

**CRIMINAL CAREERS
OF A SUB-SET OF OFFENDERS IN
BARBADOS**

Thesis submitted in accordance with the requirements of the University of Liverpool for the
degree of Doctor of Philosophy by Eleanor Gittens.

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ABSTRACT

The research in this thesis built on several papers that have brought criminal career research to the forefront of the scientific and empirical study of criminal behaviour. However, most existing research has been limited in scope and confined to a relatively small range of samples from more developed, first world, countries; in particular, the USA, the UK, and Canada. The main aim of the present research, therefore, was to replicate and extend previous work on criminal careers using a sample of offenders from a developing nation, Barbados. Given the limitations of previous work, the present research not only examined a number of key variables previously identified in relation to criminal careers (onset age, career length, chronicity, versatility, and seriousness), but also extended the investigation to look at issues surrounding specialisation, violence and demographic factors as related to criminal careers. The sample consisted of 1692 offenders who were charged in Barbados during 2002 and 2006 for robbery and sex offences and during 2006 for drug offences. Several important findings emerged. In particular, there was a significant negative relationship between onset age and the other criminal career variables, the latter of which were positively correlated with each other; this supports the idea of a general factor underlying criminal careers. Nevertheless, there were also variations according to different types of offences. Thus, on average, sex and drug offenders had the shortest career lengths and showed the least versatility and the lowest levels of chronicity and seriousness. In contrast, burglary offenders had the longest career lengths, the earliest age of onset, the greatest versatility, and committed the most serious crimes. In addition, contrary to the findings of some previous studies, there was evidence of specialisation in the sample, and specialists had an earlier age of onset, longer careers, lower versatility and lower levels of crime seriousness than non-

specialists. Violent offenders showed a similar pattern of earlier age of onset, longer careers, greater versatility and higher levels of chronicity and seriousness than non-violent offenders. Finally, there were some differences according to gender, race, housing area, employment type and educational level for the key criminal career variables. The results of the research are discussed in terms of their comparability with previous research in the field from more developed nations. Despite some interesting discrepancies, it is argued that, in general, the criminal career findings of the present sample are remarkably similar to previous findings from other countries; however, this could be a feature of the particular historical background of Barbados. Other implications for criminal career research, including practical applications, are also discussed, as well as directions for future research.

PREFACE

This thesis examines key issues in criminal career research that are relevant to understanding criminal thoughts, behaviour and development. It systematically addresses issues of onset age, specialisation and other key criminal career variables. The criminal career approach has helped to shape the field of delinquency and crime over the last twenty-five years. This research using previously untouched data from the developing country of Barbados, aims to replicate previous observations in the field and to present new and insightful results.

It is generally acknowledged that onset age (the age at which an offender commences his/her criminal lifestyle) is an important predictor of criminal careers (Kempf-Leonard, Tracy, & Howell, 2001; Krohn, Thornberry, Rivera, & Le Blanc, 2001; Piquero, Brame, & Lynam, 2004). However, it is not yet clear what area of criminal career it best predicts. Because early onset age has been found to be a predictor of a more acute tendency toward delinquency and future criminal activity (Bacon, Paternoster, & Brame, 2009), it could predict a high chronicity (the number of arrests) (Blumstein, Cohen, Roth, & Visher, 1986; Wolfgang, Filgio & Sellin, 1972), a high seriousness (the tendency to commit serious crimes over the course of one's criminal career) (Piquero, Paternoster, Mazerolle, Brame, & Dean, 1999; Wolfgang et al., 1972) of offending, a longer criminal career length (the time that has elapsed between the first and last arrest) (DeLisi, 2005; Moffitt, 1993), or high versatility (have a wide variety of arrests) (Decker & Salert, 1986; Van Kammen & Loeber, 1994). In view of this, it was hypothesised that negative

relationships would exist between the onset age of offending and criminal career length, versatility, chronicity, and seriousness.

The criminal career approach distinguishes offenders from the crimes they commit. Research suggests distinct career paths for different crime types (Blumstein et al., 1986). Numerous studies have looked at the onset age of offending by offence type onset (Le Blanc & Frechette, 1989) but there has been a dearth in research in other criminal career variables by offence type. Against this context a knowledge gap exists which highlights the relevance of the current research which aims to investigate the relationship between criminal career variables and types of offence committed.

Specialisation has been a critical area of research for about half a century. Numerous definitions have been devised based on the studies' objectives as well as numerous measures were created with varying benefits and limitations. The most popular definition of specialisation is the tendency to repeat the same offence type (Brennan et al., 1989; Cohen, 1986; Mazerolle et al. 2000). Specialisation has been looked at with respect to such crimes as sex offences, theft offences and public order offences where little specialisation was discovered amongst a mass of versatility (Blumstein, Cohen, Das, & Moitra, 1988; Britt, 1994; Loeber & Le Blanc, 1990). Specialisation has also been examined in relation to onset age where it has been found that the later the onset age the higher the likelihood of specialisation (Mazerolle et al., 2000; Piquero et al., 1999; Tolan, 1987). However not enough is known about how specialisation relates to other criminal career variables therefore this study aims to investigate the degree of specialisation in the

criminal career of the sample and how this relates to other criminal career variables and offence type was proposed.

Violence dominates personal and public anxiety about law and order and hence is a critical area of criminal career research. Violent crime has been defined as an offence of murder, manslaughter, robbery, forcible rape, sexual assault, aggravated or simple assault (Megargee, 1982; Siann, 1985). Because of its impact on society, it has been a keenly researched area (Blackburn, 1993). The difference between violent and non-violent offenders has been examined on many levels. It has been found that violent offenders have a pattern of non-violent offending with violent offending intertwined (Brame et al. 2001; Miller et al., 1982; Piquero, 2000). Violent offenders are more likely to engage in serious offending, have long career lengths, commit a higher number of offences, commit more types of offences and have an earlier age of onset (DeLisi, 2006; Moffitt, 1994; Piquero et al., 2007). We do not know enough about the generalisability of these findings however as research has only been conducted in very few countries (USA, UK, Canada), therefore the following aim was proposed: to investigate how violence develops in a criminal's career and how this relates to other criminal career variables in the Barbadian data set.

Because much research on criminal careers has utilised samples of white male subjects, there is a paucity of information on the criminal careers of women and racial minorities. What little research that has been conducted has shown that while males and females have similar overall patterns they differ in the level of offending, onset age, the type of

offending, and the level of seriousness of the crimes committed (Farrington, 1986; Jang and Krohn, 1995; Weiner, 1989). When examining the race-crime relationship, minorities (Blacks, Hispanics) are most often over represented (Blackburn, 1993; Blumstein & Graddy, 1982; Bonczar & Beck, 1997; D'Alessio & Stolzenberg, 2003) and they are found to exhibit higher levels of offending (Hindelang, 1978; Wolfgang et al., 1972). Another relationship that has received very little attention is the role of the environment, or neighbourhood, in structuring criminal career as well as the dynamics between employment type, educational level and criminal careers. Studies have shown that there is a high level of offending for offenders of low socio-economic status and neighbourhoods (Lindstrom, 1995; Wikstrom, 1991). It has also been discovered that there is a negative correlation between educational attainment and involvement in crime (Gottfredson, 1981; Lochner, 2008). There is a lack of research in these areas particularly where Blacks are not the minority, in view of this, this research aims to investigate how the key criminal career variables are related to demographic factors such as gender and race.

The relationship between criminal career variables is an important area of research in which substantial work has been done but we do not know enough about the generalisability of the findings. The research conducted thus far used mainly data sets from the United States (Blumstein et al., 1986; Greenwood, 1977; Shannon, 1982; Wolfgang et al., 1972), the United Kingdom (Farrington & West, 1990; Kolvin, Miller, Scott, Gatzanis, & Fleeting, 1990; Newson, Newson, & Adams, 1993) and Canada (Day, Bevc, Theodor, Rosenthal, & Duchesne, 2008; LeBlanc & Frechette, 1989). The findings were generally consistent however the characteristics of these countries are quite similar

to each other and yet quite different from many other countries. The above areas of investigation taken together were used to determine whether findings of the criminal careers of a sample of offenders in Barbados are generally representative of previous studies in other countries.

The exploration uses a series of retrospective studies to investigate each pertinent area.

The general research aims are as follows:

1. To investigate the relationships between the key criminal career variables of onset age, career length, chronicity, versatility, and seriousness.
2. To investigate the relationships between these specific criminal career variables and the types of offence charges.
3. To investigate the degree of specialisation in careers and how this relates to the other criminal career variables and offence types.
4. To investigate how violence develops in a criminal career and how this relates to other criminal career variables.
5. To investigate how the key variables identified above are related to demographic factors such as gender and race.
6. With respect to the above areas of investigation, to determine whether findings regarding the criminal careers of a sample of offenders in Barbados are generally representative of findings of previous studies in the criminal career approach in other countries.

The thesis is divided into three main parts. 1) Literature Review and Introduction to the Empirical Research, 2) The Empirical Research and, 3) General Discussion and Conclusions.

Part I consists of six chapters, introducing and discussing previous research in criminal careers and identifying the key variables. Chapter One introduces general criminal career research by defining the concept of a criminal career, and presenting and discussing the key theories, research findings and issues. Chapter Two expands on the key issues identified in Chapter One by looking more closely at the literature on onset age, career length, chronicity, versatility, and seriousness. The topic of specialisation is introduced in Chapter Three, including its definition and measurement and the relationship of specialisation to the other criminal career variables are also described.

In Chapter Four, violence is introduced as a variable in criminal careers and evidence relating it to the other criminal career variables is reviewed. The cross-cultural perspective of criminal career research is addressed in Chapter Five. Findings of criminal career research in different countries are presented and results are summarised and discussed. Finally, Chapter Six attempts to draw together the literature review and lists the aims and objectives of the research as an introduction to the empirical work.

In Part 2, the empirical research is organised as six studies. Part 2 consists of seven chapters. Chapter Seven describes the sample composition and characteristics. In Chapter Eight, the relationships between the criminal career variables of onset age, career

length, chronicity, versatility, and seriousness are examined. Chapter Nine examines the nature and magnitude of specialisation in the sample and Chapter Ten examines the relationship between specialisation and the other criminal career variables. Chapter Eleven then examines the relationship between violence and the key criminal career variables.

Chapter Twelve examines the relationship between the criminal career variables and demographic variables such as gender and race. Finally, Chapter Thirteen investigates the extent to which findings from samples in large, highly populated, developed countries particularly, the United States, the United Kingdom, and Canada are replicated in Barbados.

Part 3 consists of two chapters. Chapter Fourteen revisits the aims and hypotheses for the research, summarises and discusses the general findings in relation to these, and discusses limitations of the research and makes some methodological recommendations. Chapter Fifteen, the last chapter of the thesis, draws some final conclusions, and discusses the general implications of this research and of criminal career research generally in the field of psychology.

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PART 1:

LITERATURE REVIEW AND INTRODUCTION TO
THE EMPIRICAL RESEARCH

Chapter One

General Criminal Career Research

The study of crime has engaged the interest of many academic disciplines, including criminology, sociology, psychology and psychiatry. Psychologists' interest in crime date back to the 1800s when Lightner Witmer, a clinical psychologist, taught courses in criminal behaviour at university level. Since then, psychological research and interests in criminal behaviour has expanded such that now it is a thriving area of theory and research. It can be noted that the application of psychological theory and research to crime does not assume that crime is solely a psychological act, but rather that the science of psychology may play a pivotal part in understanding the aspects of crime (Blackburn, 1993). Although psychologists have studied a wide range of topics within the general area of criminal behaviour, the area of particular interest to this thesis is that of criminal careers.

1.1 Criminal Career Research

A criminal career has been defined as the longitudinal sequence of criminal events committed by an individual (Blumstein, Cohen, Roth, & Visher, 1986). Within this context, it has a beginning (onset), a middle (career length) and an end (desistance). The criminal career approach tends to emphasise issues such as who become offenders, i.e. that is the percentage of the population that takes part in offending and the types of offending in which they engage. Other issues concern why and when people start offending (onset), why and how they continue offending (persistence), why offending

becomes more frequent or serious (escalation) or specialised, and why and when people stop offending (desistance) (Piquero et al., 2007).

One way of introducing the domain of this topic is simply to look at some key studies that are commonly used as illustrations of criminal career research.

1.2 Key Studies in Criminal Career Research

Although a large amount of research has been conducted on criminal careers, a number of classic and modern studies appear to stand out as being of particular importance. For example, Quetelet's 1831 study was one of the first large scale studies in the field. Drawing on data on crimes committed against person and property in France, Quetelet found that crime peaked in the late teens through to the mid-20s, males had a greater propensity to commit crime than females, and whereas personal crimes were committed in the summer, property crimes were committed in the winter. Because of the interest stimulated by this research, research of criminals and their careers continued to develop in the 19th Century. For instance, Quetelet's work stimulated Shaw (1928) to write *The Jack Roller*, and Sutherland (1937) to write *The Professional Thief*. Both of these were books that looked at the life and crime of a single particular individual.

In contrast, Glueck and Glueck (1950) pioneered the concept of crime patterns as "careers" by studying and comparing the career pathways of both criminals and non-criminals (see also, Piquero, Farrington, & Blumstein, 2003). One of their best known

works was a longitudinal study of a sample of male delinquents and a non-delinquent matched sample acquired in Massachusetts. The study examined correlates of onset, persistence and desistance in criminal offending. They identified age of onset, and the decline of offending with age, as key components of the age-crime relationship; i.e. offending tended to decline with age but early onset age was related to a lengthy persistent criminal career. They also found generally high levels of stability in offending behaviour over time, which was strongly affected by family influence.

In another longitudinal study, Wolfgang, Figlio and Sellin (1972) followed a sample of males from birth to the young adulthood. This sample was acquired in Philadelphia. One of Wolfgang et al.'s most prominent findings was the identification of small percentage of the general population (5-10%), called 'chronic offenders', who were responsible for over 50% of the total offences committed by the cohort members. They also found that the tendency to specialise in offending was quite small, and that again, early onset age was related to persistent and serious criminality.

To investigate whether Wolfgang et al.'s findings could be replicated on a British sample, West and Farrington (1977) conducted a longitudinal study of a sample of male delinquents from Cambridge. The sample was followed from age eight to thirty-two. West and Farrington replicated Wolfgang et al.'s finding that there was a number of chronic offenders who represented a small proportion of the offenders but committed the greater portion of the crimes. Furthermore, they found that indicators of future chronic or persistent offending were detectable as early as age eight, which demonstrated a

continuity or stability in offending over time. They also found that delinquent and criminal offending tended to be diverse in nature and social factors such as family structure, economic conditions, and marital status significantly influenced the continuity of offending over time.

In a study using data collected between 1939 and 1944, McCord (1978) investigated delinquents who were matched according to a number of variables related to criminality and randomly assigned to treatment and control groups. Treatment offenders received individual help and guidance for continuing social, physical, intellectual, and spiritual growth. Importantly it was discovered that the treatment group performed worse on the criminality variables (juvenile and adult court convictions) than the control group, indicating that such factors may be influential in determining criminal career paths. McCord also found that early age of onset indicated a greater likelihood of continued offending and although most juvenile delinquents go on to commit crimes, the majority of adult offenders do not have juvenile offending records. Other findings were that family factors are important predictors of offending, and that alcoholism and criminality tend to run in families.

One of the most influential longitudinal studies also conducted in Britain was the Cambridge Study in Delinquent Development by Blumstein, Cohen, Roth, and Visher (1986). The sample consisted of 411 South London boys born in 1953. They found considerable continuity in offending among the sample. The mean onset age was 18 years, and individuals who exhibited an early onset accumulated more offences, had a

higher tendency to commit violent offences, had longer criminal careers, and were convicted of more types of offences. They also found, again, that a small group of offenders were responsible for a disproportionate amount of offending activity and they differed from all other offender groups on various criminal career dimensions. The incidence of co offending decreased with age. Interestingly, there was no evidence of specialisation in the sample.

Following from Wolfgang et al., Tracy, Wolfgang, and Figlio (1990) found that females offended at a significantly lower rate than males, such that only one per cent of females were classified as chronic. It was also discovered that criminal career continuity was more prevalent than discontinuity and that early onset age and an active juvenile offending career were the best predictors of adult offending.

More recently, Elliot (1994) conducted research using the National Youth Survey thus employing both self-report and official records of crime. There were nine waves of data starting in 1977 and ending in 1993. Elliot's study probably represents the most detailed analysis conducted so far on the variables of onset age, career development and termination of serious violent offenders. It was found that a greater proportion of African Americans were involved in serious violent crimes and they exhibited an early age of onset when compared to white Caucasians. Elliot also found that minor forms of delinquency appeared in criminal careers before more serious forms, and that serious violent offenders exhibited great versatility. Versatility was defined as the tendency to have more than 50% of ones offences be other than robbery and rape.

Clearly, then a vast amount of data has been collected in regard to criminal careers, but in order to make sense of these, it may be useful to identify some of the fundamental theoretical concepts and approaches underlying such research.

1.3 Criminal Career Theoretical Perspectives

According to the seminal work of Blumstein, Cohen and Farrington (1986), the essence of the criminal career perspective is that there are various aspects of offending over time that should be differentiated and analysed separately. The perspective is founded on the assumption that different patterns of relationships apply to different measures of offending, and that different causes may underlie them. Hence, Blumstein et al. (1986) assert that separation of the different aspects of criminal careers is likely to produce more precise knowledge of offending and its causes. Indeed, results from this research have fuelled projections for rate of offending and possibilities of desistance (Osgood & Rowe, 1994).

Nevertheless, Blumstein et al.'s criminal career approach has been criticised for a number of reasons. Most importantly, Gottfredson and Hirschi (1986), argue that all criminal career characteristics reflect a single underlying construct, "criminal propensity." This propensity is thought to be an amalgam of whatever factors are relevant to crime in an individual's personality, biological makeup, interpersonal relations, and position in social structure (see also, Rowe, Osgood, & Nicewander, 1990). According to Gottfredson and Hirschi, if criminal propensity is high, then frequency of offending will be high, age of

onset early, criminal career long, and age of desistance late. Hence, whereas Blumstein and colleagues argue that to understand criminal careers we need to examine a range of constructs relating to different variables each possibly with a different cause, Gottfredson and Hirschi (1986) argue that a single construct of criminal propensity is sufficient as an explanatory construct.

In an investigation of this issue, Greenberg and Ezell (2011) used a two-level modelling of genuine arrest data and an artificial data set to examine this question. They found that the arrest trajectories of black and Hispanic offenders in two California Youth Authority cohorts did not fall into identifiable discrete classes. They also found that for all other offenders, arrest frequency after-peak age declined at different rates. However, they were unable to identify any variable that significantly contributed to the variance i.e. there was no evidence that a set of discrete variables were involved. As such, Greenberg and Ezell's results have been interpreted as offering support for the criminal propensity construct as an explanation of crime and criminal careers. They did note, however, that their sample consisted of individuals who had already received a conviction for a serious offence that warranted incarceration (i.e. there was perhaps an exaggerated degree of homogeneity in the sample).

Whereas criminal career research begun with several longitudinal cohort studies, it has since been expanded with the introduction of developmental (life-course) criminology. The study of criminal careers from a developmental perspective examines individual changes in offending across time, causal factors of the longitudinal course of offending,

and the impact of transition and relationships on criminal offending (Le Blanc & Loeber, 1998). Using this perspective, Nagin and Land (1993) conducted their study which aimed to integrate criminal career research with latent class analysis of criminal cohort data. They found support both for the criminal propensity theory and conventional criminal careers theory and argue that both theories can be useful in modelling the offending patterns.

In another theoretical approach, Moffitt (1993) describes a developmental taxonomy with two developmental pathways into delinquent behaviour: adolescence-limited and life-course persistent. According to this view, adolescence-limited individuals engaged in antisocial behaviour during adolescence only and are quite a large group. Their behaviour is motivated by the gap between social and biological maturity and is learned from easily mimicable antisocial models and sustained by reinforcement principles. In contrast, life-course persistent individuals engage in antisocial behaviour of various sorts throughout their lifetime and represent a small group of individuals. The origins of their behaviour lie in an interaction between children's neuro-psychological vulnerabilities and criminogenic environments. Examples of neuro-psychological vulnerabilities as described by Moffitt (1993) are the disruption in the sequence of development of the foetal brain, maternal drug abuse, poor pre-natal nutrition and lack of affection. Moffitt (1993) sees life-course persistent behaviour as a form of psychopathology, and that these individuals are akin to the chronic offenders identified by Wolfgang et al. (1972).

In an alternative approach, using reconstructed and re-evaluated data from Gleuck and Gleuck (1950), Sampson and Laub (1993) developed their age-graded, life-course theory of crime. Their basic premise is that some troubled children become troubled adults while others go on to lead very conventional lives. With regard to the latter, they argue that this turnaround is due to an event of life circumstance that pulls the troubled individual out of their criminal lifestyle (e.g. military school, employment or marriage). This theory thus combines social influences on crime with the idea of psychological predispositions (i.e. it leans on psychological theories and concepts).

Consequently, given the potential relevance that psychological concepts may have to criminal career research it may be useful to look at some of the related concepts and debates.

1.4 Psychological Theories in Criminal Career Research

Within psychology, there has long been a debate as to whether the person or the situation plays the larger role in determining behaviour (Thomas-Cottingham, 2004). However, it has been noted that whether behaviour is a function of the person or the situation is highly dependent on the definition of behaviour (Eysenck, 1964; Skinner, 1974). In psychology, behaviour has been used to mean both the act and the tendency. Conversely, these two meanings may have totally different ramifications. On the one hand a specific act relies heavily on the situational context in which it occurs, whereas the tendency is the property of the person or their part of their predisposition; acts and tendencies therefore may call for different explanations (Blackburn, 1993).

It is widely recognised that theories of criminal behaviour vary in whether they focus on crime as a specific act or on criminality as a disposition such as criminal propensity. Most psychological theories of crime begin with the view that individual differences in behaviour may make some people more predisposed to committing criminal acts. These differences may arise from personality characteristics, biological factors, or social interactions (Hollin, 1989). Consequently a number of psychological theories have been applied to the study of crime and by extension, could be considered relevant to the study of criminal careers.

1.4.1 *Personality Theories*

Personality theories are alleged to help us to organise, understand and predict thoughts, feelings and behaviours of individuals (Thomas-Cottingham, 2004). Therefore in theory, personality theories might be useful in explaining crime and helping us to gain a better understanding of the offender.

There are a number of personality theories that have been popular in explaining crime. The foundation of trait theory can be traced back to Italian criminologist Cesare Lombroso. Lombroso alleged that all criminals were atavists. The word atavism denotes “an ancient, ancestral trait that appears in modern life” (Schechter, 2003, p.248). He specified, “[Criminals were] Neanderthal-like beings born, by some unexplained evolutionary glitch, into the modern world” (Schechter, 2003, p.248). Because offenders

were considered “throwbacks to the prehistoric past,” there were certain characteristics that were supposed to be identifiable (Schechter, 2003, p.248). These features were considered to be more primitive and ape-like such that the distinguishing characteristics were: small skulls, sloping foreheads, jutting brows, protruding ears, bad teeth, barrel chests, disproportionately long arms, and various other traits. Although this theory has long been disputed, the idea that criminals may have specific body types was taken up later by Sheldon (1942). Sheldon’s constitutional theory was concerned with the relationship between body type and personality. According to the theory there were three body types (mesomorph, ectomorph, endomorph) and an individual could be a pure type or a hybrid combining features from two or more of the type. A mesomorph had a medium build and was muscular with wide shoulders and a narrow waist. An ectomorph was slimly built with long lean muscles and limbs. Finally, an endomorph had a big build characterised by high fat level and was considered to have a thick waist. Each body type was characterised by a personality. Sheldon applied his theory to a sample of male offenders in a rehabilitation centre and found a great number of mesomorphs, a few endomorphs and very little ectomorphs.

An entirely different approach was adopted by Freud. According to Freud (1961), who is credited with the development of psychoanalytic theory, all humans have natural drives and urges repressed in the unconscious. The theory is a three-part structure made up of the id, the ego, and the super ego. The id is considered the underdeveloped or primitive part of our make-up. It controls our need for food, sleep, and other basic instincts; this part is purely focused on instant gratification. The ego controls the id by setting up boundaries, whereas the superego is in charge of judging the situation through morality.

Freud believed that all humans have id dominated criminal tendencies. Through the process of socialisation, however, these tendencies are curbed by the development of inner controls (the ego) that are learned through childhood experience. Freud hypothesised that the most common element that contributed to criminal behaviour was faulty identification by a child with her or his parents. The improperly socialised child may develop a personality disturbance that causes her or him to direct antisocial impulses inward or outward. The child who directs them outward becomes a criminal, and the child that directs them inward becomes a neurotic (Freud, 1961). Therefore crime is a manifestation of negative experiences in an offender's childhood that damages the ego resulting in impulse control problems and pleasure seeking drives that prevents the offenders from coping with conventional society. One of the implications of Freud's theory is that family influences may have an important effect on criminal behaviour.

Perhaps the most famous theory of personality and crime, is that of Eysenck (1964). His theory proposed that criminal behaviour is the product of an interaction between environmental conditions and characteristics of the nervous system. Eysenck argues that each individual offender has a unique neurophysiological makeup that when mixed with a certain environment can result in criminality. It is important to note that Eysenck does not suggest that criminals are born as such, rather that the combination of environment, neurobiological, and personality factors gives rise to different types of crimes, and these different personalities are more susceptible to specific criminal activity.

Eysenck proposes three main factors relating to temperament; extraversion, neuroticism, and psychoticism. Eysenck asserts that over time a child who is consistently punished for inappropriate behaviour will develop an unpleasant physiological and emotional response whenever they consider committing the inappropriate behaviour. The anxiety and guilt that arise from this conditioning process result in the development of a conscience. He hypothesises, however, that there is a wide variability among people in their physiological processes, which either increase or decrease their susceptibility to conditioning and adequate socialisation and by extension the probability of them leading a criminal lifestyle. So, for example, extraverts are hard to condition and therefore do not develop a conscience. They are also pleasure seeking and impulsive. According to his theory of criminality, an offender will demonstrate high levels of extraversion (low cortical arousal), and is more tough-minded and lacking in empathy (psychotic predisposition). Although there is much research that refutes this theory (Farrington, Biron, & LeBlanc, 1982; Hollin, 1989), researchers believe that if new data are modified, the theory as a whole may still be promising and useful (Feldman, 1977; Hollin, 1989).

It can be noted, that contemporary trait theorists do not suggest that a single physical or biological attribute explains all criminality. Rather, each criminal has a unique set of characteristics that explain behaviour.

1.4.2 *Developmental Theories*

Another psychological approach to crime is theories of development; in particular moral reasoning and social development (Thomas-Cottingham, 2004). Although Freud's theory

was partly developmental, perhaps the most famous theory of moral development is that of Lawrence Kohlberg (1964). Building on the earlier work on Piaget (1932), Kohlberg posited that there were three levels of moral reasoning. These were the pre-conventional, conventional and post-conventional levels. The pre-conventional level was the first level of moral development which children reach during middle childhood. Here, moral reasoning was based on obedience and avoiding punishment. The conventional level of moral development was attained at the end of middle childhood. The moral reasoning of individuals at this level was based on the perceived expectations that their family and significant others. Finally, the post-conventional level of moral development usually occurred during early adulthood, where individuals were able to go beyond social conventions. Kohlberg argued that people who do not progress through the stages may become arrested in their moral development, and consequently become delinquents.

Most recently, Catalano and Hawkins (1996) have put forward a social development model that purportedly explains pro-social and anti-social behaviours through four stages, pre-, elementary, middle, and high school. Most important in this model are the connections with anti-social peers, negative family influences and non-social activities, all of which are purported to increase the probability of continuing in anti-social behaviour while reducing the likelihood of forming positive peer relationships and engaging in pro-social activities. One way that connections with anti-social peers may influence criminal behaviour is learning.

1.4.3 *Learning Theories*

Learning theory is based upon the principles of behavioural psychology. Behavioural psychology postulates that a person's behaviour is learned and maintained by its consequences, or reward value. These consequences may be external reinforcement that occurs as a direct result of their behaviour (e.g. money, social status, and goods), vicarious reinforcement that occurs by observing the behaviour of others (e.g. observing others who are being reinforced as a result of their behaviour), and self-regulatory mechanisms (e.g. people responding to their behaviour). Hence, according to learning theorists, like Skinner (1974), deviant behaviour can be induced or modified by varying the reward value of the behaviour.

Although learning plays a central part in Eysenck's theory of criminal behaviour mentioned earlier, it is Bandura's (1986) social learning theory that is the most frequently identified learning theory applied to criminal behaviour. Bandura argues that people learn from one another, by observation, imitation and modelling. The theory has often been called a bridge between behaviourist and cognitive learning theories because it encompasses attention, memory and motivation. Bandura argued that people do not inherit violent tendencies but rather they are modelled i.e. people engage in crime, primarily through their associations with others who appear to be rewarded for criminal activities, or other variables that may act as precursors to criminal activity, such as aggression.

Bandura's theory was part of the basis for Akers' differential reinforcement theory (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979). Akers used social learning theory and Sutherland's (1970) differential association theory to develop his theory. Akers argues that juveniles learn to engage in crime through association with or exposure to others. Akers stresses three mechanisms by which individuals learn to engage in crime from others: differential reinforcements, beliefs and modelling; i.e. through these they learn how to reap rewards and avoid punishment by reference to actual or anticipated consequences of given behaviours. In support of this approach, Akers found that delinquent friends were the best predictors of delinquency other than prior delinquency.

1.4.4 *Cognitive Theories*

Learning theorist emphasised the role of environmental factors and overt behavioural responses (Burke, 2001). This perspective however did not account for how people gathered, understood and altered the information they learned. This highlighted that cognition had a role to play in understanding human behaviour and crime (Kendler, 1985).

One such cognitive theory was Sutherland's (1937) theory of differential association. This theory was used to explain the relationship patterns which were seen in thieves who restricted their physical and social contacts to associations with other thieves; such that an individual had to be accepted into a group of professional thieves before being trained in the profession. Sutherland (1947) subsequently revised his theory to reflect a greater focus on learning. The new theory stated that when individuals acquire sufficient law

violating sentiment to overpower non-criminal associations, crime results. Sutherland posited that this criminal behaviour is learned similarly to other types of behaviour.

Piaget (1959) saw morality as driven by cognitive desires for self-realisation and understanding reality. He developed a structural theory where moral reasoning followed from intellectual development. The theory consisted of successive transformations of cognitive structures in response to external and internal demands. It was suggested that general stages of cognitive development preceded the stages of moral reasoning. As an individual moved from childhood to adulthood, there is a corresponding shift to autonomous reasoning and highly complex mental activities where rules develop based on group agreement and justice becomes a rational principle regulating interpersonal interactions.

Another link between cognition and crime can be found in the controversial writings of Yochelson and Samenow (1976). Yochelson and Samenow claimed to discover thinking patterns that were uniquely criminal. They described 52 styles and errors of thinking which characterised all criminals. These included concrete thinking, fragmentation, failure to empathise with others, a lack of any perspective of crime, irresponsible decision making and perceiving themselves as victims.

Other studies have looked for more explicit cognitive variations between offenders and non-offenders. Ross and Fabiano (1985) distinguished between impersonal and interpersonal cognition. Impersonal cognition deals with the physical world and is seen

as a factor in the development of criminal behaviour. Interpersonal cognition deals with understanding people and their actions. Ross and Fabiano felt that interpersonal cognition played an even greater role in understanding criminal behaviour. They described a number of types of cognition that characterised criminals e.g. impulsivity; failure to identify the consequences of one's behaviours; inability to use means-ends reasoning.

Another cognitive view of crime portrays the criminal as a rational decision-maker where the cognitive component is the decision making process which takes place when the opportunity to offend arises. Cohen and Felson (1979) suggested a routine activity theory that stated for a crime to occur there must be opportunity and the offender must decide to take advantage of this opportunity. Whereas Cornish and Clarke (1986) suggested a rational choice theory, where the offender weighs the costs and benefits of committing a crime before making a rational decision.

1.4.5 *Abnormal Psychological Theories*

Abnormal theories of crime examine mental health in the criminal population. They posit that mental health and crime have similar properties in that they have maladaptive qualities and therefore the percentage of persons with mental disorders should be higher in the offending population than in the general population (Feldman, 1993). Mental health is defined as the capacity for rational thought, to cope effectively and to demonstrate stability and growth (Blackburn, 1993). The current method of diagnosing mental health is multi-axial. With the use of the Diagnostic and Statistical Manual of

Mental Disorder (American Psychiatric Association, 2000), offenders can be diagnosed along five axes.

A number of researchers have examined particular mental disorders in an effort to determine if there was a special association with crime generally or a specific type of crime. Hill and Pond (1952) examined abnormal electroencephalogram (EEG) in murderers labelled 'irrational' and 'legally insane'. They found a higher proportion of EEGs in the sample than expected indicating that mental disordered murderers have abnormal brain activity e.g. paroxysmal activity during sleep; slow alpha activity; sub-par spectral-analytical measurements. However, subsequent studies were unable to replicate these results.

Gibbens, Palmer and Prince (1971) investigated the incidence of kleptomania in shoplifters. Kleptomania has been defined as an impulsive control disorder characterised by repeated stealing of objects that are not for personal use or monetary value (Colman, 2001). They found that rate of admission to British mental hospitals of female shoplifters to be three times the rate of the general population. However, Gibbens et al. (1971) noted that it is possible that the diagnosis of mental disorder followed the conviction or was a result of it rather than the cause of the conviction. A later study found that shoplifting was carried out by young people mainly for monetary gain (Gibbens, 1981). It seems, therefore, very unlikely that the concept of kleptomania would be useful in understanding or explaining crime (Feldman, 1993).

Howells (1982) looked at the relationship of those diagnosed with schizophrenia and violent offending. He found that schizophrenics were marginally more likely to commit violent offences than those in other mentally disordered categories or those in the general population. However, it was found that an overwhelming amount of schizophrenics were never arrested for violent crimes. While surveying the intake of London prisoners, Taylor and Gunn (1984) found that almost 9% were psychotic, two thirds of who were schizophrenic. They also found that 11% of the men convicted of homicide were diagnosed with schizophrenia which is higher than the incidence found in the general population.

Criminal offenders have been labelled psychopathic, sociopathic, and antisocially disordered interchangeably in the literature (Feldman, 1993). Particularly because of the features that characterise such an individual: lack of guilt or remorse; inability to sustain consistent employment; inability to function as an effective parent; failure to accept social norms; irritability, aggressive impulsivity; inability to maintain enduring relationships; disregard for the truth; recklessness; superficial charm (Cleckley, 1964; Marshall & Barbaree, 1984). Despite the overwhelming interests, research has failed to clearly demonstrate differences between psychopaths and others which are relevant to developing criteria useful for the explanation of crime.

While examining mental disorders and crime, Monahan and Steadman (1983) drew three important conclusions. Firstly, the correlates of crime in the mentally disordered seem to be the same as in other populations specifically the general population. Secondly, the

correlates of mental disorders in criminals seem to be the same as in other populations. And finally, populations characterised by the correlates of crime and mental disorder can be anticipated to show high rates of both. These findings suggest that generally there is no higher incidence of mental disorder in offenders than there is in the general population and therefore as Howells (1982) points out the best predictor of future crime is past crime.

1.4.6 *Intelligence Theories*

Another psychological approach to delinquency and crime has come from the study of intelligence. The relationship between intelligence and delinquency has been of great interest to researchers over the years (Moore, 2011). For example, Goddard (1914) generated passionate debate with his report about “feeble-minded inmates” that suggested that criminal behaviour could be attributed to low intelligence. None since have been able to replicate Goddard’s (1914) findings (Shoemaker, 2005), though many researchers have gone on to look at the relationship between IQ and delinquency.

For example, Wilson and Herrnstein's (1985) Constitutional-Learning Theory integrates biology and learning theory in order to explain the potential causes of criminality. They argue that criminal and noncriminal behaviours have gains and losses. If the gains that result from committing the crime (e.g. money) outweighed the losses (e.g. being punished), then the person will commit the criminal act. Moreover, the gains associated with committing the crime may help to alleviate a person's feelings of being treated unjustly by society. Wilson and Herrnstein further hypothesise that there are certain constitutional factors, such as intelligence and variations in physiological arousal, that

determine how a person weighs the gains and losses associated with committing a criminal act. Hence, impulsive, poorly socialised children of low intelligence are at the greatest risk of becoming criminals. In support of their approach Wilson and Herrnstein reported a negative correlation between IQ and criminal activity however, the evidence is only correlational; they have not demonstrated that low intelligence is the cause of crime.

Indeed the consensus of opinion now seems to be that any relationship between intelligence (IQ) and delinquency is indirect (Hirschi & Hindelang, 1977; Koenen et al., 2006; Leech et al., 2003; Lynam et al., 1993; McGloin et al., 2004; Moffitt et al., 1981; Moore, 2011). For example, the gap between criminal and non-criminal elements of society is significantly reduced when economic, linguistic, and educational backgrounds were taken into account (Pfohl, 1994). It has been argued that intelligence can impact school performance, self-control, deviant peer pressure influence, and psychological well-being and it was these factors that influence deviant behaviour (Moore, 2011).

