piquero 2005). Late onset, specifically, appeared to be predetermined by maternal smoking during pregnancy and strongly predicted by the child's sex (Gomez-Smith and Piquero 2005). A second study of 225 individuals included in a longitudinal study of the development and persistence of antisocial behavior also revealed that early child risk factors, more specifically juvenile antisocial behavior, was significant in predicting late onset (Elander et al. 2000).[1]   Further research suggests that criminal behavior in women is not the result of associating with a male mate, but assortative mating. Analyses of the Dunedin data suggest that as adults, already antisocial girls self-select antisocial male mates (Moffitt et al. 2001). Assortative mating enhances the likelihood of a social amplification effect whereby the antisocial tendencies of these women is reinforced and amplified (Moffitt et al. 2001).

Criminologists determined to identify adult risk factors influencing the criminal careers of this unique group have difficulty rectifying their findings with mainstream theoretical assumptions. For instance, Eggleston and Laub's (2002) exploration of the Racine sample and Weisburd et al.'s (2001) exploration of a white-collar offending sample revealed that situational factors during adulthood promoted the sudden transition from a conforming to criminal life style. While both juvenile and adult offending was predicted by race, gender, socioeconomic status in the

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[1] Caution must be taken when interpreting these results as the number of late onset offenders identified in this study was small (n=13), but proportional to other studies (6%) (Elander et al. 2000). Additionally, to be included in this study, one member of a twin set must have sought child psychiatric services for emotional and/or behavioral disturbances (Elander et al. 2000).

Racine sample, family size, exposure to criminal peers and continual employment during adulthood were the most significant predictors of adult onset (Eggleston and Laub 2002). Early childhood risk factors such as being raised in single-parent households, parental criminality, and juvenile delinquent associations were significant for predicting only juvenile onset (Eggleston and Laub 2002). Proximate causes also stimulated late onset in Weisburd et al.'s (2001) study. The majority of these offenders acted as *crisis responders,* commencing their criminal behavior only after experiencing a sudden change in financial status (Weisburd et al. 2001).

Feminist informed studies replicate findings from Eggleston and Laub's (2002) and Weisburd et al.'s (2001) studies. Pre-sentence interviews of drug-connected women, battered women, and other women identified in the New Haven sample (Daly 1994) and self-reports of the Baltimore sample (Simpson et al. 2008) revealed that criminal participation was a direct result of situational factors experienced during adulthood. Battered women were more likely to become involved in serious violent crime, theft and forgery after associating with their violent partner (Daly 1994; Simpson et al. 2008). Romantic partner association was highly correlated with increased female perpetrated drug offending (Daly 1994). Other women describe their criminal motivation as a desire for a secure lifestyle not given to them by their partners (Daly 1994; Simpson et al. 2008).

The backgrounds of these offenders contradict empirical tests of informal social control. Seventeen percent (17%) of the adult onset offenders included in the Baltimore sample reported being married at the time of their first offense and on average had stable employment for the majority of the year (11.24 months) prior to

their first offense (Simpson et al. 2008: 38). Thirty-two percent (32%) of adult females included in the New Haven sample became involved in drug offending after starting a romantic relationship with their partner or spouse (Daly 1994: 294). Similarly, 72% of adult offenders in the Racine Data (Eggleston and Laub 2002: 610) and Weisburd et al.'s (2001) entire sample of white-collar offenders had steady employment prior to their first offense.

Empirical tests of informal social control identify marriage and employment as the most significant turning points leading to desistance, not onset (Horney et al. 1995; Laub and Sampson 2003; Sampson and Laub 1993; Shover 1996; Uggen 2000; Warr 1998;). Longitudinal studies suggest that the time and, specific to marriage, emotional commitment needed to promote stable relationships and employment detracts from time which would have otherwise been spent hanging out with peers, perhaps the most salient factor influencing criminal participation (Horney et al. 1995; Sampson and Laub 1993; Shover 1996; Warr 1998). Marriage and employment have also been found to increase valuable social capital and self-worth needed to make the transition from a criminal to conforming lifestyle (Horney et al. 1995; Laub and Sampson 2003; Sampson and Laub 1993; Shover 1996; Uggen 2000).

Unable to explain these criminal anomalies, Eggleston and Laub (2002) urge further research on this special group of offenders, but also caution that their observed difference may be a statistical artifact:

> …Among twenty separate regressions with an α set to .05, it is a probabilistic expectation that one model will result in a statistical significant finding. Therefore, there is the possibility that this significant finding is simply one that occurred by chance (p. 612).

Many feminist researchers rely on the influence of the criminal male partner to explain late onset among female offenders. For example, drug-connected women in the New Haven sample were introduced to crime via their male partners (Daly 1994). Of 200 female drug users interviewed in Brooklyn, 38% commenced their behavior with a male partner or spouse (Maher 1997:31). Battered women in the Baltimore sample reported their initial involvement in theft and forgery as occurring in the company of their violent partner (Simpson et al. 2008).[2] However, while the "bad male" may be one explanation, it may not be the only explanation as many adult females also report turning to prostitution, violence, theft, check forgery, burglary, and robbery as a means to support dependents and escape violent situations (Daly 1994; Miller 1986; Ritchie 1996).

A SEMI-PARAMETRIC TRAJECTORY MODEL

Applying a semi-parametric trajectory model to a group of emerging adults can help to determine if an emerging onset offender exists and how many trajectories can be identified among a representative sample of U.S. youth. After identifying these groups, a descriptive analysis can be conducted to differentiate distinguishing risk factors influencing each group of offenders.

Described in more detail in Chapter 3, semi-parametric trajectory modeling assumes that unobserved differences are discrete, allowing for the identification of several different groups (Nagin et al. 1995; Piquero 2008). Model outcomes can vary depending on the number of observation points and sample participants included in the study (Piquero 2008). Individuals are classified into specific groups based on

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[2] This study was unable to determine if the offending resulted from involuntary coercion (Simpson et al. 2008).

their offending commonality with other individuals in the sample. Consequently, results should not be so strictly interpreted as to assume no other trajectory exists. However, results should be used to get a better understanding as to the similarities and differences found between offending groups (Piquero 2008).

Studies using the semi-parametric model find support for a heterogeneous offending population that is comprised of early, adolescent, emerging adult onset, and low rate chronic offenders (Piquero 2008). Classified as late onset and low rate chronic offenders, the age of onset for emerging onset offenders falls between the ages ten and thirty years (Chung, Hill, Hawkins, and Gilchrist 2002; D'Unger, Land, McCall and Nagin 1998). Unlike their early and adolescent counterparts who are beginning to desist, the criminal careers of late onset offenders is launched into full swing around the age of twenty. This pattern of behavior remains steady well into their thirties (Chung et al. 2002; D'Unger, Land, McCall and Nagin 1998). Little research has been conducted which contributes to knowledge about influential risk factors promoting this group's criminal transition.

Semi-parametric trajectory models have also identified gendered, adult trajectories. Analysis of the Philadelphia Birth Cohort found evidence for five male trajectories and three female trajectories (D'Unger, Land and McCall 2002). Most noteworthy was the identification of two adolescent female onset groups: the low-rate adolescent offenders and high-rate adolescent offenders. Low-rate adolescent offenders offend rather infrequently and desist in their late teenage years. High-rate adolescent offenders offend more frequently and desist in their late twenties (D'Unger, Land and McCall 2002). The latter group of offenders was less prevalent

among the male sample, but is consistent with the offending patterns found among female offender populations. Again, the primary purpose of the D'Unger et al. (2002) study was to identify how many trajectories existed, not to explore risk factors promoting these criminal careers.

This dissertation expands upon this research. Using Nagin and Land's (1993) semi-parametric model, I analyze the National Youth Survey to determine: (1) the number of typologies found among a representative sample of U.S. youth; (2) if emerging adult onset can be identified using self-reported data; (3) if different offending patterns have distinguished risk factors; and (4) whether criminal trajectories and their associated risk factors are gendered.

CHAPTER 3: METHODOLOGY

The purpose of this dissertation is unique as it takes a descriptive approach to better understand different offending trajectories in a nationally representative U.S. sample. Specifically, I investigate the number of offender trajectories that can be found in a representative U.S. sample of youth. Second, this research helps to determine whether an emerging adult offending trajectory can be identified using self-report data, and which risk factors influence within-individual changes in offending frequency during emerging adulthood. Finally, an exploration into the possible existence of gendered trajectories and risk factors is conducted. Though other studies investigate these issues, very few have used self-report data from a representative U.S. sample. Results from this dissertation will help to determine whether results from previous studies using non-U.S. samples are generalizable to the U.S. population. Additionally, results from this dissertation will assist in determining the validity of using conviction and arrest data to determine the existence and prevalence of a late onset offending group.

DATA

This dissertation utilizes data taken from waves 1 through 7 of the National Youth Survey. The National Youth Survey (NYS) is a national probability sample of households in the continental United States, based on a multistage, clustering sample design (Elliott and Ageton 1980). These data were collected between the years 1977 and 1987. During the first wave, 1,725 U.S. youth (918 males and 807 females)

between the ages of 11 and 17 were asked to self-report about their criminal behavior, peer criminal behavior, and life circumstances in the previous year. Parents were also interviewed about their child's behavior during wave 1. The supplemental parental data includes questions regarding family size and structure, socioeconomic status, parenting techniques, disruptive household events, and neighborhood characteristics. Annual follow-up interviews with the adolescent sample were conducted for during waves 2 through 5. Wave 6 and 7 interviews were conducted at three year intervals. During wave 7, the ages of the youthful respondents ranged between 21 and 27 years, with the average age being 24 years.

Previous analyses of the National Youth Survey indicate that, at time of sample selection, this sample was representative of the general population with regards to age, race, and sex (Elliot and Ageton 1978; Elliott and Ageton 1980). A little over half (53%) of the sample are adolescent males, and the majority (83%) of the overall sample are white. Blacks account for 15% of the sample. Only a small percentage (2%) of sample individuals reports their race as other (Elliot et al. 1978). Individuals are equally distributed among the different age groups with 13%-15% of sample members classified into each group (Elliot and Ageton 1978).

There are several benefits for using the National Youth Survey data for this investigation. First, this longitudinal dataset is comprised of self-reported information collected from a nationally representative sample of male and female youth from early adolescence through emerging adulthood. Second, there is a substantial variation in the types of delinquent behaviors investigated. Finally, sample participants and their parents were asked about a multitude of early childhood,

adolescent, and emerging adult risk factors. This wealth of information allows me to: (1) identify the number of offending trajectories found in a U.S. sample; (2) determine if an emerging adult onset offending group can be identified using self-reported data; (3) determine if different offending patterns have distinct risk factors; and (4) investigate whether criminal trajectories and their covariates are gendered.

GROUP-BASED TRAJECTORY MODELING

This dissertation employs Nagin's (2005) semi-parametric mixed Poisson model, a type of group-based trajectory modeling, to identify trajectory groups. Group-based trajectory modeling assumes that unobserved heterogeneity is discrete, causing the mixing distribution to be viewed as a set of categorical variables. Each category represents a different group with its own shape. In this case, the varying groups or categories represent different offending groups (Piquero 2008). Additionally, this method can easily identify factors correlated with group membership and group variation (Nagin 2005).

Other methods used to identify offending heterogeneity are hierarchical-linear modeling and latent curve analysis. Comparatively, these models use a continuous distribution of trajectories to determine individual-level heterogeneity (Nagin 2005). As a result, these two models assume that individual characteristics are evenly distributed throughout a given population. The ability to determine between-individual differences can only occur when significant differences are found between the characteristics of an individual and those normally distributed amongst the population. However, not all individual characteristics, such as crime participation,

are evenly distributed throughout the population. This forces group-based modeling to be the preferred method for this study.

Group-based trajectory modeling (GBTM) is a statistical procedure which allows the identification of distinct trajectories of some event (in this case, criminal behavior) over time. It is a specialized application of finite mixture modeling. If y_{it} represents the number of crimes y for person i at time t, where there are multiple time points where y is measured and each time point measures a person's age, then the GBTM estimates up to a cubic relationship between y_{it} and age:

$$y_{it} = \beta_0^j + \beta_1^j Age_{it} + \beta_2^j Age^2_{it} + \beta_3^j Age^3_{it} + \varepsilon_{it}$$

Where Age_{it}, Age^2, and Age^3_{it} are individual i's age, age squared, and aged cubed at time t, ε is a normally distributed error term, and $\beta_0^j, \beta_1^j, \beta_2^j$ and β_3^j are parameters estimated from the data that determine the shape of the polynomial. A separate set of β parameters are estimated for each j group. Depending on the nature of y_{it}, the link function is either a censored normal, binary logit, or Poisson distribution.

Because the purpose of this study is to identify different trajectories related to the rate of offending at various ages, this model will adapt a Poisson distribution. Poisson distributions are most common for modeling count data and the probability of an event occurring because the function is specified in terms of the natural logarithm of y_{it}:

$$\ln(\lambda_t^i)\beta_0^j + \beta_1^j Age_{it} + \beta_2^j Age^2_{it} + \beta_3^j Age^3_{it}$$

Failing to use the natural logarithm could allow for the selection of coefficient values to result in negative values of $y_{it,}$ or the negative probability of offending (Nagin

2005). This would be counterintuitive as it is impossible to have a negative probability of offending.

The Poisson model is a model suitable for count data-the number of times an individual commits a crime or the number of different offenses committed. In the Poisson model, the model estimates the probability of *y* occurring, when *y* is any non-negative integer. The probability depends upon the mean rate of occurring or λ_{ij}, which in a variety index is the expected number of different criminal offenses per year. In some applications, the Poisson distribution underestimates the number of zero events (no offenses), and this problem is likely to occur in the case at hand. An adaptation of the Poisson count model is the zero-inflated Poisson (ZIP) model to accommodate the problem of the underestimation of zero occurrences or no offenses.