1.4.7 *Summary of Psychological Theories*

Psychological theories of crime appear to remain predominantly individualistic. However, critics have argued that a psychological analysis of crime cannot avoid issues about the nature of human action and the relationship of the individual to society. For example, although some theories may attempt to explain delinquency in terms of social learning, as Colvin and Pauly (1983) comment, the way in which behaviour is shaped by rewards and punishments is itself shaped by social structures which determine the patterns and availability of reinforcements to people in different social positions.

Clearly integrating psychological theory with societal structures is a monumental task; however, even if we confine ourselves to the task of explaining criminal behaviour from an individualistic perspective it soon becomes apparent, that with the exception of coming up with some theoretical explanation of why some individuals might have a general propensity for crime, little if anything has been done to apply psychological theory to the prediction of a full range of criminal career variables. However, before we even begin to attempt this we need to have some consensus as to what are the most important criminal career variables and how they relate to each other.

1.5 Key Variables in Criminal Career Research

So what key variables in criminal career research are most worthy of investigation? Given the constraints of the present thesis in terms of time scale and data available the number of key criminal career variables that can be investigated here is obviously limited. However, an examination of research and theory in criminal careers shows that, within these constraints certain key variables would seem to be particularly worthy of further investigation. These have been identified and defined in the preface, but it may be useful to reiterate them here.

As noted in the Preface, early onset age (the age at which an offender commences his criminal lifestyle) seems to be an important predictor of criminal careers. However, it is difficult to gather a clear picture of which areas or measures of criminal careers it best predicts. For example does it best predict high chronicity (the number of arrests), a high

seriousness of offending (the tendency to commit serious crimes over the course of one's criminal career), a longer criminal career length (the time that has lapsed between the first and last arrest), or high versatility (have a wide variety of arrests)? If we accept the single 'criminal propensity' view of Gottfredson and Hirschi (1986) one might predict that negative relationships would exist between onset age of offending and all of these variables, and that these variables would correlate positively with each other; however, this remains to be established definitively.

Also, whilst many studies have looked at the onset age of offending by the type of offence (Farrington et al., 1990; Jolliffe et al., 2003; Le Blanc & Frechette, 1989), there has been little research into the relationship between other criminal career variables and offence type. Also criminal specialisation (the tendency to repeat the same offence type) has been a critical area of research; however, little evidence of specialisation has emerged; i.e. most offenders appear to commit a variety of different types of crime (DeLisi, 2002; Klein, 1971; Piquero et al., 2003; Wolfgang et al., 1972). And whilst there is some evidence to suggest that the later the onset-age the higher the likelihood of specialisation (Mazerolle, Brame, Paternoster, Piquero, & Dean, 2000; Piquero, Paternoster, Mazerolle, Brame, & Dean, 1999; Tolan, 1987), there is little research on the relationship between specialisation and the relationship to other criminal career variables.

In addition to the above variables, however, violence was also included. Although there are many psychological theories of violence (Bandura, 1973; Felson, 1978; Kutash, 1978; Lorenz, 1966), psychological theories of criminal behaviour rarely distinguish between

the causes of violent and non-violent criminal behaviour and the relationship between them. However, given the importance of this distinction, violence was also chosen for special consideration. Violence will be discussed in detail further on in the thesis, but for the moment, it is worth noting that the evidence suggests that violent offenders tend to show a mixed pattern of non-violent and violent offending (Calpadi & Patterson, 1996; Farrington, 1982; Guttridge, Gabrielli, Mednick, & van Dusen, 1983; Loeber et al., 1998; Miller, Dinitz, & Conrad, 1982; Piquero, 2000; Wikstrom, 1985). Violent offenders are more likely to engage in serious offending, have long criminal career lengths, commit a high number of offences, commit more types of offences and have an earlier age of onset (DeLisi, 2006; Moffitt, 1994; Piquero, Farrington, & Blumstein, 2007). However, we know little about the generalisability of these findings as research has been conducted in very few countries.

Additionally, although the literature suggests that racial minorities (Blacks, Hispanics) are found to exhibit higher levels of offending (Piquero & Brame, 2008), most of the research on criminal careers has utilized samples of white male subjects, so there is little information on the criminal careers of women and racial minorities. And with regard to gender, what little research has been conducted indicates that while males and females tend to have similar overall patterns of offending they differ in the level of offending (i.e. the frequency of offending), onset age, the type of offending and the level of seriousness of crimes committed (Farrington, 1986; Jang & Krohn, 1995; Weiner, 1989).

Finally, another issue that has received very little attention in criminal career research is the role of demographic variables in structuring criminal careers such as the environment, or neighbourhood, employment type, and educational level. The studies that have been conducted have shown that there is a higher level of offending for criminals of low-economic status and for criminals from low income neighbourhoods (Lindstrom, 1995; Wikstrom, 1991). There is also a negative correlation between educational attainment and involvement in crime (Lochner & Moretti, 2004).

1.6 Summary and Conclusions

The main points of this chapter can be summarised as follows:

- The concept of criminal careers is important to any general study of criminal behaviour: within this context a criminal career is defined as the longitudinal sequence of criminal events committed by an individual.
- However, the central debate in criminal career research seems to concern whether the criminal career features are discrete entities or whether they are all manifestations of the degree to which individuals possess an overall propensity for crime.
- At present it seems that psychological theories of criminal behaviour, though relevant to the idea of an overall propensity, have not been related to a full range of criminal career variables. However, before we can begin this task we need to identify the relationships between the various criminal career variables.

- To this end, from the perspective of the present thesis, the following key variables were selected for special investigation, onset age, career length, chronicity, seriousness, versatility, specialisation and violence. Because of their possible significance also selected for investigation were race and gender along with neighbourhood type, employment type and educational level.

Chapter Two

Key Variables in Criminal Career Research

In Chapter One, the key variables in criminal career research to be investigated in this thesis were introduced, i.e. onset age, career length, chronicity, versatility and seriousness. Although specialisation and violence were also identified as important variables, they will be addressed later in the thesis individually. As previously mentioned, there is a fundamental debate in the literature concerning whether there is one underlying theoretical construct that determines all criminal career facets, or whether there is more than one (Blumstein, Cohen, & Farrington, 1988). If there is just one underlying construct then, in theory, all the criminal career variables should be interrelated and have the same predictors and correlates; however, if there is more than one underlying construct then different criminal career variables might have different predictors and correlates (Blumstein, Cohen, Roth, & Visher, 1986). Given these theoretical considerations, it is obviously important to determine the relationships between the key criminal career variables.

As the overview in Chapter One has demonstrated, a number of prominent studies in criminal career research have documented some important findings relating to these key variables (Bacon, Paternoster, & Brame, 2009; Nagin, & Farrington, 1992; Piquero, Farrington, & Blumstein, 2007). So, with theoretical considerations in mind, it is useful to examine existing findings again in more detail.

2.1 Onset Age

As has previously been noted, the relationship between age and crime has been the most keenly researched topic in criminal career research. Many years ago, Quetelet (1831) examined how the propensity to commit crime varied with age. This research has led to the discovery of the age-crime curve, where crime peaked in the late teens and declined gradually afterwards (Piquero et al., 2007). The age-crime curve emphasised to researchers the importance of the role age played in criminal behaviour. They then started to look at the age at which offenders commenced their criminal careers, onset age, and what it revealed about criminal careers and their development. Generally, it has been found that the average age of onset tends to be quite early and is most typically between 8 and 17 years (DeLisi, 2006; Patterson, Frogatch, Yoerger, & Stoolmiller, 1998; Tibbetts & Piquero, 1999) and the age of onset tends to be earlier with self-report data and later with official records (Piquero et al., 2007).

Researchers have used onset age as a way to define and group offenders, e.g. early onset offenders, and late onset offenders. Early onset offenders have been defined as offenders who started their criminal career on or before age 14, and late onset offenders have been defined as having started their criminal careers after age 14 (DeLisi, 2006; Patterson et al., 1998; Piquero et al., 2007; Tibbetts, & Piquero, 1999); however the early onset age threshold does quite often differ by study. For example, very early onset offenders have been defined as those persons who commenced their criminal career on or before 10 years (Krohn, Thornberry, Rivera, & Le Blanc, 2001). Offenders have also been grouped by those who started offending: (1) solely in adolescence (Moffitt, 1993); (2) in adolescence and continued offending into adulthood (Kempf, 1988; Moffitt, 1993; Nagin, Farrington,

& Moffitt, 1995); (3) in adulthood (Tracy & Kempf-Leonard, 1996); and (4) in adulthood after ceasing in adolescence (Kempf, 1989).

Notwithstanding these categorisations, one of the most robust findings in criminal career research is that onset age is related to future delinquency and offending (Bacon et al., 2009). Most studies have found an inverse relationship between onset age and future offending, i.e. the earlier the onset age the greater the likelihood of future offending, the longer the criminal career, the higher the chronicity, the more serious the crimes and the more versatile the offender (Blumstein et al., 1986; Elliot, 1994; Farrington et al., 1990; Loeber & Le Blanc, 1990; Synder, 1988; Tolan, 1987). It is therefore critical to examine the offending career to see how onset age is related to the other key variables of criminal careers.

2.1.1 *Onset Age and Career Length*

One criminal career variable that has not received much attention is criminal career length (Blumstein, Cohen, & Hsieh, 1982; Kazemian & Farrington, 2005; Piquero, Brame, & Lynam, 2004; Spelman, 1994). Criminal career length has been commonly defined as the difference in years between the first offending event and the last (Piquero et al., 2007). The event has been defined as a self-reported delinquent act, contact with the police, an arrest, or a conviction. The average recorded criminal career length may, therefore vary according to definition. It can also vary according to how the data is collected; for example, Le Blanc and Frechette (1989) conducted a study of Canadian adolescents to

young adults in their early 20s and found that the career length was longer with self-reports than official reports.

Other studies have examined juvenile, adult, or complete careers (Piquero et al., 2007) which also affects the average criminal career length documented. Another obvious factor that affects the criminal career length, especially in cohort studies, is the age at the last follow-up. A number of studies using the same sample from the British Offender Index serve to illustrate this argument. The sample consisted of the conviction records of a cohort of men and women born in 1953. Tarling (1993) followed the cohort to age 31 and found that the average career length was 7.4 and 4.9 years for men and women respectively. The British Home Office revisited this cohort and followed them to age 40 and again to age 46. It was found that the average career length for men and women was 9.6 and 5.6 years, and 12.4 and 7.1 years, respectively. Here it can be clearly seen that as the age at follow up increased so did the average career length.

Three major studies conducted in the 1970s concluded that the career length of offenders averaged between 5 and 12 years (Greenberg, 1975; Greene, 1977; Shinnan & Shinnan, 1975). However, since then only a few studies have examined criminal career length. For example, in a three state inmate survey, Spelman (1994) found the average career length to be 6 to 7 years. Farrington et al. (1998) also examined career length in their sample and found the career length to be approximately 10 years. Piquero et al. (2007) found the average career length to be 10.43 years between convictions in their sample from the Cambridge Study in Delinquent Development. Therefore, the criminal career

length for these studies also fell within the 5 to 12 years span discovered in the 1970s. However, although on average criminal careers appear to be rather lengthy, Piquero et al. (2007) found most criminal careers actually short; for example they found that 40 percent of all careers were less than 2 years long.

Significantly, Blumstein, Cohen, and Hsieh (1982) found that career length was associated with onset age; i.e. early onset offenders tended to have longer criminal careers. Other research supports the view that an early onset age predicts a relatively long criminal career (Farrington et al., 1990, 1998; Kempf-Leonard et al., 2001; Krohn et al., 2001; Piquero et al., 2004; Tolan, 1987).

2.1.2 *Onset Age and Chronicity*

The term chronicity was first coined by Wolfgang et al. (1972) to define those offenders who committed 5 or more offences prior to age 18. The concept of chronicity has been found to be ambiguous because of issues relating to arbitrary designations and truncations (Piquero et al., 2007). The basic concept, however, concerns the number of offences committed. A scale of chronicity could, therefore, commence at one offence and increase there after.

Researchers when examining the concept of chronicity have used the term ‘chronic’ as a method to distinguish between offenders. Thus, a chronic offender has been defined as an individual most at risk to continue in his or her criminal career. In the literature, chronic

offenders are also labelled as habitual, persistent, or career offenders (Fox & Tracy, 1988; Loeber et al., 1998). Various categorisations have been proposed. For example, some studies have differentiated between high-level and low-level chronics based on offending frequency (Nagin & Land, 1993; Nagin et al., 1995). Whereas, Svensson (2002) developed a categorisation of one-time, occasional, repeat and chronic offenders. His classification was based on the number of offences committed. One-time offenders had one conviction; occasional offenders had two to three convictions; repeat offenders had four to eight convictions; and chronic offenders had nine or more convictions.

It has been uniformly found that a small proportion of offenders commit a large proportion of all crimes (Loeber et al., 1988; Piquero et al., 2007; Wolfgang et al., 1972). For instance, Wolfgang et al. (1972) found that 18 percent of their sample of offenders committed over 52 percent of the total offences. In the literature, these offenders have also been labelled chronic offenders and this definition has since become very popular (Farrington & Maughan, 1999; Farrington & Wikstrom, 1994).

Significantly, these chronic offenders have been found to exhibit an earlier onset age than any other kind of offender (Loeber & Farrington, 1998). As noted earlier, in general, an early onset age has also been found to predict the commission of a greater number of offences (Farrington et al., 1990; Kempf-Leonard et al., 2001; Loeber & Hay, 1994; Tolan, 1987). For example, Blumstein et al. (1986) found that age of first arrest was related to the number of subsequent arrests, with arrest by age 14 (early onset age) most predictive of repeated later arrests. In DeLisi's (2006) study of adult career criminals,

early onset offenders were amongst the most chronic offenders. Krohn et al. (2001) examined very early onset offenders and found that they committed more offences than late onset offenders. The evidence of an inverse relationship between onset age and chronicity, therefore, is very robust.

2.1.3 *Onset Age and Versatility*

Gottfredson and Hirschi (1990) defined versatility as where offenders commit a variety of criminal offences with no strong proclivity to pursue a certain type of or group of criminal acts to the exclusion of others. In fact, research has shown that, with a few exceptions, offenders tend to be more versatile over their criminal careers (Blumstein et al., 1986; Piquero et al., 2003, 2007); i.e. versatility is a persistent feature in the criminal career. The versatility issue goes hand in hand with the specialisation debate which will be discussed later in the thesis.

Importantly, Loeber and Leblanc (1990) found that an early onset age was indicative of a diversification of offending, that is, the earlier an offender commenced offending, the more offence types he or she committed and hence the greater the level of versatility. In DeLisi's (2003) study of adult career criminals, early onset offenders were also amongst the most versatile offenders. Moreover, Mazerolle et al. (2000) also found a significant relationship between onset age and versatility in that early onset offenders tended to be more versatile than late onset offenders. Hence there appears to be a negative relationship between onset age and versatility.

2.1.4 *Onset Age and Seriousness*

The level of seriousness in offending has been defined as the tendency to commit serious crimes over the course of one's criminal career (Piquero et al., 2003). Some studies use seriousness interchangeably with violence (Piquero et al., 2007) while others make a clear distinction (Blumstein et al., 1988; Kempf-Leonard et al., 2001; Synder, 1998). In Synder's (1998) study, serious, violent offenders were distinguished from serious, non-violent offenders. Kempf-Leonard et al. (2001) also made a clear distinction between violent and serious offenders per se. They defined violent offenders as those who committed crimes of homicide, rape, robbery, aggravated assault or aggravated sexual intercourse, whereas serious offenders included all violent offenders plus those who had committed crimes of burglary, theft, automobile theft, arson and vandalism greater than \$500.

Seriousness has been examined extensively across the criminal career. Researchers have found that the level of seriousness tends to increase, to varying degrees, with each subsequent criminal act (Blumstein et al., 1988, Cohen, 1986; Smith & Smith, 1984; Tracy et al., 1990; Wolfgang et al., 1972). Researchers have proposed that early onset age offenders may tend to commit more serious offences than other kinds of offenders (Farrington et al., 1990; Kempf-Leonard et al., 2001; Tolan, 1987) and subsequent research has been supportive. For example, Tracy and Kempf-Leonard (1996) found that early onset age offenders had more serious offending careers than other offenders. Moreover, Krohn et al. (2001) examined very early onset offenders and found that the offences committed tended to be more serious and violent than those of late onset offenders.

2.2 Other Key Criminal Career Variables

Although it might be expected that the other key criminal career variables are strongly linked to one another, few studies have explored their joint distribution (Monahan & Piquero, 2009). For example, Gottfredson and Hirschi (1990) posit in their theory of general criminal propensity detailed in Chapter One that as criminal propensity increases so does career length, chronicity, versatility and seriousness together i.e. these criminal career variables would be interrelated, and their correlates and predictors would be the same. However, evidence to support this theory has been mixed.

Some empirical research on criminal careers revealed that career length, chronicity, versatility, and seriousness are highly interrelated (Farrington et al., 1996; Reiss & Roth, 1993; Tolan & Gorman-Smith, 1998). For example, Smith and Smith (1984) found evidence of increasing seriousness with successive arrests for juveniles. Additionally, Cohen (1986) found increases in switches to more serious offences and decreases in switches to less serious offences as the criminal career progressed. Much research has also found that frequency (chronicity by year) and variety (versatility) were strongly concordant (Chaiken & Chaiken, 1982; Monahan & Piquero, 2009; Spelman, 1994).

Alternatively, in both the Racine Study (Shannon, 1976) and the Philadelphia Cohort Study (Wolfgang et al., 1972), the level of seriousness did not systematically increase with the increase in chronicity. Rojek and Erickson (1982) also found that there was no shift towards more serious offences as the number of offences committed increased.

Moreover, Brame et al. (2004) found that frequency and variety showed little concordance.

Research has also found a correlation of 0.73 between a seriousness scale and a versatility scale and a correlation of 0.62 between the seriousness scale and a frequency scale (Farrington et al., 1996, Loeber et al., 1998). Tray and Kempf-Leonard (1996) found that among males both offending frequency and average seriousness increased the likelihood of future offending and a longer criminal career. However, Weitekamp et al. (1995) found that offenders with high levels of chronicity did not also necessarily have high levels of seriousness, further they found no support for a relationship between career length and seriousness. In sum, the evidence is quite mixed, however the majority of studies suggest that there is a positive relationship between career length, chronicity, versatility, and seriousness.

2.3 Key Variables and Offence Types

Although a number of studies have examined the relationship between the key criminal career variables, very few studies have examined the key variables of criminal career research as they relate to offence types. Hence although, the variables of onset age and career length have been related to various offence types few studies have examined the level of chronicity, versatility and seriousness in criminal careers by offences.

Farrington (1986) found that the age-crime curve differed according to offence type. He argued that this indicated that the onset age of offending for each offence type would differ. He found that shoplifting tended to be committed before burglary and burglary before robbery. However, results have been contradictory. For instance, Le Blanc and Frechette (1989) provided results for the onset age by offence type for offenders up to age 21. They found that offences such as petty larceny (onset age 8.33), shoplifting (onset age 11.35) and vandalism (onset age 11.68) were committed at an early age, whereas fraud (onset age 19.79) and homicide (onset age 19.89) were committed later in life. However, Piquero et al. (2007) also found offenders started committing theft of vehicles (age 16.8) and burglary (age 17.8) at an earlier age than shoplifting (age 20.4) and vandalism (age 22.7).

Career length by offence type has also been examined. For example, Blumstein et al. (1982) found that the average career length was 5 years, with property offenders having a career length of 4.2 years and offenders against persons having a career of 7.0 years. In Le Blanc and Frechette's (1989) study, offenders who committed crimes against the person had a shorter career length (1.46 years) and those who committed burglary and petty larceny had the longest career length (3.47 and 3.56 years respectively). However, their study only examined offending over a five year span. Weisburd and Waring (2001) researched criminal career length of white collared criminals as opposed to traditional criminals. They found the average career length to be 14 years. Whereas, in a sample of serious offenders, Piquero et al. (2004) found the average career length to be approximately 17 years ranging from 4 to 30 years. The results of career length by offence type, therefore, have been somewhat mixed; however, Blumstein et al. (1982)

concluded that, in general, property offenders exhibit shorter careers than offenders who offend against the person.

LeBlanc (1990) further suggested that not only was the timing of the first arrest useful in predicting seriousness and chronicity of criminal involvement but also the time of onset across sets of other disruptive behaviours, pre-delinquent and delinquent, differentiated by type and seriousness. In other words, LeBlanc stressed the significance of examining onset age by offence type arguing that this information was crucial in understanding and forecast future serious and chronic offending.

2.4 Key Variables, Race, Gender, and Other Demographic Variables

Even though demographic variables are readily available as they are routinely recorded, there is a paucity of research on the demographic variables of criminal careers (Blumstein et al., 1986). For example, very few studies have examined race and gender differences in criminal careers furthermore fewer have taken a deeper look into other demographic variables. Understanding these differences is extremely important for theoretical considerations as well as policy issues.

Research has generally shown that there are a disproportionate number of non-White, minority (Hispanics and Blacks) offenders (Blackburn, 1993; Blumstein & Graddy, 1982; Bonczar & Beck, 1997; D'Alessio & Stolzenberg, 2003; Hindelang, 1978; McNulty & Bellair, 2003). However, this proportion differs by the offence type (Hawkins et al.

1998). Thus, Blackburn (1993) has noted that in the US in 1988, Blacks made up 11% of the population but 33% and 47% of the offending population in property and violent crimes, respectively. Other studies have also found that Blacks committed a disproportionately large percentage of serious and violent crimes (Elliot & Ageton, 1980; Sampson & Laub, 1993; Morenoff, 2005). However, Piquero et al. (2004) found the average career length were similar over race in his sample of serious offenders.

Gender differences are well established in studies of crime (Feldman, 1977) but research comparing male and female criminal careers is very scarce (Steffensmeier & Allan, 1996). In general, there is a higher percentage of male offenders; i.e. males are more likely than females to engage in criminality (Dean et al., 1996; Wolfgang et al, 1987). As a result, many researchers have tended to exclude females from their samples. A few studies, however, have chosen focused on females (DeLisi, 2002; Sommer et al., 1994; Danner et al., 1995; Warren & Rosenbaum, 1987). These studies have generally found that females exhibit the same patterns of criminal behaviour as their male counterparts with a lesser frequency (Warren & Rosenbaum, 1987; Steffensmeier & Allan, 1996).

Hence, Steffensmeier and Allan (1996) found that males offend at a much higher rate than females and therefore are likely to have higher levels of chronicity. They also found that the gender gap was greatest for serious crimes and less so for minor forms of offending like minor property crimes. Other data also indicate that the ratio of male to female offending is smallest for theft and somewhat higher for burglary, robbery, and violence (Home Office, 1989). Loeber et al. (1998) also found a large gender difference

amongst the chronic offenders. In their study, it was found that females exhibited lower levels of chronic offending while males had higher levels of seriousness and chronic offending.

Other findings indicate that men have longer career lengths than women (Farrington & Wikstrom, 1994; Tarling, 1993). In line with this, Francis et al. (2007) report that women are 40 percent more likely to drop out of their criminal lifestyle than men (see also, Arnold 1989; Miller, 1986). Finally, Mazerolle et al. (2000) found that both males and females who started offending at an early age were more likely to be more versatile than late onset age offenders, however, they did not examine differences in onset age by gender.

Most studies that examine the relationship between individual characteristics and criminal career have neglected the possibility that these relationships may be context dependent (Wikstrom & Loeber, 2000). For example, Elliot et al. (1986) found that career length varied by place of residence such that inner city youth had somewhat longer careers (see also, Shaw & McKay, 1972). Studies have shown that there is a high rate of offending for offenders of low socioeconomic status living in low socioeconomic status neighbourhoods (Lindstrom, 1995; Wikstrom, 1991). Not only was the rate of offending high, but these individual were more likely to progress to serious offending (Loeber & Wikstrom, 1993). These findings suggest that offenders residing in low income housing areas are likely to have longer career lengths, higher levels of chronicity (i.e. five or more charges) and seriousness in offending.

Previous studies have found that the majority of offenders are employed (Fagan & Freeman, 1999; Grogger, 1998). Some studies have found that employment level and the level of education attained are important factors in criminal careers (Gould, Weinberg & Mustard, 2002; Machin & Meghir, 2004, May, 1999). For example, Lochner (2008) posited that the better the employment level, the higher the wages and therefore the less likelihood of offending. Additionally, Freeman (1996) found that two thirds of all incarcerated men in 1993 had not graduated from high school (see also, Farrington, 1992; West & Farrington, 1973).

2.5 Summary & Conclusions

The main points of this chapter can be summarised as follows:

- An understanding of the relationship between key career variables would assist with the determination of the underlying constructs in criminal careers.
- The concept of onset age is critical to the study of criminal behaviour and criminal careers, and has been defined as the age at which an offender commences his criminal career as measured by self-reports, police contact, arrests or convictions.
- The majority of studies have found an inverse relationship between onset age and future offending and they have indicated that the earlier the onset age the greater the likelihood of future offending, the longer the criminal career, the higher the chronicity, the more serious the crimes and the more versatile the offender.

- Some empirical research on criminal careers revealed that career length, chronicity, versatility, and seriousness are directly interrelated i.e. as career length increase so too do chronicity, versatility and seriousness.
- A number of studies have found gender, racial, environmental, employment and educational differences in examining the key variables of criminal career research such that male, black, inner city, underemployed, and uneducated offenders are more likely to have an early onset age, a longer criminal career, higher chronicity, greater versatility and a higher level of seriousness in offending.
- An understanding of the predictors and correlates of the key criminal career variables assist in the determination of the number of underlying constructs that determine the criminal career facets. It is this determination that is necessary to unravel the general/discrete theory of crime debate.

Chapter Three

Specialisation

In investigating the causes of specialisation in criminal career, it is important to examine some of the theoretical constructs that might underlie specialisation. Studies of specialisation in criminal careers are an important element in shedding light on the number of dimensions underlying offender behaviour. Specialisation implies heterogeneity among offenders on more than one underlying theoretical dimension and has important implications for theories of criminal behaviour.

3.1 Defining Specialisation

One of the major problems in researching specialisation is defining it. Researchers tend to select definitions of specialisation that are most consistent with their study aims or questions (McGloin et al., 2009). Some identify specialisation with an absence of versatility (Francis, Liu, & Soothill, 2010). As stated in Chapter Two, Gottfredson and Hirschi (1990) defined versatility as that which exists when offenders commit a variety of criminal offences with no strong proclivity to pursue a certain type of or group of criminal acts to the exclusion of others. Based on this definition, therefore, specialisation could be defined as existing when an offender has a strong inclination to commit some criminal acts to the exclusion of others.

However, Osgood and Schreck (2007) defined offence specialisation as systematic individual differences in the types of crime offenders commit, whereas Paternoster et al. (1998) proposed that specialisation is the extent to which an offender tends to repeat the same offence or offence type on successive events. Specialisation has also been defined as the tendency to repeatedly offend in some domain of the violence, property, and drug trinity or some variant thereof (Brennan et al., 1989; Cohen, 1986; Mazerolle et al., 2000) and the probability of being arrested again for the same offence the next time (Blumstein et al., 1986).

The numerous definitions of specialisation have given rise to three main approaches, sequential, distributional, and probabilistic. Thus, sequential specialisation looks at the conditional probability of one offence type arrest being followed by the same offence type arrest (Wolfgang et al., 1972). Probabilistic specialisation is seen as the elevated probability of offending in a particular offence type given a previous classification in that offence type (Brennan et al., 1989). And, distributional specialisation examines the proportion of a class (e.g. violent) of offenders in the population compared with that which would be expected by chance.

Specialisation has also been defined with respect to particular offence types or categories. For example, Lussier (2005) defined specialisation in sexual offenders as the specific propensity to commit sexual crimes. Farrington et al. (1988) also made the point that one can distinguish between specialisation and specialists; for example Lussier (2005) noted

that for sex crimes one can examine whether sex offenders are specialists in sex crimes or one can examine the level of specialisation in sex offences.

The various definitions have an important bearing on the assessment, level, and measurement of specialisation; however, for the purposes of the present thesis, specialisation is generally defined as the tendency to repeat an offence or an offence type in subsequent offending. This definition was adopted, as arguably, it captures a central feature that unites most definitions in this area (Blumstein et al., 1986; Brennan et al., 1989; Paternoster et al., 1998; Wolfgang et al., 1972). It should be emphasised, therefore, that by adopting this definition an important theoretical and practical distinction can be made between specialisation and versatility. Versatility per se can be construed as simply the tendency to commit a variety of different types of crime; i.e. it can be measured by counting the number of different crimes committed (Gottfredson & Hirschi, 1990). Specialisation, however, is the tendency to repeat an offence or an offence type in subsequent offending. Given these definitions, it is possible in principle for both to exist simultaneously. For example, a prolific offender might not only specialise in one particular type of crime, i.e. exhibit repeat offending within that type of crime, but at the same time also engage in a wider variety of crimes than a less prolific offender.

3.2 Measuring Specialisation

Specialisation is most often measured by examining participation in general crime or by analysing specific kinds of offence types like sex offending. As such, specialisation does not simply rely on a count of different types of crime engaged in, rather it requires a

measure of the general tendency to repeat offend within particular offence type. Early studies in specialisation derived conclusions from data patterns and/or transition matrices (McGloin et al., 2009). Wolfgang et al. (1972), in particular, popularised the method of using offence to offence matrices of transition probabilities to assess specialisation. The matrix was a two-way table of crime types where the row indicate the offence type committed at k th arrest and the column indicates the arrest type at $k+1$ th arrest. In the matrices, the probability of committing one offence of a particular offence type on arrest k and then again on arrest $k+1$ was calculated. This probability was displayed along the diagonal element. This was done for each transition where each transition took into account an offender moving from one arrest to another. Wolfgang et al. (1972) then calculated the average across the transition matrices with each matrix given equal weight. This final probability matrix was an indication of the specialisation in the sample.

Wolfgang et al. (1972) method of measuring specialisation looked only at the previous arrest in comparison to the present one. This was considered a first-order Markov chain analysis. Stander et al. (1989) also used first-order Markov chain analysis to examine specialisation in their data set. They however went on to examine the possibility of second-order Markov chain analysis. They found that not only was the future arrest affected by the current arrest but also by the past arrest, indicating that second-order Markov analysis might be more useful in determining specialisation in criminal career research.

Bursik (1980) also examined transition matrices. He developed one of the first indices of specialisation, using the ratio of the observed frequency to the expected frequency by chance in each diagonal cell of the transition matrix. This method Bursik called “residual analysis.” Bursik used Adjusted Standardised Residual (ASR), developed by Haberman (1973), to test the statistical significance of the deviation of the observed frequency from the expected frequency by chance to determine whether the level of specialisation observed was significant. Bursik (1980) specified that the ASR took into account the overall size of the sample and gave a very good indication of how far off the observed count was from the expected count and therefore was a suitable technique to determine statistical significance.

Farrington (1986) expanded on Bursik’s index by developing the Forward Specialisation Coefficient (FSC), which provided another means of quantifying patterns in transition matrices. With the FSC, specialisation was said to occur when the actual number of offences significantly exceeds the expected number by chance (Lussier, 2005). The value ranged from 0 to 1 with 0 indicating no specialisation and 1 indicating perfect specialisation. However, a few limitations of the FSC have been noted. Osgood and Schreck (2007) observed that the FSC was based on sequential offences and was an aggregate measure. They also remarked that the concept of time was not properly accounted for as offences could be a day apart or years. Furthermore, if there were more than one offence recorded for the same event, the principal one was chosen. Although very popular, the limitations of the FSC led future researchers to develop other measures of specialisation.

Farrington (1986) also utilised the Backward Specialisation Coefficient (BSC) as another possible measure of specialisation. The BSC also ranged from 0 to 1. A value of 0 indicated complete versatility and 1 indicated perfect backward specialisation. Backward specialisation occurred when every offence of offence A on referral $k+1$ was preceded by an offence A on referral k . The BSC was found to be highly correlated with the FSC.

An alternative approach to studying specialisation was to investigate the complete offending career (Farrington et al., 1988). Whereas, transition matrices examined consecutive arrests, this approach looked at the proportion of each type of offence committed over the entire career. Bursik (1980) also examined specialisation by assigning all juveniles with more than half of their offences of the same type as specialists. This method was called the percentage rule where an offender was labelled a specialist if 50% or more of his offences were of the same offence type. With this method specialisation could be examined for each offender rather than the entire offending group.

The diversity of offending index (D) was developed by Agresti and Agresti (1978) as another individual level measure of specialisation (Mazerolle et al, 2000; Piquero et al., 1999; Sullivan et al, 2006). The diversity index indicated the probability that any two offences drawn randomly from an individual's offence history belonged to separate offending categories. The minimum value of 0 indicated complete specialisation. The maximum value indicating complete generality was calculated using the formula $D_{\max} = (k-1)/k$ (k = the number of offending categories).

McGloin and colleagues (2009) argued that the previous methods of measuring specialisation were not adequate and they proposed latent transition analysis (LTA) as a substitute. LTA assumes that a discrete latent variable underlies the population of interest. The method attempts to specify mutually exclusive and exhaustive categories by the available data (Muthén, 2002; Vermunt & Magidson, 2004). This procedure is similar to factor analysis but is designed for classification of offenders.

Osgood and Schreck (2007) also used the regression approach to investigate specialisation. They introduced a model that extends the item response theory of measurement to a multi-level regression framework (Sullivan et al., 2009). In the regression approach, they focused on a specific type of offence, then a term was developed measuring the offence type for example prior violent offending could be included in a multilevel regression model. This was a two-level approach in which level one determined the presence of specialisation and level two investigated the relationship of covariates of this latent variable. Osgood and Schreck (2007) determined that this type of analysis was best suited for analysing particular types of specialisation like specialisation in violent or drug offences.

3.3 Specialisation: Empirical Evidence

Perhaps not surprisingly, given the number of measures that have been used, the evidence for specialisation in criminal careers has been varied. Some studies have presented evidence against specialisation (DeLisi, 2002; Klein, 1971; Piquero et al., 2003;

Wolfgang et al., 1972) while others have presented evidence supporting specialisation (Armstrong & Britt, 2004; Britt, 1996; Deane et al., 2005; Kempf, 1987). And still others have found the presence of both versatility and specialisation in their research (Blumstein et al., 1988; McGloin et al., 2009; Steffensmeier & Ulmer, 2005).

The evidence against specialisation seemed to be particularly strong in the earlier stages of specialisation research. For example, Klein (1971) found no evidence of specialisation in gang members in Los Angeles and Wolfgang et al. (1972) found little to no evidence of specialisation in the Philadelphia birth cohort of 1945. However, even more recently Piquero et al. (2003) found that the majority of offenders exhibited a generalist offending profile over the life course and DeLisi (2001) also concluded that active criminals were generalists and did not specialise in particular types of crime. Some criminals were simply more active and more dangerous than others.

In contrast, however, some researchers have found evidence of specialisation. For example, Armstrong and Britt (2004) found evidence of criminal specialisation and Kempf (1987) found that the data supported both sequential and distributional specialisation at low levels. Bursik (1980) employed the index of specialisation in the residual analysis model and found a degree of specialisation among white and non-white offenders. Moreover, Britt (1996) found that all offenders except those committing homicide and rape were likelier to commit one type of offence several times than commit several types of offences one time each.

Others have considered the possibility that versatility and specialisation may coexist within criminal careers. For example, Britt (1994) and Farrington (1988) revealed modest specialisation within a larger pool of versatility. McGloin et al. (2009) and Steffensmeier and Ulmer (2005) found that offenders may favour certain offence types during the short-term, because of opportunity structures, but because of changing situations and contexts over the life-course, their offending profiles aggregate to versatility over their criminal career as a whole. Shover (1996) and Sullivan et al. (2006) also found that versatility was the norm when offending is viewed over the criminal career, but their empirical work detected specialisation in the short-term. Thus, some offenders tended to see themselves as burglars or robbers and restrict their criminal activities to these types of crimes for a short period of time. However, the level of specialisation progressively decreased as the time window of focus grew broader (Sullivan et al., 2006). In contrast, Blumstein et al. (1988) found that, although many offenders sampled a fairly wide variety of offences during the early phases of their careers, they then converged on those that they found most appropriate to their tastes and skills. Kempf (1987) also found similar evidence of serial specialisation but offenders changed offending patterns as they aged and Francis et al. (2004) found offenders would change offender type across adjacent five year brackets and argued that static typologies did not fully depict the actuality of criminal careers.

Not only has specialisation been investigated at a general level in cohort studies, it has also been investigated in relation to specific types of crimes including burglary (Schwaner, 2000), property (Brennan et al., 1989; Shover, 1996; Tunnell, 2006), fencing (Steffensmeier & Ulmer, 2005), intimate partner abuse (Bouffard et al., 2008; Moffitt et al., 2000), drug offences (Armstrong, 2008; Blumstein et al., 1988) and violent

interpersonal offending (Osgood & Schreck, 2007; Schwaner, 1998). The latter part will be discussed in more detail in the next chapter.

For example, Rojek and Erickson (1982) placed offences into four categories: status, person, property, and other. They discovered evidence of specialisation in only two types of offences: property and status (runaway). Blumstein et al. (1988) found that specialisation was highest for drug offending and fraud in white offenders and highest in auto-theft among black offenders. Lussier, LeBlanc and Proulx (2005) found greater offending specialisation among child molesters relative to sex offenders in general and Smith and Smith (1984) found evidence of specialisation amongst boys whose first arrest resulted from a robbery charge.