The software used to estimate trajectory models can be found in PROC TRAJ, a SAS plug-in developed by Jones, Nagin, and Roeder (2001) and made available at *http://www.ncovr.org*. With this software, users specify the type of model estimated (logit, censored normal, or Poisson), the number of groups to be estimated, and the order of the polynomial for each group. The output produces the estimated age parameters, and the proportion of the total sample that belong in each group. Graphics are available which produce the shape of each estimated trajectory group.

For each model the BIC (the Bayesian Information Criterion) model fit statistics is provided where BIC is equal to:

$$BIC = \log(L) - .5*\log(n) * k$$

Where,

$$L = \log \text{ likelihood}$$

$$n = \text{sample size}$$

$$k = \text{number of parameters estimated in the model}$$

Model selection is based upon both best BIC and substantive concerns.

Individual BIC scores can be used to estimate a probability that a given model j is the "best" model under the assumption that the true model is in the model space:

$$p_j = \frac{e^{BICj - BIC_{max}}}{\sum_{j} e^{BICj - BIC_{max}}}$$

Where,

$$p_j = \text{probability that } j \text{ is the best model}$$

$$BIC_j = \text{BIC of model } j$$

$$BIC_{max} = \text{BIC of model with the maximum BIC score}$$

One can then determine, for example, if a model that has 2 groups, 3 groups, 4 groups … k groups is the best fitting model, given that the true model is in the model space.

Once all individuals are categorized into specific groups, the relationships between group membership and risk factors can be examined with conventional statistical tools such as contingency tables.

LIMITATIONS OF THE SEMI-PARAMETRIC MIXED POISSON MODEL

Though the semi-parametric mixed poisson model is accepted among the criminological community as the preferred statistical method for identifying multiple offending trajectories, the model does have its limitations. First, model outcomes can vary depending on the number of observation points and sample participants included in the study (Piquero 2008). Individuals are classified into specific groups based on their offending commonality with other individuals in the sample. Furthermore, the mixed poisson semi-parametric model has difficulties identifying groups comprised of a small number of individuals. Consequently, results should not be so strictly interpreted as to assume no other trajectory exists. However, results should be used to get a better understanding as to the similarities and differences found between offending groups (Piquero 2008).

BETWEEN-WAVE COMPARISON ANALYSIS

If group-based modeling fails to identify an emerging adult onset group, a between-wave comparison model will be used to validate the results. When conducting the between-wave comparison model, offenders are coded one if they offended in the current wave, but not in an earlier wave. This is repeated with each wave of data. The total number of individuals commencing a criminal career at each age in each wave is then recorded in a frequency distribution table. Depending on age at time of first offense, respondents are classified as early, adolescent, or emerging adult onset offenders. Individuals reporting their first offense at age 11 or 12, regardless of wave, are classified as early onset offenders. Youth reporting first offense between ages 13 and 20, regardless of wave, are defined as adolescent

offenders. Any individual commencing a criminal career at age 20 or older are labeled as emerging adult offenders.

If an emerging adult onset offending group is detected using this method, a binary variable, *emerging adult*, will be created. A score of one will indicate emerging adult onset offending. Using logistic regression models, the independent variables will be regressed on *emerging adult* to determine what factors influence emerging adult onset.

MEASURES OF OFFENDING

Juvenile offending is measured using a ten item variety scale. While summation scales (raw counts or frequency measures) are useful for measuring behaviors that are normally distributed among the general population, they are particularly problematic in measuring offending. Among the general population, and within most self-reported data, the normative response for whether an individual has committed any and most crimes will be no, or a score of zero, causing the data to be skewed. The result is that more weight is placed on less serious, but more frequent offending (Osgood, McMorris, and Potenza 2002). Composite measures, or variety scales, allow for equal weight to be placed on all offenses, regardless of seriousness. Research has demonstrated that compared to frequency measures, composite measures are better at producing high scores that reflect high levels of offending, easing the ability to interpret results (Osgood et al. 2002). Because the purpose of this dissertation is to differentiate between high level offenders, low level offenders, and non-offenders, this is the best method for measuring offending.

The items included in my ten point variety scale include: stole a car, stole anything under $5, over $50, and between $5 and $50, bought stolen goods, carried a weapon, attacked someone, took a vehicle without permission for joy riding, forced another to have sex, and burglarized a building. For each offense a respondent self-reports, they are given as score of one. Scores can range from 0 to 10. Differences in scores reflect differences in level of offending.

MEASURES OF RISK FACTORS ASSOCIATED WITH CRIMINAL ONSET

Unlike delinquency which was measured using information from waves 1 through 7, covariates are measured from information collected from waves 1 through 6. Data from wave 7 are omitted because these data are plagued with large amounts of missing data. Descriptive statistics for all independent variables for the whole sample and for both sexes can be found in tables 4 through 6.

Measures of early risk factors

Studies consistently demonstrate that high exposure to early childhood risk factors increases the likelihood of early criminal onset regardless of sex (Fergusson et al. 2000; Nagin et al. 1995; Moffitt 1993; Piquero 2008; Sampson and Laub 1993; Simpson et al. 2008). Many of the questions pertaining to early childhood risk factors were asked of the parents during wave 1. A select number of these risk factors have been chosen for further investigation into their influence on later offending. Some parental questions asked at wave 1 were repeated at later ages in follow-up interviews with the adolescent respondents. When applicable, the youths' responses are included in the analyses. Wave 1 data is used because these data mark the beginning of the trajectory.

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Childhood abuse is a dichotomous measure with a score of 1 indicating that the parent respondent reported his/her overall means of discipline type as being non-inductive, i.e. hit or threatened to hit the child while disciplining. Originally, the overall discipline score was a composite, trichotomous measure based on parental responses to the question "How do you react when (subject) does something wrong?" Scores of 1, 2, or 3 represented non-inductive (hit or threatened to hit), semi-inductive (sometimes threatening to hit), and inductive (discussion of wrongful behavior) parenting methods, respectively. These scores have been recoded into one dichotomous measure with scores of 1 indicating non-inductive or physical parenting and scores of 0 indicating other less harsh parenting methods. Semi-inductive parenting was included in the abuse category since threatening is considered a form of verbal abuse. Less than half (43.5%) of parents interviewed reported hitting or threatening to hit their children.

Public assistance is a dichotomous measure with a score of 1 indicating that the interviewed parent was the recipient of public assistance at the time of the first wave interview. This is a proxy measure for socioeconomic status. Of those that responded, 18.4% (310 parents) reported receiving public assistance.

Growing up in a disadvantaged neighborhood is used as a proxy measure of socioeconomic status. Neighborhood characteristics were originally asked in a series of seven trichotomous questions. These questions were computed into a scale with scores ranging from 7 to 21. Higher scores indicate a more disadvantaged neighborhood. Neighborhood characteristics measured include excessive: vandalism, winos and junkies, traffic, abandoned houses, burglaries and theft, the existence of

run down buildings, and muggings occurring in the neighborhood. This measure has good reliability with a Cronbach alpha of .747.

Parental criminality was not measured in wave 1. However, measures of parental approval of adolescent criminality are included. These measures are combined into a scale and used as a proxy measure of parental conformity. Parents were asked to rate their level of approval for youthful involvement in: marijuana and alcohol usage, vandalism, hitting others, stealing something more than $50, burglary, hard drug usage, and stealing something less than $5. These items have been recoded so that higher scores indicate higher levels of approval. Scores range from 8 to 32. This scale is reliable with a Cronbach alpha of .869.

Exposure to negative parental labeling is also measured at wave 1. During wave 1, the adolescent sample members were asked to what extent their parents would agree they: were well liked, needed help, were a bad kid, were often upset, were a good citizen, got along well with others, were messed up, broke the rules, had personal problems, got into trouble, and did things against the law. These 11 items were recoded so that high scores indicate more negative parental appraisals. The Cronbach alpha indicates good reliability at.710.

Measures of adolescent risk factors

Empirical research also supports the contention that exposure to adolescent risk factors will most likely influence adolescent offending, but should not have a direct effect on offending during emerging adulthood (Eggleston and Laub 2002; Sampson and Laub 1993; Simpson et al. 2008). The following variables have been included to test this assumption. All adolescent risk factors are created from

information collected at wave 3. Wave 3 data are used because these data were collected in the middle of the trajectory. By wave 3, all respondents had reached adolescence.

School is expected to have a significant impact on adolescent behavior. A scale measuring negative school experience at wave 3 is created using the following items: teachers don't call on me; nobody at school cares; I don't belong at school; I feel lonely at school; teachers don't ask me to work on projects. Originally, these items were ranked on a Likert scale. These items are recoded with high scores indicating negative secondary school experiences. Reliability is modest, with the Cronbach Alpha measured at .658.

Academic success in school is also measured. During wave 3, respondents were asked to report their grade point averages in Likert form, i.e. a score of 5 is given for those reporting mostly A's while a score of 1 is given to those individuals reporting mostly Fs. Higher scores indicate better success in school.

One of the most salient influences correlated with adolescent offending is exposure to delinquent peers. During wave 3, respondents were asked if they were exposed to peers who: destroyed property, used marijuana, hit someone, broke into a vehicle, sold hard drugs, and stole something more than $50. This variable was recoded in as the dichotomous variable delinquent peers. A score of 1 indicates exposure to delinquent friends and a score of zero indicates no exposure to delinquent peers.

Perceived peer approval is also used as a proxy measure for delinquent peers. During wave 3, respondents were asked the extent to which they perceived their peers

would approve or disapprove of them: stealing something worth more than $50 and less than $5; selling hard drugs; using marijuana; hitting someone; using alcohol; destroying property; and breaking into vehicles. These items are recoded with high scores reflecting higher approval or a more delinquent peer group. This measure reflects high reliability (.885).

Strains of the maturity gap are measured using items of normlessness. Respondents were ask to rate how much they agreed that to avoid trouble they must: Lie to teachers; Play dirty to win at school; Lie if it keeps friends out of trouble; Beat kids up to gain respect of friends; Lie to parents to keep trust; Break parents' rules to keep friends; and to be popular, must break rules. These items reflect the internal conflict of adolescent youths who are contemplating criminal behavior to achieve a desired goal such as being popular. All items are computed into a scale with high scores indicating higher levels of normlessness. This scale proves to be reliable with Cronbach alpha scores of .821.

Measures of emerging adult risk factors

This dissertation investigates whether life changes experienced in emerging adulthood are significant predictors of emerging adult offending. The National Youth Survey includes data on many of these life changes. This section discusses the items included in this study.

Little research has investigated how joining the workforce affects one's criminality during emerging adulthood. Over a third (38.43% or 663) sample members reported transitioning from being unemployed to employed between wave 5 and wave 6. The dichotomous variable gained employment was created using this

information. To have been categorized as gaining employment between wave 5 and wave 6, a sample member had to report not having a job at wave 5, but having one at wave 6.

Eggleston and Laub (2002) found that stable employment was predictive of late onset offending using conviction data. Including this variable in the analyses will help determine if the effect found by Eggleston and Laub (2002) was only an artifact of the data. As a result, a second employment status variable stable employment has also been created. Stable employment is a dichotomous measure with a score of 1 indicating if the individual reported having a job during both wave 5 and wave 6.

Simply gaining or maintaining employment may not be the only employment factor influencing criminal behavior. Environmental factors related to a job may also significantly impact a person's desire to offend. Social isolation data gathered at wave 5 are combined to produce a scale measuring negative work experience. Items included in this scale are: workers don't take interest; feel part of things at work; workers don't ask me for help; feel lonely at work; and no one cares. All items are recoded so high scores indicate a more negative work experience. Reliability for this scale is good with a Cronbach alpha of .723.

Similar to delinquent peers during adolescence, delinquent co-workers may influence individual offending. During wave 6, data on co-workers' perceived approval of criminal behavior was gathered. These items include: cheating on income taxes; selling hard drugs; stealing something worth more than $50; hitting someone; destroying property; and breaking into a vehicle. These variables have been

combined into the criminal work environment scale. This scale proves to be reliable with an alpha score of .892.

Significant changes in romantic relationships also occur during emerging adulthood. As detailed in the feminist literature, the marital union can have differing effects for males and females (see Daly 1994; Moffitt et al. 2001; Simpson et al. 2008). Expanding upon earlier works, the relationship between getting married and criminal onset is analyzed. The majority of sample members marry between wave 5 and wave 6. Therefore, this is the only wave of data that is analyzed. Respondents reporting being single in wave 5 and married in wave 6 are scored with a 1.

Feminist literature consistently links the criminal male to female offending (See Daly 1994; Moffitt et al. 2001; Simpson et al. 2008). These data do not contain information on partner criminality. However perceived partner/spousal approval of criminal activity is measured at wave 6 and can be used as a proxy measure for partner criminality.   Items included in the criminal partner scale are partner's perceived approval to: cheat on income taxes; sell hard drugs; steal something worth more than $50; hit someone; destroying property; and break into a vehicle.   High scores indicate a higher level of approval for criminal participation. The reliability of this measure is good (Cronbach alpha=.874).

Measures of parental and peer approvals for delinquent behaviors are included for those individuals that may not be employed or have a significant other. Including these items will help to determine if parents and peers are still as influential in emerging adulthood as in early childhood and adolescence. Both scales use data collected at wave 6. Items included in these scales are parental and peer perceived

approval to: sell hard drugs; steal something worth more than $50; hit someone; destroy property; and break into a vehicle. As with the previous scales, higher scores indicate more approval for criminal participation. Both scales have good reliability (.873 for parental approval and .898 for peer approval).