In another study, Lindberg (2005) examined specialisation in a forensic psychiatric sample of Finnish arsonists. They found evidence of pure arson specialism (only fire-setting criminal behaviour). Following on from this, Soothill et al. (2008) sampled persons convicted of arson, blackmail, kidnapping and threats to kill. Those initially convicted of arson were most likely to specialise and were four times more likely to be convicted of arson.

On balance, therefore, it seems that although specialisation may not always occur, when it does, it is most frequently found in particular types of offences, namely property offending, arson, and, as discussed in the next chapter, violent offending.

3.4 Specialisation and Criminal Career Variables

Various attempts have been made to relate specialisation specifically to the key criminal career variables of interest in the present thesis. For example, Lo et al. (2008) argued that mixed findings regarding specialisation research were the result of differences in the ages of offenders studied. Studies of juvenile offenders showed the weakest specialisation (Britt, 1996) and studies of adult offenders displayed the strongest specialisation (Lo et al., 2008). Research investigating specialisation specifically as it relates to age of offenders has generally supported this view. Thus, Piquero et al. (1999) found that specialisation increased with age as did Blumstein et al. (1988), Simon (1997), Brame and Dean (1999), and DeLisi et al. (2011).

The wealth of support for the age-specialisation relationship encouraged several researchers to investigate the onset age-specialisation relationship. On the whole, the results of such studies are similar to those for age. Thus, Mazerolle et al. (2000) found a significant relationship between onset age and offending specialisation including that early onset offenders were less specialised than late onset offenders in their offending patterns. Piquero et al. (1999) discovered a positive relationship between onset age and specialisation; i.e. as the age of criminal career onset increased, the level of specialisation increased. Tolan (1987) also found that early initiators exhibited less specialisation than those who initiated their offending later in life. In general, therefore, the bulk of the evidence would seem to suggest that when specialisation does occur, it tends to increase with age, including onset age.

However, although onset age and specialisation have been heavily researched, there has been a dearth of research on specialisation and other key variables such as career length, seriousness, versatility and chronicity. Previous research has found a direct relationship between onset age and specialisation and an inverse relationship between onset age and career length, seriousness, versatility and chronicity. It follows then that one would expect specialisation to have an inverse relationship with career length, seriousness, versatility and chronicity.

3.5 Specialisation and Demographic Variables

Researchers have also examined how specialisation may differ across demographic variables such as race and gender. Some studies have found no significant difference in specialisation between black and white offenders; for example Blumstein et al. (1988) found similar patterns of specialisation for black and white offenders and Rojek and Erickson (1982) found no significant difference in specialisation between white, black and Hispanic members of their juvenile sample; however, they noted that the proportion in their sample may have been too small to assess racial differences. Other studies found specialisation to differ by the race of the offender. Bursik (1980) discovered significantly different crime sequences for white and black youths while Lattimore et al. (1994) found differences in patterns of offending for white, black, and Hispanic offenders such that black offenders were more likely to specialise in robbery and white and Hispanic offenders were more likely to specialise in general crime.

Farrington et al. (1988) examined gender and specialisation and found that, although young males and females had similar overall levels of specialisation, males had higher levels for violence and serious theft offences while females had higher specialisation levels for public order and status offences. Mazerolle et al. (2000) also found that males and females did not differ statistically in their respective levels of offending specialisation, though DeLisi et al. (2011) found that male offenders were more likely to demonstrate specialisation in aggravated assault, auto-theft and vagrancy whereas female offenders are more likely to specialise in theft and forgery.

3.6 Theories of Specialisation

With regard to theoretical constructs underlying specialisation two major theoretical perspectives have emerged, opportunity and propensity (McGloin et al., 2007). Opportunity theorists argue that changes in life circumstances promote changes in offending specialisation largely because of a shift in routine activity (see, for example, Farrington, 2005; Osgood et al., 1996). Such changes can limit criminal opportunities leading to increased specialisation. On the other hand, propensity theorists argue that individual differences or personality characteristics lead offenders to self-select certain local life circumstances. According to propensity theorists any apparent relationship between local life circumstances and specialisation reflects the operation of a single underlying factor (McGloin et al., 2007).

Within this context, Colvin and Pauly's (1983) socio-structural theory of offending would be considered an opportunity theory. This theory proposes that specialisation is a

function of socio-economic status. That is one's class position affects the extent to which one participates in property or violent crime. This theory is also similar to Cloward and Ohlin's (1960) theory of differential opportunity; this proposes that distinct subcultural adaptations emerge in certain neighbourhoods and give rise to clusters of specific criminal behaviour such as violence, drug-use and illegal profit generating.

Another opportunity theory is Loeber and LeBlanc's (1990) developmental theory of crime in which distinct pathways are associated with criminal behaviour. Within the theory, Loeber et al. (1993) identified three pathways: the authority conflict pathway, covert pathway, and overt pathway which were characterised by causal factors that could change throughout the life course. The different trajectories, therefore, led to different criminal acts: the authority conflict pathway leads to stubborn behaviour, defiance, truancy, running away; the covert pathway to shoplifting, vandalism, theft and burglary; and the overt pathway to violence (assault, strong-arm robbery, rape). Loeber and LeBlanc's (1990) theory predicts a degree of specialisation within distinct pathways.

In contrast, Gottfredson and Hirschi's (1990) self-control theory would be considered a propensity theory. According to Gottfredson and Hirschi (1990), when individuals with low self-control encounter opportunities to engage in criminal acts, they are more likely to seize the moment and commit the act. Individuals who rank lowest on the self-control continuum are more likely to start offending early, offend more when active, engage in a variety of criminal acts and desist later. Therefore, individuals with low self-control tend not to specialise and the reasons for committing one type of crime are the same for

committing any other type of crime. Moffitt's (1993) dual taxonomy theory predicts different degrees of specialisation and versatility depending on the type of offender. In the dual taxonomy, the two different kinds of offenders display quite different levels of specialisation; the life-course persistent offender tends to be a very versatile and non-specialist offender partaking in numerous types of offences, whereas the adolescent-limited offender engages in age-specific criminal activity such as drinking, smoking, joyriding and minor acts of theft (Moffitt, 1993; Guerette et al., 2005).

Although some have argued that specialisation and versatility may coexist (i.e. they not necessarily conceptual opposites), there are few theories that account for this. Exceptions include the rational choice perspective, which proposes that different crimes may meet different needs (Cornish & Clarke, 1986); hence offenders engage in clusters of criminal behaviours that present analogous advantages. As the needs of offenders evolve, they may continue to perform their specialisms whilst engaging in additional more versatile offending to satisfy newfound needs (Guerette et al., 2005).

3.7 Summary and Conclusions

- Specialisation has been defined as the tendency to repeatedly offend in some domain.
- It is most often measured by examining the repetition of offences in criminal careers or by analysing the repletion of particular offence types and can be distinguished from versatility per se which is simply to engage in a wide variety of different kinds of offences.

- The evidence for specialisation in criminal careers has been varied; however, on balance, it seems that although specialisation may not always occur, when it does, it is most frequently found in particular types of offences, namely, property offending, arson, and violent offending.
- Most importantly, in relation to the present thesis, there are indications that specialisation may be positively correlated with other criminal career variables, and also related to demographic factors. However, little research has been conducted on this, and what research exists has been limited to a few countries. The present thesis, therefore, presents an opportunity to explore these issues further.

Chapter Four

Violence

Violent offending though relatively rare in comparison to other types of offending has a huge impact on victims and in turn, society (Blackburn, 1993; Hollin, 1989). This has resulted in numerous studies on the subject of violence in an effort to understand the roots of violence and how it relates to other forms of deviant behaviour. The possible distinction between violent and nonviolent offenders also impacts the general and discrete criminal career issue with regard to underlying theoretical constructs (Brame, Bushway, Paternoster, & Thornberry, 2005; Laub & Sampson, 2003; MacDonald, Haviland & Morral, 2009; Piquero, Brame, Mazerolle, & Haapanen, 2002). That is, a successful distinction between violent and nonviolent offending in criminal careers could be considered to lend support to the discrete approach. It is, therefore, very important to determine the relationship between violence and the key criminal career variables.

4.1 Defining Violence

Violence has often been used interchangeably with terms like aggression and criminal violence (Blackburn, 1993; Hollin, 1989). However, Megargee (1982) and Siann (1985) have presented different definitions for violence, aggression, and criminal violence. Thus, violence is the forceful infliction of physical injury against another person, whereas aggression denotes the intention to hurt or gain advantage of another person without necessarily involving physical harm. And criminal violence refers to unlawful, directly, injurious, behaviour as in homicide, assault, robbery and rape. In the present context,

therefore, it may make more sense to make a differentiation between violence and aggression; bearing in mind that, whilst not all aggressive behaviour may be considered violent, in a sense, all violence is aggression.

4.2 Categorising Violent Offending

In the literature on criminal behaviour, violence has been used primarily as a way of classifying offenders and offending (Brame et al., 2005; MacDonald et al., 2009). For example, Brame et al. (2005) defined nonviolent offending as any self-reported involvement in breaking and entering, larceny, fencing stolen goods, or motor vehicle theft. Alternatively violent offending was any self-reported involvement in gang fights, assault, robbery, or sexual assault.

Serious and violent offences are quite often linked together as, by definition, serious offences are more likely to include violent offences. However, a number of researchers have distinguished between serious violent offenders, serious nonviolent offenders, non-serious violent offenders, and non-serious nonviolent offenders (Elliot, 1994; Elliot, Huizinga & Morse, 1986; Ezell, 2007). For example, according to Elliot et al. (1986), serious violent behaviour includes the offences of aggravated assault, sexual assault, robbery and gang fights whereas non-serious violent behaviour includes minor assaults. However, simple categorisations of this kind give us little insight into why violent criminal behaviour occurs. To gain such insight, it may be useful to look at some of the theoretical explanations that have been put forward to explain violent behaviour.

4.3 Theories of Violence

Psychological theories of aggression and violence are often viewed in the context of the nature-nurture debate: i.e. the extent to which the propensity of violence results from biological makeup or environmental and situational influences. The theories can be classified into five main groups: biological theories, drive theories, social learning theories, social theories and personality theories.

4.3.1 *Biological Theories*

Biological theories of violence suggest that violent behaviour depends on the inborn structural properties of the brain and the musculature (Blackburn, 1993). Freud's (1920) psychoanalytic theory argues that aggression and violence are innate personality characteristics that are common to all humans, and that behaviour is motivated by sexual drives. Freud noted that the sexual drive was known as libido and that it was energy derived from Eros, life instinct. The repression of the libidinal urges was displayed as aggression. Freud later added the concept of Thanatos, the death instinct, to his theory of human behaviour. When Thanatos is turned inwards, it results in self-punishment and suicide, whereas when turned outwards, it results in hostility and anger, causing destructive behaviour. In the conflict between Eros and Thanatos, some of the negative energy of Thanatos is directed at others, to prevent self-destruction of the individual. Freud claims that this displacement of negative energy is the basis for aggression and violence and society has to constantly seek to suppress these instinctive behaviours.

In another psychodynamic instinct model of aggression and violence, Kutash (1978) suggested that the superego development permits internalization of aggressive energy through guilt, but instinctual energy is still generated and continuous sublimations or neutralisation is needed to cope with conflicting demands of the libido, superego, or reality. In the healthy individual, ego control modifies the manifestation of the aggressive instinct, and prevents violence. However, in personality disorders, ego weakness results in the repression of aggression and its expression in fantasy or symbolic acts, or 'acting out' in impulsive violence.

Lorenz (1966) combined Freud's theory of aggression with Darwin's theory of natural selection, postulating that instinctual aggressiveness was a product of evolution. In this theory, aggression is beneficial as it allows for survival and success in an aggressive species. Lorenz emphasises the place of humans in the animal kingdom and the apparent universality of aggression in animals. He argues that aggression enhances the ability to hunt, defend territories, and compete successfully for desirable mates. The stronger species eliminates the weaker one and over the course of evolution a stronger healthier population results. However, although strong inhibitory mechanisms have evolved to suppress aggression when needed in animals with potentially dangerous weapons, such as carnivores, they are less developed in humans; hence our particular propensity to show violence towards each other.

In another variation of the biological approach, Storr (1970) argued that violent behaviour results from a biological, instinctive impulse which must be released before reaching

critical levels. He further elaborated on this arguing that the way in which violence is exhibited in later life results from unconscious motivations originating from childhood emotional experiences. Thus, if conflicts occur at times when an individual is seeking to deal with the aggressive drive, subsequent aggression may result.

Like Lorenz, Wilson (1978) argued that aggression and violence are biologically determined but adaptive. He suggests that aggression, like other emotions, and like self-understanding, is under the control of genetic predispositions, which have evolved to enhance the reproduction of the species and survival of the individual. However, these predispositions were subject to cultural adaptation and individual learning. Possessed to some degree by all humans, aggressive behaviour, therefore can be seen as basically an evolutionary adaptive reaction to threats to survival. However, it can be used by different humans for different reasons; for example, some will exploit it totally for their own ends, whereas others will use it to maintain reciprocal cost/benefit relations.

Other biological theories of aggression and violence have attempted to tie down in more detail the biological influences at work. For example, Moyer (1981) described a number of different various categories of aggression: predatory, inter-male, fear-induced, irritable, territorial, maternal, sex-related and instrumental. These behaviours were said to be controlled by neural circuits which were sensitised by hormones and blood constituents. When fired in presence of a suitable target, these systems produced integrated attacking behaviour. However he also argued that human learning can affect target selection and the inhibition of behaviour.

The main problem with biological theories of aggression and violence such as these, however, is that it is difficult to empirically test their predictions. Ultimately, whilst interesting in themselves, they all seem to be arguing that humans have a propensity for violence that can be modified by environmental and situational learning experiences. But, as yet, we have no systematic records of biological violence/aggression markers in criminals hence it is difficult to see how they can add much to our understanding of criminal careers.

4.3.2 *Drive Theories*

The second category of theories of violence concerns drive theories; these propose that violence is the result of impulses created by needs (which may be innate or environmental in origin). The most well-known drive theory is that developed by a group of researchers at Yale known as the frustration-aggression hypothesis (Dollard, Miller, Doob, Mowrer, & Sears, 1939). In the original version of this theory, frustration and aggression are linked such that frustration is the cause of aggression and aggression is the result of frustration. The theory states that when frustration is experienced, aggression is initiated and is meted out on the source of the frustration or an alternative (scape-goat).

However, other researchers found that frustration is only one factor in aggression and violence and that there are other contributing factors such as situational or personal factors. Moreover, it was found that frustration does not always lead to aggression. Consequently, Berkowitz (1965) revised the frustration-aggression hypothesis proposing

instead that frustration leads to anger, which in turn instigates aggressive behaviour in the presence of certain external cues e.g. presence of a weapon. He later modified the theory again to include the idea that strong environmental stimuli may induce violence without the presence of prior anger (Berkowitz, 1974).

In comparison to biological theories, there is at least some reasonable empirical support for the general idea that frustration may lower the threshold for violent acts (Berkowitz, 1965; 1974; Buss, 1961; Dill & Anderson, 1995; Miller, 1941). As an explanatory model, this raises the possibility that some criminals who have incorporated violence into their careers may have encountered intense periods of frustration; for example, through childhood experiences, inability to gain work, social deprivation etc.

4.3.3 *Social Learning Theories*

In contrast to biological and drive theories of violence, social learning theories hypothesise that aggression is learned from social behaviour and maintained by other situational conditions. Violence and aggression from a social learning perspective involve three essential phases (Hollin, 1989). These are the acquisition, the initiation and maintenance of aggressive behaviour. Aggression can be learnt through simple operant conditioning; hence if an aggressive act is rewarded, it is more likely to be repeated in order to gain more rewards. However, aggressive responses can be learned not only through direct reinforcement, but also through observation. Small children look to a familiar face to see how to react to a particular situation. By demonstrating aggression one can unwittingly encourage aggression in suggestible children (Hollin, 1989). Some

of the most famous work on the effects of learning via modelling and imitation was conducted by Bandura (1973). According to Bandura, children learn social rules and develop a repertoire of social behaviour through observations of role models in the home, school, and through the media. These behaviours are then shaped by reward and punishment which determine the chance of responding aggressively in the future.

Other factors may also serve to facilitate violent behaviour such as aversive environmental stimuli, provocation, and self-reinforcement, as when an individual is gratified by his or her harmful actions (Anderson, 1987; Dengerink, Schnedler, & Covey, 1978; Rotton & Frey, 1985). Interestingly, the idea of reinforcement through self-gratification may link the learning perspective with psychodynamics perspective, whereby the individual finds the release of aggression cathartic and rewarding. Related to this is Zilman's (1979) distinction between instrumental and angry aggression. He argues that whereas, instrumental aggression is positively reinforced by the attainment of rewards, angry aggression is negatively reinforced by the alleviation of anger. Relating this to earlier family experiences, Patterson (1982) demonstrated how coercive behaviour in families is increased and maintained by its consequences in the form of terminating aversive treatment or gaining attention.

Again, in contrast to biological approaches there is a considerable amount of empirical support for the Social Learning perspectives on the acquisition and display of violent behaviour. From this viewpoint, individuals who have had, and continue to have experiences that reinforce violent behaviours (including observation of significant others

such as parents and peers) may be more likely to incorporate violence into criminal careers.

4.3.4 *Social Theories*

However, whilst not denying the influence of social learning, a number of social psychologists have argued that aggression and violence can only be understood by reference to the social context and the meaning of the aggressive act. For example, Wolfgang and Feracutti (1967) proposed that within some groups a sub-culture of violence may emerge which dictates a norm to be violent. This is often manifested as a 'machismo' pattern of attitudes that favours excitement, status, honour, and masculinity; moreover, threats to these attitudes demand a violent reaction. Curtis (1975) adapted this theory to explain violence in American blacks. He found that maintenance of a manly image was found to be most important in the subculture and individuals unable to resolve issues verbally often resorted to violence to assert their masculinity. Similarly Felson (1978) proposed that aggression was often used as a means of impression management which restored one's threatened identity.

In contrast, Tedeschi (1983) argued that it was best to view aggression as a coercive power; i.e., a form of social influence that uses threats and punishment as a means of acquiring compliance. He drew on exchange theory noting that violent coercion is often a last resort when other tactics of social influence are unsuccessful. Marsh (1985) also observed that extreme violence was exceptional. He investigated how social rules may govern the aggressive behaviour in British football fans. Although British football fans

have achieved notoriety for violent clashes with rival supporters, he found that most football hooliganism is ritualised taking the form of taunting and gestures rather than actual physical aggression. His work indicated that the occurrence of violence may be governed by shared conceptual schemata which specify when it is appropriate and when not.

However, using interview data from offenders, Toch (1969) argues that violence is employed by different offenders for different purposes; for example, violence can be used to alleviate tensions in an awkward social situation, defend an offender's personal reputation, or to protect against suspected attack.

These social theories again point to the importance of social context in influencing the incorporation of violence into criminal careers; i.e. violence is not necessarily the expression of some kind of blind instinct but may be normative and rule bound within certain subcultures.

4.3.4 *Individual Differences Theories*

Psychologists were mainly interested in personality to account for individual differences that other theories have failed to explain. Personality theorists believe that violence in criminal careers is the result of defective, deviant, or inadequate personalities e.g. hostility, impulsiveness, aggression, sensation seeking.

One such theory was put forward by Sheldon (1942) who argued that there were three different forms of human physique (somatypes): endomorph, mesomorph, ectomorph (see also Chapter One). He suggested that there was a close relationship between the somatypes and personal temperament. He proposed that the mesomorph type would be the most likely somatype to have traits related to offending such as aggression and violence. Basing personality on body types and not on behaviour in these modern times is considered stereotyping and has been shown to be woefully incorrect when assessed.

Another individual differences theory was developed by Aichhorn (1955) who applied psychoanalytic principles to the explanation of crime. He concluded from his study of delinquents that environmental factors alone could not account for crime and that there was an underlying factor that predisposed a child to a life of crime: latent delinquency. He argued that late delinquency was partially innate and partially determined by childhood emotional relationships. Based on his theory then, criminal behaviour and violence is a result of failed psychological development which allows the latent delinquency trait to govern individual behaviour.

Eysenck (1977) also developed a theory of personality and crime. The theory was developed over a number of years and is based on a range of studies. The theory is grounded on three basic dimensions: Extraversion (E), Neuroticism (N), and Psychoticism (P). The Eysenck Personality Inventory measures the score on these three dimensions which are then used to predict criminal behaviour. Extraversion (E) consists of two components impulsivity and sociability. High scores on E tend to be associated

with higher levels of offending. The autonomic nervous system is said to be the basis for Neuroticism (N). High N is said to be characterised by sensitivity to insults and hurt, anxiety, restlessness and rigidity. High scores on N also tend to be associated with higher levels of offending. Psychoticism (P) is said to be associated with the frontal lobe of the cortex and is linked closely to psychopathy. High P is characterised by solitary, troublesomeness, cruelty, apathy, and sensation-seeking and this too tends to be associated with higher levels of offending. According to Eysenck, violent offenders tend score high on E and P and low on N. Eysenck's theory gained notoriety because it made clear-cut predictions; it was testable and refutable.

According to the personality approach to violence, certain individuals may also be more prone to violence for constitutional reasons. For example, psychopaths have been considered the most dangerous, violent people in society. Hare (1998) as well as Eysenck (1977) have argued the importance of psychopathy in criminal careers. Cleckley (1964) was one of the first people to define clearly the characteristics of psychopathy. Using factor analysis on data derived from Cleckley's criteria, Hare developed a revised scale, the Psychopathy Checklist (PCL). As a result, Hare (1981) suggested that violence was a readily accessible, easily expressed component of a psychopath's behavioural repertoire. Hence, when Williamson, Hare, and Wong (1987) conducted research on a sample of convicted male psychopathic offenders, they found that psychopaths received more convictions for crimes of violence and exhibited more violent behaviours while in prison than other male criminals.

As psychopathy has been related to criminality generally, the personality approach would predict an underlying propensity for violent offenders to also commit other types of crimes and have longer more intensive criminal careers.

4.4 Violence in Criminal Careers

Given the multi-faceted nature of theories of violent behaviour, it is perhaps not surprising that there seems to be no consensus on whether, within individuals, the propensity for violence differs from the propensity for nonviolent criminal activity (Brame et al., 2005; Laub & Sampson, 2003; Piquero et al., 2002). As noted previously, according to the general propensity approach, one would expect all antisocial behaviours, inclusive of violence, to be related to one single underlying factor (Akers, 1998; Capaldi & Patterson, 1996; Farrington, 1991; Gottfredson & Hirschi, 1990; Laub & Sampson, 2003). According to this approach, differences between violent and nonviolent types of offending reflect factors associated with the aging process rather than different underlying propensities. For example, Gottfredson and Hirschi (1990) argued that individuals with low self-control when presented with the opportunity to offend were more likely to act on it. These same individuals were more likely to begin offending at an earlier age; to offend more when active; to engage in a variety of criminal acts including violence; and desist later (see also, Dean et al., 1996). Consequently, according to this approach, the causes of violent crime are similar to those of other types of crimes.

However, others theorise that there may be distinct subpopulations of antisocial individuals and unique patterns of behavioural development associated with different

types of criminal behaviours, including violent and nonviolent behaviours (Blumstein et al., 1986; Loeber & Hay, 1997; Loeber & LeBlanc, 1990; Loeber & Stouthamer-Loeber, 1998; Nagin & Tremblay, 1999; 2001). For example, Cornish and Clarke (1986) put forward the view that crime-specific foci are needed not only because different crimes might meet different needs, but also that the situational context of decision making and the handling of the information varies greatly amongst offences. This suggests that whereas individual characteristics may appear to be related to various types of criminal acts, situational characteristics may vary considerably according to crime type (see also, Nagin & Paternoster, 1993); i.e. violent crimes may meet different needs from nonviolent crimes and situational factors play an important role in understanding the distinction.

In another approach, Loeber and LeBlanc (1990) theorised that there may be distinct pathways associated with criminal behaviour, each of which is associated with different rates of offending throughout the life course. According to this developmentalist perspective, distinct trajectories of criminal offending were characterised by different causal factors that may themselves change throughout the life course (Ayers et al., 1999; Catalano et al., 1999). Hence, different trajectories were likely to be associated with different types of offending with some pathways likely to involve nonviolent crimes while other pathways are likely to involve violent crimes.

Further, Moffitt (1993) asserted that there were two distinct kinds of offenders, life-course-persistent and adolescent-limited. Life-course-persistent offenders tended to start offending at an early age, have long criminal career, and have severe problem behaviour.

Adolescent-limited offenders tend to offend in adolescence and then usually with the encouragement of peer groups. According to Moffitt, violent offenders would be classified as life-course persistent offenders who would start offending at an early age, have long criminal careers and exhibit severe problem behaviour.

It can be noted that these theories, although more specifically related to criminal career research, have a strong psychological element. For instance, Cornish and Clarke's (1986) rational choice theory is a social learning theory that stresses situational influence. Gottfredson and Hirschi (1990) argued that self-control played an important role in the propensity to commit crime, which relates to personality theories that identify self-control as a critical personality trait in offending. Loeber and LeBlanc (1990) lean heavily on developmental psychology arguing that physical, cognitive and social development are all factors in the developing criminal. Moffitt's (1993) theory combines biological, personality and developmental theories where she argues that childhood neuropsychological defects integrate with criminogenic environmental factors across development, resulting in pathological personalities. Together, these theories highlight the possibility that although a multi-faceted approach is necessary to understand the bases of criminal careers, this may also be integrative across disciplines.

However, notwithstanding these possible points of convergence, the available evidence does not seem to fully support either the general propensity approach or the discrete approach, and at times can be conflicting (Brame et al., 2005; Brame, Mulvey, & Piquero, 2001). Nevertheless, if we look at the relationship between violence and the career

variables identified for special consideration in this thesis, it may be possible to detect certain patterns.

For example, the onset age of an offender has been identified as an important factor in criminal careers (see Chapters One and Two). With regards to this, O'Grady, Kinlock, & Harlon (2007) found that the criminal careers of serious (violent) offenders tended to begin at an earlier age. However, other findings have been mixed. Thus, Elliot (1994) found that over half of all violent offenders in his young adult sample started offending between ages 14 and 17 years while serious violent offending started between ages 12 and 20 years; whereas Weiner (1989) found that the serious violent offenders in his adult sample started between 18 and 24 years.

Some studies have not only examined the onset age of violent offenders in terms of all types of crimes committed, but also the age at which violent offending specifically begins. For example, Mazerolle, Piquero and Brame (2010) using a sample of youthful offenders in Queensland, Australia, examined offenders whose onset crimes were violent. They found that violent onset offenders could be distinguished by both early and late age of onset. They also found that whilst violent early onset offenders appear more prone to violence, nonviolent early onset offenders exhibit lengthier and more pervasive criminal careers (see also, Elliot, 1994).

Researchers have also examined the career lengths of violent offenders. For instance, Blumstein et al. (1982), using arrest data, found that the average personal (violent)

criminal career lasted 7 years while the average property criminal career lasted 4.2 years. Piquero (2004) found the average career length of serious offenders to be even higher at 17.3 years. Similarly, Ezell (2007) discovered an average career length of 12.4 years for violent offenders and noted that the careers of violent offenders persist longer than those of property offenders. He also found that the violent offenders in the sample beginning their careers earlier had significantly longer career lengths. In contrast, Laub and Sampson (2003) found the average career length of violent offenders to be 9.2 years which was less than persistent offenders (25.6 years), property offenders (13.6 years) and alcohol and drug offenders (11.4 years).

Research has also found that violent and non-violent offenders differ in aggregate offence rates i.e. violent offenders tend to commit more crimes than nonviolent offenders (Brame et al., 2001; Cohen, 1986; Loeber 1988; Loeber et al., 1998). Hence, Piper (1985) found that violent juvenile offenders attained on average 6.3 offences while nonviolent juvenile offenders only attained 2.2 offences. Moreover, she found that 86% of violent offenders as compared to 45% of nonviolent offenders, tended to be recidivists i.e. repeat offenders. Therefore violent offenders tend to have higher levels of chronicity (Elliot, 1994; Petersilia et al., 1997; Peterson et al., 1981).

Violent offenders have been also found to be very versatile criminals (Elliot, 1994; O'Grady et al., 2007; Petersilia et al., 1997; Peterson et al., 1981). For example, O'Grady et al. (2007) found that the criminal careers of serious (violent) offenders were composed of a wider variety of offences (see also, Brame et al. 2001; Piquero, 2000). Thus, high-

rate violent offenders were also more likely to be high-rate nonviolent offenders (Brame et al., 2001). Low-rate violent offenders were less likely to be involved in other types of criminal activity.

In accordance with the findings for chronicity and versatility, in general, violent offenders appear to exhibit relatively high levels of other kinds of offending (Brame et al., 2001; Piquero, 2000). For instance, Elliot (1994) found that minor forms of delinquent behaviour and alcohol use were part of the behaviour repertoire of serious violent offenders before they engaged in more serious forms of crime such as theft and violence. He also noted a typical sequence of behaviours such that aggravated assault occurred before robbery and robbery occurred before rape (aggravated assault was the most frequent form of serious violent behaviour). Thus an offender who has committed rape is highly likely to have committed aggravated assault and robbery. Violence has also been specifically linked to drug offending (Blumstein, 1995).

In addition, Mazerolle et al. (2010) found that violent onset offenders were more likely to engage in serious offending. O'Grady et al. (2007) found a clear difference between violent and nonviolent offenders' behaviour such that violent offenders exhibited higher levels of seriousness, versatility, and crime frequency.

Notwithstanding some mixed results, therefore, arguably the evidence so far suggests that the behaviours of violent offenders tend to support the general propensity view to some degree, though clearly there is variability in the findings that requires further clarification.

4.5 Violence and Demographic Variables

Violence, in criminal careers has been examined in relation to demographic variables. For example, variables such as race and gender have been found to be critical factors in violent offending (Elliot, 1994; Ezell, 2007; Piquero, 2004). Thus, serious violent black offenders tend to start their careers earlier than serious violent white offenders (Elliot, 1994). Elliot (1994) also found that twice as many black offenders continued their violent careers into adulthood as white offenders. Piquero (2004) also found that white, violent offending parolees had slightly shorter careers than non-white, violent offending parolees. Ezell (2007) found that black, violent offenders had significantly longer career lengths than white, violent offenders. In sum, taken together, these findings suggest that blacks and non-white offenders have longer careers than white offenders.

In addition, Elliot (1994) found that male serious violent offenders started their careers earlier than female serious violent offenders, and Mazerolle et al. (2010) found that more males than females had an initial offence against a person i.e. a violent first offence. Piquero (2000) in examining entire criminal careers found that males were significantly more likely to be in the frequent, violent offending group and that this gender differential increased over time. Thus males were more likely to participate in violent offending in their criminal careers than females.

Violent crime has been found to vary significantly with the economic characteristics of communities. Violence has been found to be highest in underclass communities which

are defined by the poorly educated, the unskilled and the chronically under or unemployed (Elliot & Huizinga, 1983; Lichtern, 1988; Silberman, 1978; Wilson, 1987; Wolfgang, 1958). This violence is usually perpetrated by residents of these underclass communities (Sampson & Lauritsen, 1994). Lochner (2008) found that there was a strong negative correlation between educational attainment and various crimes including violence. Similarly, Grogger (1998) found that persons who were engaged in violence were usually unskilled and had not likely completed high school. In examining neighbourhoods and violence, Sampson, Raudenbush and Earls (1997) found that violence was associated with low socioeconomic status and residential instability of neighbourhoods, such that disadvantaged neighbourhoods increased exposure to violent offending (see also, Huizinga, 2005; Zimmerman & Messner, 2010). In sum, these results indicate a negative relationship between the level of violent offending and educational attainment, employment type and neighbourhood status.

4.6 Specialisation in Violence

Although, specialisation in violent offending is an important area of research it has received little attention. What results there are tend to be mixed. Some studies have found no tendency to specialise in violent offending (Blumstein & Cohen, 1979; Hamparian, Schuster, Dinitz, & Conrad, 1978; Piquero, 2000b; Rojek & Erickson, 1982; West & Farrington, 1977; Wolfgang et al., 1972). For example, Piquero (2000b), using an African American sample, found that there was no tendency for individuals in the Philadelphia cohort to specialise in violent offending. Lynam et al. (2004) found no evidence of specialisation using official reports; however, they found evidence of specialisation using self-reports. Stander, Farrington, Hill, and Altham (1989) also found

low degrees of specialisation for most crime and the Forward Specialisation Coefficient (FSC) for violence was only 0.15. The FSC measures the tendency for an offence of a particular type to be followed by another offence of the same type (Farrington, 1986). The FSC ranges in value from 0 to 1, indicating no specialisation to perfect specialisation respectively.

Other studies found more evidence of specialisation (Brennan, Mednick & John, 1989; Buikhuisen & Jongman, 1970; Bursik, 1980; Farrington et al., 1988; Peterson, Pittman, & O'Neal, 1962; Walker, Hammond, & Steer, 1967). For example, Schwartz (1972) found specialisation among some violent offenders; she indicated that it was a rare occurrence but highly significant. Also, although Blumstein et al. (1988) found that violent crimes of homicide, rape and use of weapons were among the least specialised offences in their sample, when examining clusters of offence types, they found specialisation in the violent cluster i.e. offenders were more likely to reoffend within the violent cluster than outside of it. Ekland and Ekland-Olson (1991) also found that patterns of criminal specialisation exist in violent offending and Brennan et al. (1989) found that, in general, specialisation existed for violent offenders but that this specialisation was not apparent for those with low numbers of arrests. Hence, they argue that the utility of using a past record of violence to predict future violent offending might be further bolstered by considering a variable that predicts higher levels of recidivism, such as onset age.

There are a number of reasons why these mixed findings might have occurred and continue to occur. For instance, specialisation in violence has been defined in numerous

ways in the research literature. For example, Hamparian et al. (1978) defined specialisation in violence as exclusively violent offending by criminals (see also, West & Farrington, 1977). However, Walker (1967) defined violent specialisation as an increased likelihood of a violent conviction given a previous violent conviction. It is important to note here that the likelihood of a violent offender reoffending in nonviolent crime is also very high (Martinez, 1997; Piquero, 2000b). Others still have defined specialisation in violence as a higher than chance probability that a violent offence will directly follow a violent offence (Rojek & Erickson, 1982; Wolfgang et al., 1972). Different definitions and measures may, therefore, provide different findings. Likewise, the majority of studies of violent offending also do not take into consideration the situational context which might have a bearing on the results (Clanon & Jew, 1985).

4.7 Summary and Conclusions

- Given that a distinction between violent and nonviolent offenders is relevant to the general and discrete criminal career dispute regarding underlying theoretical constructs, it is important to determine the relationship between violence and the key criminal career variables.
- Violence has been used interchangeably with terms like aggression and criminal violence; however, the definition of violence most applicable to criminal careers research is unlawful, directly, injurious, behaviour such as homicide, assault, robbery and rape.
- Violence has been used primarily as a way to classify offenders and offending

- Theories of violence can be classified into five main groups: biological theories, drive theories, social learning theories, social theories and personality theories. These suggest that the causes of violence in criminal careers may be multifaceted but point to some ways in which one might understand how criminal careers are instigated and maintained.
- Research suggests that violent offenders have lengthier criminal careers, greater versatility, higher frequency, and higher levels of seriousness of offending than nonviolent offenders.
- Demographic factors such as race and gender appear to be important factors in violent offending; blacks and males, in particular seem to exhibit higher rates of violent offending.
- Results of specialisation in violent offending have been mixed and inconclusive.

Chapter Five

Criminal Career Research: Cross-Cultural Perspectives

As is evident from the literature reviews in previous chapters, interest in criminal career research is a relatively recent phenomenon; i.e. it only really took off in the 1970's and 1980's. Particularly instrumental here were Wolfgang et al.'s (1972) report, which was later bolstered by the seminal work of the US National Academy of Science Panel on Criminal Career Research (Blumstein et al., 1986). However, since then research has been conducted in a relatively few number of countries: Australia (Harding & Maller, 1997; Smallbone & Wortley, 2004); Canada (LeBlanc & Frechette, 1989); New Zealand (Fergusson, Horwood, & Lynskey, 1993; Moffitt & Silva, 1988); Sweden (Janson, 1984; Magnusson, 1988); the United Kingdom (Farrington & West, 1990; Kolvin, Miller, Scott, Gatzanis, & Fleeting, 1990; Newson, Newson, & Adams, 1993; Stander et al., 1989); and, the United States (Blumstein et al., 1986; Greenwood, 1977; Shannon, 1982; Wolfgang et al., 1972). And, of these, most research has been conducted in the United States, the United Kingdom and Canada. These countries are considered first world countries because they are highly developed with general advanced economies, substantial wealth, great world influence, an extremely high standard of living, and cutting-edge technologies. This makes it difficult to know whether the results found in these studies can be generalised to other cultures, particularly less developed countries; hence one of the main aims of this thesis was to determine whether the results found in these countries would generalise to a developing nation such as Barbados. However, before we can pursue this, we obviously need to know the extent to which the results from these first world nations are actually consistent across the nations concerned. In this chapter,

therefore, the main studies and projects conducted in each of the countries that have contributed most to this area (USA, UK and Canada) are described along with a summary of the general findings. It can be noted that although many of the studies presented in this chapter have previously been referred to in previous chapters, i.e. a considerable degree of repetition is involved, the specific aim of this chapter is to draw together and categorise the studies and findings in terms of their countries of origin so that cross national comparisons are possible.