SUMMARY

Over the last 30 years, empirical studies have revealed evidence that multiple offending trajectories exist among known offenders. Additionally, past trajectory analyses have uncovered a less studied offender, the late onset offender. However, results from studies using conviction and arrest data to determine age of onset differ significantly from results of studies relying on self-report data. In Chapter 4, I use group-based and between-wave comparison models to investigate if a group of emerging adult onset offenders exists among a nationally representative sample of youth. Finally, I investigate which risk factors distinguish each trajectory and if these risk factors are gendered.

CHAPTER 4: RESULTS

I begin my analysis by using group-based trajectory modeling to investigate whether multiple, gendered, and emerging adult onset offending trajectories can be identified among a nationally representative sample of U.S. youth. Then, using results from analysis of variance, Tukey HSD, and chi square models, I identify and discuss which risk factors influence different offending trajectories. I conclude this chapter by presenting results from between-wave comparison and logistic regression models to determine the validity of the group-based trajectory model results.

RESULTS OF THE GROUP- BASED TRAJECTORY MODEL

When applying the semi-parametric mixed Poisson model to the National Youth Survey sample, multiple offending trajectories are identified for both males and females. The BIC demonstrates that the best model for both sexes is the five group model (Table 7). In addition to the BIC, several other fit indices indicate that the five group model provides a good fit to the data. First, the estimated probability of group membership matched well with the actual proportion of individuals assigned to each group. Second, the odds of correct classification (OCC), which roughly assesses the precision with which people are assigned to groups, was above the suggested threshold level of 5 for all groups in the five group model (Nagin 2005). Finally, the average posterior probabilities which measure the probability individuals are assigned to particular groups were above 85%. Nagin (2005) has suggested that the average

posterior probabilities for each group in a good-fitting model should be 70% or higher.

For the most part, males and females are found to have similar offending trajectories that include groups of conformists, serious, long-term offenders, and serious, early, desisters. Despite these similarities, gendered differences are identified. For example, among the male offending trajectories are two stable, long-term, offending groups. Among the female offending trajectories is a group of low level risers. An emerging adult onset offending groups is not identified among either sex. [3]

Male offending trajectories

A large, almost majority (43%) of the males are identified as *Conformists* (Figure 1). Results from the group-based models indicate that over the ten year study period, their offending trajectory hovered near zero. This is an indication that these individuals participated in very little crime.

Over a third (35%) of the males can be described as *Stable Low Level* offenders. This group of offenders reported stable rates of offending. On average members of this group committed one offense per year over the ten year period. Despite the difference in offense level, the trajectory of *Stable Low Level* offenders mirrors the trajectory of *Stable High Level* offenders. Comparatively, *Stable High Level* offenders offended at a higher rate. During the first wave, *Stable High Level* offenders committed on average two offenses per year and continued at that rate until

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[3] After estimating the models using the 10 item variety scales, two other models were estimated using an eight item variety scale, which measures the most serious offenses, and a twenty-five item variety scale to determine if results varied. Both models failed to reveal an emerging adult onset offending group (not shown in figures). Additionally, results from these models indicated that the only gender differences were in level of offending. Females offended at lower levels than males.

the end of the seventh wave. *Stable High Level* males comprise 15% of the male sample.

Two groups of offenders, *Declining Medium Level* offenders and *Declining High Level* offenders, reported high levels of offending at wave 1. Approximately 4% of all males make up the *Declining Medium Level* offending group. On average, this group began offending at a rate of three offenses per year. Over the ten year period, this rate steadily declined until the *Declining Medium Level* offenders were offending at a rate similar to the *Conformists* at wave 7. Finally, a small percentage (3%) of the males can be classified as *Declining High Level* offenders. At wave 1, this group reported the highest rate of offending (an average of 4.5 offenses). This rate rose to just over 5.5 annual offenses and then steadily declined to approximately two offenses per year by wave 7.

Female offending trajectories

Like the males, a five group model best describes the female trajectories. Not surprisingly, given the large gender differences in offending consistently found in the criminological literature, a small percentage (31.3%) of females reported any sort of offending compared to their male counterparts (56.8%) (Figure 2). Additionally, the group of female *Conformists* is almost twice as large for the females as the males with over two-thirds (68.7%) of females committing zero offenses over the seven measurement periods. The level of offending for the remaining females varied with some female groups involved in significantly more crimes than others. However, females typically were involved in less crime than their male counterparts.

Two of the female trajectories closely resemble two of the male trajectories: *Declining High level* and *High level* offenders. First, *Declining High Level* female offenders appear to be similar to the *Declining Medium Level* males. Like the *Declining Medium Level* males, only a small percentage of females (3.2%) are identified as *Declining High Level* offenders. The rates of offending for these groups were higher than most of their same-sex counterparts at wave 1. By wave 7, these groups appear to have desisted from offending all together. Despite these similarities, a closer examination reveals that, at wave 1, the *Declining High Level* females report a lower level of offending, averaging .6 offenses, as compared to the *Declining Medium Level* males that averaged 3.1 offenses in the same wave. The decrease in offending amongst the *Declining High Level* females was much faster and sooner than their male counterparts. For example, the average female offending drops from .6 offenses to .4 offenses, and finally hits 0 by wave 6. Comparably, the offending of the *Declining Medium Level* males is steady from wave 1 until about wave 7 when they appear to have desisted.

The offending of the *High Level* females is comparable to that of the *Declining High Level* males. Particularly, while these groups were comprised of few females (2.6%) and males (3.1%), both groups committed more crimes than their same-sex counterpart. Distinguishing these groups is the level of offending. *Declining High Level* males offend at higher levels throughout the study period. However, compared to the other female offending groups, *High Level* females were offending at much higher rates, average 3 offenses a year from wave 1 through wave 5 (with the exception of the dip in wave 3). Despite the decrease in offending from

wave 5 through wave 7, this group of females continued to offend at higher rates than the other female offenders.

The trajectories of *Declining Medium Level* females and *Low Level Risers* are unique to females. Nearly 15% of females can be classified as *Declining Medium Level* offenders. This group of females started offending at about the middle level in comparison with the other four female offending groups. Over the 10 year period, their offending consistently declined. By wave 7, the rate of offending for the *Declining Medium Level* offenders was indistinguishable from the *Conformists*.

A small percentage (10%) of females is classified as *Low Level Risers.* Unlike the other offending groups who decreased their offending over time, *Low Level Risers* increased their offending over the ten year period. *Low Level Risers* started offending at an estimated .5 offenses per year at wave 1. This rate declined to .3 offenses per a year during wave 4. At this point, the offending of *Low-Level Risers* began to increase slightly, peaking at an average of .8 offenses. Their offending remained stable through wave 7.

In sum, results from the group-based trajectory model provides empirical support that multiple, gendered, offending trajectories exist among the National Youth Survey sample. This evidence demonstrates a clear difference in levels of offending between males and females. Furthermore, males and females appear to increase and decrease their offending at different rates. Finally, there is weak evidence suggesting that some females actually increase their level of offending during adolescence. The group-based trajectory model was unable to identify an emerging adult onset offending group among either sex. It is unclear whether this is a

result of the sensitivity of the model or a true result. The chapter continues by exploring which risk factors distinguish the identified offending trajectories. Next, a between-wave comparison model is used to determine whether model sensitivity prevented the identification of an emerging adult onset group. If such a group is identified, logistic regression models are used to determine which risk factors influence onset during emerging adulthood.

RISK FACTORS PREDICTING GROUP MEMBERSHIP FOR MALES

Early childhood risk factors

Previous criminal career research suggests that long term, serious offending is highly correlated with exposure to early childhood risk factors (Laub and Sampson 2004; Moffitt 1993; Nagin and Land 1993; Nagin, Farrington and Moffitt 1995; Patterson and Yoerger 1993; Sampson and Laub 1993). Results from analysis of variance (ANOVA), Tukey HSD, and chi-square models suggest that while this may be true for declining high level and declining medium level males, stable high level offending does not always correlate with increased exposure to early childhood risk factors. Additionally, high exposure does not always translate into a life of serious offending. Specifically, ANOVA results indicate that among the male offending trajectories significant mean level differences exist for the variables: disadvantaged neighborhoods (F(4, 865)=3.73, *p<.01*), and parental appraisals at wave 1 (F(4,854)= 11.44, *p<.00*) (Table 8). Summary results are presented in Table 9.

As predicted by earlier studies, Tukey-HSD tests indicate that declining medium level males (M=9.4359) and declining high level males (M=8.9912) are more likely to come from more disadvantaged neighborhoods compared to the stable

low level males (M=8.56494).   Contrary to expected results, no significant differences were revealed between the neighborhoods in which stable high level males were raised and those in which the stable low level males were raised. Additionally, no significant mean level differences are found between scores for conformists (M=8.9189) and the declining medium and declining high level males.

Interestingly, while disadvantaged neighborhoods are strongly correlated with the long-term, serious offending of declining high level and declining medium level males, opposite effects are found for public assistance. Chi-square results reveal that almost half (45.8%) of all male offenders from families receiving public assistance are stable low level offenders.   Comparatively, declining high level, declining medium level, and stable high level males make up 43% of males receiving public assistance combine. A small percentage (14.8%) of public assistance recipients are conforming males.

Barring of the results for conforming males, expected scores are reported for all male groups on the parental appraisal scale. During wave 1, declining medium level (M=26.8800), declining high level (M=27.6306), and stable high level (M=27.8875) males reported significantly higher levels of negative parental labeling than the stable low level males (M=25.2268). No significant mean level differences were found between the conforming (M=26.7268), declining medium level, and declining high level, and stable high level males.

Adolescent risk factors

Previous criminal career research suggests that adolescent risk factors are likely to stimulate the criminal careers of youth negatively affected by the stresses

and strains related to the maturity gap (Moffitt 1993; Moffitt et al. 2001). Group-based modeling failed to identify this offending trajectory among a self-reported, nationally represented sample of U.S. males. This series of research also proposes that exposure to early childhood risk factors and the resulting behavior leads to cascading effect of cumulative disadvantages (Laub and Sampson 2004; Moffitt 1993; Nagin and Land 1993; Nagin, Farrington and Moffitt 1995). Therefore, serious youthful offenders, particularly the declining high level and declining medium level males, should be at higher risk during adolescence. ANOVA and Tukey HSD results support this contention with significant mean level differences found between the groups for adolescent risk factors: grade point average $(F(4,780)=7.14, p<.00)$, negative school experience $(F(4,779)=5.96, p<.00)$, peer approval $(F(4,819)=32.74, p<.00)$, and normlessness $(F(4,776)=31.57, p<.00)$ (Table 9 and Table 10).

As expected, declining medium level (M=3.4789), stable high level (M=3.4722), and declining high level males (M=3.5714) reported significantly lower grade point averages than their stable low level counterparts (M=3.7657). With the exception of the declining high level offenders (M=3.5714), these offending groups also reported more negative school experiences (M=11.4789).

In addition to their problems in school, stable high level males (M=20.5263), declining high level males (M=19.2752), and declining medium level males (M=19.9091) reported having significantly more crime accepting peers compared to stable low level males (M=16.0313). However, scoring lower on the peer approval scale is not an indication of having delinquent friends. Chi-square results indicate that the largest percentage (43.51%) of the males associating with delinquent friends

is the stable low level group. Declining medium level, declining high level, and stable high level males comprise a third (33.65%) of males who associate with delinquent friends. Finally, stable high level males (M=19.4638), declining high level males (M=18.0943) and declining medium level males (M=19.4638) reported significantly higher levels of adolescent strain or normlessness than their stable low level counterparts (M=15.1694).

Again, more similarities were found between conforming and declining high level males than differences. Conforming males reported similar grade point averages (M=3.3941), negative school experiences (M=10.2978), crime approving peers (M=17.9832), and levels of normlessness (M=16.9467) as declining high level, declining medium level and stable high level males. Furthermore, conforming males make up more than a fifth (22.85%) of males with delinquent friends.

Emerging adult risk factors

Following the assumptions put forth by other criminal career researchers, between-group differences should continue to exist between high and low level offenders into emerging adulthood. Particularly, serious, long term offenders should continue to be at a disadvantage compared to their low level offending and non-offending counterparts. However, other research suggests that after adolescence, serious, long-term offenders will begin to mature and age-out of crime (Gottfredson and Hirschi 1993; Laub and Sampson 2004).   ANOVA and chi-square models find support for both hypotheses. At the *p<.00* level, significant mean level differences were found between groups for negative work experience (F(4,561)=8.73), criminal

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work environments (F(4,655)=5.96), parental approval (F(4,735)=4.63), and peer approval (F(4,732)=20.51 (Table 9 and Table 11).

During emerging adulthood, declining medium level males continued to out score the other male offending and non-offending groups on the negative work experience (M=12.1224), parental approval (M=9.3676), peer approval (M=13.9853), and criminal work environment (M=11.6721) scales. Criminal offending for these men is more likely to occur during this developmental stage if they are exposed to more negative work environments and have parents and peers that are more approving of criminal behavior. Results from this study suggest that for the declining medium level males increased exposure to early childhood risk factors is more likely to result in a cumulative disadvantage during adolescence and emerging adulthood. However, this does not appear to be the case with the other serious offending groups.

Significant mean level differences were not found between stable low level, conforming, declining high level, and stable high level males for the variables negative work experience and parental approval. These groups were less likely to report having negative work experiences and crime approving parents during emerging adulthood. Likewise, declining high level offenders reported having few crime approving peers during emerging adulthood (M=11.617). While the declining high level and stable high level males appear to have socially re-aligned themselves with the more conforming stable low level offenders, they appear to still suffer from some of the negative effects resulting from their childhood predispositions, particularly knifed off employment opportunities. Combined, the declining high level, declining medium level and stable high level groups make up 27.38% of

emerging adult males that gained employment upon entrance into emerging adulthood.

Much like earlier results, conforming males are exposed to some of same risk factors as their offending counterparts. Specifically, conforming males (M=11.6351) are as likely to work in a crime approving environment as the declining medium level males. Additionally, conformists (M=12.7394) and stable high level offenders (M=12.3582) reported similar scores for crime approving peers, though their scores were significantly lower than the declining medium level males.

RISK FACTORS PREDICTING GROUP MEMBERSHIP FOR FEMALES

Early childhood risk factors

Unlike the male offenders, early childhood risk factors are better at describing serious offending in general, regardless of the length of an individual's criminal career, particularly for the early childhood risk factor parental appraisals ($(F_{(4,770)}=8.06$, $p<.00$) (Table 12 and Table 13). Analysis of variance (ANOVA) and Tukey HSD results reveal that only the declining high level females report high levels of exposure to negative parental appraisals (M=29.6364). However, members of the declining high level group should not be consider long-term offenders, as by age 18 they appear to desist from a life of crime. High level females (M=27.3333) report significantly lower scores, with no significant mean level differences existing between this group and the low level risers (M=25.1414) and conformists (M=26.2237).

Unlike the males, low socio-economic status does not predict serious, long-term offending. No significant mean level differences were found between the

female trajectory groups for disadvantaged neighborhood. Additionally, chi-square results reveal that only a small percent (15.29%) of serious, long-term female offenders receive public assistance. The majority (85.67%) of female public assistance recipients are low level risers or conformists. These findings suggest that while public assistance may be a proxy measure for socio-economic status, the act of receiving public assistance may actually protect lower class individuals from developing into serious, long term offenders.

Adolescent risk factors

Like the males, evidence was found for the assumption that exposure to early childhood risk factors leads to the cascading effect of cumulative disadvantages among serious, female offenders (See Laub and Sampson 2004; Moffitt 1993; Nagin and Land 1993; Nagin, Farrington and Moffitt 1995) (Table 12). Among the female trajectory groups, significant mean level differences are found for the adolescent risk factors: grade point average $(F(4,699)=7.59, p<.00)$, negative school experiences $(F(4,699)=37.85, p<.00)$, peer approval $(F(4,747)=28.66, p<.00)$, and normlessness $(F(4,700)=18.71, p<.00)$ (Table 14).

Tukey HSD results indicate that the declining high level females continue to be at a disadvantage during adolescence. With regards to the school variables, this group reported significantly lower grade point averages (M=3.0909) and more negative school experiences (M=12.2727) than members of the other female groups. Additionally, the declining high level females reported having more crime approving peers (M=21.0000). Similarities in levels of adolescent stress were observed between this group (M=19.2727) and the declining medium level females (M=19.1053).

Despite the lack of significance on the normlessness scale, the declining high level females still out scored the other females groups. None of the adolescent risk factors were significantly correlated with the criminal behavior of the high level offenders or conforming females.

As predicted by feminist researchers, frequency of offending for some females, specifically low level risers, does increase at a late age. However, ANOVA, Tukey, and chi-square results do not support the contention that increased offending during adolescence is strongly correlated with increased exposure to adolescent risk factors (Table 12). Compared to other female offending groups, low level risers reported higher grade point averages (M=3.9398) and fewer negative school experiences (M=9.9099) than all other groups.   Additionally, low level risers were significantly less likely to be exposed to crime approving peers (M=14.265) and experience high levels of adolescent strain (M=14.0375).

Emerging adult risk factors

Exposure to early childhood predispositions continues to place the declining high level females at a cumulative disadvantage during emerging adulthood (Table 12). Furthermore, there is empirical support for the feminist assumption that female offending is highly correlated with romantic relationships with criminal partners, but not correlated with increases the female offending.   Emerging adult risk factors distinguishing the female offending trajectories include: criminal partner $(F(4,291)=7.37, p<.00)$, parental approval $(F(4,715)=5.27, p<.00)$, and peer approval $(4, 712)=18.29, p<.00)$ (Table 15).

During emerging adulthood, declining high level females continued to be a cumulative disadvantage as they were more likely to have more crime approving parents (M=9.1818) and peers (M=12.4783) than their other female counterparts. The declining medium level females also appear to be on a downward spiral after reporting high levels of strain during adolescence. This group reported having more crime approving romantic partners (M=11.6364) than other females and resembled the declining high level females with regards to crime approving peers (M=12.4783). While their offending continues to increase during this developmental stage, the low level risers were least likely to be involved with a crime approving partner (M=8.5714), have crime approving parents (M=7.4944) and crime approving peers (M=96.2968). Consequently, it is still unclear as to the reasons leading to their increased offending at such a late age.

Interesting, while these mean level differences exist for these relationship variables, chi-square results did not reveal significant differences for the emerging adult females that get married, indicating that while relationships are highly correlated with female offending for serious youthful offenders, simply being in a relationship does not lead to female crime. Unlike the males, no significant differences were found between groups for any of the work related variables.

RESULTS OF THE BETWEEN-WAVE COMPARISON MODEL

One of the limitations of the group-based trajectory model is its inability to detect groups made of a small number of individuals. Consequently, a between-wave comparison test is conducted to validate the results from the group-based model. Results from the between-wave comparison analysis differ from the findings from the

group-based model. While small in number, the between-wave comparison analysis identified 79 emerging adult onset offenders, 35 males and 44 females (Table 16). Overall, these individuals comprise 8.1% of all offenders. Within each sex, emerging adult onset offenders comprised 5.6% of the male offenders and 12.7% of female offenders. Comparatively, the 776 adolescent onset offenders comprise 79.7% of all offenders, 82.1% of male offenders and 75.2% of female offenders. An estimated 12% of the total, male, and female offending groups are early onset offenders. Contrary to feminist literature, chi-square results do not indicate any significant differences between the number of females and number of males that develop into emerging adult onset offenders.

RISK FACTORS INFLUENCING ONSET DURING EMERGING ADULTHOOD

Three logistic regressions are conducted to determine what variables were significant in predicting emerging adult onset: a restricted model that included the total sample, an unrestricted model including only males, and an unrestricted model including only females. Few risk factors included in this study appear to influence emerging adult onset. As expected, influencing risk factors appear to be more proximate in nature.

Results from the restricted model reveal that individuals that did not marry were 1.6 times more likely to be an emerging adult onset offender (Table 17). Results from the unrestricted male model reveal that on average males with more negative school experiences were 15% more likely to experience emerging adult onset. Females that did not marry were 1.8 times more likely to be an emerging adult onset offender.

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Similar to the chi-square results present earlier, empirical evidence from the restricted model and the unrestricted male model support the notion that pubic assistance acts as a protective factor. Sample members receiving public assistance were 86% less likely to become involved in crime during emerging adulthood; Males were 2.1 times less likely.

These results suggest that while the sensitivity of the group-based trajectory model was unable to identify an emerging adult onset offending group, a small group does exist. Logistic regression results reveal there are gendered risk factors influencing this transition. As expected, these results are more proximate in nature.

CHAPTER 5: CONCLUSION

Over two decades ago, the National Institute of Justice instituted a research agenda focusing on individualized criminal careers, stimulating the age-crime curve debate (Blumstein et al. 1986). Suddenly a stagnated criminological discipline which had little impact on crime policy was re-energized with the introduction criminal career research and the search for the career criminal (Blumstein et al. 1986). In particular, criminologists became interested in identifying distinct youthful criminal typologies and their distinguishing risk factors. The empirical work that followed consistently identified two youthful offending groups, early and adolescent onset offenders. More contemporary criminal career and feminist research shifted the focus of the investigation to the criminal careers of late onset offenders, gendered trajectories, and corresponding risk factors. Forgotten among this research is a discussion about the gendered criminal careers of emerging adults. This dissertation explores this issue. Specifically, this dissertation investigates whether an emerging adult onset offender exists in a self-reported, nationally representative U.S. sample. This dissertation also seeks to determine whether gendered trajectories and risk factors exist.

Investigation into these issues is challenging because of the limited number of nationally representative datasets containing self-reported information on post-adolescent risk factors, criminality, and other life circumstances. Other researchers have resolved this issue by utilizing data from police and court records with results revealing of a high prevalence of late onset offenders in the offending population

(Daly 1994; Eggleston and Laub 2002; Kratzer and Hodgins 1999). However, empirical comparisons of self-reported and official data negate these findings. The majority of late onset offenders as identified in official records self-report youthful offending (Elander et al. 2000). Other retrospective U.S. studies have used self-report data from already convicted individuals (Simpson et al. 2008). Results from these studies have also identified a late onset offending group. Such studies have been criticized on the likelihood that they are plagued with respondent bias. I address these issues by using self-reported, prospective, longitudinal data from a nationally representative sample of U.S. youth.

This research integrates the theoretical and empirical work of criminal career and feminist criminologists in an effort to better understand age-graded and gendered trajectories. I contribute to the criminal career and feminist literature by focusing on an under studied population, emerging adults. I use a ten-point variety scale to determine the level of individual offending. All analyses are conducted using this variety scale. Finally, I use Nagin's (2005) group-based trajectory modeling, a between-wave comparison model, conventional statistical tools, and logistic regression models to identify age-graded and gendered trajectories and their distinguishing risk factors. For the remainder of this chapter, I discuss the theoretical, research, and policy implications of this research, and suggest directions for future studies.

THEORETICAL AND RESEARCH IMPLICATIONS

Emerging adult onset offenders

Past studies have revealed many inconsistencies between the risk factors thought to influence late onset offending and the basic assumptions of many contemporary, mainstream criminological theories such as informal social control. Consequently, more traditional theoretical explanations such as traditional strain theory, differential association theory and social learning theory have been used to explain this phenomenon. Yet, no theory has provided an adequate explanation. Findings from this dissertation suggest that the challenge of explaining emerging adult onset may be particularly difficult because a very small number of individuals experience this phenomenon. Consequently, statistical methods such as group-based trajectory modeling lack the sensitivity needed to identify this group. However, group-based modeling is useful in identifying multiple and gendered offending trajectories.

Gendered trajectories

Group-based trajectory models identified ten gendered trajectories, five male trajectories and five female trajectories. For the most part, these trajectories are similar with groups of serious, long-term offenders, serious, early, desisting offenders, and conformists found among males and females. During wave 1, serious, long-term offenders, referred to as declining high level males and high level females participate in significantly higher levels of crime compared to the other offending groups. Though their level of offending decreases with age, members of these groups still participate in more crime at all ages compared to other offenders. In addition to

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these groups, serious, early, desisting offenders, referred to as declining medium level males and declining high level females, report high levels of offending during wave 1. However, by wave 6, members of these groups desist. Conformists did not offend at any age.

Despite the similarities found between male and female trajectories, differences are identified. First, there is evidence of two groups of stable offenders among the male respondents, stable high level and stable low level males. Stable high level males participate in an average of 1.5 crime types a year. Stable low level males are involved in an average 1 crime type a year. Over the ten year period, the level of offending for both groups does not change significantly.

A stable offending group is not evident among female offenders. Female trajectories instead include a group of steady desisters, referred to as declining medium level offenders, and a group of low level risers. During wave 1, the declining medium level females report similar levels of crime activity as the stable low level males, but over the ten year period, their offending steadily decreases to the point of desistance. Low level risers are the most unique group identified. This group of female offenders is involved in low levels of offending during wave 1. By wave 5, their level of offending begins to increase, peaking at an average of .7 offenses. While level of offending for low level risers decreases slightly, they do not before the end of the data collection period.

Gendered risk factors

Increased exposure to early childhood risk factors are highly correlated with the serious, long-term offending of declining high level males, declining medium

level males, and stable high level males, as well as the serious offending of declining high level females. During early childhood, declining high level, declining medium level, and stable high level males are exposed to more disadvantaged neighborhoods and more negative parental appraisals as compared to their low level and conforming counterparts. Declining high level females also reported increased exposure to disadvantaged neighborhoods. Interestingly, male and female public assistance recipients appear to be protected from a life of serious, long term offending.

As predicted by Moffitt (1993), increased exposure to early childhood risk factors place high risk males and females at a cumulative disadvantage during adolescence and emerging adulthood. During adolescence, declining high level males, declining medium level males, and stable high level males reported lower grade point averages, more negative school experiences, more crime approving peers, and higher levels of strain than their stable low level counterparts. During emerging adulthood, all three groups were less likely to gain employment. Additionally, declining medium level males reported more negative work experiences, an increased likelihood of working in a criminal environment, and more crime approving parents and peers.

Declining high level females were also at a cumulative disadvantage during adolescence and emerging adulthood. This group reported lower grade point averages, more negative school experiences, more crime approving peers and higher levels of adolescent strained compared to their other female counterparts. During Emerging adulthood, declining high level females also reported having more crime approving parents and peers.

Early childhood risk factors are not the only risk factors that can lead to a downward spiral. My results indicate that high levels of adolescent strains cause the declining medium level females to be at a disadvantage during emerging adulthood. In particular, this group reported having more crime approving partners and crime approving peers. Therefore, it appears that high exposure to more proximate risk factors can be as detrimental to individual development as high exposure to early childhood risk factors.