5.1 Criminal Career Research in the United States

Perhaps the most noteworthy studies on criminal careers conducted in the United States are: Gluecks' Unravelling Juvenile Delinquency Study; the Philadelphia Birth Cohort Study; the Rand Corporation Habitual Criminals Program; the Racine Birth Cohort Study; the McCord's Cambridge-Somerville Project; Elliot's National Youth Survey; and the US National Academy of Sciences Panel on Criminal Career Research Project.

5.1.1 *The Gluecks' Unravelling Juvenile Delinquency Study*

One of the earliest studies conducted in the USA was that of the Gluecks (1950). They compared 500 non-delinquent boys with 500 delinquent boys who were selected from the Massachusetts correctional system (see, Chapter One). The sample consisted of white males ages 10 to 17 years. The two groups were matched on age, nationality, neighbourhood of residence, and measured intelligence. Data was collected on social, psychological and biological characteristics, family life, school performance, work experience, other life events, and delinquency and criminal behaviour. The subjects were

followed to ages 25 and 32 and follow up information included extensive criminal history checks, living arrangements, military experience, employment and schooling history.

The aim of the study was to examine the correlates of onset, persistence, and desistance. The Gluecks (1950) found a strong relationship between age and crime, such that as the offender aged, their individual offending rate declined. Early onset was also found to be related to a lengthy persistent criminal career with the best predictors of future offending being past offending. They determined that factors that influenced persistent delinquency were lax discipline, poor supervision, and weak emotional bonds between parent and child.

Later Sampson and Laub (1993) recoded and reanalysed Gluecks' data. Based on their analyses, they developed a theory of informal social control over deviant behaviour that they linked to individual chosen ties with family, employer and peers. They also acknowledged the importance of childhood behaviour and the relevance of adult social factors where they examined key social influences on rule breaking and crime. They argued that their theory accounted for both stability and change in crime and deviance through the criminal career.

5.1.2 The Philadelphia Birth Cohort Studies

Another major study conducted in the United States was the Philadelphia Birth Cohort studies (Wolfgang, Filgio, & Sellin, 1972). The cohort consisted of all males born in

Philadelphia in 1945 who resided there from age 10 to 18. The studies were broken down in to three major phases. In Phase One, 9945 individuals were used to compare delinquents and non-delinquents on social, economic and personality variables from 1945 to 1963. Specifically, the aims were to explore the onset age of delinquency and the progression and cessation of the delinquent career. The information collected in the study consisted of demographic characteristics of the offender and the victim, academic performance, offence information, and criminal act information.

Wolfgang et al. (1972) found that 35% of boys were involved with the police at least once and there were more first arrests at age 17 than at any other age. They also identified a very small percentage (6% of the cohort and 18% of delinquents) of offenders who were responsible for just over 50% of all delinquency; these were deemed to be chronic offenders. They also discovered that the chronic offender experienced his first arrest as early as age 12. Early onset age was found to be consistently related to persistent and serious criminality. Moreover, although the beginning of the criminal career at a young age tended to involve minor offences, there was some increase in seriousness with the increase in the number of offences committed. Wolfgang et al. also found some evidence of specialisation.

The criminal careers of the sample were also examined with respect to demographic factors. They found that 29% of white and 50% of non-white offenders had police contact. Only 26% of boys from a higher socioeconomic background had a police record compared with 45% from a lower socioeconomic class. Non-white boys from lower

socioeconomic backgrounds tended to have more serious and frequent contact with the law throughout their criminal career. Other factors that affected the likelihood of participation in a criminal career were low school grades and I.Q. level.

In Phase Two, the research aim was to examine delinquency and adult crime (Tracy, Wolfgang, & Filgio, 1990). The 1958 cohort was defined and the data collection processes and sources were the same as for the 1945 cohort. There were 27,160 boys and girls born in 1958 in Philadelphia and they were followed through to age 17. Information was collected on individual's race, sex, date of birth, residential movement, educational achievements, socioeconomic status, and police contacts. The main findings of Phase One were replicated. In addition, Tracy et al. (1990) found that the prevalence of police contacts of both white and black offenders was lower in the 1958 cohort, the offence rate was higher, and there was greater violence criminality. They also found specialisation was slightly more evident among recidivists and that specialisation became more pronounced as the number of offences increased.

During Phase Three, Tracy and Kempf-Leonard (1996) collected criminal records up to age 26 for the 1958 cohort. They found career continuity was common. They also found that the key predictors of adult criminality were early onset age and juvenile delinquency. Early institution of probation was found to decrease the probability of reoffending but only in males. However, juvenile incarceration did not inhibit adult offending.

Weitekamp, Kerner, Schindler and Schubert (1995) further reanalysed the data and found that 'chronic' offenders committed many petty crimes and that they partook in a 'cafeteria style' of offending and were not as dangerous as originally believed. Also, they found that multiple offending did not necessarily imply committing serious or violent offences. No support was found for an increasing severity of offences as the criminal career progressed.

5.1.3 *The Rand Corporation Habitual Criminals Program*

The Rand Corporation Habitual Criminals Program is another project of note conducted in the United States (Greenwood, 1977). The original objective of the program was to determine the magnitude of habitual offenders in the population, to describe their characteristics and their interactions with the criminal justice system. Subsequent studies examined incapacitation of career criminals as a means of crime reduction and estimates of arrests, convictions, and incarcerations proportions across offenders, offences and criminal careers. Two major projects came about as part of the Rand Program: the Criminal Careers of Habitual Felons Project, and Doing Crime: A Survey of California Inmates Project.

The Criminal Careers of Habitual Felons Project examined the criminal careers of 49 prison inmates, all of whom were armed robbers serving at least a second prison sentence (Petersilia et al., 1978). Lengthy personal interviews were conducted. The interviews consisted of three sections, 200 questions each, that were developed to determine juvenile, young adult and adult criminal career characteristics. The questions covered

family relationships, sources of income, employment, frequency of criminal activity, motivations, attitudes, arrests and convictions, criminal acts, involvement in drugs and alcohol, use of violence and post-release behaviours. The interview data was then combined with official data.

Petersilia et al. (1978) found that on average offenders did not develop sophistication or skill as the criminal career progressed. They further defined two broad categories of offenders: the 'intensive' and the 'intermittent'. The 'intensives' were more criminally active and more skilful at avoiding arrest. They also found that the first serious offence typically began at about age 13 or 14, and the first arrest occurred around age 15. Nearly half of all reported first serious crime was auto-theft or burglary. The remainder was purse snatches, drug sales and larceny. The offenders interviewed were found to move from predominantly crimes of auto-theft and burglaries as juveniles to a greater proportion of robberies and forgeries in the adult years. These findings indicated a tendency for the seriousness of offending to increase as the criminal career progressed (Petersilia et al., 1978). However, they found no specialisation in the Criminal Careers study.

In the second study, *The Doing Crime: A Survey of California Inmates* study, 624 male inmates who were randomly drawn from five California prisons were examined (Peterson et al., 1980). The survey was self-administered, anonymous, and concerned with the three years prior to the current conviction. The survey covered offending history, juvenile history and family background, employment, criminal motivations, and criminal

perceptions and attitudes. The main aims of the project were to explore individual patterns of crime and to examine different types of career criminals.

Peterson et al. (1980) found that 25% of the sample reported committing the first offence prior to age 14, 50% committed the first offence prior to age 17, and 75% had committed it prior to age 21. Half of the inmates reported committing at least four different types of crimes during the three-year period prior to their current imprisonment; 25% of the sample were considered career criminals and they committed 60% of armed robberies, burglaries and auto theft and approximately 50% of assaults and drug sales. Only 10% of the entire sample could be regarded as specialists, that is, offenders who committed only one crime at a high rate. Drug sales and robbery were the most frequently reported specialty crimes (Peterson et al., 1980).

Following this, a second survey of inmates was conducted and information was collected for approximately another 3500 inmates (Chaiken & Chaiken, 1982). Using this new data, Spelman (1994) investigated career length. He estimated the average career length to be around 6 to 7 years. Spelman surmised that young inexperienced offenders were more likely to drop out after each year in the first five years of offending than older offenders but after those five years the dropout rate levelled off, rising again after the 20th year as an active offender.

5.1.4 *The Racine Birth Cohort Studies*

In another series of investigations in the 1970's, The Racine Birth Cohort Studies followed three mixed sex birth cohorts: the 1942 cohort consisted of 1352 persons; the 1949 cohort consisted of 2099 persons; and the 1955 cohort consisted of 2676 persons (Shannon, 1976). The cohort members were initially identified from the Racine Unified School District. Lengthy interviews were also conducted in this studies and information on socio-demographics, employment, family variables, attitudes and peer associations were obtained. The researchers distinguished between continuous residents and non-continuous residents indicating that they might have had different characteristics in their criminal careers. Police contact information was also collected for the cohort members.

The Racine Birth Cohort studies found similar results on onset age to those found in the Philadelphia Birth Cohort studies. Shannon (1976) suggested that the age at which an offender makes his first recorded (onset age) contact with the police shapes his subsequent criminal career and it was found that the earlier the first arrest the likelier that sustained serious criminality would follow. It was also found that the majority of criminal careers began in the early to mid-teens (Shannon, 1976). It was found that criminal careers begun with minor misconduct and status offences e.g. truancy and that there was no systematic increase in seriousness with the progression of the criminal career (Shannon, 1978). Male minorities and those from lower status residential areas tended to be more serious offenders while the overwhelming predictor of seriousness of juvenile offending was the age at first police contact.

When the offences were examined over the three cohorts, the greater percentage (35-45%) were minor misdemeanours, then 11-15% were major misdemeanours, 7-10% were felonies against property, 4-15% were felonies against persons, and 2-7% were juvenile offences. Shannon (1978) also found that three out of four Whites and nine out of ten Blacks had a police contact. Moreover, persons with at least one police contact were more likely to live in a single parent household, have a negative attitude towards police, have delinquent friends; and have a slightly more delinquent self-concept (Shannon, 1976).

5.1.5 *McCord's Cambridge-Somerville Project*

The McCord's Cambridge-Somerville Youth study was another long term United States' study; the main aim was to investigate the development of delinquency and the effectiveness of a treatment program (McCord, 1978; 1992; 2000). High poverty and high crime sites in Massachusetts were chosen for sampling. Police, scout leaders, shopkeepers, and social workers chose eligible male candidates for the study. Boys were matched on age, intelligence, family structure, religion, social environment, and delinquency history. There were 650 boys and nearly all of them were white and from working class backgrounds. A place in the treatment or control group was decided by a coin flip (McCord, 2000).

Initial data used in the study were originally collected in 1942 with follow up periods in 1955 and 1976. Early results indicated that the treatment group did not perform any better than the control group. The first follow up in 1955 showed equivalent amounts of

members of both groups convicted as adults. In the second follow up in 1976, the treatment group did not show any improvement in life circumstances (McCord, 1978). Results showed that the earlier the age of onset, the greater the likelihood of continued offending into adulthood. It was also found that while a large proportion of juvenile offenders went on to offend as adults, the majority of adult offenders did not have a juvenile offending history. McCord (1978) found family factors were important predictors of offending and that alcoholism and criminality tended to run in families (McCord, 1999).

5.1.6 *Elliot's National Youth Survey*

The National Youth Survey was another prospective longitudinal study that was carried out in the United States. The study scrutinised the relationship between delinquency and drug use (Elliot, Huizinga, & Ageton, 1985; Elliot, Huizinga & Menard, 1989). Almost 8000 families with 2360 eligible youths were randomly selected; 1725 youths agreed with the support of their families to participate in the study. The youths were all between the ages of 11 and 17. The first interviews were conducted in 1977. In total nine waves of data were collected, the last at ages 27 to 33 was collected in 1993. Both official and self-reported records of crime were collected.

Elliot, Armstrong, and Morse (1987), using the first five waves of the National Youth Survey, examined how career length varied by gender, race, class, residence and age. They found that career length did not vary substantially across these factors. There was

one exception, the place of residence, where it was found that inner city or urban youths had somewhat longer criminal careers.

Elliot (1994) found that the peak age of involvement in serious violent offending was 17 with 36% Blacks and 25% Whites reported committing at least one serious violent offence. The Black to White ratio in female serious violent offending was 5:1. Elliot found that as the offender got older there was a decline in serious violent offending and that the decline was more dramatic for females. Blacks were also found to exhibit an early age of onset for serious violent offending, that nearly twice as many Blacks continued that violent careers into the 20s and were therefore more likely to have longer careers. It was also found that minor forms of delinquency were present in the criminal career before more serious forms. Serious violent offenders were found to be versatile offenders.

5.1.7 The US National Academy of Sciences Panel on Criminal Career Research Project

The US National Academy of Sciences Panel on Criminal Career Research (Blumstein et al., 1986) was one of the projects that has most stimulated interest in Criminal Career Research. This work was summarised in two volumes of 'Criminal Careers and Career Criminals' edited by Blumstein and colleagues (1986). Although post-dated by follow up research on some of the other projects mentioned in this section, the results have been very influential in guiding further research and opinion on criminal careers. The aim of

the volumes was to review the contribution of previous research to crime and criminal careers as well as to evaluate the ability to predict future criminal careers.

Blumstein et al. (1986) distinguished between the participation of the general population in crime and frequency of the offending in the criminal population. In examining arrests rates they found that assault and auto theft were committed less frequently and robbery and burglary more frequently. They also found a large gender difference in offending in index crime; they found a male to female ratio of 5:1. However, they noted that the number of female offenders was generally small. Blumstein and Cohen (1979) found increases in burglary and drug offending with age through the late 20s and they also found the frequency rates of black and white offenders were very similar, differing mainly in robbery and larceny offences. Although post-dated by follow up research on some of the other projects mentioned in this section, the project which essentially summarised the results and conclusions of studies up the point of its publication, as reviewed above, has been very influential in guiding further research and opinion on criminal careers.

5.1.8 *Summary of Findings in the United States*

Notwithstanding some variations, arguably some general patterns appear to emerge from the findings in the USA. Criminal careers tend to begin early in life, typically between early to mid-teens; also, the majority of studies that have looked at the issues report that the earlier the onset of the career, the more lengthy, serious and pervasive the offending as the career progresses. There was also some evidence of continuity in offending from

juvenile to adult criminal careers. The average career length tended to be between 6 and 7 years. Criminal career length does not vary with gender, race, class or age but it does vary with place of residence, where it was found that inner city youths had longer career length than other youths. Criminal careers tend to start with minor offences and there is some increase in seriousness as the number of offences committed increases, though this trend is less consistent than others. There is little evidence of specialisation; however, what specialisation exists is slightly more evident in repeat offenders. In fact, the presence of specialisation is more pronounced as the number of offences committed increases.

The results also indicate that a small percentage (6% of cohort and 18% of offenders) of offenders is responsible for a large proportion (52%) of the offences committed. These offenders have been labelled 'chronic' offenders. The average age of onset for a chronic offender is around 12 years and chronic offenders are found to be very versatile. Males, minorities, and persons from lower socioeconomic backgrounds are found to have a greater participation in crime. There are a number of other factors that have also been related to participation in criminal careers: these include, lax discipline, poor supervision, weak emotional bonds between parent and child, low school grades, and I.Q. level.

5.2 Criminal Career Research in the United Kingdom

There have been three main large scale studies conducted in the United Kingdom: these are: the Cambridge Study, the Newcastle Birth Cohort Study, and the Retrospective Study of Convictions by the Home Office Statistical Bulletin. The most common way of

measuring criminal careers in the United Kingdom has been self-report and conviction records since arrests do not appear in official criminal statistics (Farrington, 1992).

5.2.1 *The Cambridge Study of Delinquent Development*

The Cambridge Study of Delinquent Development was a prospective longitudinal study of 411 males born in 1953. They were first contacted in 1961 to 1962 and at that time they were all living in a working class area of London in the United Kingdom. They were selected by collating all of the boys who were aged 8 or 9 and registered in six state primary schools in approximately a one mile radius around the research office. The boys were almost all white and their parents had been raised in the United Kingdom or Ireland. The sample was interviewed and tested in their school at ages 8, 10 and 14; then they were interviewed at the research office at ages 16, 18, 21 and 24; and finally they were interviewed in their homes at age 31-32. A number of searches were carried out in the Central Criminal Record Office in London to obtain the conviction records for the sample at each stage. Convictions were only recorded if they were for offences normally recorded by the Office. Therefore, all traffic offences, drunkenness and status offences (e.g. truancy) were excluded. Convictions were slightly less common than arrests as the vast amount of arrests received convictions. All analyses were conducted on the date of the offence and not on the date of the conviction.

The study was first directed by Professor Donald West who was then joined by David Farrington in 1969. The original aim of the study was to examine the development of delinquent and criminal behaviour in inner city youths. Between West and Farrington,

they generated 4 books and over 60 papers describing results of the studies. For example, West and Farrington (1973; 1977) documented the existence of chronic offenders in the Cambridge Study. They noted that indicators of future chronic and persistent offending were detectable as early as age 8. They also found offending to be diverse in nature and he noted a number of social factors that influenced the continuity of offending over time: family structure, economic conditions, and marital status.

In another example, Barnett, Blumstein and Farrington (1987) examined the characterisation of criminal careers (from their first conviction to age 25) of youthful offenders and found that they could be represented by two distinct groups: 'frequent' and 'occasional'. The 'frequent' had a career length of 8.8 years and the 'occasional' had a career length of 7.4 years. However, Barnett, Blumstein and Farrington (1989), using new data collected on the same sample from age 25 to 30 found that the criminal careers of the delinquents in the Cambridge Study were better represented by three groups: 'frequent', 'intermittent', and 'occasional'.

Farrington (1989) also investigated the prevalence of offending. He found that vehicle theft and burglary were the most frequent crimes, whereas drug use and auto-theft were the least. Also, chronologically, petty theft was found to occur before fraud and assault, whereas vehicle theft, burglary and shoplifting tended to occur at the same age. The best childhood predictors of later criminal activity were troublesomeness, parents convicted of offences, impulsivity, low intelligence, low attainment, low income, poor housing and poor child rearing.

Farrington (1991) also investigated specialisation in violent offenders and found the violent offenders did not appear specialise in violence. The violent offenders in the study committed on average 1.7 violent offences but an average of 5.3 nonviolent offences. Furthermore, he found that violent and non-violent persistent offenders were virtually identical in terms of childhood, adolescent and adult factors. Consequently, he concluded that violent offenders were essentially just frequent offenders, and that violent offences occurred at random in the criminal career.

Farrington (1992), using the same sample, found that the age of onset peaked at age 14 and again at age 17 in the sample. He found the average age of onset to be 17.5 years and that the average number of offences committed decreased with increasing age of onset; 8.1 offences were committed on average by those whose onset age was between 10 and 13, and 1.5 offences were committed on average by those whose onset age was between 21 and 32. Extremely early onset, age 10 to 11, was associated with especially frequent or persistent offenders who averaged 11.8 offences up to age 32. The average career length, that is the time interval between the first and last recorded conviction, was found to be 5.8 years and the average career length decreased as the age of onset increased Farrington (1992). For an onset age of 10 to 13, the average career length was 9.9 years and for an onset age of 21-32, the average career length was 0.7 years. However, extremely early onset offenders had a career length on average of 11.5 years. The most common offences were theft, burglary and vehicle theft.

Farrington (1995) then conducted a follow up of these offenders at age 32. He found that males had become less deviant in absolute terms; however, those individuals who were more deviant at age 18 were also more deviant at age 32. Farrington suggested that settling down with a female partner and job stability as possible explanations for reduced offending. He also noted that the peak age of offending coincided with the peak age of affluence for many convicted males. These particular males tended to come from low income families at age 8 and tended to have low income themselves at age 32. However, they were relatively well-paid compared to non-delinquents at age 18, indicating that the link between income level and future offending is likely to be quite complex. The major risk factors for delinquency were found to be poverty, poor housing, living in public housing in the inner city, and socially disorganised communities.

5.2.2 The Newcastle Birth Cohort Study

The Newcastle Birth Cohort study was a prospective study which came out of the Newcastle Thousand Family Survey. The survey began in 1947 and was initially created as an epidemiological study to examine incidence and type of diseases in the first year of a baby's life (Spence, Walton, Miller, & Court, 1954). The families of all the infants born in the city between May 1st and June 30th of that year were surveyed. Records were collected throughout the school years (1952-1962) for 847 infants. After 1962, only selective education, entry into employment, and contact with the law were recorded. Delinquency data was collected until the individuals were 32 to 33 years of age. The main aim of the study was to determine whether underprivileged family environments and deprivation were associated with criminal behaviour (Kolvin, Miller, Scott, Gatzanis, & Fleeting, 1990). The general findings supported this view; i.e. Kolvin et al. (1990) found

that children who grew up in ‘deprived’ rather than ‘non-deprived’ families were more at risk for offending later in childhood and beyond.

5.2.3 The Retrospective Study of Convictions by the Home Office Statistical Bulletin

The Home Office Statistical Bulletin or HOSB (1989) conducted a retrospective study of convictions for an estimated 51,441 persons born in England and Wales in four specified weeks in 1953. The sample drew on a database of all criminal convictions in England and Wales from 1963 to the present day. Criminal convictions were recorded for all offenders aged ten or over, as 10 is the legal age of responsibility in England and Wales. The study showed that 33% of males and 9% of females had received at least one conviction by 46 years, but the majority of offenders had received only one conviction.

The HOSB (1989) found two peak ages of onset at 14 and 17 years, with the age 17 peak higher than the age 14 peak. The average number of offences was found to decrease with increasing age of onset. Furthermore, the results showed that an onset offence of burglary or theft was indicative of persistence in offending. Also, the earlier a male offender received his first conviction the more likely he would receive another conviction. However, 55% of males and 80% of females were found to have career length of a year and under.

Tarling (1993) further examined career length using data from the HOSB (1989) and found the average career length for males was 7.4 years and for females, 4.9 years. The British Home Office also reanalysed the same data with an extra follow up period. The individuals were again reassessed at 40. They found the average career length had increased for men and women, 9.7 years and 5.6 years, respectively (Home Office Statistical Bulletin, 1995).

5.2.4 *Summary of Findings in the United Kingdom*

As in the USA, research in the United Kingdom has identified the existence of chronic offenders. In the UK, future chronic and persistent offending was detectable as early as 8 years. The average age of onset was found to be between ages 14 and 17 and the number of offences committed decreased as the age of onset increased. It was also found that an onset offence of burglary or theft was indicative of persistent offending. Burglary and theft were also found to be the most popular crimes. The average career length was found to range between 5 to 10 years and the average career length decreased as the age of onset increased. Violent offenders were found not to specialise in violent offences. Factors that influenced participation in criminal careers were: family structure; economic conditions; settling down with a significant other; job stability; income level; poverty; troublesomeness; convicted parents; impulsivity; low intelligence; low attainment; poor housing; living in public housing in the inner city; and socially disorganised communities.

5.3 Criminal Career Research in Canada

Two major studies have been conducted in Canada: the Montreal Study and the Toronto Study.

5.3.1 *The Montreal Study*

Le Blanc and Frechette (1989) conducted one of first criminal career research studies in Canada. They conducted a longitudinal study in Montreal from 1972 to 1985 using two samples. The first sample consisted of adolescents between the ages of 12 and 17 who were seen twice at the initial interview and at a follow up period two years later. The second sample consisted of delinquents aged 13 to 17 who, besides the initial interview, also participated in two follow up periods at 2 and 5 years. The data were collected in a semi-structured interview which covered the individual's life history. This information was then combined with official data.

They found that early onset of offending was predictive of a 'chronic' criminal career, involving lengthy, frequent, and serious offending in the future. They also found that career length was longer when measured via self-reports as opposed to official reports. In addition they found that career lengths varied by crime types; thus personal attacks had the shortest average career length (1.46 years) and burglary (3.47 years) and petty theft (3.56 years) had the longest. Offending behaviour was found to be more heterogeneous than homogeneous, and burglary was found to be a common criminal act engaged in by most delinquents. Crime severity was also found to increase throughout the juvenile criminal career. Le Blanc and Frechette also found that as age increased there was a

tendency towards specialised offending patterns. The common reasons given for delinquency were material gain, excitement, enjoyment, or relief of boredom. Some individuals also gave reasons that minimised their responsibility for offending, such as blaming their peers.

5.3.2 *The Toronto Study*

A more recent Canadian study was conducted on a sample from Toronto by Day, Bevc, Theodor, Rosenthal, and Duchesne (2008). The sample consisted of 378 male youth who were randomly selected from 769 Phase II youth who had served a sentence at an open custody group home between 1986 and 1996. The criminal history was drawn from four different official data sources to ensure a high degree of completeness and accuracy. The aim of the study was to examine the nature and pattern of offending on various dimensions of criminal careers, including frequency, rate, type, timing, severity, and versatility of offending.

An early age for the first contact with the court was found to be associated with high rates of offending and longer criminal careers. The average career length was found to be 8.4 years. It was also found that severity increased up to age 23 and then declined steadily. Versatility showed the same pattern however it also displayed a secondary peak at age 30. The rate of offending peaked six years earlier than seriousness and versatility, around age 17. It was, therefore, posited that the various dimensions of the criminal career unfolded at different times over the life course (Day et al., 2008). Twelve specialists were

identified in the sample. They had committed few offences and had very brief criminal careers (less than two years).

When the types of police contacts were examined, property offences were the highest (48%), followed by violent offences (24%), drug offences (6%), other kinds of offences (6%) and sex offences (3%). Property offences were the most popular reason for police contact. Property offending was much higher in adolescence and this type of offending declined as the offender aged. However, involvement in violent and other types offending increased as the offender aged. Importantly, Day et al. (2008) found that 248 youth received psychiatric assessment, 82% of them met the criteria for at least one psychiatric disorder.

5.3.3 *Summary of Findings in Canada*

Research in Canada has generally found that early onset of offending is predictive of lengthy, frequent, serious offending in the future. The average career length was found to be 8.4 years but this varied by crime type. The longest career length was evidence in burglary and theft and the shortest in personal attacks. Burglary and property crimes were the most popular offences committed. Crime severity and versatility increased with age as well as the tendency towards specialised offending.

5.4 Comparing results from the three nations: Summary and Conclusions

Despite some perhaps inevitable disparities, arguably, the results of the criminal career research studies from these three first world countries, i.e. the United States, the United Kingdom, and Canada, show a considerable degree of similarity in relation to the criminal career variables identified for special consideration in the present thesis. In this respect, the major common findings can be summarised as follows.

- Chronic offenders make up a small proportion of the general and offending populations but commit the majority of the crimes.
- An early onset age (typically between 14 and 17 years, though it can occur earlier) is indicative of a lengthy, persistent and serious criminal career.
- The average career length varies between 5 and 10 years and increases with the age of the offender.
- Seriousness, versatility and chronicity in offending all tend to increase with the age of the offender.
- Specialisation is rarely present in juveniles, and not always found in adults; however, when present, it becomes more pronounced as the offender ages.
- Property offences are the most frequently committed offences.
- A number of economic, environmental, social, and personality factors have been found to influence participation in criminal careers, in particular, lax discipline, poor supervision, weak emotional bonds between parent and child, low school grades, and I.Q. level.

As has been mentioned on a number of occasions in this thesis, many of these findings could be deemed generally supportive of the general propensity view of criminal careers. However, it does not follow that similar findings would be apparent in other cultures, particularly those of less developed nations. The review of the literature in this chapter suggests, nevertheless, that there is sufficient commonality in these findings for some kind of comparison with a sample from a less developed nation such as Barbados, to be viable.

Chapter Six

Introduction to the Empirical Research

As a prelude to the empirical component of this thesis, it may be useful to summarise the main points of the thesis so far. To recap, the central focus of this thesis is to examine some key issues in criminal career research that are relevant to understanding criminal thought, behaviour and development, and to do this using previously untouched data from the developing country of Barbados. Hopefully, in this way, the present research may prove useful in reinforcing the reliability and validity of previous findings, presenting new and insightful results, and determining whether findings regarding the criminal careers of a sample of offenders in Barbados are generally representative of findings of previous studies in the criminal career approach in other countries. Given this focus, on the basis of the literature reviewed so far, the following key features have been identified for further investigation. These can be summarised as follows.

6.1 The Importance of Onset Age and Other Key Variables

In Chapter Two, some key variables of criminal career research were discussed i.e. onset age, career length, chronicity, seriousness, and versatility. Understanding how these variables relate to each other may help in determining the main theoretical constructs underlying criminal careers.

Onset age is a particularly well-researched area and has been put forward as a crucial component of criminal careers (Piquero et al., 2007). Studies have found that onset age generally occurs early in life (DeLisi, 2006; Patterson, Frogatch, Yoerger, & Stoolmiller, 1998; Tibbetts & Piquero, 1999) which might suggest that the onset age of offenders in Barbados will also be early.

One of the most robust findings in criminal career research is that onset age is related to future offending (Bacon et al., 2009). An inverse relationship between onset age and future offending has been well established in the literature; i.e. the earlier the onset age the greater the likelihood of future offending, the longer the criminal career, the higher the chronicity, the more serious the crimes and the more versatile the offender (Blumstein et al., 1986; Elliot, 1994; Farrington et al., 1990; Loeber & Le Blanc, 1990; Synder, 1988; Tolan, 1987). It is, therefore, important to examine whether similar relationships exist in the criminal careers of the sample from Barbados.

Although, the relationship between onset age and the other key variables of criminal career research (career length, chronicity, seriousness, versatility) has been examined to some degree, research on the relationship between these variables has been left wanting, the negative relationships found between onset age and career length, chronicity, seriousness and versatility suggest that since these variables all move in the opposite direction to onset age, they are also likely to move in the same direction to each other. Hence in accordance with the general propensity view, one might predict a positive relationship between career length, chronicity, seriousness and versatility which has been

supported by a few studies that have found these variables to be directly interrelated (Farrington et al., 1996; Reiss & Roth, 1993; Tolan & Gorman-Smith, 1998).

6.2 Specialisation in Criminal Careers

As discussed in Chapter Three, studies of specialisation in offending careers may shed light on the number of dimensions underlying offending behaviour. Specialisation implies heterogeneity among offenders and that there is more than one underlying theoretical construct that determines all criminal career facets. Specialisation definitions and measures have been problematic in the literature especially when comparing studies (McGloin et al., 2009). Consequently, findings with regard to specialisation have been very varied. Hence some have found no evidence of specialisation (DeLisi, 2002; Klein, 1971; Piquero et al., 2003; Wolfgang et al., 1972), some evidence of specialisation (Armstrong & Britt, 2004; Britt, 1996; Deane et al., 2005; Kempf, 1987) and some evidence of specialisation and versatility (Blumstein et al., 1988; McGloin et al., 2009; Steffensmeier & Ulmer, 2005). Therefore, the concept of specialisation remains a bone of contention in criminal career research and is well worth investigating further.

6.3 Specialisation & Other Key Variables

Chapter Three also emphasised that the relationship between onset age and specialisation relationship has been heavily researched. In general, a positive relationship has been found between onset age and specialisation (Mazerolle et al., 2000; Piquero et al., 1999; Tolan, 1987). However, although specialisation has been examined extensively in this respect, there has been a dearth of research on specialisation and other key variables of

criminal career research. One of the difficulties is that popular methods of measuring specialisation tend to measure specialisation on an aggregate level i.e. they look at specialisation of entire samples whereas a discrete measure of specialisation is more conducive to criminal career research. Given that previous research has found a positive relationship between onset age and specialisation and an inverse relationship between onset age and career length, seriousness, versatility and chronicity, it follows that specialisation might show an inverse relationship with career length, seriousness, versatility and chronicity.

6.4 Violence in the Present Sample

Violence as a variable in criminal careers was examined in Chapter Four. Given the importance of the violent and non-violent offending distinction, violence was chosen for special consideration. The evidence suggests that violent offenders tend to show a mixed pattern of non-violent and violent offending (Calpadi & Patterson, 1996; Farrington, 1982; Guttridge, Gabrielli, Mednick, & van Dusen, 1983; Loeber et al., 1998; Miller, Dinitz, & Conrad, 1982; Piquero, 2000; Wikstrom, 1985). Violent offenders are more likely to engage in serious offending, have long criminal career lengths, commit a high number of offences, commit more types of offences and have an earlier age of onset (DeLisi, 2006; Moffitt, 1994; Piquero, Farrington, & Blumstein, 2007). However, we know little about the generalisability of these findings as research has been conducted in very few countries nevertheless, it seems reasonable to suggest that these features of violence will also be evident in the behaviour of offenders from Barbados.

6.5 Key Variables and Other Demographic Factors

The potential significance of demographic factors in understanding criminal careers was discussed in Chapter Two. However, there appears to be a paucity of information about how careers begin, continue, and end across gender and race. What research exists has shown that, while males and females have similar overall patterns, they differ on the level of offending; onset age; and types of offending (Farrington, 1986; Jang & Krohn, 1995; Weiner, 1989). Moreover, minorities have been over represented in the offending population, particularly Blacks (Piquero & Brame, 2008; Tracy, 2005). As such, Blacks exhibit higher levels of offending (Piquero & Brame, 2008), are more versatile (Blumstein, 1993), are involved in more serious crimes (Morenoff, 2005; McNulty & Bellair, 2003), and show a higher rate of personal violence (Sampson & Lauritsen, 1997).

Another demographic factor that has also received very little attention in criminal career research is the role of the environment in structuring criminal career. What evidence there is suggests that there is a higher rate of offending as well as greater progression to serious offending amongst offenders of low socio-economic status living in low socio-economic status neighbourhoods (Lindstrom, 1995; Wikstrom, 1991).

It seems that even less information is available on the relationship between employment type, educational level and criminal careers. Economic theory implies a negative correlation between educational attainment and the participation in most types of crime. For example the higher the educational level the better the employment type and the higher the wages; this may important as according to Weinberg and Mustard (2002),

wages, especially for low income earners, are an important determinant of crime; indeed increased wages may reduce participation in crime (Machin & Meghir, 2004).

Chapter Three also describes previous research examining how specialisation may differ across demographic variables such as race and gender. Some studies have found no significant difference in specialisation between black and white offenders (Blumstein et al., 1988; Rojek & Erickson, 1982). However, other studies have found specialisation to differ according to the race of the offender (Bursik, 1980; Lattimore et al., 1994). Farrington et al. (1988) examined gender and specialisation and found that young males and females had similar overall levels of specialisation (see also; Mazerolle et al., 2000; DeLisi et al., 2010).

In Chapter Four, research investigating the demographic correlates of violent career offenders was discussed. In general, the literature suggests that females participate in substantial less violent offences than males (Feld, 2006; Steffensmeier et al., 2005) and that the career of violent females begins earlier than males. It has also been suggested that Blacks commit more violent offences (Blackburn, 1993).

Given the potential importance of these demographic variables for understanding criminal careers, it would clearly be useful to know if similar findings occur in the sample from Barbados.

6.6 Comparisons across Cultures

As mentioned in Chapter Five, most criminal career research has been conducted in relatively highly populated, developed countries particularly, the USA, UK, and Canada. In contrast, Barbados, considered a developing country, has a population of only around 286,700 persons and a GDP of \$3,203,000,000 (July 2011 estimates). That amounts to a very small fraction of the population and GDP of countries such as the USA, the UK and Canada. It might be both useful and interesting, therefore, to find out to what extent the findings from samples in these large countries are replicated in Barbados. For example, there are some indications that crime rates may be higher in Barbados; thus for homicide alone the 2010 rate per 100,000 persons were USA = 5.00, UK = 1.28, and Canada = 1.81 whereas Barbados averaged 17.00 homicides. However, it may still be the case that the variables responsible for such findings may be similar across cultures; i.e. the same predictive constructs apply.

6.7 Aims of the Empirical Research

So, to reiterate, the considerations outlined above give rise to the following general research aims in the present thesis:

1. To investigate the relationships between the key criminal career variables of onset age, career length, chronicity, versatility, and seriousness.
2. To investigate the relationships between these specific criminal career variables and the types of offence committed.
3. To investigate the degree of specialisation in careers and how this relates to the other criminal career variables and offence type.

4. To investigate how violence develops in a criminal career and how this relates to other criminal career variables.
5. To investigate how the key variables identified above are related to demographic factors such as gender and race.
6. With respect to the above areas of investigation, to determine whether findings regarding the criminal careers of a sample of offenders in Barbados are generally representative of findings of previous studies in the criminal career approach in other countries.

PART 2:

THE EMPIRICAL RESEARCH

Chapter Seven

The Sample and Methods

7.1 Introduction

The studies in this thesis use data from a retrospective sample to examine patterns in the criminal careers of a Barbadian dataset. This chapter describes the characteristics of the sample, coding of demographic characteristics, measures of offending, limitations of the data, and provides some background information about Barbados.

7.2 Ethics

The overall study was first approved by the Liverpool University Ethics Committee. The data were extracted from the records of the Royal Barbados Police Force (RBPF). To receive clearance for this, the researcher presented an official letter to the Commissioner of Police of the RBPF detailing the aims of the study, the type of data required, and the procedures for dealing with confidentiality. Formal permission was subsequently granted. To ensure confidentiality, all data were anonymised by assigning a number to each offender and removing any reference to the name.