Risk factors correlated with the behaviors of conforming males and the low level rising females contradict some of the basic criminal career assumptions. For the most part, conforming males resemble serious offenders, yet they do not transition into a criminal lifestyle. For example, during early childhood, conforming males are as likely to come from disadvantaged neighborhoods and be exposed to negative parental labeling as declining high level, declining medium level, and stable high level males. Similarly, during adolescence, conforming males report comparable grade point averages and exposure to negative school experiences, crime approving peers, and adolescent strain as serious, long-term offending males. During emerging adulthood, conforming males are as likely to work in crime approving environments as the declining medium level males and having as many crime approving peers as the declining medium level and stable high level males. More investigation is needed to determine why high risk conformers do not transition into crime and declining high level and declining medium level offenders do.

More research is also need to explain why low level rising females increase their level of offending during late adolescence. Researchers suggest that increased

offending during adolescence is strongly correlated with the strains and stresses of the maturity gap. However, this group reported higher grade point averages, fewer negative school experiences, fewer crime approving peers, and lower levels of adolescent strains than the other female offending groups. They also reported low scores on all early childhood and emerging adult risk factors. More research is needed to determine the factors influencing increased offending of this group.

Emerging adult onset offenders.

While findings from the group-based trajectory models refute the existence of a late onset offender, between-wave comparison models were able to identify a small number (79) of emerging adult onset offenders. The contradiction in findings suggest that the difficulty in determining whether this group exists lays not in the type of data being explored, e.g. self-report vs. conviction and arrest data, but in the methods used to investigate the issue. Further investigation revealed that the factors leading to emerging adult-onset are more proximate in nature with emerging adult onset males reporting more negative school experiences during adolescence and emerging adult onset females being less likely to get married. More research is needed to investigate other risk factors that stimulate emerging adult onset.

STUDY LIMITATIONS

Despite these findings, there are some limitations of this dissertation. First, the respondents' ages range between 21 and 27 years during wave 7, truncating the period of emerging adulthood being studied. Preliminary analyses of the NYS reveals that by wave 7, a number of respondents were married or in a cohabitating relationship, had started a career, lived independently, and had children. These life

changes are evidence of a transition from adolescence into emerging adulthood. However, it is likely that some individuals will make these transitions towards the end of this developmental stage. Truncating this age group prevents me from studying the impact these transitions have on older emerging adults and their criminal careers. Additionally, my ability to identify any unique age-graded risk factors that affect those in their late 20s and early 30s will be limited.

Second, these data were collected from 1977 through 1987. It could be argued that since the collection of this data a random significant event may have influenced a significant change in every day life and individual behavior of the respondents. However, unlike other datasets that may have been plagued with the residual effects of major historical events such as the Great Depression (see Sampson and Laub 1993), the ten years from the start of the data collection to the end of the data collection were fairly stable in the U.S. Moreover, any historical event would have affected all participants in the National Youth Survey sample. However, these data are not able to account for social changes, i.e. delayed marriages, increases in teenage child bearing and college attendance, etc., which have occurred since the 1980s. Consequently, my findings may be a result of a historical or cohort effect.

Third, these data are affected by sample attrition. By wave 7, almost one fifth (19.8% or 342 individuals) of the total sample population dropped from the study, including 23.7% of the males and 15.4% of females sampled (Table 1). Overall, a majority (71.1%) of the original sample participated in a minimum of six waves of the study. T-tests are used to identify any significant, systematic differences that may exist between respondents and non-respondents participating at wave 1, but absent at

wave 7. T-tests are used to determine if systematic differences exist between individuals present at both waves 1 and 7 and attrite respondents (individuals that responded at wave 1, but not a wave 7).[4] All independent and dependent variables are regressed on the dichotomous variable, y7_respond. This variable is coded one if respondents were present at both waves and zero if they dropped from the survey by wave 7. Separate analyses are conducted for males and females.

Significant differences between responding and attrite males were found for grade point average, gaining employment, and stable employment. T-test scores indicate that males with higher grade point averages were significantly more likely to respond at both waves (Table 2). Additionally, males that gained and maintained employment between wave 5 and wave 6 were significantly more likely to respond. With an alpha of .05, I would expect to find one significant effect in twenty (or five in 100) by chance alone. These results provide little evidence that systematic differences exist between responding and attrite males.

Significant differences between responding and attrite females were found for seven risk factors: two early childhood risk factors, one adolescent risk factors, and four emerging adult risk factors. Females raised in more disadvantaged neighborhoods and who received more favorable parental appraisals during early childhood were more likely participate at wave 1 and wave 7 (Table 3). Participation during adolescence was more likely if female respondents had more negative school experiences. Similar to male response, female response was also more likely if female respondents gained and maintained employment between waves 5 and 6.

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[4] Attrition analyses can also be conducted using logistic regression. See *Appendix C: Missing data analyses* for logistic regression results.

Additionally, parent and peers of female respondents were more disapproving of criminal behavior during emerging adulthood. These results indicate that, with an alpha set at .05, it is reasonable to assume that systematic differences exist between responding and attrite females. However, an alpha set to .10, would suggest otherwise as I would expect one significant effect in ten (or ten in one hundred) by chance alone. Increasing the alpha level to .10 decreases the rigor of the test.

Acknowledgement of these limitations is important; however they do not impede my ability to investigate different offending trajectories and their correlating risk factors. Caution should be taken when interpreting the results and future research is needed to determine if other offending trajectories and risk factors can be identified in other studies using self-report data.

POLICY IMPLICATIONS

Though some limitations do exist with this study, the results should not be disgards as much can be gained with respect to policy implications. After revealing few between-individual differences among male offending groups at age 70, Laub and Sampson (2004) downplayed the need for further investigation of between-individual differences. However, my results suggest otherwise. My ability to identify various offending groups and their distinguishing risk factors can assist policy makers in their ability to target high-risk youth with effective delinquency prevention programs. Treating these youth early can decrease the likelihood of future offending. Additionally, delinquency prevention programs aimed at specific age groups, not just at high risk youth, can help reduce the likelihood that older individuals will transition into a life of crime.

Hagan and McCarthy (1998) suggest that desistance can only occurred after an offender disassociates from criminal social networks. My findings from the group-based trajectory models support this contention. However, wanting to change must be accompanied by the resources to do so (Giordano et al. 2002). If emerging adult offenders are prevented entrance into the legitimate work force, they are limited in their ability to disassociate from criminogenic work environments. Given their level of exposure to disadvantaged neighborhoods, there is a high probability that the declining high level, declining medium level and stable high level males identified in this study are limited in their occupational options. It is more difficult to draw this conclusion about the serious female offenders as this variable was insignificant. However, other feminist research suggests that the female reliance on criminal partners, peers, and parents is partially the result of limited legitimate work opportunities and other economic restraints such as childcare (Giordano et al. 2002).

Providing work placement programs and establishing relationships between high-risk youth and local employers would decrease the risk level for emerging adults of both sexes and increase the probability of desistance. Emerging adults are prime candidates for these programs. Research indicates that emerging adults are less likely to report criminal involvement and arrest when provided with marginal employment opportunities (Uggen 2000). The types of opportunities provided must include occupations favorable to both males and females. Additionally, these programs should provide childcare services for those emerging adults with children. This effort would help to reduce childcare burdens placed on single parents, as well as reduce their reliance on other criminal associates.

Results from this study also support the need for delinquency prevention programs. While it is unclear from this study as to what public assistance entails, non-recipients were more likely to develop into serious, long-term offenders.   However, simply giving money to high risk families is not enough. High risk families need to be educated on ways to reduce their child's risk level and strengthen their bond with their child. The Nurse-Family Partnership is an excellent example of a delinquency prevention program aimed at achieving these goals.

This model program, as rated by the Center for the Study and Prevention of Violence at the University of Colorado at Boulder, provides first time, low income families with nurse home visitors during the first few years of a child's life.[5] Nurses assist in improving: parental skills, the care provided to infants, child and parent development, child and parent interaction, etc. While this program has an estimated cost of $3,000 a year after start up fees, recipients are less likely to request future aid. Additionally, criminal involvement of both parents and youth are reduced and attachment between family members improves. Though the initial cost may seem expensive, the benefits outweigh the future costs that crime places on the individual and society.

The limited amount of knowledge about risk factors influencing emerging adult onset offending makes it difficult to suggest any policy implications. More research needs to be conducted to determine other factors influencing this transition. As more knowledge is gained, it will be easier to provide insight into the prevention programs that will reduce their risk level.

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[5] More information about ratings system and the Nurse-Family Partnership can be found online at www.colorado.edu/cspv/blueprints.

FUTURE RESEARCH

This dissertation suggests a number of areas for future research. First, this research should be replicated using other, more recent, self-reported and official arrest and conviction data gathered from a nationally representative sample of U.S. youth. This research should investigate the influence of other emerging adult risk factors not studied here such as: failing or dropping out of college, starting a family, divorce, moving long distances from family, friends, etc. Such research would provide more insight as to why some individuals transition into crime at such a late age.

Future research should also include data on older individuals. Findings from this study cannot be used to conclude whether a late/adult onset group does or does not exist. This study was limited based on the age of sample respondents. Self-report data gathered from older adults may reveal an adult onset offending group that is influenced by different risk factors.

Additional research is needed to better understand the cumulative disadvantage effect. Specifically, does this effect only occur if individuals are exposed to certain types of early childhood risk factors? Are there certain gendered risk factors not included in this study that consistently place serious female offenders at a cumulative disadvantage later in life?

Finally, more investigation is needed to explain why some high-risk individuals develop into conformists while others develop into serious, long-term offenders. Could these between group differences be a result of genetic coding? While contemporary criminal career research shies away from this issue, recent

neuroscience research suggest this may be the case. Investigations into the phenomenon of addiction have found that between-individual variation in genotypes helps to determine whether an indivdiual will develop into an addict. Scientists suggest that differences in genotypes can impact individual reactions to other environmental stimuli (Caspi and Moffitt 2006). More research is needed to determine whether genetic coding is the deciding factor for whether high-risk individuals become involved in crime.

My analyses suggest that a group of emerging adult onset offenders does exist among a nationally representative sample of U.S. youth. Additionally, this research provides further knowledge about gendered criminal typologies and their associated risk factors. However, much more research is needed on both topics. Crime may never be eliminated from society, but hopefully the results from this and future research will lead to more programs designed to prevent others from transitioning into a life of crime.

APPENDIX A: TABLES

Table 1. Missing cases of total sample, by wave and sex

Wave	Total		Females		Males	
	Number	Percent	Number	Percent	Number	Percent
I	0	0.0 %	0	0.0 %	0	0.0 %
II	71	4.1	31	3.8	40	4.4
III	100	5.8	44	5.5	56	6.1
IV	182	10.6	69	8.6	113	12.3
V	232	13.4	97	12.0	135	14.7
VI	237	13.7	84	10.4	153	16.7
VII	342	19.8	124	15.4	218	23.7

Table 2. Attrition analyses, male respondents

Risk factors		t	sig
Early childhood	Abuse	-0.56	0.58
	Public assistance	-1.42	0.15
	Disadvantaged neighborhood	-1.92	0.06
	Parental crime	-0.16	0.88
	Negative parental appraisals	0.23	0.82
Adolescent	Negative school experience	-0.31	0.75
	Delinquent peers	-1.24	0.22
	Peer approval	-0.20	0.84
	Normlessness	0.50	0.62
	GPA	2.48	0.01
Emerging adult	Negative work experience	1.10	0.27
	Gainful employment	5.01	0.00
	Stable employment	7.20	0.00
	Criminal work environment	-0.80	0.43
	Marriage	1.21	0.23
	Criminal partner	-1.12	0.26
	Parental approval	-0.37	0.71
	Peer approval	-1.30	0.19

Table 3. Attrition analyses, female respondents

	Risk factors	t	sig
Early childhood	Abuse	-1.44	0.15
	Public assistance	-1.48	0.14
	Disadvantaged neighborhood	-2.83	0.00
	Parental crime	-0.55	0.58
	Negative parental appraisals	-2.02	0.04
Adolescent	Negative school experience	2.24	0.03
	Delinquent peers	-1.91	0.06
	Peer approval	0.60	0.55
	Normlessness	-0.20	0.84
	GPA	0.26	0.79
Emerging adult	Negative work experience	-0.34	0.73
	Gainful employment	5.21	0.00
	Stable employment	5.17	0.00
	Criminal work environment	0.38	0.70
	Marriage	0.60	0.55
	Criminal partner	-1.90	0.06
	Parental approval	-2.59	0.01
	Peer approval	-2.21	0.03

Table 4. Descriptive statistics of covariates, total sample

Risk factors	Variable	N	Min	Max	Mean	S.D.	Alpha	Description
Early childhood	Abuse	1725	0.0	1.0	0.4	0.5		parental abuse
	Public assistance	1683	0.0	1.0	0.2	0.4		parental recipient of public assistance
	Neighborhood	1678	7.0	21.0	8.8	2.2	0.747	high scores indicate more disadvantaged neighborhood
	Parental criminality	1677	8.0	25.0	10.2	4.0	0.869	high scores indicate stronger approval of youthful crime.
	Negative parental appraisal	1668	14.0	46.0	26.1	0.5	0.710	high scores reflect more negative parental appraisal
Adolescent	Neg. school experience	1520	5.0	21.0	10.5	2.6	0.658	high scores indicate a more negative school experience
	Delinquent peers	1603	0.0	1.0	0.8	0.4		had delinquent peers
	Peer approval	1612	8.0	33.0	16.6	4.8	0.885	high scores indicate more delinquent peers
	Normlessness	1518	7.0	29.0	15.9	4.4	0.821	high scores indicate higher levels of normlessness
	Grade point average	1513	1.0	5.0	3.7	0.8		high scores indicate better grades
Emerging adulthood	Neg, work experience	1077	5.0	20.0	10.5	2.5	0.723	has a negative work environment
	Gained employment	1690	0.0	1.0	0.4	0.5		gaining employment between waves 5 and 6
	Stable employment	1690	0.0	1.0	0.4	0.5		stable employment between waves 5 and 6
	Criminal work environment	1284	6.0	22.0	10.4	3.1	0.892	coworkers approved of criminal behavior
	Marriage	1471	0.0	1.0	0.2	0.4		married between waves 5 and 6
	Criminal partner	477	6.0	19.0	9.4	2.8	0.874	partner approved of criminal behavior
	Parental approval	1493	6.0	18.0	8.1	2.3	0.873	parents approved of criminal behavior
	Peer approval	1487	6.0	28.0	10.9	3.5	0.898	peers approved of criminal behavior