7.3 General Characteristics of the Sample

The data set consisted of records of charges that were received during the 2002 to 2006 for those offenders charged with robbery and also for those charged with sexual offences. It also consisted of the records of charges received in the year 2006 for those offenders

charged with drug offences. The time period was selected because in 2002 the RBPF started computerising their records. The offences were chosen because it was recommended that these would be the records that were almost completely computerised. Only the year 2006 was chosen for the collection of drug offences because of the share number of charges and the time limitations. The charges were collected instead of the convictions as the use of the conviction data would have greatly reduced the size of data set. The data were extracted solely by the researcher over the period of two years. The RBPF is still in the process of computerising their records and, therefore, the files were both paper-based and computerised. Hence the initial data were collected in an electronic format and then an extensive search of the paper-based format was conducted to ensure that the data were completely accurate as per the records. These records were located in the Crime Intelligence Office and the Criminal Records Office at Central Police Station in the capital of Barbados, Bridgetown, St. Michael.

In the first week of the collection process content dictionaries (Appendix A & B) were constructed. These were analysed for inter-rater reliability using twenty anonymised files. The inter-rater reliability was found to be very high with a score of 98%. The information was placed in an SPSS data matrix after the offenders' names were replaced by case numbers. There were a total of 1692 offenders. The data file also contained demographic information and the charge history for each offender.

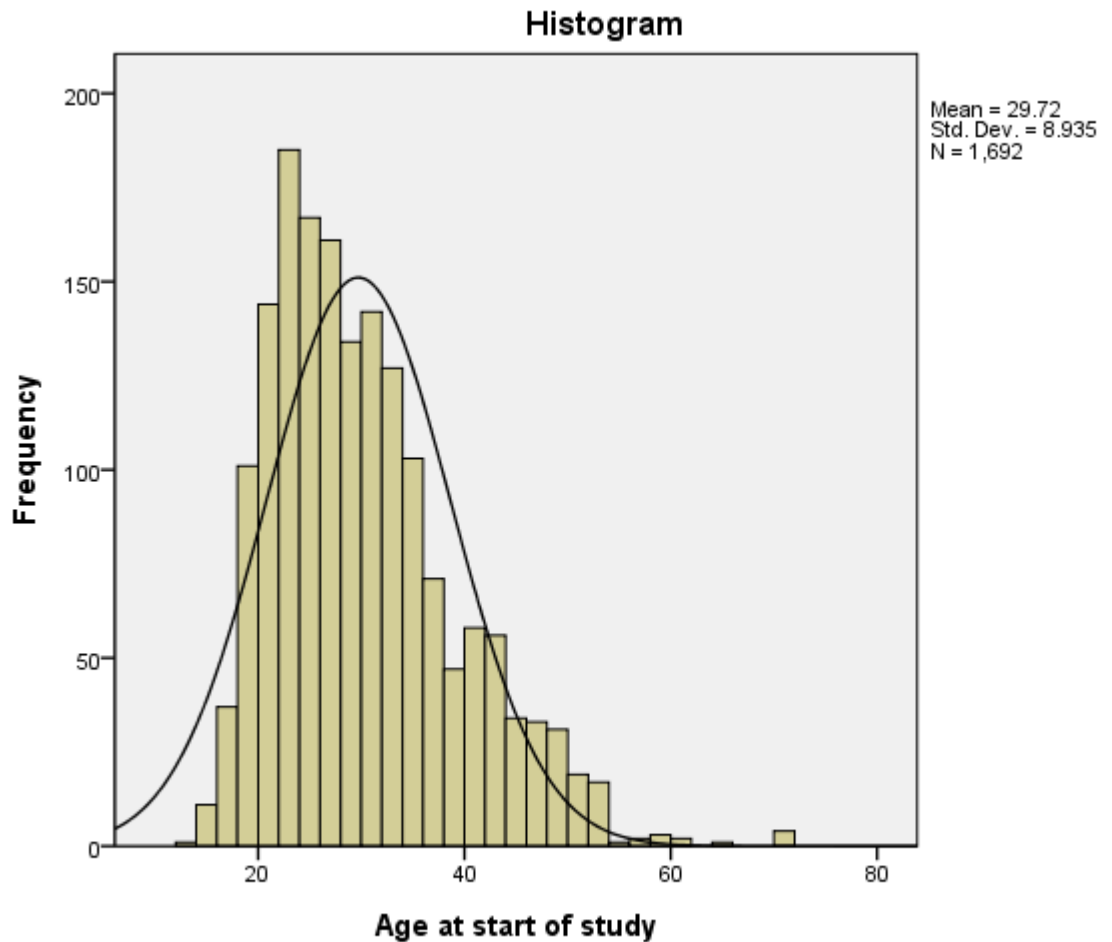


Figure 7.1 Histogram of the Age at the Start of the Study for the Offenders in the Sample

Research into the criminal career paradigm has been focused on predominately male offenders as they make up the greater proportion of criminals (Dean et al., 1996; Wolfgang et al., 1972). This was also the case in this data set; in this sample, 96.7% of the offenders were male. This percentage is representative of the proportion found in other studies; for example, in Ezell's (2007) study, 96% of the sample was male. The age at the start of the study ranged from 13 to 71 years (see Figure 7.1); mean age 29.72 years (Median= 28.0, Mode= 23.0). The mean age also corresponds to that found in previous studies; for example, in McGloin et al.'s (2009) study, the mean age was 28.1 years. Indeed, the general age characteristics of the present sample are very much in line with

previous findings spanning a number of decades. Thus, Pyle (1974) found that the top-risk age group for black and white offenders was between 15 and 25 and Walsh (1980) found that 52% of the study's sample were 20 and under and 81% 30 and under. In Budd's (1999) study, 16% of the offenders were of school age and 50% were between 16 and 24. In addition, Mawby (2001) found that 26% of the offenders were under 20, 35% 20-24, 23% 25-29 and only 11% 30 or more; i.e. over 50% of the offenders were under twenty-six years old. In Mawby's sample, offenders ranged in age from 12-58 and 3.2% of the offenders were under the age of lawful culpability (16 years).

In the majority of previous studies investigating the influence of race, Blacks, although only a minority in the population have tended to make up a disproportionate element of the offending population (see, for example, Blackburn, 1993; Blumstein & Graddy, 1982; Bonczar & Beck, 1997; D'Alessio & Stolzenberg, 2003; Hindelang, 1978; McGloin et al., 2009; McNulty & Bellair, 2003). The present study is distinctly different from previous work, however, in that the population of Barbados is approximately 93% Blacks, 3.2% Whites and 3.8% mixed. In this sample, 99.3% of the offenders were black; race was, therefore, coded in a binary format: Black and non-Black.

Other demographic characteristics considered in the present study were housing area type, educational level, and employment type. Housing area type was based on the level of income of the majority of the residents living in the same area as the offender. However, there was only one offender who lived in a high income neighbourhood and only one offender had no fixed place of abode. These offenders were, therefore, removed from the housing area type variable. This left 95.8% of the offenders lived in low income housing and 4.2% of the offenders lived in middle income housing. These results are in line with

previous research which has found that the majority of offenders come from low-income neighbourhoods (Lindstrom, 1995; Wikstrom, 1991).

Four levels of education attained were devised: primary, secondary, skilled, university. This variable indicated the highest level of education completed to date. The majority of offenders (76.6%) had completed secondary level education, 8.9% had completed primary level, 4.2% were skilled and 1.1% had completed university. Information on education level attained was not available for 9.2% of the offenders. The overall educational level displayed in this Barbadian sample is, therefore, higher than found in other studies where a greater proportion of offenders had dropped out of school at an early age (Freeman, 1996; Lochner & Moretti, 2004).

In the present sample, only 23% of the offenders were recorded as employed at the time of the charge which is consistent with previous research findings; for example, Forrester et al. (1988) found that 70% of offenders were unemployed and Mutsaers' (1996) offenders were mostly unemployed. Employment type was coded into blue collar work and white collar work. In the present sample, 85.3% of offenders had held blue collar work, 2.4% white collar work, and 12.2% did not provide information on the type of job they had previously held. Blue collar work was defined as any labour intensive work for example a construction work and white collar work was defined as an office job for example a salesman. These proportions indicate that the greater percentage of offenders in the sample had held labour intensive jobs at some point in their lives. As the majority of offenders were unemployed at the time of being charged, type of employment was recorded but not whether the jobs were currently held or had been held only in the past.

7.4 The Offences

The legal system in Barbados is based on English common law and all of the offences are defined in the same way as the English legal system. Seventy-four offences were recorded across the dataset. The summary of the number of charges for each offence as well as the number of offenders charged with each offence are detailed in Table 7.1. In the third column of the table, the percentage of the total charges was calculated and in the fifth column, the percentage of the sample was calculated. For example, 208 of 1692 (12.29%) offenders received a charge for actual bodily harm and there were 265 actual bodily harm charges out of 11976 total charges (2.21%). In the sample, 11.45% of all charges were for the offence of robbery, 9.94% were for cannabis possession and 7.78% were for burglary of a dwelling. These were the most frequent charges in the data set. The least frequent charges (0.01%) were for bestiality, burglary of a business with intent, child abandonment, importing large sums of foreign currency and desertion of duty.

Table 7.1 The Number of Charges and Charged Offenders by Offence

Offences	No. of Offenders	Percentage of Total Offenders	No. of Charges	Percentage of Total Charges
Actual Bodily Harm	208	12.29%	265	2.21%
Affray	62	3.66%	65	0.54%
Aggravated Burglary	61	3.61%	105	0.88%
Aggravated Robbery	91	5.38%	147	1.23%
Ammunition Possession	88	5.20%	97	0.81%
Apparatus Possession	107	6.32%	243	2.03%
Arson	10	0.59%	11	0.09%
Assault	282	16.67%	441	3.68%
Assault on Police Officer	118	6.97%	172	1.44%
Assault to Rape	16	0.95%	18	0.15%
Assault to Rob	30	1.77%	33	0.28%

Attempted Murder	2	0.12%	2	0.02%
Bestiality	1	0.06%	1	0.01%
Begging	3	0.18%	3	0.03%
Buggery	4	0.24%	4	0.03%
Burglary of a Business	151	8.92%	505	4.22%
Burglary of a Business with Intent	1	0.06%	1	0.01%
Burglary of a Dwelling	268	15.84%	932	7.78%
Burglary of a Dwelling with Intent	4	0.24%	5	0.04%
Cannabis Cultivation	34	2.01%	38	0.32%
Cannabis Importation	61	3.61%	65	0.54%
Cannabis Possession	778	45.98%	1191	9.94%
Cannabis supply	7	0.41%	10	0.08%
Cannabis Trafficking	230	13.59%	300	2.51%
Causing a disturbance	98	5.79%	121	1.01%
Child Abandonment	1	0.06%	1	0.01%
Cocaine Importation	22	1.30%	22	0.18%
Cocaine Possession	86	5.08%	110	0.92%
Cocaine Supply	2	0.12%	2	0.02%
Cocaine Trafficking	57	3.37%	75	0.63%
Criminal Damage	205	12.12%	288	2.40%
Desertion of Duty	1	0.06%	1	0.01%
Endangering Life	69	4.08%	95	0.79%
Escaped Custody	49	2.90%	61	0.51%
Ecstasy Possession	2	0.12%	2	0.02%
Exposure of Marketable Good without a License	15	0.89%	47	0.39%
Firearm Possession	126	7.45%	157	1.31%
Fraud	38	2.25%	126	1.05%
Gambling	15	0.89%	15	0.13%
Going Equipped	19	1.12%	20	0.17%
Grievous Bodily Harm	26	1.54%	27	0.23%
Handling Stolen Goods	53	3.13%	62	0.52%
Harassment	13	0.77%	19	0.16%
Importing Currency	1	0.06%	1	0.01%
Indecent Assault	61	3.61%	74	0.62%
Indecent Exposure	9	0.53%	11	0.09%
Indecent Language	98	5.79%	125	1.04%
Insulting Language	55	3.25%	65	0.54%
Issuing Threats	99	5.85%	110	0.92%
Kidnapping	48	2.84%	60	0.50%

Loitering	121	7.15%	229	1.91%
Murder	38	2.25%	42	0.35%
Obstructing Police Officer	43	2.54%	46	0.38%
Offensive Behaviour	10	0.59%	11	0.09%
Possession of Weapon	205	12.12%	279	2.33%
Resisting Police Officer	144	8.51%	201	1.68%
Robbery	659	38.95%	1371	11.45%
Serious Bodily Harm	423	25.00%	739	6.17%
Serious Indecency	17	1.00%	17	0.14%
Sex by Force (Rape)	305	18.03%	383	3.20%
Sex with a minor	190	11.23%	206	1.72%
Shoplifting	183	10.82%	520	4.34%
Theft	298	17.61%	760	6.35%
Theft from Vehicle	54	3.19%	118	0.99%
Theft of Vehicle	135	7.98%	199	1.66%
Traffic Infractions	117	6.91%	160	1.34%
Trespassing	49	2.90%	62	0.52%
Unlawful Possession	73	4.31%	155	1.29%
Violent Disorder	65	3.84%	75	0.63%
Wandering	23	1.36%	31	0.26%
Wasteful Employment of Police Services	2	0.12%	2	0.02%
Wearing Camouflage	19	1.12%	19	0.16%
Total	1692		11976	

In terms of offenders, 45.98% of the offenders were charged with cannabis possession, 38.95% with robbery, and 25% with serious bodily harm. In contrast, only one offender (0.06%) was charged with bestiality, burglary of a business with intent, child abandonment, importing large sums of foreign currency and desertion of duty.

To aid analysis, the offences were further categorised into nine offence groups: drugs, weapon, sex, robbery, murder, assault, theft, burglary, and public order offences (see content dictionary in Appendix A). The summary of the number of charges for offences

type and the number of offenders charged in each offence type are detailed in Table 7.2. Notably, 17.19% of the charges were for the drug offence type, 16.18% were for the theft offence type, and 15.47% were for the public order offence type. These results were generally in line with previous studies (see, Farrington et al., 1988; Svensson, 2002). In the sample, 62.23% of the offenders were charged with the drug offence type, 41.13% with the robbery offence type and 40.07% with the assault offence type. These results were generally in line with previous studies; for example, Miethe et al. (2006) found similar proportion for murder offenders (3.12%), public order offenders (34.32%) and sex offenders (25.14%).

Table 7.2 The Offence Types by the Number of Charges and Offenders Charged

Offence Type	No. of Offenders	Percentage of Total Offenders	No. of Charges	Percentage of Total Charges
Assault	678	40.07%	1737	14.51%
Burglary	333	19.68%	1443	12.05%
Drug	1053	62.23%	2058	17.19%
Murder	40	2.36%	44	0.37%
Public Order	649	38.36%	1852	15.47%
Robbery	696	41.13%	1656	13.83%
Sex	520	30.73%	714	5.96%
Theft	492	29.08%	1938	16.18%
Weapon	318	18.79%	533	4.45%

7.5 Key Criminal Career Variables

The key criminal career variables as discussed and defined previously in Chapter One and Two are described in this section for the sample. The age of onset was the age at which the offender received their first charge. The mean age of onset was 22.38 years ($SD=7.64$); the median age of onset was 20.06 years and the mode was 17.26 years. The minimum age of onset was 8.87 years and the maximum was 69.86 years.

The career length was the number of years between the first charge received and the last. For one-time offenders, the career length was judged to be 0 years. The career length was also judged to be 0 years for those offenders whose charges were all received on the same day. The career length ranged from 0 to 51.72 years. The mean career length was 6.11 years ($SD= 7.65$); the median career length was 3.30 years and the mode was 0.00 years. In the sample, 32.4% of the offenders had career lengths of 0 years, 58.3% of offenders had a career length of 5 years or less, 76.1% had a career length of 10 years or less, 93.5% had a career length of 20 years or less, and 98.8% had a career length of 30 years or less. Therefore, only 1.2% of offenders had a career length greater than 30 years.

Chronicity was determined by the total number of charges received. The average total charges received by offenders was 7.08 charges ($SD= 10.28$); the median chronicity was 3.00 and the mode was 1.00. The chronicity ranged from 1 to 115 charges: 28.2% of the offenders received one charge, 14.4% received two charges, and 9.8% received three charges. Therefore, more than half of the offenders have received three or less charges while 1.2% of the offenders received fifty or more charges. These results highlight the fact that a very small subset of the sample received the greater number of charges (Tracy et al., 1990; West & Farrington, 1973; Wolfgang et al., 1972).

Chronicity was further distinguished by levels of chronicity. This kind of classification has been used in many studies as a way to distinguish between offenders (Svensson, 2002; Wolfgang et al., 1972). Based on this classification, five levels of chronicity were

devised: one-time, occasional, repeat, chronic, and career offenders. One-time offenders have received one or two charges, occasional offenders have received three to five charges, repeat offenders have received six to ten charges, chronic offender have received more than ten charged and less than twenty, and career offenders have received more than twenty charges. The summary of the levels of chronicity is detailed in the Table 7.3. One-time offenders make up 42.6% of the offenders, 22.2% are occasional offenders, 16.0% are repeat offenders, 10.9% are chronic offenders, and 8.3% are career offenders.

Table 7.3 Summary of Offenders According to Level of Chronicity

Offender Type	No. of Offenders	Percentage	Cumulative Percentage
One-time	720	42.6%	42.6%
Occasional	376	22.2%	64.8%
Repeat	270	16.0%	80.7%
Chronic	185	10.9%	91.7%
Career	141	8.3%	100.0%

Versatility refers to the number of different offence types the offender has been associated with. Versatility was scored on a scale from one to nine, where a score of one indicates low versatility, and a score of nine indicates high versatility. Each offender received a score based on the number of offence categories they have participated in during their career; therefore, an offender who has offended in the drug, theft and burglary offence category would have a versatility score of three. The mean versatility score was 2.82 ($SD= 1.86$); the median versatility was 2.00 and the mode was 1.00. The summary of the versatility scores can be found in Table 7.4 where it can be seen that the majority (34.9%) of offenders received a score of one.

Table 7.4 Summary of Versatility Scores for Offenders

Versatility Score	No. of Offenders	Percentage of Offenders	Cumulative Percentage
1	591	34.93%	34.93%
2	297	17.55%	52.48%
3	252	14.89%	67.38%
4	210	12.41%	79.79%
5	153	9.04%	88.83%
6	109	6.44%	95.27%
7	62	3.66%	98.94%
8	17	1.00%	99.94%
9	1	0.06%	100.00%

Developing a scale of seriousness has been an on-going objective for research for almost a century. Scales of seriousness are often based on the subjective judgment of students or professionals of the crimes committed, though they can also involve criminal punishment codes or crime seriousness scales developed by criminal justice commissions (Gorsuch, 1938; Sellin & Wolfgang, 1964; Broadhurst & Indermaun, 1982). The scale of seriousness in this study was based on the amalgamation of the Crime Seriousness Scale developed by the Oregon Criminal Justice Commission (2004) and the scale of seriousness used in the Spohn's (2000) research for the National Institute of Justice study.

The Crime Seriousness Scale is used as part of the sentencing guidelines for the Oregon Criminal Justice system. It is used to classify current crimes of convictions where each category represents crimes of relatively equal seriousness. It is used in conjunction with the Criminal History Scale to determine the length of prison sentence to be given for the crime the offender has been convicted of. Whereas, Spohn's (2000) scale of seriousness was developed to determine the level of seriousness for research purposes where the goal

was to determine the level of seriousness of the crime committed which she then compared to the level of punishment administered. Both systems are based on legal categories and were very similar however Spohn's (2000) scale did not adequately represent all of the charge types in this sample and therefore the Crime Seriousness Scale was used to determine the seriousness value of the excluded offence types.

The seriousness of the charge was a nine-category variable as shown in Table 7.5. The offender's engagement in a crime type was indicated by a binary measure (engaged or not). This was then multiplied by the level of seriousness of the offence and summed as measure of seriousness for each offender. For example, an offender whose criminal history consisted of drug offences, assault offences and weapon offences would receive a seriousness score of eleven. Seriousness therefore could range from one to forty-five. Overall the data showed a mean seriousness score of 12.29 ($SD= 8.72$); the median seriousness score was 10.00 and the mode was 2.00.

Table 7.5 Scale of Seriousness of Charge Types

Offence Type	Level of Seriousness
Murder/Manslaughter	9
Sex Offences	8
Robbery Offences	7
Assault Offences	6
Burglary Offences	5
Theft Offences	4
Weapon Offences	3
Drug Offences	2
Public Order Offences	1

7.6 Strengths and Limitations of Data Source

Data drawn from case files created by the police on criminal matters can be considered unobtrusive data; i.e. they are data that the researcher played no part in collecting. Canter and Alison (2003) pointed out that unobtrusive measures derived from records of police investigations provide a different perspective on crime than more conventional sources of information such as questionnaires and can, therefore, be a rich source of information.

They are not without their problems though. The data used have not been collected especially for the purpose of scientific research, or by researchers, and, therefore, have not been subject to the rigour required of scientific study. The information is often recorded in a way that it can be presented to the prosecutor's office hence information that does not support the prosecutors case may be omitted. Indeed, the person recording or even the person providing the statement may distort the records.

However, notwithstanding these difficulties, there are some key advantages to using this type of data. Models and inferences drawn from the data may be more directly more relevant to law enforcement. Moreover, the material provided is often inaccessible through interviews and questionnaires; it may also reduce the influence of offender dishonesty which is a particular problem with questionnaires and self-reports.

There are also a number of ways to deal with the potential problem (Canter & Alison, 2003). For example, the quality of the measure can be improved by adhering to the

professional code of practice, carefully considering the origins of the data, standardising the recording process, being alert to biases, using corroboration from different sources, developing a content dictionary and taking care in drawing inferences about the psychological processes. In the present study, efforts were made to conform to all of these suggestions.

7.7 Background Information on Barbados

As further background, it may be useful to outline briefly some general information about Barbados. Although not all of this is necessarily directly relevant to the present thesis, it does help to provide some additional cultural context.

The former British colony of Barbados is a small island in the Lesser Antilles north east of Venezuela. It is a Commonwealth country which became independent in 1966 however the Queen of England still acts as Head of State. The island is considered a developing country as reported by the International Monetary Fund's World Economic Outlook April 2010 and it is also considered one of the most developed countries in the region. Barbados is the 46th richest country in the world with respect to Gross Domestic Product per capita (2010 estimates). All demographics for Barbados were drawn from the Central Intelligence Agency World Factbook which is a reference resource provided by the United States about the countries of the world.

It is 431 km² in size with a population of 286,705 persons as at July 2011; 18.9% of the population are 14 years old and under, 71.3% between 15 and 64 years old with the remaining percentage (9.8%) are over 65 years old. It has a literacy rate of 99.7%. Around 128,500 persons makeup the labour force and unemployment is estimated to be 10.7%. The population is 93% black, 3.2% white and 4.4% oriental and mixed. This population dates back to the time of slavery when they were a few white plantation owners who purchased large numbers of slaves out of Africa. The Barbadian population identifies strongly with their African heritage.

Barbados is separated into eleven parishes with its capital, Bridgetown, situated in St. Michael. Bridgetown is the major city and also the largest, however there are three other cities that are located only the west and south coasts. Slightly over a third (44%) of the population live in urban areas, which consist of these cities and the districts surrounding them. The majority of the population have to go in and out of the city of Bridgetown each day either to get to work, school, or to do shopping. Over a quarter (28.6%) of the population live in and around Bridgetown itself.

The land is relatively flat which rises gently to central highland region. On the West and South coast is the calm Caribbean Sea and endless beaches. The tourist industry is booming here. Barbados is considered one of the leading tourist destinations in the world. The Eastern coast faces the Atlantic Ocean with rugged cliff and lively surf. Barbados has two seasons; wet and dry based on the level of rain fall. The average temperature ranges 21 to 31 degrees Celsius. Barbados has a history of long ingrained

Christian principles with over 95% of the population considered Christian. Other religions practiced are Hinduism, Islam, Baha'i Faith and Judaism.

The government of Barbados operates under a parliamentary democracy modelled after the British Westminster system with the Head State (the Queen of England) represented by the Governor General and the Prime Minister as the head of the government. The Constitution of Barbados is the supreme law of the land. The Attorney General heads up the independent judiciary. Historically, the Barbadian legal system was based on the English common law with a few local adaptations, however modern-day legislation is shaped by or influenced by organisations such as the United Nations and the Organisation of the American States. The local court system consists of the Magistrates Court, the Supreme Court, and the Caribbean Court of Justice.

Chapter Eight

The Importance of Onset Age and Other Key Variables

8.1 Introduction

As noted previously in Chapter Two, the relationship between age and crime has been one of the most studied topics in criminal career research and age of criminal onset is a central concept of criminal career research (Kazemian & Farrington, 2005). It is generally acknowledged that onset age is an important predictor of future criminal careers. However, it is not yet clear what facets of the future criminal career it best predicts.

Age at criminal onset is defined as the age at which an offender commences his criminal lifestyle (Farrington et al., 1990; Piquero et al., 2007). Onset age has been measured in a number of ways depending on the type of data used in the particular study. Hence, age of onset of criminal offending has been measured as the age at which an offender reaches the notice of the police, the age at first charge, the self-reported age at which criminal behaviour began, or the age at the first conviction. As to be expected, on average, the self-reported age of onset is younger than the age at first charge which in turn is younger than the age at first conviction (Piquero et al., 2007). Studies have, however, noted the various difficulties with these measures. In self-reported studies, memory recall is a major issue while with charge data, it is acknowledged that a juvenile offender may only receive a charge for a serious offence and may simply be warned for less grave crimes;

i.e. conviction data do not account for crimes which the offender may have committed but not received a conviction (Blumstein et al., 1988; Farrington et al., 1990).

As emphasised previously in Chapter Two, the evidence suggests that a number of key factors in criminal career research are affected by the age of onset of criminal behaviour. These key factors are criminal career length, versatility (otherwise known as the variety index), chronicity (the number of criminal events) and offence seriousness. Thus, almost all studies investigating age of onset of offending and key criminal career variables have found in the very least, a moderately inverse relationship. Those offenders who begin their offending careers earlier are likely to commit more crimes, have a longer criminal career, commit more serious crimes and commit more varied crimes (Blumstein et al., 1986; Elliot, 1994; Farrington et al., 1990; Loeber & Le Blanc, 1990; LeBlanc & Loeber, 1998; Snyder, 1998; Tolan, 1987). As such, these findings could be said to support the ‘criminal propensity’ view (Gottfredson & Hirschi, 1990). However, we do not know if such relationships exist in cultural environments such as that in Barbados. Hence using a sample from Barbados, the following study aimed to investigate the relationship between criminal career variables of onset age, career length, versatility, chronicity and seriousness, to determine whether this inverse relationship would be replicated.

8.1.1 *Onset Age and Career Length*

The most active offenders tend to be early starters and late finishers and therefore have lengthier careers than the average criminal (DeLisi, 2005; Moffitt, 1993; Piquero et al., 2004). Blumstein and colleagues (1982) conducted a comprehensive study of criminal

careers using data on charges. They found career length was associated with onset age such that younger offenders tended to have longer criminal careers. Farrington et al. (1998) also found that the average career duration decreased significantly with the increase of onset age for study participants. Research has solidly demonstrated that offenders who exhibit early onset of offending had longer criminal careers (Piquero et al., 2007), highlighting a negative relationship between onset age and criminal career length.

8.1.2 *Onset Age and Chronicity*

Early onset (age) of offending seems to be predictive of persistence in future offending that is a high level of chronicity (Blumstein et al., 1986; Farrington et al., 1990; Moffitt, 1993; Patterson et al., 1998). A chronic offender is defined as one who has amassed numerous charges. For example, Kempf-Leonard et al. (2001) examined the criminal career of the 1958 Philadelphia birth cohort and found that early onset offenders continued their criminal careers well into adulthood cumulating numerous charges. Sampson and Laub (1993) found that boys who were delinquent were three to four times more likely than non-delinquents to commit criminal offences in adulthood. Tolan and Thomas (1995) found that boys who started their offending before 12 were more likely to commit serious offending and for a longer period of time than boys who started after 12; also Ge, Donellan, and Wenk (2003) found similar results but for a cut off age of 15 years. Generally, therefore, the earlier the onset age the more chronic the offender (Blumstein et al., 1986; Wolfgang et al., 1972).

8.1.3 *Onset Age and Versatility*

Early onset offenders are significantly more likely to be involved in a number of different crime types (Piquero et al., 2007). These early starters are also disproportionately more likely to commit a variety of offences even more so than are later onset delinquents (Van kammen & Loeber, 1994; Nagin et al., 1995; Decker & Salert, 1986). Versatility is the tendency for an offender to engage in various criminal acts (Piquero et al., 2007). Versatility has been found to decrease past adolescence and as the criminal career progresses that is as the offender get older (Blumstein et al., 1986; Piquero et al., 1999). Therefore, there also appears to be a negative relationship between onset age and versatility.

8.1.4 *Onset Age and Seriousness*

In contrast, there has been very little research on seriousness of offending and how it relates to onset age (Piquero et al., 2007). What research has been conducted indicates that early onset offenders not only amass numerous contacts with the police and numerous convictions but they also tend to commit more serious crimes (Piquero et al., 1999; Wolfgang et al., 1972). Hence the earlier an offender commences a criminal lifestyle, the greater the likelihood of graduating to more serious criminal activity (Tolan et al., 2000). For example, Piquero and Chung (2001) found that the five persons in their sample with the earliest age of onset of offending (8 years) amassed the highest scores in offence seriousness than any other onset age group. These findings therefore suggest a negative relationship between onset age and seriousness.

8.1.5 *Other Key Criminal Career Variables*

Although findings have been mixed on the interrelationship of career length, chronicity, versatility, and seriousness, the wealth of research has found that these variables are positively correlated (Farrington et al., 1996; Monahan & Piquero, 2009; Reiss & Roth, 1993; Tolan & Gorman-Smith, 1998). For example, Smith and Smith (1984) found evidence of increasing seriousness with successive arrests for juveniles. Additionally, Cohen (1986) found increases in switches to more serious offences and decreases in switches to less serious offences as the criminal career progressed. Much research has also found that frequency (annual chronicity) and variety (versatility) were strongly concordant (Chaiken & Chaiken, 1982; Monahan & Piquero, 2009; Spelman, 1994). Studies which examined the interrelation of three of the key variables found a correlation of 0.73 between a seriousness scale and a versatility scale and a correlation of 0.62 between a seriousness scale and a frequency scale (Farrington et al., 1996; Loeber et al., 1998).

8.1.6 *Key Variables and Types of Offending*

Because of the popularity of onset age and career length in research literature, a number of studies have examined their relationship to various offence types (Kazemian & Farrington, 2005). However, very few studies have examined the level of chronicity, versatility and seriousness in criminal careers by offence types.

In examining onset age and offence types, Tolan, Gorman-Smith, and Loeber (2000) found that involvement in more serious offences followed from involvement in less

serious offending. Therefore, as an offender ages he/she is more prone to commit more serious offences; for example theft is likely to be committed at an earlier age than robbery and robbery at an earlier age than murder. However, other findings have been contradictory. For example, Le Blanc and Frechette (1989) provided results for the onset age by offence type for offenders up to age 21. They found that offences such as petty larceny (onset age 8.33), shoplifting (onset age 11.35) and vandalism (onset age 11.68) were committed at an early age, whereas fraud (onset age 19.79) and homicide (onset age 19.89) were committed later in life. Whereas, Piquero et al. (2007) found offenders started committing theft of vehicles (age 16.8) and burglary (age 17.8) at an earlier age than shoplifting (age 20.4) and vandalism (age 22.7).

As was mentioned previously in Chapter Two, career length by offence type has also been widely examined. The findings of research in career length have been mixed. Some studies have found longer career lengths in offenders who offend against persons (7.0 years) as compared to property offenders (4.2 years) (Blumstein et al., 1982). While others have found longer career lengths in offenders who offend property (burglary, 3.47 and petty larceny, 3.56 years) as compared to offenders against persons (1.46 years) (Le Blanc & Frechette, 1989). Blumstein et al. (1982) found that average career length was 5 years in their study. However, Le Blanc and Frechette's (1989) only examined offending over a five year span which might account for the shorter career lengths observed. Blumstein et al. (1982) concluded that, in general, property offenders exhibit shorter careers than offenders who offend against the person.

8.1.7 *Hypotheses*

In sum, research has shown that offenders' whose criminal careers are long, who are chronic offenders, who commit a variety of different types of crime(versatility), and whose crimes are serious, commence their criminal career earlier than that of the average criminal. Accordingly, in this first study it was hypothesised that negative relationships would exist between the onset age of offending and the criminal career length, chronicity, seriousness and versatility. It is also hypothesised that positive relationships would exist between career length, chronicity, versatility, and seriousness. In addition, it is hypothesised that public order offences and theft offences would occur at an earlier age in the criminal career than more serious offences of sex and robbery; as well as property offenders (e.g. theft and burglary offenders) would have shorter career length, lower chronicity, less versatile careers, and commit less serious offences than personal offenders (e.g. sex offenders, robbery offenders).

8.2 Method

This study used the whole of the sample described earlier. The particular variables involved were previously defined and discussed in Chapter Seven but are noted here again for clarity.

8.2.1 *The Variables*

The main focus of this study was on the variable of onset age, which was defined as and measured by the age at which the offender was first charged with an offence. The other

main variables were career length, versatility, chronicity, and seriousness. Career length was measured in years by the difference between first contact with the police for first charge and the last contact with regard to the last documented charge ($M= 6.11$, $SD= 7.65$, $Range= 0$ to 51.72). Versatility was based on the Variety Index developed by Hirschi and Gottfredson (1993) which was a count of the number of different types of crimes committed. Versatility was measured by summing the various different types of offences, such that the greater the different types of offences the higher the versatility was deemed to be ($M= 2.82$, $SD= 1.86$, $Range= 1$ to 9). An offender may have more than one charge for a crime type and therefore the entries were recoded into a binary measure to indicate that an offender engaged in the particular crime. There were nine types of offences identified in this sample as described in Section 7.4, therefore versatility ranged from one to nine. Chronicity was measured by the total number of charges ($M= 7.08$, $SD= 10.28$, $Range= 1$ to 115). Seriousness was measured by the scale detailed in Section 7.5, therefore seriousness ranged from two to forty-five ($M= 12.29$, $SD= 8.72$).

8.3 Results

8.3.1 *General Sample Characteristics with regard to Onset Age*

The age of onset ranged from 8.87 to 69.86 years. The mean age of onset was 22.38 years ($SD= 7.64$); the median age of onset was 20.06 years and the mode was 17.26 years as previously stated in section 7.4. The distribution can be seen in Figure 8.3.1.

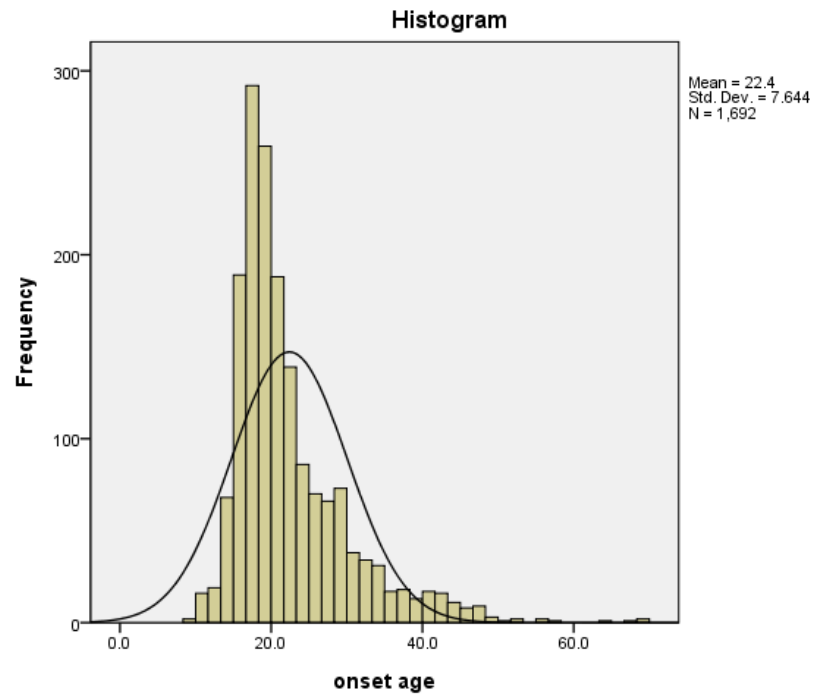


Figure 8.3.1 Histogram of Number of Offenders by Age of Onset

With regard to offence type, it is interesting to note that, in this particular sample, drug, sex and robbery offences were committed most frequently as a first offence (see Table 8.3.1).

Table 8.3.1 Frequency and Percentage of First Charge Types

Type of Offence	Frequency	Percent
Drug	540	31.95
Weapon	53	3.14
Sex	254	15.03
Rob	215	12.72
Murder	8	0.47
Assault	212	12.54
Theft	158	9.35
Burglary	110	6.51
Public Order	140	8.28
Total	1690	100.00

Table 8.3.2 Descriptive Statistics for Age of Onset by First Charge Type

Type of Offence	Minimum	Maximum	Mean (SD)	Median	Mode
Drug	12.98	63.53	24.99 (8.05)	22.65	16.08
Weapon	12.33	25.83	19.32 (2.62)	18.94	12.33
Sex	14.03	69.86	26.07 (10.45)	21.98	16.87
Robbery	13.70	38.56	20.93 (4.89)	19.45	18.70
Murder	17.45	23.48	20.76 (1.75)	20.75	17.45
Assault	8.87	43.48	19.98 (4.98)	18.79	14.92
Theft	9.85	41.22	19.33 (5.39)	17.82	16.89
Burglary	10.15	36.85	17.55 (4.26)	16.69	10.15
Public Order	10.32	47.79	20.05 (5.80)	19.07	16.36

As an alternative way of construing the data, the age of onset by first charge type is noted in Table 8.3.2. It appears from this table that offences such as assault and theft offences are committed at a relatively early age and drugs and sex offences are committed later in life. A one-way ANOVA was used to test for age of onset differences among first charge types. Age of onset differed significantly across the offence types, $F(8, 1681) = 35.10$, $p < 0.001$. Tukey post hoc comparisons ($p < 0.05$) of the nine offence types indicate that the onset age of sex offences was significantly higher than all other offences except drug and murder offences. The onset age of drug offences was significantly higher than burglary, weapon, theft, assault, public order and robbery offences. The onset age of robbery offences was significantly higher than burglary offences. However, the onset age of burglary, weapon, theft, assault and public order offences did not differ from each other significantly.

8.3.2 Analysis of Key Variables

To investigate the relationship between the five key variables, onset age, career length, chronicity, versatility, and seriousness, a series of linear correlations was conducted. Age

was partialled out to control for any impact the age of the offender per se. The results are shown in Table 8.3.3.

Table 8.3.3 Correlations between Key Variables with Age partialled out (*p* two tailed)

Control Variables			Career length	Chronicity	Versatility	Seriousness
Age at start of study	Onset age	<i>R</i>	-.98	-.58	-.64	-.59
		<i>p</i> <	0.001	0.001	0.001	0.001
		<i>N</i>	1692	1692	1692	1692
	Career length	<i>R</i>		.59	.64	.56
		<i>p</i> <		0.001	0.001	0.001
		<i>N</i>		1692	1692	1692
	Chronicity	<i>R</i>			.73	.66
		<i>p</i> <			0.001	0.001
		<i>N</i>			1692	1692
	Versatility	<i>R</i>				.93
		<i>p</i> <				0.001
		<i>N</i>				1692

All correlations were significant; most notably there were significant negative correlations between age of onset and career length ($r = -0.98$), chronicity ($r = -0.58$), versatility ($r = -0.64$) and seriousness ($r = -0.59$). That is, the earlier the age of onset of the criminal career, the greater the career length, chronicity, versatility and seriousness of the offences. However, there were also significant positive correlations between career length, chronicity, versatility and seriousness.

To assess the importance of onset age as a predictor of the other variables, a series of multiple linear regressions was conducted with each of the key variables, career length, chronicity, versatility, seriousness held in turn as the dependent variable and onset age always as one of the predictors. The results when career length was the dependent

variable and onset age, chronicity, versatility, severity as the predictors are shown in Table 8.3.4. All of the predictor variables significantly predict career length, however, versatility ($\beta= 0.54$) had the greatest influence on career length.

Table 8.3.4 Linear Regression of Key Variables with Career Length as the Dependent Variable

Model		Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i> <
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
	(Constant)	2.88	0.59		4.85	0.001
	Chronicity	0.27	0.02	.37	13.64	0.001
	Versatility	2.21	0.22	.54	9.92	0.001
	Seriousness	-0.22	0.04	-.25	-5.13	0.001
	Onset age	-0.10	0.02	-.10	-5.12	0.001

Table 8.3.5 Linear Regression of Key Variables with Chronicity as the Dependent Variable

Model		Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i> <
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
	(Constant)	-5.55	0.68		-8.16	0.001
	Versatility	3.79	0.25	.69	15.23	0.001
	Seriousness	-0.12	0.05	-.11	-2.53	0.013
	Onset age	0.05	0.02	.04	2.38	0.018
	Career Length	0.37	0.03	.27	13.64	0.001

The results with chronicity as the dependent variable and onset age, career length, versatility, seriousness as the predictors, are shown in Table 8.3.5. Again all of the predictors significantly predicted chronicity but versatility ($\beta=0.69$) had the greatest influence.

Table 8.3.6 Linear Regression of Key Variables with Versatility as the Dependent Variable

Model		Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i> <
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
	(Constant)	0.61	0.06		9.90	0.001
	Seriousness	0.16	0.00	.75	68.04	0.001
	Onset age	-0.01	0.00	-.02	-2.77	0.007
	Career Length	0.03	0.00	.10	9.92	0.001
	Chronicity	0.03	0.00	.18	15.23	0.001

Also, the results when versatility was the dependent variable and onset age, career length, chronicity, seriousness as the predictors are shown in Table 8.3.6. All variables significantly predicted versatility but seriousness ($\beta=0.75$) had the greatest influence.

Table 8.3.7 Linear Regression of Key Variables with Seriousness as the Dependent Variable

Model		Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i> <
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
	(Constant)	0.80	0.34		2.35	0.020
	Onset age	-0.04	0.01	-.03	-3.25	0.001
	Career Length	-0.07	0.01	-.06	-5.13	0.001
	Chronicity	-0.03	0.01	-.04	-2.53	0.013
	Versatility	4.59	0.07	.98	68.04	0.001

Finally, the results with seriousness as the dependent variable and onset age, career length, chronicity, versatility as the predictors are shown in Table 8.3.7. Again all predictor variables significantly predicted seriousness but as before versatility ($\beta=0.98$) had the greatest influence.

8.3.3 Other Key Variables and Offence Types

To examine the relationship of the other key criminal career variables: career length, chronicity, versatility and seriousness and offence types, a series of t-tests was conducted. Here the offender was classified as a particular type of offender if he/she had received at least one charge for a particular offence and then a comparison was made for each specified criminal career variable. For example, to examine the relationship between drug offences and career length an offender who had at least one drug charge was classified as a drug offender and the average difference in career length for drug offenders and nondrug offenders was analysed.

Table 8.3.8 Means (SDs) of Offender Type for Career Length

Offender Type	Classification	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i> <
Drug Offender	Yes	1053	7.30	8.04	8.82(1557)	0.001
	No	639	4.15	6.50		
Weapon Offender	Yes	318	10.62	7.75	11.65(453)	0.001
	No	1374	5.07	7.23		
Sex Offender	Yes	520	6.29	7.94	0.61(947)	0.543
	No	1172	6.03	7.51		
Robbery Offender	Yes	696	8.19	7.76	9.48(1425)	0.001
	No	996	4.66	7.22		
Murder Offender	Yes	40	11.33	6.04	5.46(42)	0.001
	No	1652	5.99	7.64		
Assault Offender	Yes	678	9.96	8.04	17.62(1188)	0.001
	No	1014	3.54	6.15		
Theft Offender	Yes	492	12.06	8.92	19.45(645)	0.001
	No	1200	3.67	5.42		
Burglary Offender	Yes	333	12.20	8.51	15.17(435)	0.001
	No	1359	4.62	6.61		
PO Offender	Yes	649	10.56	8.25	19.55(1035)	0.001
	No	1043	3.34	5.71		

Table 8.3.8 reports the means and standard deviations for career length for the offender categorisations. There was a significant difference in career length for all offender types except for sex offenders; in each case offenders of a particular offence type have longer career lengths than offenders not of that type. Further examination of the mean career length for each offender type shows that sex and drug offenders have the shortest average career length; 6.29 and 7.30 years, respectively, whereas burglary and theft offenders have the longest career lengths; 12.20 and 12.06 years, respectively.

Table 8.3.9 Means (*SDs*) of Offender Type for Chronicity

Offender Type	Classification	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i>
Drug Offender	Yes	1053	8.30	11.82	7.22(1678)	0.001
	No	639	5.07	6.55		
Weapon Offender	Yes	318	15.83	15.15	12.35(363)	0.007
	No	1374	5.05	7.43		
Sex Offender	Yes	520	7.53	10.27	1.21(995)	0.227
	No	1172	6.88	10.27		
Robbery Offender	Yes	696	11.68	12.78	14.91(935)	0.001
	No	996	3.86	6.34		
Murder Offender	Yes	40	12.35	9.59	3.51(41)	0.001
	No	1652	6.95	10.26		
Assault Offender	Yes	678	12.49	12.81	17.21(865)	0.001
	No	1014	3.46	5.81		
Theft Offender	Yes	492	15.80	14.81	18.16(519)	0.001
	No	1200	3.50	3.88		
Burglary Offender	Yes	333	18.67	16.24	16.03(348)	0.001
	No	1359	4.24	5.09		
PO Offender	Yes	649	13.91	13.40	20.62(705)	0.001
	No	1043	2.83	3.55		

The means and standard deviations for chronicity for the offender categorisations are reported in Table 8.3.9. There was a significant difference in chronicity for all offender types except for sex offenders. In each case, offenders of a particular offence type show higher chronicity than offender not of that type. These findings indicate that drug offenders commit more offences than those offenders who do not have a drug offence charge. A closer examination of the mean chronicity for each offender type shows that sex and drug offenders have the lowest level of chronicity; 7.53 and 8.30 offences, respectively. Conversely, burglary and weapon offenders have the highest level of chronicity; 18.67 and 15.83 offences, respectively.

Table 8.3.10 Means (SDs) of Offender Type for Versatility

Offender Type	Classification	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i>
Drug Offender	Yes	1053	3.05	2.01	6.93(1613)	0.001
	No	639	2.45	1.52		
Weapon Offender	Yes	318	4.99	1.65	26.39(450)	0.001
	No	1374	2.32	1.52		
Sex Offender	Yes	520	3.13	2.09	4.20(850)	0.001
	No	1172	10.38	7.95		
Robbery Offender	Yes	696	4.00	1.91	23.95(1139)	0.001
	No	996	2.00	1.31		
Murder Offender	Yes	40	5.18	1.62	9.28(41)	0.001
	No	1652	2.77	1.83		
Assault Offender	Yes	678	4.38	1.60	36.26(1153)	0.001
	No	1014	1.78	1.17		
Theft Offender	Yes	492	4.77	1.60	33.80(763)	0.001
	No	1200	2.03	1.29		
Burglary Offender	Yes	333	5.14	1.57	30.52(478)	0.001
	No	1359	2.26	1.44		
PO Offender	Yes	649	4.49	1.58	38.11(1053)	0.001
	No	1043	1.79	1.21		

Table 8.3.10 reports the means and standard deviations for versatility for the offender categorisations. There was a significant difference in versatility for all offender types. Again, in each case, offenders of a particular offence type show greater versatility than offenders not of the same type. This finding is the same for all offender types with the exclusion of sex offenders. Interestingly, non-sex offenders have significantly greater versatility than sex offenders. Further examination of the mean versatility for each offender type shows that drug and sex offenders have the least versatility; 3.05 and 3.13 offences, whereas murder and burglary offenders have the greatest versatility; 5.18 and 5.14 offences, respectively.

Table 8.3.11 Means (*SDs*) of Offender Type for Seriousness

Offender Type	Classification	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i>
Drug Offender	Yes	1053	11.50	9.73	-5.32(1673)	0.001
	No	639	13.60	6.54		
Weapon Offender	Yes	318	20.69	8.39	20.17(444)	0.001
	No	1374	10.35	7.57		
Sex Offender	Yes	520	16.60	8.84	13.75(907)	0.001
	No	1172	10.38	7.95		
Robbery Offender	Yes	696	18.70	7.94	30.50(1231)	0.001
	No	996	7.82	6.04		
Murder Offender	Yes	40	28.25	6.54	15.51(42)	0.001
	No	1652	11.91	8.40		
Assault Offender	Yes	678	19.71	7.19	37.85(1201)	0.001
	No	1014	7.34	5.57		
Theft Offender	Yes	492	20.48	7.76	28.97(799)	0.001
	No	1200	8.94	6.62		
Burglary Offender	Yes	333	22.68	7.31	29.21(491)	0.001
	No	1359	9.75	6.97		
PO Offender	Yes	649	18.15	8.36	24.46(1157)	0.001
	No	1043	8.65	6.72		

The means and standard deviations for seriousness for the offender categorisations are reported in Table 8.3.11. There was a significant difference in seriousness for all offender types. In each case, offenders of a particular offence type show higher levels of offence seriousness than offenders not of the same type. Further examination of the mean seriousness for each offender type shows that drug and sex offenders have the lowest level of seriousness; 11.50 and 16.60, respectively, whereas murder and burglary offenders have the highest level of seriousness; 28.25 and 22.68, respectively.

8.4 Discussion

As mentioned previously, the findings of this study are in line with previous research as significant negative relationships were found to exist between onset age and the other key criminal career variables: career length, versatility, chronicity and seriousness. This negative relationship highlights what previous research has found using an array of samples spanning first world countries such as Canada (Le Blanc, 1990), the United Kingdom (Farrington, 1995; Nagin et al., 1995) and the USA (McCord, 1979; Tracy & Kempf-Leonard, 1996; Tracy et al., 1990; Wolfgang et al., 1972). As onset age of offending increases, criminal career length, versatility, chronicity and seriousness decreases. The significant positive relationships between career length, versatility, chronicity, and seriousness indicate that as each increase so does the other. This finding is also consistent with previous research that has found that these are directly interrelated (Chaiken & Chaiken, 1982; Farrington et al., 1996; Monahan & Piquero, 2009; Reiss & Roth, 1993; Spelman, 1994; Tolan & Gorman-Smith, 1998). These results support the general criminal propensity theory posited by Gottfredson and Hirschi (1990) which

indicates that as criminal propensity increases, so do career length, chronicity, versatility and seriousness while onset age decreases.

It can be noted that the average age of onset of offending (22.4 years) is higher than seen in a lot of studies. However, most studies have concentrated on examining juveniles or have used cohorts that extend from juvenile years to approximately 40 years. For example, Piquero et al. (2007) found that the average age of onset for their cohort studied followed up to age 32 was 18.12 years. In Chapter Two, it was noted that the follow up period in cohort studies affected the observed career length; the later the follow up age, the longer the career length. It is, therefore, likely that the follow up age might have the same effect on the average onset age; i.e. the later the follow up age the later the onset age. In this study, the onset age of offending ranged from 8.9 to 69.9 years which is one of the largest ranges to be found in empirical work and therefore by extension the average age of onset might be expected to be higher. Alternatively, the mode and the median onset age are lower than the mean which may indicate that large outliers may be skewing the mean onset age upwards.

Drug, sex and robbery offences were the most frequently committed first offences, and the offences of burglary, weapon, theft, assault and public order tended to occur at the beginning of the sample's criminal careers. Although a number of studies have also found that minor offences such as theft, public order and burglary offences occur earlier in the criminal career, these studies have found that assault tended to occur later (Le Blanc & Frechette, 1989; Piquero et al., 2007). The findings of the present study differ,

therefore, in the latter respect. This, however, may be because assault offences are generally more common place in Barbados and, therefore, are likely to occur earlier in the criminal career of an offender from Barbados.

All of the variables significantly predicted career length, versatility, chronicity, and seriousness. However versatility was discovered to have the greatest influence of all predictors. This is a novel finding. It has been generally acknowledged that onset age is an important predictor of future criminal careers. However, versatility as an important predictor of criminal career variables has not previously surfaced in the literature. As versatility is measured by the number of the different kinds of crimes that an offender commits, it could be argued that it is a good indicator of the extent to which an offender is committed to a general criminal lifestyle (Commonwealth of Pennsylvania, 1991; Steffensmeier, 1986); consequently someone high on versatility might be more likely to start offending early, have a longer career, commit more offences, and commit more serious offences. Also, seriousness, not onset age, was the strongest predictor of versatility. This suggests that as criminals become more versatile they are more likely to include serious offences in their repertoire of offences.

When the relationship between the other key criminal career variables and offence types was examined it was found that, in general, if offenders had committed a certain type of crime, they were more likely to score higher on all key variables. The most obvious explanation for this is that given that there is considerable variability in the number of crimes committed, and those who have committed a larger number of crimes also tend to

be more versatile, offenders who have committed any particular type of crime are likely to score higher on the key variables. However, sex and drug offenders tended to be different from the other types of offenders and each other in this respect. Sex offenders and drug offenders had the shortest career length, the lowest chronicity, the least versatility, and the lowest levels of seriousness. Indeed, non-sex offenders were more versatile than sex offenders and non-drug offenders were found to show more seriousness than drug offenders. These effects suggest that sex and drug offenders may be unique in some respect; for example, their motivation may be different from that involved in other types of crime, in that it may not involve material gain per se, nor general propensity to commit crime, but may correspond to more specific personal needs.

Burglary and theft offenders had the longest career length. These findings are in line with previous research (Le Blanc and Frechette, 1989). Additionally, burglary and weapon offenders were found to commit the most crimes, and murder and burglary offenders had the greatest versatility and their offences were most serious. These results are also consistent with previous research that has found that even violent offenders commit more property crime than violent crime and therefore may be more aptly considered frequent offenders (Dean et al., 1996; Piquero, 2000).

Taken as a whole, the initial findings in this study could be construed as supporting the general propensity theory of crime (Gottfredson & Hirschi, 1990). However, the findings in relation to sex and drug offenders suggest some support for a more discrete theory of criminal careers (Blumstein et al., 1986); such that these offenders are qualitatively

distinct from the other types of offender (Piquero et al., 2007). In other words, whilst a general propensity may underlie much or even most criminal behaviour, offences such as those involving sex and drugs may be motivated more by other psychological process, such as dominant or impulsive psychological needs.

Canter (1996), for example, discusses the various psychological functions that sexual offending has for an offender and notes elements of the behaviour. He elaborates that sex offence behaviour may be used to satisfy sexual needs in addition to non-sexual needs such as anger, power, intimacy as well as general criminality. Cohen, Seghorn and Calmas (1969) also posit that sex offending can be impulsive and may be a crime of opportunity. Blackburn (1993) notes that sex offending is not homogeneous and may in fact reflect the psychological differences of offenders; this can also be said for drug offending. A number of studies have found that a large part of all crime, including property crime, is drug related; specifically substance use related (Moffitt, 1997; Patterson, Lennings & Davey, 2000). However, drug offending also results from drug-related enterprises that form the illegal drugs market (Zaluar, 2004). Zaluar (2004) reports that these enterprises encourage organisational practices and tactics that result in offending behaviour such as violence, aggression, fraud, and murder.

Chapter Nine

Specialisation in Criminal Careers

9.1 Introduction

As noted in Chapter Three, in criminal career research, evidence of specialisation has implications for a number of issues including the number of dimensions underlying offending (Farrington et al., 1988), types of offenders and offending, the prediction of future careers, changes in offending careers, progression from trivial to more serious crimes (escalation), and the developmental progression of criminal careers.

For instance, specialisation is implicit in theories that differentiate between offenders (Colvin & Pauly, 1983) and offence types (Felson, 2002). Different types of offenders and offences may represent the operation of different theoretical constructs (Osgood & Schreck, 2007). If specialisation exists, knowledge of past offending could be useful in the prediction of future offending as the offender would tend to commit the same type of offence. The presence of specialisation also relates to arguments for escalation. It suggests that offenders may move on to committing more serious crimes because they involve the same offence type. Escalation therefore may in turn inform developmental theories of crime and as a result may be useful in explaining criminal careers. In contrast if no specialisation exists, then a single general construct might account for all types of crime, such as self-control (Gottfredson & Hirschi, 1990; Osgood & Schreck, 2007). Moreover, knowledge of present crimes might be less helpful in predicting future crimes and escalation development (Osgood & Schreck, 2007).

Given the importance of specialisation to understanding the nature of criminal careers, the study in the present chapter provides an empirical evaluation of specialisation of the sample. Following previous research common measures of specialisation were used in the evaluation: transition probabilities and the Forward Specialisation Coefficient (FSC). The observed patterns of specialisation are discussed in terms of their implications for future criminal career and psychological research.

Although the literature on specialisation was reviewed in detail in Chapter Three, it may be useful to revisit some of the main points here.

9.1.1 *Defining Specialisation*

As mentioned in Chapter Three, researchers have often devised definitions of specialisation that are in line with their research questions or are of interest (McGloin et al., 2009). However, as noted for the purposes of the present thesis, specialisation is generally defined as the tendency to repeat an offence or an offence type in subsequent offending (Blumstein et al., 1989; Paternoster et al., 1998; Wolfgang et al., 1972). And, as such it is to be differentiated from versatility per se, which refers simply to the number of different types of offence committed (Gottfredson & Hirschi, 1990).

9.1.2 *The Evidence for Specialisation*

Definitions apart, there is still a great deal of debate as to whether criminals specialise or not in their offending. Thus whilst some studies have found evidence supporting specialisation (Blumstein et al., 1988; Brennan et al., 1989; Britt, 1996; Lattimore et al., 1995; Piquero et al., 1999; Stander et al., 1989), others have found no such evidence (Bursik, 1980; Kempf, 1987; Klein, 1971; Rojek & Erickson, 1982; Smith & Smith, 1984; Wolfgang et al., 1972).

However, there is some indication that these mixed findings may have resulted from a failure to control for the age profiles of the offenders (Lo et al., 2008). A variety of evidence suggests that specialisation increases with age (Brame & Dean, 1999; Mazerolle et al., 2000; Piquero et al., 1999; Simon, 1997); hence specialisation tends to be weaker in juvenile samples (Cohen, 1986; Farrington et al., 1988; Smith & Smith, 1984; Tracy et al., 1990) and stronger in adult samples (Blumstein et al., 1988; Brennan et al., 1989).

However, there is also an emerging body of evidence that suggests that specialisation may coexist with versatility (Britt, 1994; Farrington et al., 1988). For example, Kempf (1987) found evidence of serial specialisation along with versatility with offenders changing patterns as they aged. McGloin et al. (2009) also found that offenders favoured certain offence types during the short-term because of available opportunity, but because of changing situations and environments over the life-course, their offending aggregated to versatility over the entire criminal career (see also, Francis et al., 2004; Shover, 1996; Sullivan et al., 2006).

McGloin et al. (2009), therefore, argued that offenders were generally versatile over their careers and that less specialisation would be seen over longer careers. Piquero et al. (2003) also found that the majority of offenders demonstrated a generalist offending profile over their criminal careers. However, in general, the bulk of the evidence suggests that when specialisation does occur, it tends to increase with age, including onset age (Brame & Dean, 1999; Mazerolle et al., 2000; Piquero et al., 1999; Simon, 1997)

Previous research has also looked at specialisation within offence types. In general it seems that when specialisation does occur, it seems most associated with burglary, property crime, drug offences, violent crime, status offences and arson (DeLisi et al., 2011).

However, as noted previously, what research exists on these issues has been limited to a few countries. The main aim of the present chapter, therefore, was to investigate these relationships in the sample from Barbados.

9.1.3 *Hypotheses*

On the basis of the previous considerations the following hypotheses were formulated. Firstly, specialisation will be apparent in the sample; i.e. offenders who have at least one charge in a certain type of crime are more likely to commit further crimes of that type more frequently than other crimes. Secondly, specialisation will be most significant for

burglary, theft, assault, drug and public order offence types. Thirdly, there will be a positive correlation between specialisation and the length of criminal careers.

9.2 Method

The data for the current study involved three samples. The first one consisted of all of the offenders in the main sample (N=1652), the second consisted of those from the main sample with five or more charges (N=677) and the third, offenders from the main sample with ten or more charges (N=365). Particular offences were placed into the following categories: drugs, weapons, sex, robbery, murder, assault, theft, burglary, public order as mentioned in Chapter Seven. The breakdown of the offences that fell into each category can be found in Appendix A.

9.2.1 Measures of Specialisation

As discussed in Chapter Three, over the years a number of measures of specialisation have been devised. Two particularly popular measures are basic transition probabilities and the Forward Specialisation Coefficient (FSC). Although these were described in detail in Chapter Three, for clarity, they are described again here.

Wolfgang et al. (1972) popularised the use of transition matrices in determining specialisation. The k th charge is noted in the rows and the $k+1$ th charge in the columns. The proportion of offence type A on referral k that are followed by the offence of type A on referral $k+1$ are displayed in the matrix diagonals. A matrix is calculated for each

transition; that is a matrix is calculated for charge One to charge Two, charge Two to charge Three, and so on. The ultimate matrix is the average across all of the matrices.

Farrington (1986) then developed the Forward Specialisation Coefficient (FSC) to further quantify specialisation as it relates to the probabilities in the transition matrices. The FSC is calculated using the formula: $FSC = (O - E) / (R - E)$, where O = observed number, E = expected number, R = row total. The FSC is 0 when there is no specialisation and 1 when there is perfect specialisation. Perfect specialisation takes place when every offence of type A is followed by an offence of type A. The FSC can also take negative values if there is negative specialisation. This occurs when there is a tendency for an offence of type A on the k th charge not to be followed by an offence of type A on the $k+1$ th charge.

Although, the FSC is a very popular measure of specialisation, researchers have queried what value of the FSC indicates substantial specialisation i.e. more specialisation than generality. Bursik (1980) devised the Adjusted Standardised Residual (ASR) to test the statistical significance of the observed number from the expected number for his measure of specialisation and the ASR has also been used to determine the statistical significance of the FSC; i.e. $ASR = (O - E) / \{ \sqrt{E} \times \sqrt{[(1 - (R/T))(1 - (C/T))]} \}$, where O = observed number, E = expected number by chance, R = row total, C = column total, T = grand total, and $E = RC/T$. The ASR is distributed as a normal deviate with a mean of 0 and a standard deviation of 1.

The Markov chain is a simple stochastic process, which assumed that future states (offence types) are not influenced by all past states (Stander et al., 1989). A first order Markov chain would imply that the type of offence committed next would be dependent only on the present offence type. Therefore the transition matrices as calculated by Wolfgang and colleagues (1972) and Farrington (1986) would be considered a first order Markov chain analysis as they only looked at k and $k+1$ charges. The FSC would have also been calculated based on this first order Markov chain analysis.

A number of researchers have questioned whether a future charge or conviction is not influenced by the present charge as well as the past ones (Cohen, 1986; Stander et al., 1989). Stander et al. (1989) in particular found that the future charge could be predicted by the present as well as the past charge. This provided an indication that a second order Markov chain analysis may be more useful in assessing specialisation in the offending population. In the present study, therefore, transition probabilities were calculated using first order and second order Markov Chain analysis, along with the corresponding FSC for criminal careers of five charges and more as well as criminal careers of ten charges or more.

9.3 Results

9.3.1 *Specialisation in its Most Basic Form*

As noted previously, specialisation states that an offender does not arbitrarily offend, rather offenders make a conscious choice in their type of offending and will tend to commit crimes of certain types more than others. To examine this, one way ANOVAs

with repeated measures were conducted on the frequency data for the number of offences charged within nine offence categories, i.e. drugs, weapon, sex, robbery, murder, assault, theft, burglary, and public order offences, for the offenders who had been charged with an offence within each of these categories. That is a one way ANOVA was conducted first on offenders who had at least one charge for a drug offence, and another ANOVA was conducted on offenders who had at least one charge for a weapon offences etc.

9.3.1.1 *Drug Offenders*

The means for each offence type for those charged with at least one drug offence for the nine categories are shown in Table 9.3.1. There was a significant main effect for the type of offence (i.e. between conditions), $F(8,8416) = 82.78$, $p < 0.001$. Paired sample t-tests were conducted to determine which categories differed significantly. All offending categories were significantly different at a $p < 0.001$ level from the drug offending category (see Appendix C). As predicted, those charged with at least one drug offence were significantly more likely to commit drug offences than any other type of offence.

Table 9.3.1 Total Charges by Offence for an Offender with at least One Drug Charge

Offence Type	N	M (SD)
Drug	1053	1.95 (1.64)
Weapon	218	0.36 (0.86)
Sex	172	0.24 (0.66)
Robbery	341	0.92 (2.15)
Murder	24	0.03 (0.20)
Assault	420	1.13 (2.07)
Theft	318	1.40 (4.66)
Burglary	228	1.02 (3.70)
Public Order	438	1.24 (2.43)

9.3.1.2 *Weapon Offenders*

The means for each offence type for those charged with at least one weapon offence for the nine categories are shown in Table 9.3.2. There was a significant main effect for the type of offence (i.e. between conditions), $F(8,2536) = 31.05$, $p < 0.001$. There was no significant difference between weapon offences and burglary and drug offences, however there were significant effects all other offending categories: sex ($p < 0.001$); robbery ($p < 0.05$); murder ($p < 0.001$); assault ($p < 0.001$); theft ($p < 0.01$); public order offences ($p < 0.001$) (see Appendix C). Those charged with at least one weapon offence were significantly more likely to commit weapon offences than any other type of offence except for burglary and drug offences.

Table 9.3.2 Total Charges by Offence for an Offender with at least One Weapon Charge

Offence Type	N	M (SD)
Drug	218	1.87 (2.17)
Weapon	318	1.68 (1.01)
Sex	95	0.51 (1.01)
Robbery	206	2.04 (2.88)
Murder	17	0.06 (0.25)
Assault	224	2.42 (2.87)
Theft	174	3.02 (7.08)
Burglary	115	1.70 (3.84)
Public Order	220	2.55 (3.34)

9.3.1.3 *Sex Offenders*

The means for each offence type for those charged with at least one sex offence for the nine categories are shown in Table 9.3.3. There was a significant main effect for the type of offence (i.e. between conditions), $F(8,4152) = 33.00$, $p < 0.001$. There was no

significant difference between sex and public order offending. However there was a significant difference between sex offending and all other types of offending: drug ($p<0.001$); weapon ($p<0.001$); robbery ($p<0.001$); murder ($p<0.001$); assault ($p<0.01$); theft ($p<0.05$); burglary ($p<0.001$) (see Appendix C). Those charged with at least one sex offence were significantly more likely to commit sex offences than any type of offence except public order offences.

Table 9.3.3 Total Charges by Offence for an Offender with at least One Sex Charge

Offence Type	N	M (SD)
Drug	172	0.72 (1.50)
Weapon	95	0.29 (0.75)
Sex	520	1.37 (0.99)
Robbery	149	0.87 (2.14)
Murder	15	0.04 (0.25)
Assault	216	1.10 (1.99)
Theft	151	1.06 (3.17)
Burglary	114	0.88 (2.67)
Public Order	195	1.20 (2.38)

9.3.1.4 Robbery Offenders

Table 9.3.4 Total Charges by Offence for an Offender with at least One Robbery Charge

Offence Type	N	M (SD)
Drug	341	1.16 (1.78)
Weapon	206	0.52 (0.98)
Sex	149	0.36 (1.01)
Robbery	696	2.38 (2.57)
Murder	30	0.05 (0.21)
Assault	428	1.82 (2.44)
Theft	320	2.06 (4.66)
Burglary	229	1.61 (4.30)
Public Order	385	1.73 (2.71)

The means for each offence type for those charged with at least one robbery offence for the nine categories are shown in Table 9.3.4. There was a significant main effect for the type of offence (i.e. between conditions), $F(8,5560) = 79.27, p < 0.001$. There was a significant difference between robbery offending and all offending categories except for theft offending to a $p < 0.001$ level (see Appendix C). Those charged with at least one robbery offence were significantly more likely to commit robbery offences than any other type of offence except theft offences.

9.3.1.5 *Murder Offenders*

The means for each offence type for those charged with at least one murder offence for the nine categories are shown in Table 9.3.5. There was a significant main effect for the type of offence (i.e. between conditions), $F(8,312) = 2.15, p < 0.05$. However, post hoc t-tests showed there was no significant difference between murder offending and any other offending categories except for assault offending to a $p < 0.01$ level (see Appendix C). Those charged with at least one murder offence were more likely to be charged with assault than any other offence.

Table 9.3.5 Total Charges by Offence for an Offender with at least One Murder Charge

Offence Type	N	M (SD)
Drug	22	1.15 (1.23)
Weapon	16	1.05 (1.62)
Sex	13	0.80 (1.47)
Robbery	29	1.70 (1.43)
Murder	38	1.10 (0.01)
Assault	30	2.20 (2.22)
Theft	15	1.35 (2.16)
Burglary	11	1.33 (2.48)
Public Order	18	1.68 (2.73)

9.3.1.6 *Assault Offenders*

The means for each offence type for those charged with at least one assault offence for the nine categories are shown in Table 9.3.6. There was a significant main effect for the type of offence (i.e. between conditions), $F(8,5416) = 78.95$, $p < 0.001$. There was a significant difference between assault offending and all offending categories: drug ($p < 0.001$); weapon ($p < 0.001$); sex ($p < 0.001$); robbery ($p < 0.001$); murder ($p < 0.001$); theft ($p < 0.05$); burglary level ($p < 0.001$); public order offending ($p < 0.001$) (see Appendix C). As predicted, those charged with at least one assault offence were significantly more likely to commit assault offences than any other type of offence.

Table 9.3.6 Total Charges by Offence for an Offender with at least One Assault Charge

Offence Type	N	M (SD)
Drug	420	1.49 (1.88)
Weapon	224	0.59 (1.06)
Sex	216	0.50 (1.03)
Robbery	428	1.77 (2.65)
Murder	32	0.05 (0.27)
Assault	678	2.56 (2.23)
Theft	311	2.09 (5.45)
Burglary	216	1.31 (3.50)
Public Order	445	2.14 (2.90)

9.3.1.7 *Theft Offenders*

The means for each offence type for those charged with at least one theft offence for the nine categories are shown in Table 9.3.7. There was a significant main effect for the type of offence (i.e. between conditions), $F(8,3928) = 71.84$, $p < 0.001$. There was a significant difference between theft offending and all offending categories to a $p < 0.001$ level (see Appendix C). As predicted, those charged with at least one theft offence were significantly more likely to commit theft offences than any other.

Table 9.3.7 Total Charges by Offence for an Offender with at least One Theft Charge

Offence Type	N	M (SD)
Drug	318	1.77 (2.21)
Weapon	174	0.63 (1.09)
Sex	151	0.53 (1.16)
Robbery	320	2.03 (2.99)
Murder	16	0.04 (0.19)
Assault	311	2.01 (2.61)
Theft	492	3.94 (6.41)
Burglary	232	2.47 (5.36)
Public Order	174	2.39 (3.21)

9.3.1.8 *Burglary Offenders*

The means for each offence type for those charged with at least one burglary offence for the nine categories are shown in Table 9.3.8. There was a significant main effect for the type of offence (i.e. between conditions), $F(8,2656) = 57.92$, $p < 0.001$. There was a significant difference between burglary offending and all offending categories except theft to a $p < 0.001$ level (see Appendix C). Those charged with at least one burglary offence were significantly more likely to commit burglary offences than any other offence except for theft offences.

Table 9.3.8 Total Charges by Offence for an Offender with at least One Burglary Charge

Offence Type	N	M (SD)
Drug	228	1.88 (2.27)
Weapon	115	0.65 (1.14)
Sex	114	0.61 (1.27)
Robbery	229	2.42 (3.38)
Murder	13	0.05 (0.30)
Assault	216	2.15 (2.77)
Theft	232	3.99 (7.43)
Burglary	333	4.33 (5.99)
Public Order	232	2.59 (3.39)

9.3.1.9 *Public Order Offenders*

The means for each offence type for those charged with at least one public order offence for the nine categories are shown in Table 9.3.9. There was a significant main effect for the type of offence (i.e. between conditions), $F(8,5184) = 351.63, p < 0.001$. There was a significant difference between public order offending and all offending categories except theft to a $p < 0.001$ level (see Appendix C). Those charged with at least one public order more likely to commit public order offences than any other type of offence except theft.

Table 9.3.9 Total Charges by Offence for an Offender with at least One Public Order Charge

Offence Type	N	M (SD)
Drug	438	1.72 (1.99)
Weapon	220	0.62 (1.08)
Sex	195	0.50 (1.09)
Robbery	385	1.71 (2.65)
Murder	20	0.04 (0.24)
Assault	445	2.12 (2.52)
Theft	333	2.48 (5.77)
Burglary	232	1.86 (4.81)
Public Order	649	2.85 (2.85)

9.3.1.10 *Conclusions regarding Basic Specialisation*

All of the one-way ANOVAs were significant and in each case, with the exception of murder, offenders who had been charged with an offence in a certain category or type were most likely to commit other offences of the same type; i.e. there was evidence of a degree of specialisation amongst all types of offenders. These results demonstrate the

presence of some degree of specialisation but provide a crude measure. Accordingly, two further measures of specialisation were applied.

9.3.2 Other Specialisation Measures

To further investigate the data with regard to specialisation, basic transition probabilities and the Forward Specialisation Coefficient (FSC) were calculated for offenders with five or more charges, utilising the first five charges and they were also applied to a sample of offenders with ten or more charges utilising the first ten charges.