Table 5. Descriptive statistics of covariates, males

Risk factors	Variable	N	Min.	Max.	Mean	S.D	Description
Early childhood	Abuse	918	0.0	1.0	0.4	0.5	parental abuse
	Public assistance	902	0.0	1.0	0.2	0.4	parental recipient of public assistance
	Neighborhood	899	7.0	21.0	8.8	2.2	high scores indicate more disadvantaged neighborhood
	Parental criminality	900	8.0	25.0	10.2	3.9	high scores indicate stronger approval of youthful crime
	Negative parental appraisal	889	15.0	43.0	26.4	4.7	high scores indicate more negative parental approval
Adolescent	Neg. school experience	811	5.0	20.0	10.7	2.5	high scores indicate a more negative school experience
	Delinquent peers	848	0.0	1.0	0.8	0.4	had delinquent peers
	Peer approval	855	8.0	33.0	17.9	4.7	high scores indicate more delinquent peers
	Normlessness	808	7.0	29.0	16.9	4.3	high scores indicate higher levels of normlessness
	Grade point average	810	1.0	5.0	3.6	0.9	high scores indicate better grades
Emerging adult	Negative work experience	588	5.0	20.0	10.7	2.4	had a negative work experience
	Gained employment	899	0.0	1.0	0.4	0.5	gained employment between waves 5 and 6
	Stable employment	899	0.0	1.0	0.4	0.5	stable employment between waves 5 and 6
	Criminal work environment	684	6.0	22.0	10.9	3.2	coworkers approved of criminal behavior
	Marriage	761	0.0	1.0	0.1	0.3	married between waves 5 and 6
	Criminal partner	177	6.0	19.0	9.9	2.9	partner approved of criminal behavior
	Parental approval	768	6.0	15.0	8.5	2.4	parents approved of criminal behavior
	Peer approval	765	6.0	28.0	11.9	3.6	peers approved of criminal behavior

Table 6. Descriptive statistics of covariates, females

Risk factors	Variable	N	Min.	Max.	Mean	S.D.	Description
Early childhood	Abuse	807	0.0	1.0	0.4	0.5	parental abuse
	Public assistance	781	0.0	1.0	0.2	0.4	parental recipient of public assistance
	Neighborhood	779	7.0	21.0	8.8	2.3	high scores indicate more disadvantaged neighborhood
	Parental criminality	777	8.0	25.0	10.3	4.0	high scores indicate stronger approval of youthful crime.
	Negative parental appraisal	779	14.0	46.0	25.6	5.0	high scores indicate more negative parental approval
Adolescent	Neg. school experience	709	5.0	21.0	10.2	2.7	high scores indicate a more negative school experience
	Delinquent peers	755	0.0	1.0	0.8	0.4	had delinquent peers
	Peer approval	757	8.0	32.0	15.2	4.6	high scores indicate more delinquent peers
	Normlessness	710	7.0	26.0	14.8	4.3	high scores indicate higher levels of normlessness
	Grade point average	709	1.0	5.0	3.9	0.8	high scores indicate better grades
Emerging adulthood	Negative work experience	489	5.0	18.0	10.2	2.5	negative work environment
	Gained employment	791	0.0	1.0	0.4	0.5	gained employment between waves 5 and 6
	Stable employment	791	0.0	1.0	0.3	0.5	stable employment between waves 5 and 6
	Criminal work environment	600	6.0	19.0	9.8	2.9	coworkers approved of criminal behavior
	Marriage	710	0.0	1.0	0.3	0.4	married between waves 5 and 6
	Criminal partner	299	6.0	17.0	9.1	2.7	partner approved of criminal behavior
	Parental approval	725	6.0	18.0	7.7	2.2	parents approved of criminal behavior
	Peer approval	722	6.0	24.0	9.9	3.2	peers approved of criminal behavior

Table 7. BIC estimates for male and female trajectory models

Number of groups	BIC: Males		BIC: Females	
	Full sample (N=5796)	Males (N=918)	Full sample (N=5196)	Females (N=807)
2	-6,306.8	-6,300.4	-2,916.8	-2,910.3
3	-6,055.7	-6,045.6	-2,930.3	-2,920.3
4	-5,996.9	-5,983.2	-2,831.1	-2,817.2
5	-5,961.7	-5,944.4	-2,803.5	-2,785.8
6	-5,979.5	-5,958.5	-2,838.7	-2,817.2

Table 8. Analysis of variance results for early childhood risk factors for all male offenders

Risk Factors		Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Early childhood	Disadvantaged neighborhood	Between Groups	70.61	4.00	17.65	3.73	0.01
		Within Groups	4092.18	865.00	4.73		
		Total	4162.79	869.00			
	Parental criminality	Between Groups	69.65	4.00	17.41	1.18	0.32
		Within Groups	12821.04	866.00	14.80		
		Total	12890.69	870.00			
	Negative parental appraisal	Between Groups	926.68	4.00	231.67	11.44	0.00
		Within Groups	17296.01	854.00	20.25		
		Total	18222.69	858.00			

Table 9. Summary of results from ANOVA and Chi-square models for male offenders

Male risk factors		DHL	DML	SHL	SLL	C
Early childhood	Disadvantaged neighborhood	+	+			+
	Public assistance				+	
	Negative parental appraisals	+	+	+		+
Adolescent	Grade point average	-	-	-		+
	Negative school experiences		+	+		+
	Peer approval	+	+	+		+
	Delinquent friends				+	+
	Normlessness	+	+	+		
Emerging adult	Negative work experience		+			
	Criminal work environment		+			+
	Unlikely to gain employment	+	+	+		
	Parental approval		+			
	Peer approval		+			

+ High scores indicate increased and significantly different risk levels.

- Low scores indicate increased and significantly different risk levels.

Table 10. Analysis of variance results for adolescent risk factors for all male offenders

	Risk Factors	Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Adolescent	Grade point average	Between Groups	19.55	4.00	4.89	7.14	0.00
		Within Groups	533.82	780.00	0.68		
		Total	553.37	784.00			
	Negative school experience	Between Groups	145.25	4.00	36.31	5.96	0.00
		Within Groups	4744.86	779.00	6.09		
		Total	4890.11	783.00			
	Peer approval	Between Groups	2332.90	4.00	583.23	32.74	0.00
		Within Groups	14589.63	819.00	17.81		
		Total	16922.53	823.00			
	Normlessness	Between Groups	1971.47	4.00	492.87	31.57	0.00
		Within Groups	12113.22	776.00	15.61		
		Total	14084.69	780.00			

85

Table 11. Analysis of variance results for emerging adult risk factors for all male offenders

Risk Factors		Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Emerging adult	Negative work experience	Between Groups	178.91	4.00	44.73	8.73	0.00
		Within Groups	2873.96	561.00	5.12		
		Total	3052.88	565.00			
	Criminal work environment	Between Groups	226.49	4.00	56.62	5.96	0.00
		Within Groups	6223.05	655.00	9.50		
		Total	6449.54	659.00			
	Criminal partner	Between Groups	74.38	4.00	18.59	2.48	0.05
		Within Groups	1206.73	161.00	7.50		
		Total	1281.11	165.00			
	Parental approval	Between Groups	103.04	4.00	25.76	4.63	0.00
		Within Groups	4088.90	735.00	5.56		
		Total	4191.94	739.00			
	Peer approval	Between Groups	899.57	4.00	224.89	20.51	0.00
		Within Groups	8027.24	732.00	10.97		
		Total	8926.81	736.00			

Table 12. Summary of results from ANOVA and Chi-square models for female offenders

Female risk factors		H	DHL	DML	LLR	C
Early childhood	Public assistance				+	+
	Negative parental appraisals		+			
Adolescent	Grade point average		-			
	Negative school experiences		+			
	Peer approval		+			
	Normlessness		+	+		
Emerging adult	Crime approving partner			+		
	Parental approval		+			
	Peer approval		+	+		

 + High scores indicate increased and significantly different risk levels.

 - Low scores indicate increased and significantly different risk levels.

Table 13. Analysis of variance results for early childhood risk factors for all female offenders

	Risk factors	Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Early childhood	Disadvantaged neighborhood	Between Groups	17.25	4.00	4.31	0.87	0.48
		Within Groups	3817.43	769.00	4.96		
		Total	3834.68	773.00			
	Parental criminality	Between Groups	60.54	4.00	15.13	0.95	0.44
		Within Groups	12244.14	767.00	15.96		
		Total	12304.68	771.00			
	Negative parental appraisals	Between Groups	769.52	4.00	192.38	8.06	0.00
		Within Groups	18390.14	770.00	23.88		
		Total	19159.66	774.00			

Table 14. Analysis of variance results for adolescent risk factors for all female offenders

Risk factors		Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Adolescent	Grade point average	Between Groups	16.70	4.00	4.18	7.59	0.00
		Within Groups	384.75	699.00	0.55		
		Total	401.45	703.00			
	Negative school experience	Between Groups	151.40	4.00	37.85	5.22	0.00
		Within Groups	5070.96	699.00	7.25		
		Total	5222.36	703.00			
	Peer approval	Between Groups	2041.01	4.00	510.25	28.66	0.00
		Within Groups	13299.88	747.00	17.80		
		Total	15340.89	751.00			
	Normlessness	Between Groups	1231.42	4.00	307.86	18.71	0.00
		Within Groups	11516.74	700.00	16.45		
		Total	12748.16	704.00			

Table 15. Analysis of variance results for emerging adulthood risk factors for all female offenders

Risk factors		Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Emerging adult	Criminal partner	Between Groups	191.76	4.00	47.94	7.37	0.00
		Within Groups	1892.83	291.00	6.50		
		Total	2084.59	295.00			
	Parental approval	Between Groups	94.91	4.00	23.73	5.27	0.00
		Within Groups	3219.78	715.00	4.50		
		Total	3314.69	719.00			
	Peer approval	Between Groups	660.90	4.00	165.23	18.29	0.00
		Within Groups	6430.83	712.00	9.03		
		Total	7091.73	716.00			

Table 16. Number of individuals in each offender typology

| Offender typology	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Early onset	119	12.2 %	77	12.3 %	42	12.1 %
Adolescent onset	776	79.7	515	82.1	261	75.2
Adult onset	79	8.1	35	5.6	44	12.7
Total	974	100.0	627	100.0	347	100.00

Table 17. Logistic regression models predicting emerging adult onset of total sample and by sex

	Risk factors	Total Sample			Males			Females		
		Exp(B)	Beta	t-ratio	Exp(B)	Beta	t-ratio	Exp(B)	Beta	t-ratio
Early childhood	Sex	0.66	-0.41	0.08						
	Abuse	0.96	-0.04	0.85	1.18	0.16	0.65	0.85	-0.17	0.61
	Public assistance	0.42	-0.86	0.04 *	0.13	-2.08	0.04 *	0.69	-0.37	0.44
	Disadvantaged neighborhood	1.03	0.03	0.56	1.07	0.07	0.42	1.01	0.01	0.93
	Parental crime	1.03	0.03	0.31	1.03	0.03	0.50	1.03	0.03	0.48
	Negative parental appraisals	0.97	-0.03	0.22	0.94	-0.06	0.12	0.99	-0.01	0.75
	R2	0.024			0.050			0.006		
	Number of cases	76			33			43		
Adolescent	Sex	0.98	-0.02	0.95						
	Grade point average	0.99	-0.01	0.97	1.07	0.06	0.78	0.92	-0.09	0.73
	Negative school experience	1.05	0.05	0.33	1.16	0.15	0.05 *	0.97	-0.03	0.67
	Delinquent peers	0.86	-0.15	0.09	0.90	-0.11	0.36	0.82	-0.19	0.20
	Peer approval	0.95	-0.05	0.20	0.97	-0.03	0.53	0.94	-0.06	0.24
	Normlessness	1.00	0.00	0.91	0.91	-0.09	0.12	1.08	0.08	0.13
	R2	0.023			0.046			0.025		
	Number of cases	66			31			35		
Emerging adult	Sex	0.50	-0.70	0.17						
	Gained employment	0.56	-0.57	0.39	0.72	-0.32	0.80	0.54	-0.62	0.45
	Stable employment	0.35	-1.04	0.14	0.58	-0.54	0.70	0.31	-1.18	0.17
	Negative work environment	1.06	0.06	0.52	1.02	0.02	0.93	1.08	0.08	0.46
	Criminal work environment	1.00	0.00	0.99	0.73	-0.31	0.13	1.12	0.11	0.31
	Marriage	0.21	-1.56	0.00 *	0.31	-1.17	0.26	0.17	-1.76	0.00 *
	Crime approving partner	0.94	-0.06	0.61	0.98	-0.02	0.93	0.93	-0.08	0.60
	Crime approving parents	0.88	-0.12	0.39	0.92	-0.08	0.77	0.83	-0.19	0.29
	Crime approving peers	1.00	0.00	0.97	1.12	0.11	0.58	0.96	-0.04	0.74
	R2	0.117			0.097			0.143		
	Number of cases	23			6			17		