9.3.2.1 Specialisation Examining the First Five Charges

Transition probabilities were calculated for each charge cycle taking into consideration the most previous charge for offenders with five or more charges ($N=677$). That is, the probability of being charged for a certain type of crime from charge One to Two, Two to Three and so on was calculated. This is considered a first order Markov Chain. Table 9.3.2.1 indicates the transition probabilities for the first transition, i.e. charge One to charge Two. The results indicate that for most of the types of offences the largest values lie on the diagonal. This indicates that after being charged for a first offence in one of these categories a consecutive charge of the same offence type is more likely than another type of offence; for example offenders who are charged first for drug offences are most likely to be charged for a drug offence on their second charge. The exceptions are for weapon, sex and murder offences; however, even for the weapon offence type, the highest probability is shared between weapon and public order offences. An examination of transition One's diagonal shows that the FSC is highest burglary offending and lowest for

murder offending. Overall, therefore, these results could be considered to indicate some degree of specialisation

Table 9.3.2.1 Transition probabilities for Transition One for the First Five Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	109	0.303	0.028	0.028	0.092	0.009	0.211	0.110	0.064	0.156
Weapon	32	0.063	0.250	0.031	0.156	0.000	0.094	0.125	0.031	0.250
Sex	33	0.152	0.030	0.121	0.182	0.000	0.182	0.030	0.121	0.182
Robbery	73	0.110	0.055	0.041	0.342	0.027	0.110	0.123	0.027	0.164
Murder	5	0.000	0.200	0.000	0.600	0.000	0.000	0.200	0.000	0.000
Assault	130	0.069	0.062	0.008	0.054	0.008	0.323	0.085	0.085	0.308
Theft	115	0.122	0.070	0.026	0.061	0.000	0.096	0.357	0.157	0.113
Burglary	86	0.070	0.023	0.023	0.035	0.012	0.140	0.174	0.442	0.081
Public	94	0.106	0.053	0.011	0.053	0.000	0.138	0.128	0.074	0.436

Table 9.3.2.2 Transition probabilities for Transition Two for the First Five Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	87	0.437	0.057	0.023	0.069	0.000	0.115	0.034	0.080	0.184
Weapon	40	0.100	0.200	0.050	0.075	0.025	0.200	0.150	0.075	0.125
Sex	18	0.167	0.056	0.278	0.056	0.000	0.222	0.056	0.000	0.167
Robbery	71	0.085	0.070	0.056	0.366	0.000	0.169	0.085	0.056	0.113
Murder	5	0.400	0.000	0.000	0.200	0.000	0.400	0.000	0.000	0.000
Assault	118	0.102	0.068	0.017	0.110	0.000	0.347	0.093	0.051	0.212
Theft	106	0.085	0.066	0.057	0.038	0.019	0.123	0.406	0.066	0.142
Burglary	88	0.045	0.023	0.034	0.068	0.000	0.136	0.080	0.523	0.091
Public	144	0.097	0.035	0.035	0.069	0.000	0.208	0.125	0.035	0.396

Similar results are shown for transition Two; see Table 9.3.2.2. The values on the diagonal indicate that only weapon and murder offence types do not show the highest probabilities in their offence type. But again here, the weapon offence type highest

probability is shared with another offence type: assault. In this transition, the FSC is highest for a burglary offence charge followed by another burglary offence charge followed by drug offence charge followed by another drug offence charge is 0.437. Again, murder offending has the lowest FSC value along the diagonal.

Table 9.3.2.3 Transition probabilities for Transition Three for the First Five Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	92	0.402	0.033	0.011	0.054	0.011	0.174	0.033	0.120	0.163
Weapon	41	0.146	0.195	0.024	0.122	0.000	0.268	0.122	0.024	0.098
Sex	29	0.138	0.034	0.207	0.172	0.000	0.138	0.172	0.000	0.138
Robbery	70	0.043	0.129	0.014	0.357	0.000	0.171	0.143	0.086	0.057
Murder	3	0.000	0.000	0.667	0.000	0.000	0.333	0.000	0.000	0.000
Assault	132	0.098	0.053	0.023	0.152	0.008	0.318	0.114	0.038	0.197
Theft	95	0.084	0.032	0.042	0.147	0.000	0.042	0.379	0.168	0.105
Burglary	78	0.090	0.013	0.051	0.090	0.000	0.064	0.154	0.449	0.090
Public	137	0.131	0.066	0.029	0.073	0.000	0.226	0.088	0.066	0.321

Table 9.3.2.4 Transition probabilities for Transition Four for the First Five Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	96	0.396	0.042	0.000	0.083	0.000	0.125	0.083	0.073	0.198
Weapon	41	0.268	0.195	0.000	0.049	0.024	0.220	0.049	0.049	0.146
Sex	26	0.038	0.077	0.192	0.192	0.000	0.192	0.038	0.077	0.192
Robbery	91	0.110	0.022	0.022	0.429	0.000	0.143	0.143	0.044	0.088
Murder	2	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Assault	126	0.198	0.063	0.071	0.151	0.016	0.310	0.032	0.040	0.119
Theft	98	0.031	0.031	0.061	0.163	0.000	0.102	0.306	0.133	0.173
Burglary	83	0.108	0.012	0.024	0.060	0.000	0.084	0.169	0.482	0.060
Public	114	0.132	0.079	0.070	0.096	0.000	0.158	0.096	0.044	0.325

Table 9.3.2.3 and Table 9.3.2.4 display the transition probabilities for transitions Three and Four, respectively. Again, the values on the diagonals in both transitions Three and Four indicate that only weapon, and murder offence types fail to show the highest probabilities in their offence type. In transition Three and Four, burglary offending has the highest FSC value on the diagonal and murder offending has the lowest.

A number of studies have found it useful to average across these matrices to examine the probabilities as they have found that the matrices of transition probabilities did not change significantly with successive convictions or charges (Stander et al., 1989; Wolfgang et al., 1972). The Wilcoxon-Signed Rank Test was conducted on the adjacent matrices and also on the non-adjacent matrices to determine if there was a significant difference between the matrices. The above transition matrices were placed into an SPSS data file where the variables were row, column, frequency 1, frequency 2, frequency 3 and frequency 4. The row and column variables represented the row and column placement in the corresponding transition matrix. The frequencies represented the probability in that position for the corresponding transition matrix. Therefore, using Table 9.3.2.1 as an example, row 1, column 1, frequency 1 equalled 0.303; the first position in Transition One's matrix. As there were four transitions, there were four frequency variables.

The results of the Wilcoxon-Signed Rank tests are displayed in Table 9.3.2.5. For transition matrix one to two, $z=-4.107$ $p<0.001$ therefore there was a significant difference between the two matrices. For transition matrix two to three, $z=-4.119$ $p<0.001$ therefore there was a significant difference between the two matrices. For

transition matrix three to four, $z=-1.647$. This value however was not significant. For transition matrix one to three, $z=-1.962$. Therefore there was no significant difference between matrix one and three. For transition matrix two to four, $z=-3.898$ $p<0.001$ therefore there was a significant difference between the two matrices.

Table 9.3.2.5 Wilcoxon Test Results for Transition Comparisons for Transitions for the
First Five Charges

Frequency Comparisons		N	Mean Rank	Sum of Ranks
freq2 – freq1	Negative Ranks	270 ^a	327.46	88413.00
	Positive Ranks	388 ^b	330.92	128398.00
	Ties	56 ^c		
	Total	714		
freq3 - freq2	Negative Ranks	348 ^d	353.74	123100.50
	Positive Ranks	296 ^e	285.78	84589.50
	Ties	70 ^f		
	Total	714		
freq4 - freq3	Negative Ranks	335 ^g	367.52	123119.00
	Positive Ranks	342 ^h	311.06	106384.00
	Ties	37 ⁱ		
	Total	714		
freq3 – freq1	Negative Ranks	313 ^j	314.59	98466.00
	Positive Ranks	287 ^k	285.14	81834.00
	Ties	114 ^l		
	Total	714		
freq4 - freq2	Negative Ranks	326 ^m	346.37	112917.00
	Positive Ranks	292 ⁿ	268.34	78354.00
	Ties	96 ^o		
	Total	714		

The significant difference found between adjacent and non-adjacent matrices indicated that the transition matrices were not constant and therefore the probabilities of moving from one charge to another charge did not remain constant. These findings are

substantially different from previous findings where the transition matrices were found to be constant (Wolfgang et al., 1972; Stander et al., 1989). This prevents the author from combining the matrices to form one surmising matrix which would have been useful in predicting subsequent charges.

Table 9.3.2.6 Forward Specialisation Coefficients for Offence Types for each Transition
the First Five Charges (* = significance less than 0.001)

Transition	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
1	*0.20	*0.20	*0.10	*0.27	-0.01	*0.18	*0.24	*0.36	*0.28
2	*0.35	*0.15	*0.25	*0.29	0.00	*0.19	*0.31	*0.46	*0.24
3	*0.30	*0.14	*0.18	*0.26	0.00	*0.16	*0.27	*0.37	*0.18
4	*0.27	*0.15	*0.15	*0.32	0.00	*0.17	*0.21	*0.41	*0.19

Nevertheless, an examination of the diagonals of each matrix revealed some level of specialisation since these values tended to be highest for each crime type with the exception of weapon, sex and murder offences. These values were used to compute the Forward Specialisation Coefficient (FSC) for each crime type in each matrix where the coefficient is zero when there is no specialisation of offending and one when there is perfect forward specialisation. The FSC is calculated using the formula: $FSC = (O - E) / (R - E)$ as mentioned in the method. R represents the row total from the corresponding transition matrix. O is the number of offenders who were initially charged with a particular offence type and then received a second charge of the same offence type. E was calculated using the formula $(R \times C) / N$ where R = row total, C = column total, and N = grand total for the same matrix. Therefore using drug offending as an example, in transition One R=109, O=33, E=14.01, C=87, N=677 resulting in a FSC of 0.20. A summary of the FSC values by transition and offence type are listed in Table 9.3.2.6.

In transition one the FSC for the murder offence type is negative. This occurs very rarely and indicates negative specialisation that is the tendency for a murder charge not to be followed with a murder charge; however, it is so small as to be insignificant in this respect.

The FSC significance was tested using Adjusted Standardised Residual (ASR). The ASR was calculated using the formula stated in the method of the study. Each significant ($p < 0.001$, one-tailed) specialisation value is flagged in Table 9.3.2.6. All of the FSCs except those for the murder offences are significant, clearly indicating specialisation. Eye-balling Table 9.3.2.6 demonstrates that burglary was the most specialised offence. Averaging across the transitions, the FSC for burglary offences was 0.40. From transition to transition there is no gradual decrease in FSC as was found in other studies in fact the FSC tends fluctuates. This result illustrates the lack of escalation in the sample.

The lack of significant difference between transition matrix One and Three in terms of transition probabilities highlights that not only would the first offence be useful in predicting the second but also the third. This concept is called second order Markov analysis where one uses the present and past offending type to predict the future offence. In this case, transition matrices were calculated where the probability of the occurrence of a series k th, $k+1$ th and $k+2$ th charges were taken into consideration. (Transition matrices taking into account the two previous charges are displayed in Appendix D). As was noted previously, the most in important aspect of the transition matrices for specialisation is the

diagonals where probability continued offending with in an offence type is displayed. The concurrent like offences probabilities are summarised in Table 9.3.2.7, that is for each offending type the probability of an offender being charged with that type of offence on the first, second, and third charge is noted. For example the probability of an offender receiving drug charges for his first, second and third charge is 0.485 for transition One. The FSC and ASR were computed as before, with an FSC value of drug offending in transition One calculated as 0.46 which is significant at $p < 0.001$.

Table 9.3.2.7 Summary of Second Order Transition Matrices for the First Five Charges (* = significance less than 0.001)

Offence Sequence	Transition	Probability	FSC
Drug-Drug-Drug	1	0.485	*0.46
Weapon-Weapon-Weapon	1	0.125	*0.12
Sex-Sex-Sex	1	0.250	*0.24
Robbery-Robbery-Robbery	1	0.520	*0.51
Murder-Murder-Murder	1	0.000	0.00
Assault-Assault-Assault	1	0.214	*0.17
Theft-Theft-Theft	1	0.585	*0.56
Burglary-Burglary-Burglary	1	0.658	*0.64
Public-Public-Public	1	0.488	*0.47
Drug-Drug-Drug	2	0.579	*0.56
Weapon-Weapon-Weapon	2	0.125	*0.12
Sex-Sex-Sex	2	0.200	*0.20
Robbery-Robbery-Robbery	2	0.500	*0.48
Murder-Murder-Murder	2	0.000	0.00
Assault-Assault-Assault	2	0.463	*0.44
Theft-Theft-Theft	2	0.558	*0.54
Burglary-Burglary-Burglary	2	0.609	*0.59
Public-Public-Public	2	0.386	*0.35
Drug-Drug-Drug	3	0.459	*0.43
Weapon-Weapon-Weapon	3	0.125	*0.12
Sex-Sex-Sex	3	0.333	*0.33
Robbery-Robbery-Robbery	3	0.520	*0.50
Murder-Murder-Murder	3	0.000	0.00
Assault-Assault-Assault	3	0.333	*0.31
Theft-Theft-Theft	3	0.472	*0.45
Burglary-Burglary-Burglary	3	0.714	*0.70
Public-Public-Public	3	0.409	*0.38

The matrices are labelled second order to signify that the previous two charges were taken into consideration when determining the probability of the next charge. It is important to note that the number of offenders in each resulting category has been reduced substantially however where an offender has been charged with the same offence type three times in a row, the number of offenders tends to largest. To further clarify, using drug offending as an example, the number of offenders charged with drug-drug-weapon offences (3 offenders) is less than the number of offenders charged with drug-drug-drug offences (33 offenders). This highlights further presence of specialisation.

Table 9.3.2.7 displays not only the probability of the concurrent sequence for each offence type for each transition but also the corresponding FSC and its level of significance. An examination of Table 9.3.2.7 indicates that the probabilities for the second order matrices for charges of the same offence type are larger than those in the first order matrices. This is a signal of greater likelihood of committed these sequences. The probability of committing a string of three burglaries is substantial high on all transitions: 0.658, 0.609, and 0.714 (transition One, Two and Three respectively).

From Table 9.3.2.7, it can be seen that the second order FSC values are also larger than the first order FSC values with almost a third over 0.50, indicating greater specialisation for these sequences. The second order FSC values that are significant ($p < 0.001$) are flagged (*). Those sequences that are not significant are the series of three murders on all transitions. The results show that second order transition matrices tend to produce higher

transition probabilities and FSCs than first order matrices and may, therefore, be very important when investigating specialisation.

9.3.2.2 *Specialisation Examining the First Ten Charges*

Previous research has found that specialisation or lack thereof is more pervasive when examining lengthier criminal careers. Hence, the present study sought also to examine specialisation when an offender has ten or more charges. The transition probabilities were calculate for those offenders with ten or more charges ($N=365$). Table 9.3.3.1 indicates the transition probabilities for the first transition. The results indicate that for most of the types of offences the largest values lie on the diagonal. This again indicates that after being charged for a first offence in one of these categories a consecutive charge of the same type is more likely than any other type of offence. The exceptions are drug, weapon, sex and murder offences. These results could be considered to indicate some degree of specialisation in the sample.

Table 9.3.3.1 Transition probabilities for Transition One for the First Ten Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	50	0.220	0.000	0.020	0.100	0.000	0.240	0.200	0.080	0.140
Weapon	15	0.000	0.267	0.000	0.200	0.000	0.067	0.067	0.000	0.400
Sex	15	0.133	0.000	0.133	0.133	0.000	0.267	0.067	0.133	0.133
Robbery	38	0.053	0.053	0.079	0.395	0.000	0.158	0.105	0.053	0.105
Murder	1	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
Assault	58	0.034	0.069	0.000	0.069	0.000	0.379	0.103	0.103	0.241
Theft	75	0.080	0.053	0.013	0.053	0.000	0.067	0.467	0.147	0.120
Burglary	59	0.034	0.017	0.017	0.017	0.017	0.153	0.169	0.492	0.085
Public	54	0.074	0.056	0.019	0.056	0.000	0.130	0.185	0.074	0.407

Similar results were shown for transition Two to Nine; see Table 9.3.3.2, Table 9.3.3.3, Table 9.3.3.4, Table 9.3.3.5, Table 9.3.3.6, Table 9.3.3.7, Table 9.3.3.8, and Table 9.3.3.9. Again the values on the diagonal indicate the weapon, sex and murder offences fail to show the highest probability in their offence type.

Table 9.3.3.2 Transition probabilities for Transition Two for the First Ten Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	29	0.448	0.034	0.000	0.069	0.000	0.138	0.000	0.138	0.172
Weapon	18	0.000	0.222	0.056	0.056	0.000	0.111	0.278	0.111	0.167
Sex	9	0.111	0.111	0.333	0.000	0.000	0.333	0.000	0.000	0.111
Robbery	37	0.054	0.027	0.054	0.351	0.000	0.216	0.081	0.081	0.135
Murder	1	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Assault	66	0.091	0.045	0.000	0.106	0.000	0.379	0.106	0.061	0.212
Theft	78	0.103	0.064	0.038	0.013	0.000	0.128	0.474	0.077	0.103
Burglary	58	0.034	0.000	0.017	0.069	0.000	0.138	0.052	0.621	0.069
Public	69	0.072	0.043	0.029	0.058	0.000	0.203	0.188	0.043	0.362

Table 9.3.3.3 Transition probabilities for Transition Three for the First Ten Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	38	0.316	0.026	0.026	0.026	0.000	0.105	0.053	0.158	0.289
Weapon	18	0.056	0.167	0.056	0.111	0.000	0.278	0.111	0.056	0.167
Sex	12	0.083	0.083	0.083	0.250	0.000	0.000	0.333	0.000	0.167
Robbery	32	0.000	0.094	0.000	0.281	0.000	0.188	0.219	0.125	0.094
Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Assault	74	0.054	0.068	0.000	0.149	0.014	0.351	0.108	0.027	0.230
Theft	68	0.074	0.029	0.029	0.118	0.000	0.044	0.426	0.176	0.103
Burglary	58	0.034	0.017	0.034	0.086	0.000	0.052	0.138	0.552	0.086
Public	65	0.077	0.092	0.015	0.046	0.000	0.215	0.108	0.062	0.385

Table 9.3.3.4 Transition probabilities for Transition Four for the First Ten Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	30	0.300	0.033	0.000	0.100	0.000	0.133	0.100	0.067	0.267
Weapon	22	0.091	0.227	0.000	0.045	0.000	0.227	0.045	0.091	0.273
Sex	8	0.000	0.125	0.250	0.125	0.000	0.125	0.000	0.125	0.250
Robbery	42	0.167	0.000	0.024	0.262	0.000	0.167	0.167	0.095	0.119
Murder	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000
Assault	61	0.115	0.082	0.033	0.115	0.016	0.361	0.066	0.066	0.148
Theft	67	0.015	0.015	0.045	0.119	0.000	0.060	0.343	0.179	0.224
Burglary	61	0.049	0.016	0.016	0.066	0.000	0.082	0.197	0.525	0.049
Public	73	0.055	0.082	0.055	0.137	0.000	0.137	0.110	0.041	0.384

Table 9.3.3.5 Transition probabilities for Transition Five for the First Ten Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	33	0.364	0.061	0.030	0.182	0.000	0.061	0.091	0.061	0.152
Weapon	20	0.100	0.200	0.000	0.150	0.050	0.300	0.100	0.050	0.050
Sex	13	0.000	0.231	0.154	0.000	0.000	0.231	0.154	0.154	0.077
Robbery	45	0.067	0.022	0.000	0.378	0.000	0.156	0.111	0.178	0.089
Murder	1	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Assault	58	0.086	0.000	0.034	0.121	0.000	0.362	0.155	0.017	0.224
Theft	58	0.138	0.017	0.000	0.086	0.000	0.069	0.431	0.138	0.121
Burglary	60	0.017	0.017	0.000	0.083	0.000	0.100	0.200	0.550	0.033
Public	77	0.130	0.065	0.039	0.026	0.000	0.182	0.117	0.065	0.377

Table 9.3.3.6 Transition probabilities for Transition Six for the First Ten Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	42	0.286	0.071	0.024	0.048	0.000	0.238	0.048	0.048	0.238
Weapon	17	0.059	0.176	0.000	0.176	0.000	0.353	0.000	0.059	0.176
Sex	8	0.125	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.375
Robbery	45	0.044	0.000	0.067	0.422	0.022	0.222	0.089	0.089	0.044
Murder	1	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Assault	63	0.063	0.032	0.016	0.079	0.000	0.365	0.111	0.063	0.270
Theft	67	0.104	0.045	0.000	0.119	0.000	0.045	0.433	0.134	0.119
Burglary	60	0.033	0.017	0.017	0.033	0.000	0.083	0.133	0.567	0.117
Public	62	0.145	0.048	0.016	0.065	0.000	0.194	0.113	0.048	0.371

Table 9.3.3.7 Transition probabilities for Transition Seven for the First Ten Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	37	0.378	0.081	0.000	0.027	0.027	0.162	0.108	0.135	0.081
Weapon	17	0.118	0.294	0.000	0.059	0.000	0.176	0.000	0.059	0.294
Sex	10	0.000	0.000	0.000	0.400	0.000	0.300	0.000	0.000	0.300
Robbery	44	0.023	0.045	0.023	0.341	0.023	0.114	0.205	0.045	0.182
Murder	1	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000
Assault	70	0.086	0.029	0.014	0.200	0.000	0.214	0.100	0.057	0.300
Theft	58	0.052	0.000	0.017	0.069	0.000	0.069	0.517	0.155	0.121
Burglary	57	0.035	0.000	0.018	0.053	0.000	0.035	0.246	0.544	0.070
Public	71	0.099	0.000	0.070	0.042	0.000	0.239	0.113	0.070	0.366

Table 9.3.3.8 Transition probabilities for Transition Eight for the First Ten Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	35	0.314	0.057	0.029	0.171	0.000	0.257	0.114	0.029	0.029
Weapon	12	0.167	0.167	0.000	0.167	0.000	0.167	0.083	0.083	0.167
Sex	9	0.111	0.111	0.111	0.222	0.000	0.111	0.222	0.000	0.111
Robbery	46	0.152	0.022	0.000	0.326	0.000	0.130	0.109	0.087	0.174
Murder	2	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000
Assault	55	0.055	0.055	0.073	0.200	0.000	0.273	0.109	0.036	0.200
Theft	72	0.042	0.056	0.056	0.069	0.000	0.111	0.403	0.097	0.167
Burglary	57	0.018	0.000	0.018	0.123	0.000	0.053	0.140	0.491	0.158
Public	77	0.130	0.000	0.026	0.104	0.000	0.208	0.117	0.039	0.377

Table 9.3.3.9 Transition probabilities for Transition Nine for the First Ten Charges

		Charge K+1								
Charge K	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	38	0.342	0.105	0.079	0.079	0.000	0.132	0.053	0.026	0.184
Weapon	14	0.143	0.143	0.000	0.071	0.000	0.143	0.143	0.000	0.357
Sex	13	0.077	0.077	0.154	0.154	0.000	0.077	0.077	0.154	0.231
Robbery	56	0.054	0.036	0.018	0.429	0.000	0.089	0.107	0.143	0.125
Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Assault	61	0.148	0.082	0.033	0.098	0.000	0.180	0.098	0.049	0.311
Theft	64	0.031	0.016	0.016	0.125	0.000	0.125	0.375	0.156	0.156
Burglary	46	0.065	0.022	0.000	0.065	0.022	0.043	0.152	0.587	0.043
Public	73	0.110	0.027	0.055	0.068	0.000	0.219	0.068	0.082	0.370

Looking at the same offence type sequences, an examination of the first ten charges indicates that the probabilities tend to be larger than those found when considering the first five charges. A burglary offence followed by a burglary offence has the highest probability across all transitions. In all but the first and eighth transition this sequence is

more likely than not. It is also reaffirmed that a murder offence followed by another is not likely for any transition.

The transitions were further examined to determine if there was a significant difference in probabilities across transitions. Wilcoxon-Signed Rank tests were conducted on the adjacent matrices and also on the non-adjacent matrices using the previous method in section 9.3.2. The frequencies represented the scores in that position for the corresponding transition matrix. Therefore, in this case, there were nine frequencies corresponding to the nine transitions. The results of the Wilcoxon-Signed Rank tests are displayed in Table 9.3.3.10.

For transition matrix one to two $z=-7.377$ $p<0.001$; transition matrix two to three $z=-3.605$ $p<0.001$; transition matrix three to four $z=-3.837$ $p<0.001$; and transition matrix four to five $z=-7.769$ $p<0.001$ therefore there was a significant difference between these pairs of matrices. For transition matrix five to six $z=-1.590$ and for transition matrix six to seven $z=-1.033$. These values however were not significant. For transition matrix seven to eight $z=-2.562$ and for transition matrix eight to nine $z=-2.504$. These values were significant at $p<0.05$. The comparisons for all non-adjacent matrices were significant at $p<0.05$. Therefore, there was also a significant difference between all non-adjacent matrices.

Table 9.3.3.10 Wilcoxon Test Results for Transition Comparisons for Transition for the First Ten Charges

Frequency Comparisons		N	Mean Rank	Sum of Ranks
freq2 – freq1	Negative Ranks	99 ^a	149.62	14812.00
	Positive Ranks	233 ^b	173.67	40466.00
	Ties	33 ^c		
	Total	365		
freq3 - freq2	Negative Ranks	166 ^d	166.33	27611.50
	Positive Ranks	132 ^e	128.33	16939.50
	Ties	67 ^f		
	Total	365		
freq4 - freq3	Negative Ranks	148 ^g	172.46	25523.50
	Positive Ranks	136 ^h	109.90	14946.50
	Ties	81 ⁱ		
	Total	365		
freq5 - freq4	Negative Ranks	86 ^j	153.01	13158.50
	Positive Ranks	236 ^k	164.60	38844.50
	Ties	43 ^l		
	Total	365		
freq6 - freq5	Negative Ranks	183 ^m	172.01	31477.00
	Positive Ranks	155 ⁿ	166.54	25814.00
	Ties	27 ^o		
	Total	365		
freq7 - freq6	Negative Ranks	166 ^p	180.51	29964.00
	Positive Ranks	169 ^q	155.72	26316.00
	Ties	30 ^r		
	Total	365		
freq8 - freq7	Negative Ranks	178 ^s	147.29	26218.50
	Positive Ranks	121 ^t	153.98	18631.50
	Ties	66 ^u		
	Total	365		
freq9 - freq8	Negative Ranks	210 ^v	138.53	29092.00
	Positive Ranks	106 ^w	198.06	20994.00
	Ties	49 ^x		
	Total	365		
freq3 – freq1	Negative Ranks	123 ^y	185.33	22795.50
	Positive Ranks	215 ^z	160.44	34495.50
	Ties	27 ^{aa}		
	Total	365		
freq4 - freq2	Negative Ranks	202 ^{ab}	175.33	35416.00
	Positive Ranks	126 ^{ac}	147.14	18540.00
	Ties	37 ^{ad}		
	Total	365		
freq5 - freq3	Negative Ranks	110 ^{ae}	199.55	21950.50
	Positive Ranks	212 ^{af}	141.76	30052.50
	Ties	43 ^{ag}		
	Total	365		
freq6 - freq4	Negative Ranks	133 ^{ah}	154.26	20517.00
	Positive Ranks	195 ^{ai}	171.48	33439.00
	Ties	37 ^{aj}		
	Total	365		
freq7 - freq5	Negative Ranks	213 ^{ak}	166.04	35366.50
	Positive Ranks	130 ^{al}	181.77	23629.50
	Ties	22 ^{am}		
	Total	365		
freq8 - freq6	Negative Ranks	179 ^{an}	154.80	27710.00
	Positive Ranks	123 ^{ao}	146.69	18043.00
	Ties	63 ^{ap}		
	Total	365		
freq9 - freq7	Negative Ranks	199 ^{aq}	182.01	36220.00
	Positive Ranks	138 ^{ar}	150.24	20733.00
	Ties	28 ^{as}		
	Total	365		

The significant difference found between adjacent and non-adjacent matrices indicated that the transition matrices were not constant and therefore the probabilities of moving from one charge to another charge did not remain constant. These findings again prevent the author from combining the matrices.

Table 9.3.3.11 Forward Specialisation Coefficients for Offence Types for each Transition
for the First Ten Charges (* = significance less than 0.001)

Transition	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
1	*0.19	*0.25	*0.12	*0.36	0.00	*0.31	*0.40	*0.44	*0.34
2	*0.42	*0.20	*0.32	*0.32	0.00	*0.30	*0.42	*0.59	*0.29
3	*0.28	0.14	0.07	*0.23	0.00	*0.29	*0.36	*0.51	*0.31
4	*0.26	*0.20	*0.24	*0.21	0.00	*0.30	*0.28	*0.48	*0.30
5	*0.32	*0.18	*0.14	*0.33	0.00	*0.30	*0.37	*0.51	*0.31
6	*0.24	0.16	*0.37	*0.38	0.00	*0.29	*0.38	*0.53	*0.30
7	*0.34	*0.28	-0.01	*0.29	0.00	*0.14	*0.46	*0.50	*0.28
8	*0.27	0.15	0.09	*0.27	0.00	*0.20	*0.34	*0.45	*0.30
9	*0.30	0.12	0.14	*0.38	0.00	0.11	*0.32	*0.55	*0.29

Nonetheless, an examination of the diagonals of each matrix revealed the probabilities again tended to be highest here, with the exception of weapon, sex and murder offences, indicating a degree of specialisation. The FSCs and the corresponding ASRs were calculated for all of the diagonal values in each transition and are listed in table 9.3.3.11. Each significant ($p < 0.001$) specialisation value is flagged (*). Notably, the offence type of murder showed no specialisation at all.

The average FSCs for each offence type: for those who received five or more charges and for those who received ten or more charges are displayed in Table 9.3.3.12. A paired sample t-test was conducted to compare the FSC for the offence types for five charges

and for ten charges. There was a significant difference in FSCs for offenders with five charges ($M= 0.22$, $SD= 0.11$) and for offenders with ten charges ($M= 0.26$, $SD= 0.14$), $t(8) = -3.11$, $p<0.05$. This indicates that offenders charged with these offence types became more specialised with successive charges. The more specialised offences for the 5+ sample also tended to be the more specialised offences for the 10 + sample and these were robbery, theft and burglary offences. The increase in specialisation was greatest for theft offences.

Table 9.3.3.12 Comparison of Average FSC for Offence Types by number of Charges

No. of Charges	5	10	%
Offence type	Average FSC		Increase
Drugs	0.28	0.29	3.9
Weapon	0.16	0.19	15.7
Sex	0.17	0.16	-2.0
Robbery	0.28	0.31	8.3
Murder	0.00	0.00	0.0
Assault	0.18	0.25	42.3
Theft	0.26	0.37	43.8
Burglary	0.40	0.51	26.1
Public	0.22	0.30	35.0

9.4 Discussion

The results of the study indicate that there is some degree of specialisation in the sample from the rudimentary to the sophisticated.

Specialisation appeared to be most prominent in burglary, drugs, robbery and theft offence types. Robbery, burglary and theft offences are considered property offences. In

this study, property offences therefore have displayed the highest level of specialisation as seen in previous research (Brennan et al., 1989; Rojek & Erickson, 1982; Shover, 1996; Tunnell, 2006). Previous studies have also found some degree of specialisation in drug offending (Armstrong, 2008; Blumstein et al., 1988). However, it is not clear why these offence types show greater specialisation than other offence types. Possibilities may be that the monetary gains received from conducting these crimes influence the frequency with which they are committed or that the psychological factors influencing the need to commit these crimes are stronger.

The results also indicate that no or very little specialisation was seen in murder, weapon, and sex offending. The low occurrence of murder offending made it difficult to draw solid conclusions for this type of offending. The low occurrence of offence types has been a persistent problem in previous studies; for example Wolfgang et al. (1972) noted that their analyses were limited by small numbers of certain offence types. The findings for sex offending are consistent with some previous research which has indicated that sex offenders are more likely to engage in non-sexual offending than they are to commit further sexual offences (Lussier et al., 2005; Rojek & Erickson, 1982). Specialisation in weapon offending has not been examined extensively in the literature and tends to be lumped with miscellaneous and public order offending. This amalgamation of these offences creates quite a large category of offences for which evidence of specialisation has been varied but more often than not non-existent which is in line with the results of this study.

Thirdly, greater specialisation was seen over longer careers; that is the specialisation indicated in offenders with ten or more charges was generally larger than the specialisation indicated in offenders with five or more charges. Although results have been mixed, some researchers have found that specialisation increases with the age of the offender and that offenders become more specialised the further they progress in their criminal careers (Brame & Dean, 1999; DeLisi et al., 2011; Piquero et al., 1999; Simon, 1997). These results are harmonious with these findings and highlight therefore that a greater offence history may be useful in predicting future offending and assessing the levels of specialisation in the offending population. However, it must also be noted that the examination of the specialisation values from one transition matrix to another indicated substantial fluctuation. Although, most FSC values were significant, the lack of a steady increase in FSC values on each successive transition highlights the variability of specialisation throughout the criminal career.

Finally, transition probability matrices could not be averaged across as some are significantly different from others. This has been done in previous studies (Wolfgang et al., 1972) with much success. However, in this study the inability to average across transition probability matrices indicated that the next offence type was influenced not only by the present offence type but also by the past. In fact, taking three consecutive offence types into account when determining transition probabilities resulted in higher values of probabilities and FSCs.

This study, however, suffered from a number of limitations. The FSC has been criticised for failing to properly address the concept of specialisation (Francis et al., 2010). Firstly, there is no concept of time in the measure. It looks at the sequence of events but does not take into consideration the time between the events. Secondly, quite often offenders have committed more than one offence during a single event; the protocol for FSC is to use the most serious offence type, leaving the other offences unrecorded. Thirdly, the measure relies heavily on the ordering of offences (Osgood & Schreck, 2007). So if assessing two offenders with three offences of robbery (R) and burglary (B), the offender with the criminal history: R, R, R, B, B, B would be considered more specialised but the offender with the criminal history: R, B, R, B, R, B would be considered less specialised. Fourthly, the FSC is an aggregate measure and cannot be used to determine specialisation on an individual level.

Conclusions about Markov chain analysis and specialisation might possibly be affected by the system of classification of offence types. There has been no uniform method for classifying offences. The literature indicates that while some researchers use a number of categories, others still only make bipolar distinctions for example property versus personal, or violent versus non-violent offences (Deane et al., 2005). The number of offence types used in the study has a great bearing on the level of specialisation found. Values of specialisation would tend to be higher the smaller the number of offence categories established as there would be more offenders assigned to each group. This limits the generalisability of findings for studies utilising few offence categories.

Despite these limitations, the study underlined the importance of studying specialisation in the offending population. Evidence of specialisation in offence types highlights the need to study each offence type separately, it also highlight the need for interventions to be crime specific (Lynam et al., 2004). The study of specialisation also has impact on policing and policy issues. An understanding of specialisation assist in determining the criminal history of a possible offender when a crime is committed supporting in the suspect elicitation and prioritisation process (Piquero et al., 2007). Additionally, knowledge of earlier offence types may be beneficial in predicting later offence types if specialisation is found to exist. This knowledge can be useful in the decision making process of the criminal justice system resulting in possible crime reduction (Piquero et al., 2007).

There are three views on criminal specialisation in the criminal careers literature that might be considered with respect to the current study. Some researchers argue against specialisation such that offenders would be expected to be charged for a wide range of crime based on the opportunity that presents itself due to the lack of self-control (Gottfredson & Hirschi, 1990). On the other hand, some researchers argue for specialisation with the view that specialisation would emerge as an offender matures and learns about his or her criminal proficiencies (Blumstein et al., 1988) or based on his or her socio-economic status and neighbourhood (Cloward & Ohlin, 1960; Colvin & Pauly, 1983). And yet others argue for the presence of levels of specialisation and versatility, where different types of offenders would exhibit different levels of specialisation (Cohen & Felson, 1979; Loeber & LeBlanc, 1990; Moffitt, 1993).

The results showed support for the presence of both versatility and specialisation. Although the level of specialisation was significant for most offence types, the overall values were relatively low. This may indicate that while there was some level of specialisation in the sample, there was also some degree of versatility. These results suggest that researchers should not just assume there is one underlying construct but a number of specific constructs necessary to explain criminal behaviour. The specialisation examined in this study was on an aggregate level which is not totally conducive to understanding specialisation with respect to the key criminal career variables. The knowledge of the extent of specialisation in different offence types on an individual level could be helpful in predicting future offending and understanding the psychological factors influencing this offending. Accordingly, specialisation on an individual level will now be assessed. Such an investigation might prove more informative with respect to criminal career research.

Chapter Ten

Individual Specialisation throughout the Criminal Career and its Relationship with the Other Key Variables

10.1 Introduction

As mentioned previously in Chapter Nine, an individual level measure of specialisation is best suited for investigating the relationship between specialisation and the other key variables (Farrington et al., 1988). Specialisation implies heterogeneity among offenders on more than one underlying theoretical dimension and, therefore, has important implications for theories of criminal behaviour (Blumstein et al., 1988). Given the importance of specialisation to understanding the nature of criminal careers, the study in the present chapter, using an individual level measure of specialisation, provides an empirical evaluation of specialisation as it relates to the key criminal career variables in the sample.

10.1.1 *Defining Individual Level Specialisation*

Specialisation can be examined on two main levels: on a level that utilises a definite time frame; and on an individual level taking into consideration the entire criminal career. Transition matrices and the Forward Specialisation Coefficient look at specialisation at the aggregate level. An alternative approach to specialisation would involve the investigation of the complete criminal career. For example, if an offender committed

only two types of offences but alternately, or with a long gap between the different types of offences, he/she would not appear to be a specialist according to an adjacent transition matrices analysis, nor one involving a limited time frame. His/her specialisation would only be apparent if the proportion of each type of offence committed during his/her career was calculated (Farrington et al., 1988).

Given this, it may be useful to broaden the definition of specialisation, thus allowing for a broader range of analyses that explore multiple explanatory variables (Osgood & Schreck, 2007); i.e. instead of defining specialisation as the presence of consecutive offence types, it may make more sense to define specialisation as the recurring presence of the same offence type throughout the criminal career (Farrington et al., 1988).

10.1.2 Specialisation and Criminal Career Variables

Specialisation has been examined in a sample of the general population (Blumstein et al., 1988; Mazerolle, 2000; Wolfgang et al., 1972), as well as for specific types of offences: burglary (Schwaner, 2000), property (Brennan et al., 1989; Shover, 1996; Tunnell, 2006), fencing (Steffensmeier & Ulmer, 2005), intimate partner abuse (Bouffard et al., 2008; Moffitt et al., 2000), drug offences (Armstrong, 2008; Blumstein et al., 1988) and violent interpersonal offending (Osgood & Schreck, 2007; Schwaner, 1998). However, very few studies have examined how specialisation relates to criminal career variables.