*$p < .05$

APPENDIX B: FIGURES

Figure 1. Male trajectories identified in the National Youth Survey sample
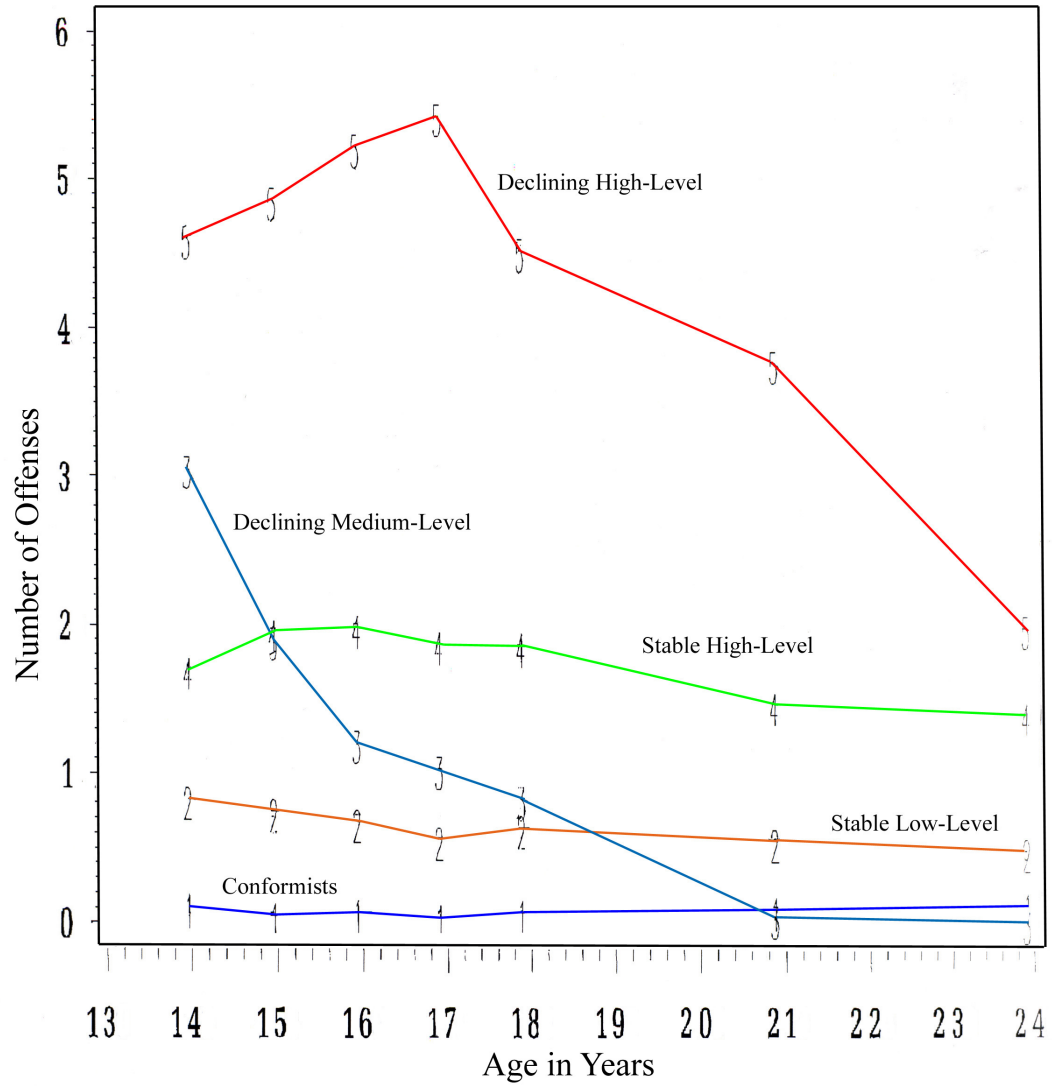
Figure 2. Female trajectories identified in the National Youth Survey sample
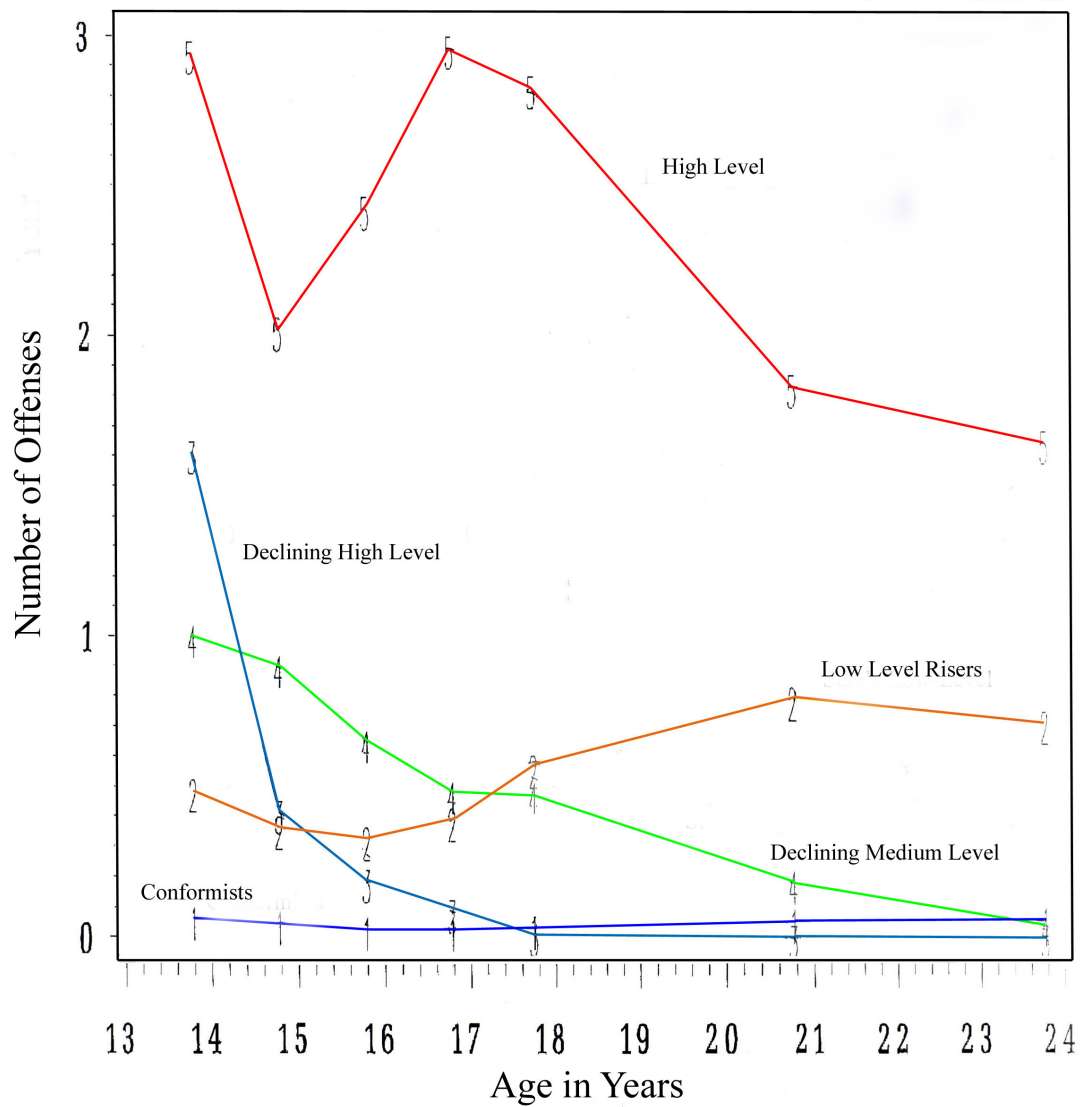
APPENDIX C: MISSING DATA ANALYSES

Table 18. Logistic regression results comparing attrite and responding males

	Risk factors	N	Exp (B)	Beta	S.E.	Wald	DF	Significance
Early childhood	Abuse	915	0.85	-0.17	0.30	0.31	1.00	0.58
	Intercept		3.25	1.18	0.08	214.01	1.00	0.00
	Public assistance	902	0.76	-0.28	0.19	2.02	1.00	0.16
	Intercept		3.53	1.26	0.09	200.28	1.00	0.00
	Disadvantaged neighborhood	899	0.94	-0.06	0.03	3.64	1.00	0.06
	Intercept		5.88	1.77	0.31	32.91	1.00	0.00
	Parental crime	900	1.00	0.00	0.02	0.02	1.00	0.88
	Intercept		3.46	1.24	0.22	31.49	1.00	0.00
	Parental appraisals w1	889	1.00	0.00	0.02	0.05	1.00	0.82
	Intercept		2.87	1.05	0.45	5.54	1.00	0.02
	Parental appraisals w3	853	0.99	-0.01	0.02	0.57	1.00	0.45
	Intercept		5.31	1.67	0.39	18.25	1.00	0.00
Adolescent	Negative school experience w1	903	1.00	0.00	0.03	0.02	1.00	0.89
	Intercept		3.37	1.22	0.33	13.85	1.00	0.00
	Negative school experience w3	811	0.99	-0.01	0.04	0.10	1.00	0.75
	Intercept		4.62	1.53	0.39	15.55	1.00	0.00
	Delinquent peers w3	848	0.76	-0.27	0.22	1.52	1.00	0.22
	Intercept		4.97	1.60	0.20	64.15	1.00	0.00
	Peer approval w1	898	1.00	0.00	0.02	0.03	1.00	0.86
	Intercept		3.06	1.12	0.27	17.54	1.00	0.00
	Peer approval w3	855	1.00	0.00	0.02	0.04	1.00	0.84
	Intercept		4.33	1.47	0.34	18.88	1.00	0.00
	Normlessness w1	901	1.00	0.00	0.02	0.00	1.00	0.99
	Intercept		3.18	1.16	0.30	14.92	1.00	0.00
	Normlessness w3	808	1.01	0.01	0.02	0.25	1.00	0.62
	Intercept		3.41	1.23	0.35	12.09	1.00	0.00
	Grade point average w1	912	1.43	0.36	0.10	13.17	1.00	0.00
	Intercept		0.92	-0.09	0.35	0.06	1.00	0.81
	Grade point average w3	810	1.29	0.26	0.10	6.08	1.00	0.01
	Intercept		1.64	0.49	0.37	1.78	1.00	0.18
Emerging adult	Negative work experience	588	1.05	0.05	0.05	1.22	1.00	0.27
	Intercept		2.92	1.07	0.52	4.27	1.00	0.04
	Gainful employment	899	2.40	0.88	0.18	23.59	1.00	0.00
	Intercept		2.45	0.90	0.09	92.74	1.00	0.00
	Stable employment	899	3.70	1.31	0.20	45.09	1.00	0.00
	Intercept		2.18	0.78	0.09	72.82	1.00	0.00
	Criminal work environment	684	0.97	-0.03	0.04	0.64	1.00	0.43
	Intercept		8.78	2.17	0.41	28.24	1.00	0.00
	Marriage	761	1.50	0.41	0.34	1.45	1.00	0.23
	Intercept		5.87	1.77	0.11	254.47	1.00	0.00
	Criminal partner	178	0.92	-0.08	0.08	1.26	1.00	0.26
	Intercept		14.37	2.67	0.81	10.84	1.00	0.00
	Parental approval	768	0.98	-0.02	0.04	0.14	1.00	0.71
	Intercept		7.43	2.01	0.39	26.36	1.00	0.00
	Peer approval	765	0.96	-0.04	0.03	1.69	1.00	0.19
	Intercept		10.37	2.34	0.37	39.59	1.00	0.00

Table 19. Logistic regression results comparing attrite and responding females

	Risk factors	N	Exp(B)	Beta	S.E.	Wald	DF	Significance
Early	Abuse	804	0.57	-0.56	0.40	2.04	1.00	0.15
	Intercept		5.66	1.73	0.10	293.72	1.00	0.00
	Public assistance	781	0.70	-0.36	0.25	2.18	1.00	0.14
	Intercept		6.36	1.85	0.12	257.13	1.00	0.00
	Disadvantaged neighborhood	779	0.90	-0.11	0.04	7.63	1.00	0.01
	Intercept		16.09	2.78	0.38	53.89	1.00	0.00
	Parental crime	777	0.99	-0.01	0.03	0.30	1.00	0.58
	Intercept		6.83	1.92	0.28	48.50	1.00	0.00
	Negative parental appraisals	779	0.96	-0.04	0.02	4.06	1.00	0.04
	Intercept		15.02	2.71	0.52	27.13	1.00	0.00
Adolescent	Negative school experience	709	1.11	0.10	0.05	4.97	1.00	0.03
	Intercept		2.83	1.04	0.45	5.33	1.00	0.02
	Delinquent peers	755	0.55	-0.59	0.31	3.55	1.00	0.06
	Intercept		12.23	2.50	0.29	75.35	1.00	0.00
	Peer approval	757	1.02	0.02	0.03	0.36	1.00	0.55
	Intercept		5.98	1.79	0.39	20.87	1.00	0.00
	Normlessness	710	0.99	-0.01	0.03	0.04	1.00	0.84
	Intercept		8.20	2.10	0.42	24.76	1.00	0.00
	Grade point average	709	1.04	0.04	0.16	0.07	1.00	0.79
	Intercept		6.63	1.89	0.61	9.72	1.00	0.00
Emerging	Negative work experience	489	0.98	-0.02	0.06	0.12	1.00	0.73
	Intercept		13.67	2.62	0.68	14.68	1.00	0.00
	Gainful employment	791	3.27	1.19	0.24	24.21	1.00	0.00
	Intercept		3.84	1.35	0.12	138.11	1.00	0.00
	Stable employment	791	3.74	1.32	0.27	23.22	1.00	0.00
	Intercept		4.03	1.39	0.11	160.25	1.00	0.00
	Criminal work environment	600	1.02	0.02	0.05	0.15	1.00	0.70
	Intercept		10.36	2.34	0.54	18.71	1.00	0.00
	Marriage	710	1.21	0.19	0.32	0.36	1.00	0.55
	Intercept		10.51	2.35	0.16	227.39	1.00	0.00
	Criminal partner	299	0.87	-0.15	0.08	3.48	1.00	0.06
	Intercept		45.66	3.82	0.81	22.54	1.00	0.00
	Parental approval	725	0.87	-0.14	0.06	6.49	1.00	0.01
	Intercept		32.68	3.49	0.47	54.06	1.00	0.00
	Peer approval	722	0.92	-0.09	0.04	4.81	1.00	0.03
	Intercept		25.86	3.25	0.44	54.57	1.00	0.00

REFERENCES

Arnett, J.J. (2000) A Theory of Development from the Late Teens Through the

Twenties. *American Psychologist* 55(5): 469-480.

Beck, A., D. Gilliard, L. Greenfeld, C. Harlow, T. Hester, L. Jankowski, T. Snell, J.

Stephan, D. Morton (1993) *Survey of State Prison Inmates, 1991.*

Washington, D.C.:U.S. Department of Justice.

Belknap, J. (2001) *The Invisible Woman.* Belmont, CA: Wadsworth Publishing.

Block, C.R., A.A.J. Blokland, P. Nieuwbeerta, C. Van Der Werff (2007) *Long-Term*

Patterns of Offending in Adult Women. Presented at the annual American

Society of Criminology meeting.

Blumstein, A. J. Cohen, J. Roth, and C. Visher (Eds.) (1986) *Criminal Careers and*

"Career Criminals." Volume 1. Washington, D.C.: National Academy Press.

Caspi, A. and T.E. Moffitt (2006) Gene-environment Interaction in Psychiarty:

Joining Forces with Neuroscience. *Nature Reviews: Neuroscience* 7: 583-

590.

Chesney-Lind, M. and K. Faith (2001) What about Feminism? Engendering Theory-

Making in Criminology. In R. Paternoster and R. Bachman (Eds.) *Explaining*

Criminals and Crime (pp. 287-302). Los Angeles: Roxbury Publishing.

Chung, I.J., K.G. Hill, J.D. Hawkins, and L.D. Gilchrist (2002) Childhood Predictors

of Offense Trajectories. *Journal of Research in Crime and Delinquency* 39:

60-90.

D'Unger, A.V., K.C. Land, and P.L. McCall (2002) Sex Differences in Age Patterns of Delinquent/Criminal Careers: Results from Poisson Latent Class Analyses of the Philadelphia Birth Cohort. *Journal of Quantitative Criminality* 18: 349-375.

D'Unger, A.V., K.C. Land, P.L. McCall, and D.S. Nagin (1998) How Many Latent Classes of Delinquent/Criminal Careers? Results from Mixed Poisson Regression Analyses of the London, Philadelphia, and Racine Cohort Studies. *American Journal of Sociology* 103: 1593-1630.

Daly, K. (1994) *Gender, Crime and Punishment*. New Haven: Yale University Press.

Dannefer, D. (1984) Adult Development and Social Theory: A Paradigmatic Reappraisal. *American Sociological Review* 49: 100-116.

Elliottt, D. National Youth Survey (United States): Wave I, 1976 (Computer File). ICPSR version. Boulder, CO: University of Colorado, Behavioral Research Institute (producer), 1977. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (distributor), 1994.

Elliottt, D. National Youth Survey (United States): Wave II, 1977 (Computer File). ICPSR version. Boulder, CO: University of Colorado, Behavioral Research Institute (producer), 1978. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (distributor), 1994.

Elliottt, D. National Youth Survey (United States): Wave III, 1978 (Computer File). ICPSR version. Boulder, CO: University of Colorado, Behavioral Research Institute (producer), 1986. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (distributor), 1994.

Elliottt, D. National Youth Survey (United States): Wave IV, 1979 (Computer File). ICPSR version. Boulder, CO: University of Colorado, Behavioral Research Institute (producer), 1988. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (distributor), 1994.

Elliottt, D. National Youth Survey (United States): Wave V, 1980 (Computer File). ICPSR version. Boulder, CO: University of Colorado, Behavioral Research Institute (producer), 1988. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (distributor), 1994.

Elliottt, D. National Youth Survey (United States): Wave VI, 1983 (Computer File). ICPSR version. Boulder, CO: University of Colorado, Behavioral Research Institute (producer), 1982. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (distributor), 1994.

Elliottt, D. National Youth Survey (United States): Wave VII, 1987 (Computer File). ICPSR version. Boulder, CO: University of Colorado, Behavioral Research Institute (producer), 1995. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (distributor), 2004.

Elliottt, D. and S.S. Ageton (1980) Reconciling race and class differences in self-reported and official estimates of delinquency. *American Sociological Review* 45: 95-110.

Elliott, D.S., and S.S. Ageton (1978) *The Incidence of Delinquent Behavior in a National Probability Sample of Adolescents.* Washington, D.C.: National Institute of Justice.

Eggleston, E. P. and J.H. Laub (2002) The Onset of Adult Offending: A Neglected

      Dimension of the Criminal Career. *Journal of Criminal Justice* 30: 603-622.

Elander, J., M. Rutter, E. Simonoff, and A. Pickles (2000) Explanations for Apparent

      Late Onset Criminality in a High-Risk Sample of Children Followed up in

      Adult Life. *British Journal of Criminology* 40: 497-509.

Farrington, D.P., S. Lambert, and D.J. West (1998) Criminal Careers of Two

      Generations of Family Members in the Cambridge Study in Delinquent

      Development. *Studies on Crime and Crime Prevention* 7: 85-106.

Farrington, D.P. and K.A. Painter (2004) *Gender Differences in Offending:*

      Implications for Risk Focused Prevention. London: Home Office.

Fergussion, D.M., L.J. Horwood, and D.S. Nagin (2000) Offending Trajectories in a

      New Zealand Birth Cohort. *Criminology* 38(2): 525-552.

Giele, J.Z. and G.H. Elder, Jr. (1998) Live Course Research: Development of a Field.

      In J.Z. Giele and G.H. Elder, Jr. (Eds.) *Methods of Life Course Research:*

      Qualitative and Quantitative Approaches (Pp. 5-27). Thousand Oaks: Sage

      Publications.

Giordano, P.C., S.A. Cerkovich, and J.L. Rudolph (2002) Gender, Crime, and

      Desistance: Toward a Theory of Cognitive Transformation. *American*

      Journal of Sociology 107 (4): 990-1064.

Gomez-Smith, Z. and A.R. Piquero (2005) An Examination of Adult Onset

      Offending. *Journal of Criminal Justice* 33(6): 515-525.

Gottfredson, M. and T. Hirschi (1986) The True Value of Lambda Would Appear to

    be Zero: An Essay on Career Criminals, Criminal Careers, Selective

    Incapacitation, Cohort Studies, and Related Topics. *Criminology* 24(2): 213-

    234.

Gottfredson, M. and T. Hirschi (1990) *A General Theory of Crime*. Stanford:

    Stanford University Press.

Greenfeld, L.A. and T.L. Snell (1999) *Women Offenders*. Washington D.C.: United

    States Department of Justice.

Hagan, J. and B. McCarthy (1998) *Mean Streets: Youth Crime and Homelessness*.

    New York: Cambridge University Press.

Haynie, D.L., P.C. Giordano, W.D. Manning, and M.A. Longmore (2005) Adolescent

    Romantic Relationships and Delinquency Involvement. *Criminology* 43(1):

    177-210.

Hindelang, M., T. Hirschi, and J. G. Weis (1981) *Measuring Delinquency*. Beverly

    Hills: Sage Publications.

Horney, J., D.W. Osgood, and I.H. Marshall (1995) Criminal Careers in the Short-

    Term: Intra-Individual Variability in Crime and Its Relation to Local Life

    Circumstances. *American Sociological Review* 60: 655-673.

Jones, B.L., D. Nagin, and K. Roeder (2001) A SAS Procedure Based on Mixture

    Models for Estimating Developmental Trajectories. *Sociological Research*

    and Methods 29: 374-393.

Kratzer, L. and S. Hodgins (1999) Typology of Offenders: A Test of Moffitt's Theory

        Among Males and Females from Childhood to Age 30. *Criminal Behavior*

        and Mental Health 9(1): 57-73.

Kruttschnitt, C. (1996) Contribution of Quantitative Methods to the Study of Gender

        and Crime, or Bootstrapping Our Way to the Theoretical Thicket. *Journal of*

        Quantitative Criminology 12(2): 135-161.

Laub, J. and R. Sampson (2003) *Shared Beginnings, Divergent Lives*.

        Cambridge: Harvard University Press.

Maher, L. (1997) *Sexed Work*. New York: Oxford University Press.

Massagolia, M. (2006) Desistance or displacement? The changing patterns of

        offending from adolescence to young adulthood. *Journal of Quantitative*

        Criminology 22: 215-239).

Moffitt, T.E.(1993) Adolescence-Limited and Life-Course-Persistent Antisocial

        Behavior. *Psychological Review* 100(4): 674-701.

Moffitt, T.E., A. Caspi, M. Rutter, and P.A. Silva (2001) *Sex Differences in*

        Antisocial Behavior. New York: Cambridge University Press.

Nagin, D.S. (2005) *Group-Based Modeling of Development.* Cambridge: Harvard

        University Press.

Nagin, D.S., D.P. Farrington, and T.E. Moffitt (1995) Life Course Trajectories of

        Different Types of Offenders. *Criminology* 33(1): 111-139.

Nagin, D. S. and K.C. Land (1993) Age, Criminal Careers, and Population

        Heterogeneity: Specification and Estimation of a Nonparametric, Mixed

        Poisson Model. *Criminology* 31(3): 327-362.

Osgood, D.W., B.J. McMorris, and M.T. Potenza (2002) Analyzing Multiple-item

    Measures of Crime and Deviance I: Item Response Theory Scaling. *Journal*

    of Quantitative Criminology 18 (3):267-296.

Patterson, G.R. and K. Yoerger (1993) Developmental Models for Delinquent

    Behavior. In S. Hodgins (Ed.), *Mental Disorder and Crime* (pp. 140-172).

    Newbury Park, CA: Sage.

Pettiway, L. E. (1987) Participation in Crime Partnerships by Female Drug Users:

    The Effects of Domestic Arrangements, Drug Use, and Criminal Involvement.

    Criminology 25(3): 741-766.

Piquero, A.R. (2008) Taking Stock of Developmental Trajectories of Criminal

    Activity over the Life Course. In A.M. Liberman (Ed.) *Longitudinal*

    Research on Crime and Delinquency (pp. 23-60). New York: Springer.

Piquero, A.R., R. Brame, P. Mazzerole, and R. Haapanen (2000) Crime in emerging

    adulthood: Continuity and change in criminal offending. Final report to the

    National Institute of Justice.

Ritchie, B.E. (1996) *Compelled to Crime: The Gender Entrapment of Battered Black*

    Women. New York: Routledge Publishing.

Sampson, R. and J. Laub (1993) *Crime in the Making: Pathways and Turning Points*

    Through Life. Cambridge: Harvard University Press.

Shannon, L.W. (1994) *Juvenile Delinquency and adult crime 1948-1977 [Racine, Wisconsin]; three birth cohorts [computer file]*. Conducted by University of Iowa, Iowa Urban Community Research Center. 2nd ICPSR ed. Ann Arbor, MI: Inter-University Consortium for Political and Social Research, Producer and Distributor.

Shover, N. (1996) *Great Pretenders: Pursuits and Careers of Persistent Thieves*. Colorado: Westview Press.

Silverthorn, P. and P.J. Frick (1999) Developmental Pathways to Antisocial Behavior: The Delayed-Onset Pathway in Girls. *Developmental and Psychopathology* 11: 101-126.

Simpson, S.S., J. L. Castro, and L. Dugan (2008) Understanding Women's Pathways to Jail: Analyzing the Lives of Incarcerated Women. *Australian and New Zealand Journal of Criminology* 41(1): 84-108.

Simpson, S.S. and D.C. Hertz (1999) Gender, Crime, and Criminal Justice. In J.S. Chafetz (Ed.) *Handbook of the Sociology of Gender*. New York: Kluwer Academic/Plenum Publishers.

Slocum, L.A., S.S. Simpson, D.A. Smith (2005) Strained Lives and Crime: Examining Intra-Individual Variation in Strain and Offending in a Sample of Incarcerated Women. *Criminology* 43(4): 1067-1110.

Spears, B. (Performer) (2001) I'm Not a Girl, Not Yet a Woman [Sound Recording]. In *Britney.* New York: Jive Records.

Steffensmeier, D., E. Allan (1996) Gender and Crime: Toward a Gendered Theory of Female Offending. *Annual Review of Sociology* 22: 459-487.

Uggen, C. (2000) Work as a turning point in the life course of criminals: A duration

    model of age, employment, and recidivism. *American Sociological Review*

    67: 529-546.

United States Department of Commerce, U.S. Census Bureau, Population Division;

    Census Population 1970-2000 for Public Health Research, CDC WONDER

    On-line Database, March 2003.

Warr, M. (2002) *Companions in Crime: The Social Aspects of Criminal Conduct.*

    Cambridge: Cambridge University Press.

Weisburd, D., E. Waring, and E. F. Chayet (2001) *White-Collar Crime and Criminal*

    Careers. Cambridge: Cambridge University Press.