Various attempts have been made to relate specialisation specifically to the key criminal career variables of interest in the present thesis. For example, Piquero et al. (1999) discovered a positive relationship between onset age and specialisation; i.e. as the age of criminal career onset increased, the level of specialisation increased. Also, Mazerolle et al. (2000) found a significant relationship between onset age and offending specialisation including that early onset offenders were less specialised than late onset offenders in their offending patterns (see also, Tolan, 1987). In general, therefore, the evidence appears to suggest that when specialisation does occur, it tends to increase with age of onset.

However, although onset age and specialisation have been heavily researched, there has been a dearth of research on specialisation and other key variables such as career length, seriousness, versatility and chronicity. Previous research has found a direct relationship between onset age and specialisation and an inverse relationship between onset age and career length, seriousness, versatility and chronicity. It follows then that one would expect specialisation to have an inverse relationship with career length, chronicity, versatility, and seriousness.

Contrary to this proposition, Miethe et al. (2006) found that likelihood of specialisation tended to increase with the length of criminal careers (see also, Mazerolle et al., 2000). This corresponds with the finding that juveniles become more specialised as adult offenders (Blumstein et al., 1988; Brame & Dean, 1999; DeLisi et al., 2011; Simon, 1997). These findings suggest that specialists commence offending as juveniles, i.e. they have an early age of onset. Additionally, Blumstein et al. (1988) found that not only did

specialisation increase over longer career, so did seriousness. These results suggest that the relationship between specialisation and the key criminal career variables is more complex than initially proposed.

10.1.3 *Specialisation and Offending*

Although specialisation has been examined in various types of offending, it has been found to be prominent in a few. For example, Blumstein et al. (1988) found that specialisation was highest for drug offending and fraud among white offenders and auto-theft in black offenders and Brennan et al. (1989) found that specialisation was stronger in violence and property offending. While Schwaner (2000) found evidence of specialisation in burglary and Armstrong (2008) found specialisation in drug offending. Farrington et al. (1988) also found that the most specialised offences were burglary, public order, and drug offences. Klien (1984) reviewed thirty-three studies of specialisation and found that once specialisation was established, it appeared most often in categories of assault, theft, drug and status offences. These results taken together suggest that specialisation is more apparent in drug, burglary, theft and public order offences.

10.1.4 *Hypotheses*

With previous findings taken into consideration, the following hypotheses were formulated. Firstly, specialists will be identified in the sample. Secondly, specialists will have an earlier age of onset than non-specialists as well as a longer career length, higher

chronicity, lower versatility, and higher seriousness. It is also hypothesised that specialism would be found in drug, burglary, theft and public order offending.

10.2 Method

Specialisation can be investigated by studying not only transition matrices but also the proportions in total number of different type of offences committed in individual offending careers (Farrington et al., 1988). While examining specialisation by looking at transition matrices looks at specialisation on an aggregate level, as it has been noted, it is often important to examine specialisation over the entire criminal career on an individual level. One way of measuring individual specialisation over the criminal career is to employ the percentage or criterion rule (Bursik, 1980; Datesman & Aickin, 1984; Farrington et al., 1988). The percentage rule examines the concentration of offence types over the criminal career. The percentage concentration ranges from 100 percent specialisation (all charges are of the same offence type) to 0 percent specialisation (no charges involve the same offence type). Regardless of the offence type perfect specialisation is rarely seen in criminal careers (Miethe et al., 2006). The percentage rule can use different definitional criteria to classify specialists. Researchers in the past have used 25, 50 and 75 percent rules to classify specialists. In the case of the 25 percent rule, for example, an offender for whom 25 percent or more of his total offences are of one offence type, this would be considered specialist.

10.3 Results

10.3.1 *Identifying Specialisation over the Criminal Career*

Table 10.3.1 No. of Specialists Classified by Different Percentage Rule Criterion

Percentage Rule	25%	50%	75%
Number of Specialists (N=1692)	942	510	164
Specialists	55.67%	30.14%	9.69%
More than one specialty	18.44%	0.47%	0.00%
Drug Specialist	13.89%	10.87%	6.26%
Weapon Specialist	1.36%	0.89%	0.06%
Sex Specialist	3.66%	2.60%	1.18%
Robbery Specialist	8.27%	4.20%	1.06%
Murder Specialist	0.00%	0.00%	0.00%
Assault Specialist	9.93%	3.13%	0.18%
Theft Specialist	6.15%	2.42%	0.30%
Burglary Specialist	5.50%	2.66%	0.18%
Public Order Specialist	6.91%	3.37%	0.47%

Table 10.3.1 summarises the results of applying three percentage rules or criteria to the sample; 25%, 50% and 75%; so for example, as previously noted, using the 25% percentage rule, an offender for whom 25% or more of her/his total offences are of one offence type, would be considered a specialist. As previously mentioned, perfect specialisation is rarely observed in criminal careers therefore the 100% percentage rule was not included. Using the 25% percentage rule, a majority, 55.67% of the sample was classified as specialists and 18.44% of the offenders had more than one specialty. Conversely, using the 75% percentage rule, only 9.69% of the sample could be classified as specialists and none could be classified as having more than one specialty. However, using the 50% rule, 30.14% would be classified as specialists, with only 0.47% classified as having more than one specialty. Offenders charged with drug offences had the highest

level of repetition of the same offence type over all the cycles and none of the persons charged could be classified as an offender specialising in murder.

10.3.2 *The Relationship of Specialisation to the Key Variables*

The next stage of the analysis involved assessing the relationship between specialisation and the other key variables of the age of onset, career length, chronicity, versatility, and seriousness. The 50% percentage rule criterion is used to identify specialists in this part of the study. It has been the most widely used measure of classifying specialists where at least 50% of the offences fall within one offence type. (Bursik, 1980; Cohen, 1986; Datesman & Aickin, 1984; Farrington et al., 1988; Lussier et al., 2005).

Table 10.3.2 Means (SDs) for Key Variables for Specialists vs. Non-Specialists Offenders

	Specialist @50%	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i><
Onset Age	Non- Specialist	1182	22.6321	8.01986	2.24 (1155)	0.027
	Specialist	510	21.7933	6.63746		
Career Length	Non- Specialist	1182	5.3645	7.53656	-6.16 (956)	0.001
	Specialist	510	7.8429	7.62353		
Chronicity	Non- Specialist	1182	6.90	10.106	-1.09 (921)	0.276
	Specialist	510	7.50	10.653		
Versatility	Non- Specialist	1182	2.91	2.042	3.19 (1424)	0.001
	Specialist	510	2.64	1.340		
Seriousness	Non- Specialist	1182	12.76	9.320	3.72 (1262)	0.001
	Specialist	510	11.22	7.026		

A series of independent samples t-tests were used to compare specialist to non-specialist differences in terms of the key variables onset age, career length, chronicity, versatility, and seriousness. Table 10.3.2 reports the means and standard deviation for the key

variables for specialist and non-specialist offenders. There was a significant difference between specialist and non-specialist offenders for all of the variables except chronicity. These findings indicate that specialist offenders start offending earlier than non-specialist offenders; they also have longer career lengths, are less versatile, and commit less serious offences. These offenders do not differ by their level of chronicity which indicates that specialists and non-specialists generally commit the same number of offences.

10.3.2 Specialisation and Offending

Table 10.3.3 Means (SDs) for Offence Types for Specialists vs. Non-Specialists

Offenders

	Specialist @50%	N	Mean	Std. Deviation	t(df)	p<
Total Drug Offences	Non- Specialist	1182	1.08	1.488	-5.12 (821)	0.001
	Specialist	510	1.54	1.803		
Total Weapon Offences	Non- Specialist	1182	.35	.841	3.50 (1250)	0.001
	Specialist	510	.22	.640		
Total Sex Offences	Non- Specialist	1182	.44	.864	1.40 (1068)	0.163
	Specialist	510	.38	.776		
Total Robbery Offences	Non- Specialist	1182	.96	1.949	-0.52 (877)	0.602
	Specialist	510	1.02	2.176		
Total Murder Offences	Non- Specialist	1182	.03	.205	2.23 (1572)	0.027
	Specialist	510	.01	.116		
Total Assault Offences	Non- Specialist	1182	1.11	2.024	3.27 (1280)	0.001
	Specialist	510	.82	1.503		
Total Theft Offences	Non- Specialist	1182	1.05	2.910	-1.28 (634)	0.203
	Specialist	510	1.38	5.527		
Total Burglary Offences	Non- Specialist	1182	.71	2.184	-2.10 (606)	0.037
	Specialist	510	1.17	4.699		
Total PO Offences	Non- Specialist	1182	1.16	2.323	1.85 (1092)	0.066
	Specialist	510	.95	2.038		

Other independent samples t-tests were conducted to compare differences between specialist and non-specialist offenders in terms of offence type. Table 10.3.3 reports the means and standard deviations for offending types for specialists and non-specialists. These findings showed that specialist offenders received significantly more drug and burglary charges than non-specialist offenders but they received significant fewer charges for weapon, murder and assault offences. Specialists did not differ from non-specialists in the number of sex, robbery, theft and public order offences.

10.4 Discussion

In this study, a number of specialists were identified in the sample. Approximately 30% of the sample was classified as specialists. This finding is generally in line with previous research. For example, Bursik (1980) found in his sample of juvenile offenders that two thirds of the white offenders were specialists and half of the non-white offenders were specialists. However, Bursik (1980) used only four offending categories: impersonal property, personal property, personal injury and property. A closer examination of the frequencies of his offending groups would explain his high numbers; impersonal property and other offences composed over 85% of offending. This increases the likelihood of specialism. Conversely, Farrington et al. (1988) found that 18.8% of their sample was specialists in twenty-one different categories. Taken together these findings suggest that specialisation is highly dependent on the number of offending categories and, therefore, direct comparisons are difficult.

Offenders tended to specialise most in drug offending (10.87%) and robbery offending (4.20%); while hardly any offenders specialised in weapon offending (0.89%) and murder offending (0.00%). These findings are also consistent with previous research. For example, Blumstein et al. (1988) found specialisation to be highest in drug offending (see also, Armstrong, 2008; Farrington et al., 1988; Klien, 1984) and Brennan et al. (1989) found specialisation to be highest in property offending (see also, Miethe et al., 2006; Schwaner, 2000). Situational or psychological factors may predispose an offender to reoffend in certain offence categories more than others. For example, drug offenders may seek a physiological change and robbery offenders may seek material gain and as a result reoffend within these categories of crime whereas an impulsive offence of murder is highly unlikely to reoccur.

There were significant differences between specialist and non-specialist offenders on a number of dimensions such that specialist offenders when compared to non-specialist offenders had an earlier age of onset, a longer career length, lower versatility, and lower levels of seriousness. Specialists did not differ from non-specialists on the level of chronicity. Generally these findings are consistent with previous research that have found that specialists commence their criminal career earlier, that their careers are longer, and that they are less versatile (Blumstein et al., 1988; Brame & Dean, 1999; DeLisi et al., 2011; Mazerolle et al., 2000; Miethe et al., 2006). However, lower levels of seriousness are contrary to previous findings (Blumstein et al., 1988). It is important to note that specialists and non-specialists receive on average the same number of charges.

Specialist offenders received significantly more drug and burglary charges than non-specialist offenders but they received significantly fewer charges for weapon, murder and assault offences. Specialists did not differ from non-specialists in the number of sex, robbery, theft and public order offences. These findings are also in line with previous findings (see also, Armstrong, 2008; Brennan et al., 1989; DeLisi, 2003; Farrington et al., 1988; Klien, 1984; Miethe et al., 2006).

The results obtained in this study show that, specialists clearly exist. An important point to note is that specialists appear to be uniquely different in relation to criminal career variables from other offenders where it has been previously noted that an early onset is predictive of a longer career length, higher chronicity, greater versatility and a higher level of seriousness (Blumstein et al., 1986; Elliot, 1994; Farrington et al., 1990; Loeber & Le Blanc, 1990; LeBlanc & Loeber, 1998; Snyder, 1998; Tolan, 1987). These findings, therefore, do not support the general theory of criminal careers as they suggest more than one underlying theory of criminal careers is necessary to account for the different types of offenders. Moreover, theories should explain why specialisation is higher in some offences than in others.

Chapter Eleven

Violence in the Present Sample

11.1 Introduction

As noted previously, violence has been a keenly debated issue in research literature across a number of disciplines. It appears that public fear of violence may actually be disproportionate to the actual risk. For example, violent offending is much less frequent than property or public order offending (Blackburn, 1993). Nevertheless, violent offending, more so than other forms of offending, continues to dominate public anxiety about law and order (Blackburn, 1993) and hence was chosen for special consideration in the present thesis. In the discussion in Chapter Four, a number of psychological theories were noted (see, for example, Bandura, 1973; Felson, 1978; Kutash, 1978; Lorenz, 1966). However, psychological theories of criminal behaviour tend to focus more on the causes of violence than the relationship between violent and nonviolent behaviour, and hence specifically, how violence relates to criminal careers. Moreover, very little is known about the cross-cultural generalisability of findings regarding violent offending and criminal careers as research has been concentrated mainly in only a few countries (in particular, the United States, the United Kingdom, and Canada). Therefore, the overall aim of the study presented in this chapter is to investigate how violence develops in a criminal's career and how this relates to other criminal career variables in the country of Barbados.

11.1.1 Defining Violent Offending and Offenders

Definitions of violence have been briefly addressed in Chapter Four. All acts of violent offending can be construed as forming part of the broader phenomenon of violence; i.e. not all forms of violence are considered violent offending (Feldman, 1993). Violent offences are acts that violate the legal code; therefore, a violent offender is one who participates in violent offences and consequently contravenes the legal code. Hence, criminal violence refers to unlawful, directly, injurious behaviour and thereby includes offences such as homicide, assault, robbery and rape; thus, violent offending is the commission of criminal violence. Notably, therefore, other crimes such as arson and criminal damage which may also entail serious physical harm are not generally included under the heading of violent offending (Megargee, 1982; Siann, 1985).

11.1.2 Classifying Violent Offenders and Offending

Also, as mentioned in Chapter Four, in the literature the presence of violence has been used primarily as a way to classify offenders and offending. Within this context, given the aforementioned criteria, studies of violence have attempted to measure violence by examining the participation in specific offences, in particular murder, manslaughter, robbery, forcible rape, and sexual, aggravated, and simple assault. Other crimes that may include forms of violence have been excluded from this category. Given the prevalence of this definition or measure in the literature, it was also applied in the present study.

Again, as mentioned in Chapter Four, some studies have compared violent to nonviolent offenders or criminal activity (Brame et al., 2005; MacDonald et al., 2009) while others

have distinguished between serious violent offenders, serious nonviolent offenders, non-serious violent offenders, and non-serious nonviolent offenders (Elliot, 1994; Elliot, Huizinga & Morse, 1986; Ezell, 2007). For the purpose of this study, however, a simple violent-nonviolent distinction was considered most practical and useful.

11.1.3 *Popular Theories of Violence*

Psychological theories of violence and associated perspectives from criminal career research have been discussed at length in Chapter Four, though it may be worth reiterating here that within the more specific area of criminal career research, theories have tended to explain violent offending behaviours according to the general propensity/discrete properties theme. This theme runs through criminal career research; though for violence the distinction has often been termed one of general versus typological (Nagin & Land, 1993; Osgood & Rowe, 1994). Thus, general theorists contend that a single causal process can be applied to all offenders and, therefore, variations of offending, including use of violence, can be attributed to variations in a causal trait. In contrast, typological models assert that there might be different kinds of offenders and therefore different causes for different behaviours. Given this context, it is obviously both interesting and important to know how violence fits in with key criminal career variables identified in the present thesis.

11.1.4 *Violence and Criminal Career Research: The Key Variables*

In Chapter Four, some studies of the relationship between violence and the key criminal career variables were discussed, but as a prelude to the research hypothesis in the present chapter, it may be useful to review the general findings again here.

Generally, although findings have been somewhat mixed, there seems to be some consensus that violent offenders may have an earlier age of onset compared to other offenders (DeLisi, 2006; Moffitt, 1994; O'Grady et al., 2007; Piquero et al., 2007; Weiner, 1989). This is important, because as emphasised earlier onset age maybe a particularly useful variable in differentiating offender groups and understanding the dimensions of criminal careers (see also, Blumstein et al., 1986; Mazerolle et al., 2000; Simons, Wu, Conger, & Lorenz, 1994); i.e. early onset offenders characterise a particularly worrying set of offenders who appear to have high levels of chronicity, high frequency of offending, greater persistence, high levels of violence and greater versatility (DeLisi, 2006; Moffitt, 1994; Piquero et al., 2007).

Research findings on criminal career length of violent offenders have also varied somewhat. Some studies have found that the career length of violent offenders is longer than other offenders particularly property offenders while other studies have found the length to be shorter (see, for example, Blumstein et al., 1982; Laub & Sampson, 2003; Piquero, 2004). Indeed, violent offenders have been reported to have career lengths between 7 and 18 years. This high variability underscores the need for further research. Nevertheless, overall, it is probably reasonable to say that the balance of evidence

suggests that violent offenders may have longer careers (Blumstein et al., 1982; Ezell, 2007; Piquero, 2004).

More consistently, however, violent and nonviolent offenders tend to differ in aggregate offence rates such that violent offenders tend to commit more crimes than nonviolent offenders (Brame et al., 2001; Cohen, 1986; Loeber 1988; Loeber et al., 1998). For example, Piper (1985) found that violent juvenile offenders attained on average 6.3 offences while nonviolent juvenile offenders only attained 2.2 offences. Moreover, she found that 86% of violent offenders as compared to 45% of nonviolent offenders, tended to be recidivists i.e. repeat offenders. Therefore violent offenders tend to have higher levels of chronicity (Elliot, 1994; Petersilia et al., 1997; Peterson et al., 1981).

Violent offenders have also been found to be very versatile (Elliot, 1994; O'Grady et al., 2007; Petersilia et al., 1997; Peterson et al., 1981). For example, Brame et al. (2001) found that individuals who exhibit relatively high levels of violent offending also exhibit relatively high levels of other kinds of criminal activity (see also, Piquero, 2000; O'Grady et al., 2007).

In contrast, a small portion of violent offenders' offences are violent ones hence violent offenders tend not to be specialists (Blumstein & Cohen, 1979; Hamparian et al., 1978; Piquero, 2000b; Rojek & Erickson, 1982; West & Farrington, 1977; Wolfgang et al., 1972). Though, violent offenders tend to offend more frequently than nonviolent offenders across a number data of sets (Calpadi & Patterson, 1996; Farrington, 1982;

Guttridge et al., 1983; Loeber et al., 1998; Miller et al., 1982; Piquero, 2000b; Wikstrom, 1985). Moreover, violent onset offenders are more likely to engage in serious offending (Mazerolle et al., 2010).

11.1.5 *Violence and Other Offending*

As mentioned, violent offenders tend to exhibit relatively high levels of other kinds of offending and high versatility (Brame et al., 2001; Piquero, 2000). Looking at this in more detail, Miller et al. (1982) found a pattern of nonviolent offending with interspersed violent offending when examining violent offenders. They concluded that violent offenders were largely property and public order offenders. Miller et al. (1982) also noted that the more charges an offender had that there was an increased likelihood that one would be for violence. Similarly, Guttridge et al. (1983) also found that the increase in violent offences was highly correlated with the increase in other offences. Elliot (1994) also found that minor forms of delinquent behaviour and alcohol use were part of the behaviour repertoire of serious violent offenders before more serious forms of crime such as theft and violence.

Loeber and Hays (1997), however, argued that there is a chronology to the patterns of offences; i.e. more serious offences are preceded by less serious ones, and that violent offenders commit nonviolent offences before moving onto violent ones. When examining possible order of violent offending, Elliot (1994) found the typical sequence was from aggravated assault to robbery to rape; aggravated assault preceded robbery in 85% of the case and rape in 92%. Robbery preceded rape in 72% of the cases. The overlap in

behaviour was quite high as 75% of those who committed rape or robbery also had aggravated assault in their repertoire. However, only 30% with aggravated assault also have rape or robbery.

11.1.6 Specialisation in Violence

Findings in specialisation in violent offending tend to be mixed. Some studies have found no tendency to specialise in violent offending (Blumstein & Cohen, 1979; Hamparian, Schuster, Dinitz, & Conrad, 1978; Piquero, 2000b; Rojek & Erickson, 1982; West & Farrington, 1977; Wolfgang et al., 1972). For example, Piquero (2000b), using an African American sample, found that there was no tendency for individuals in the Philadelphia cohort to specialise in violent offending. Lynam et al. (2004) found no evidence of specialisation using official reports; however, they found evidence of specialisation using self-reports. Stander, Farrington, Hill and Altham (1989) also found low degrees of specialisation for most crime and the Forward Specialisation Coefficient for violence was only 0.15.

Some studies have also found evidence of specialisation in violent offending (Brennan, Mednick & John, 1989; Buikhuisen & Jongman, 1970; Bursik, 1980; Farrington et al., 1988; Peterson, Pittman, & O'Neal, 1962; Walker, Hammond, & Steer, 1967). For example, Deane et al. (2005) used marginal logit modelling to produce evidence of both nonviolent and violent specialisation in offending youth. Schwartz (1972), Ekland and Ekland-Olson (1991) and Brennan et al. (1989) also found that specialisation existed in their samples of violent offenders. However, Brennan et al. (1989) noted that

specialisation could not be determined for offenders with low numbers of arrests. They, therefore, argued that past record of violence may be useful in predicting future violent offending and that this may be aided by considering a variable such as onset age that predicts levels of recidivism.

As noted in Chapter Four, there are a number of possible reasons why these mixed findings might result. Just as the definitions of specialisation are problematic so are the definitions of specialisation in violence. As a result, there are numerous definitions of specialisation in violent offending: 1) exclusively violent offending by criminals (Hamparian et al., 1978; West & Farrington, 1977); 2) an increased likelihood of a violent conviction given a previous violent conviction (Walker, 1967); 3) a higher than chance probability that a violent offence will directly follow a violent offence (Rojek & Erickson, 1982; Wolfgang et al., 1972). These various definitions and the subsequent measures are very likely to proffer different results.

11.1.7 *Hypotheses*

In view of these considerations, it was hypothesised that violent offenders would commence their criminal careers earlier than nonviolent offenders; their career lengths would be longer; their levels of chronicity would be higher, their versatility would be greater, and their levels of seriousness higher. It was also hypothesised that early onset violent offenders would commit more crimes than late onset violent offenders as well as more violent crimes.

As research into specialisation in violence has yielded such mixed results, it is difficult to come up with a directional hypothesis. A directional prediction is also difficult because many of the results could be seen to counterbalance each other. For example, it could be suggested that the number of specialists amongst violent offenders would be greater than the number of specialists amongst nonviolent offenders as the former commit more of the same type of offences. However, violent offenders generally commit more offences than nonviolent offenders, and with the increase in offending there is also an increase in versatility which might nullify any increase in specialisation. Therefore, for the present study, it is hypothesised that there will be no difference in the number of specialists amongst violent offenders as compared to nonviolent offenders.

11.2 Method

11.2.1 Classifying Violent Offenders

In this study, as in previous research (Brame et al., 2005; Ezell, 2007; MacDonald et al., 2009) offenders were classified as violent if they had one or more charges for the crimes robbery, aggravated robbery, sex by force (rape), sexual (indecent) assault, murder, attempted murder, serious bodily harm, grievous bodily harm, actual bodily harm, assault, assault of an officer, assault to commit robbery, and assault to commit rape. All other charges were considered nonviolent.

11.2.2 *Classification of Specialists*

As discussed in Chapter Ten, individuals were classified as specialists on the basis of a 50% rule; i.e. offenders with 50% or more of a particular type of offence of their total offences were considered specialists.

11.2.3 *Stage of Onset Age of Offending*

Discrete offender groups were also created to capture early- and late-onset offending groups. The peak age of violent offending in the Western World has been shown to be in the early 20s (Farrington, 1987). Thus, the members in the sample who already have a charge for violent offending by the age of 18 have been deemed to be ‘early onset’ violent offenders (see also, Henry et al., 1996).

11.3 Results

11.3.1 *General Sample Characteristics*

The breakdown of numbers of offenders charged for violent offences is displayed in Table 11.3.1 below. Of the 1692 offenders in the main sample, 64.5% received at least one charge for a violent offence, and 40.4% of the offenders had been charged for two or more violent offences, ($M= 2.20$, $SD= 3.34$, range 1-34).

Table 11.3.1 Frequency of Offenders with Violent Charges

Number	Frequency	Percent	Cumulative Percent
0	601	35.5%	35.5%
1	407	24.1%	59.6%
2	225	13.3%	72.9%
3	121	7.2%	80.0%
4	83	4.9%	84.9%
5	61	3.6%	88.5%
6	50	3.0%	91.5%
7	35	2.1%	93.6%
8	24	1.4%	95.0%
9	19	1.1%	96.1%
10	9	0.5%	96.6%
11 – 15	37	2.2%	98.8%
16 – 20	13	0.8%	99.6%
> 20	7	0.4%	100.0%
	1692		

11.3.2 Violence and Key Criminal Career Variables

Independent samples t-tests were used to compare violent (one or more charges for violent offences) and nonviolent offenders' (no charges) differences in terms of the key variables onset age, career length, chronicity, versatility, and seriousness. Table 11.3.2 reports the means and standard deviation for the key variables for violent and nonviolent offenders. There was a significant difference between violent and nonviolent offenders for all of the variables. These findings indicate that violent offenders start offending earlier than nonviolent offenders. They also have longer career lengths, received significantly more charges, are more versatile, and commit more serious offences.

Table 11.3.2 Means (SDs) for Key Variables for Violent vs. Nonviolent Offenders

	Offender	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i><
Onset age	Nonviolent	601	25.05	8.39	10.33(1034)	0.001
	Violent	1091	20.93	6.77		
Career Length	Nonviolent	601	2.88	5.63	-14.95(1617)	0.001
	Violent	1091	7.97	8.28		
Chronicity	Nonviolent	601	2.49	4.05	-18.22(1488)	0.001
	Violent	1091	9.61	11.69		
Versatility	Nonviolent	601	1.47	0.85	-31.86(1644)	0.001
	Violent	1091	3.57	1.85		
Seriousness	Nonviolent	601	4.47	3.69	-44.08(1667)	0.001
	Violent	1091	16.61	7.62		

Table 11.3.3 Cross-tabulation for Specialism for Violent vs. Nonviolent Offenders

Classification		Violent Offender		Total
		Nonviolent	Violent	
Specialist @ 50%	Not	422	760	1182
	Percentage Not	(35.70)	(64.30)	(100.00)
	Specialist	179	331	510
	Percentage Specialist	(35.10)	(64.90)	(100.00)
Total		601	1091	1692

A Chi-squared test was used to compare violent (one or more charges for violent offences) and nonviolent offenders' (no charges) differences in terms of the classification of specialists using the 50% rule and the results are reported in Table 11.3.3. The relationship between these two variables did not approach significance, $\chi^2(1, N=1692) = 0.06, p < 0.813$. Violent offenders were no more likely than nonviolent offenders to be classified as specialists.

As an alternative way of looking at the data, the relationship between violent offending and the key variables were also examined with correlational analyses. The results are shown in Table 11.3.4. All correlations were significant; most notably there was a significant negative correlation between onset age and violent offending. That is, the earlier the age of onset of the criminal career, the greater the number of violent offences committed. There were also significant positive correlations between career length, chronicity, versatility, seriousness and level of chronicity. That is, the greater the number of violent offences committed, the greater the career length, the higher the overall chronicity, the greater the versatility, the higher the level of seriousness and the higher the level of chronicity.

Table 11.3.4 Correlations between Total Violent Offences for Violent Offenders and the Key Variables (p two tailed)

Variables	<i>R</i>	df	<i>p</i><
Onset Age	-0.26	1091	0.001
Career Length	0.41	1091	0.001
Chronicity	0.71	1091	0.001
Versatility	0.60	1091	0.001
Seriousness	0.66	1091	0.001

Onset age was also used to separate offenders in to early and late onset violent offenders. Table 11.3.5 reports the results. Early onset violent offenders received significantly more charges than late onset violent offenders, $t(643)=-7.28, p<0.001$. In Table 11.3.6., it can be seen that early onset violent offenders also received significantly more violent charges than late onset violent offenders, $t(730)=-7.06, p<0.001$.

Table 11.3.5 Means (SDs) for Total Offences for Early and Late Onset Offenders

	Stage of onset	N	Mean	Std. Deviation
Total Offences	Late Onset	671	7.43	9.225
	Early Onset	420	13.08	14.140

Table 11.3.6 Means (SDs) for Total Violent Offences for Early and Late Onset Offenders

	Stage of onset	N	Mean	Std. Deviation
Total violent offences	Late Onset	671	2.77	3.161
	Early Onset	420	4.42	4.074

11.3.3 Violence and Other Offending

Table 11.3.7 Means (SDs) for Nonviolent Offending Types for Violent and Nonviolent Offenders

Offences	Offender	N	Mean	Std. Deviation	t(df)	p<
Total Drug Offences	Nonviolent	601	1.34	1.34	2.52(1505)	0.010
	Violent	1091	1.15	1.73		
Total Weapon Offences	Nonviolent	601	0.11	0.43	-9.74(1662)	0.001
	Violent	1091	0.43	0.91		
Total Theft Offences	Nonviolent	601	0.27	1.35	-8.90(1388)	0.001
	Violent	1091	1.63	4.67		
Total Burglary Offences	Nonviolent	601	0.26	2.09	-6.65(1684)	0.001
	Violent	1091	1.18	3.58		
Total PO Offences	Nonviolent	601	0.28	1.05	-14.19(1583)	0.001
	Violent	1091	1.54	2.58		

Other independent samples t-tests were conducted to compare differences between violent and nonviolent offenders in terms of crimes that do not necessarily involve violence. Table 11.3.7 reports the means and standard deviations for nonviolent offending types for violent and nonviolent offenders. These findings showed that violent offenders received

significantly fewer drug charges than nonviolent offenders but they received significantly more charges for weapon, theft, burglary, and public order offences.

11.4 Discussion

As hypothesised, there were significant differences between violent and nonviolent offenders on a number of dimensions (Blumstein et al., 1986; Loeber & Hay, 1997; Loeber & LeBlanc, 1990; Loeber & Stouthamer-Loeber, 1998; Nagin & Tremblay, 1999, 2001). Thus, violent offenders when compared to nonviolent offenders had an earlier age of onset, a longer career length, higher chronicity, greater versatility, and higher levels of seriousness.

The average onset age of violent offenders was 20.93 years and this was similar to the onset age found in previous studies (see, Elliot, 1994; Weiner, 1989). Onset age was further separated into early and late onset for violent offenders. Early onset violent offenders committed more offences in general as well as more violent offences than late onset violent offenders. These results reinforce the importance of early onset age in criminal career research and support the growing consensus view that violent offenders commence their criminal careers earlier (Blumstein et al., 1986; Mazerolle et al., 2000; Simons et al., 1994).

Violent offenders' average career length was 7.97 years which was also in line with some previous research (see, Blumstein et al., 1982). They also committed more crimes overall

(see, Brame et al., 2001; Cohen, 1986; Loeber, 1988; Loeber et al., 1998), more different types of crime (O'Grady et al., 2007; Petersilia et al., 1997; Peterson et al., 1981; Piquero, 2000); and more serious crime types than nonviolent offenders (Mazerolle et al., 2010; O'Grady et al., 2007).

The finding that violent offenders committed more kinds of other crimes as well as violent crimes (in particular, more weapon, theft, burglary, and public order offences) than nonviolent offenders is in line with Guttridge et al.'s (1983) findings which also indicate that increases in violent offences are highly correlated with the increase in other offences (see also, Capaldi & Patterson, 1996; Ezell, 2007; Martinez, 1997).

However, violent offenders, in this sample, had significantly fewer drug charges than nonviolent offenders which is contrary to the hypothesis and previous research findings. For example, Blumstein (1995) found a link between violence and drug offending where he suggests that violence offenders should have a greater number of drug charges than nonviolent offenders. However, it is very likely that the violence contribution from the illicit drug market found in Blumstein's study was not apparent in the present study. This may be because the present study may contain a higher proportion of drug users, traffickers, and importers than drug suppliers which is where the violence seems more likely to emerge as competing sellers undertake to resolve disputes (Goldstein, 1985).

As predicted, it was also found that violent offenders were no more likely to specialise than nonviolent offenders. As such these results are divergent from those of Schwartz

(1972) study who found evidence of specialisation among violent offenders though it was rare; however, they are in line with other findings (for example, Cohen, 1986; Stander et al., 1989).

On the whole, these findings could be considered supportive of the view that there is a general tendency or propensity underlying all types of criminal behaviour (Gottfredson & Hirschi, 1990; Laub & Sampson, 2003). However, it may be that existing definitions and measures may mask heterogeneity in the violent offending group (van Wijk, Mali, Bullens, & Vermeiren, 2007). For example, current classifications exclude violence that occurs in other types of crime not normally categorised as violent offences. Although beyond the scope of the present thesis, another possibility might be to separate violent offenders according to the type of crimes they have committed e.g. assault, murder, rape, or robbery so as to examine if the categories relate differently to the various criminal career variables. For example within sex offences alone, a significant difference has been found between rapists and child molesters in terms of the physical process of offending and the accompanying personality characteristics attributed to different criminal career pathways to sexual offending (Polaschek, Hudson, Ward & Siegert, 2001; Ward, Loudon, Hudson, & Marshall, 1995).

It has also yet to be determined how personality dimensions and psychosocial variables that have been identified as important in the development of criminality, including violent offending, e.g. deviant family members, poor parental supervision and how they relate to criminal career variables (Howell, Krisberg, Hawkins, & Wilson, 1995; Krohn et al.,

2001) i.e. it could be that the criminal career variables used here propose fundamentally different routes to their manifestations.

Chapter Twelve

Key Variables and Other Demographic Factors

12.1 Introduction

The influence of demographic factors' on crime is well established. For example, in the USA, crimes rates were likely to be higher in urban cities and in poorer parts of town and cities, and the most typical offenders are male, young, and black (Blackburn, 1993). Hence many countries use demographics in an effort to understand changing crime rates (Cohen & Cantor, 1981; Entorf & Spengler, 1998; Field, 1990; United Nations Office on Drugs and Crime & Latin American and the Caribbean Region of the World Bank, 2007). Consequently, the study described in this chapter endeavoured to investigate how the key criminal career research variables identified for special consideration in this thesis (see reviews in Chapters Two, Three and Four) are related to demographic factors. Literature relating to the specific demographic factors selected for consideration is summarised and reemphasised below. It should be emphasised that research has varied considerably; i.e. not every one of these demographic factors has been related to the full range of criminal career variables considered in the present thesis; hence findings are limited to what relevant research has been conducted.

12.1.1 Gender Differences

Statistical models of criminal careers have not been traditionally applied to female offending (Unger et al., 2002). This is, in part, due to the scarcity of longitudinal studies with sizeable female populations. As a result, it is difficult to determine whether findings

from research on male criminal careers can be applied to female offending. An undisputed finding is that males offend at a much higher rate than females in almost every country in which studies on criminal careers have been conducted (Steffensmeier & Allan, 1996). Indeed, gender has proven to be one of the strongest predictors of criminal offending according to both self-report and official data (Feldman, 1993). Moreover, whilst males and females have similar overall patterns of offending, they differ in terms of onset age; peak age of offending; rates of arrests; and types of offences across different developmental stages (Farrington, 1986; Jang & Krohn, 1995; Weiner, 1989).

For example, with regards to onset age, Farrington (1987) found that female offenders started their criminal careers later than male offenders. Also, several case and interview studies have indicated that female offenders have no strong commitment to criminal behaviour (Arnold, 1989; Miller 1986); whereas male offenders are more strongly committed and identify more with crime and the criminal lifestyle (Commonwealth of Pennsylvania, 1991; Steffensmeier, 1986). Hence, the criminal careers of female offenders tend to be shorter than those of male offenders (Tarling, 1993), and males show higher chronicity. For instance, Wolfgang and Tracy (1982) found that the gender (male to female) ratio for chronicity was 1.8; i.e. males had a higher level of chronicity than females (see also, Bennett, Farrington & Huesmann, 2005).

Smith and Visher (1980) further found that, once females commenced their criminal careers, they were quite similar to males in terms of minor offences, e.g. theft, but not in terms of major offences e.g. robbery, burglary, which were committed more often by

males (see also, Simpson & Herz, 1999; Steffensmeier & Allan, 1996). Indeed, Nagel and Hagan (1983) found that victims reported women had committed robbery and burglary in only 4% and 5% of all victim reports crimes. Therefore, males are likely to be more versatile than females, and their level of seriousness of offending tends to be much higher. In sum, these findings indicate that male offenders are likely to participate more heavily than female offenders in serious crimes of rape, robbery and murder than in property such as theft and public order crimes.

12.1.2 *Racial Differences*

There also exists a large research literature on the race-crime relationship. Previous research has found Blacks to be over represented in criminal samples (Blackburn, 1993; Blumstein & Graddy, 1982; Bonczar & Beck, 1997; D'Alessio & Stolzenberg, 2003; Hindelang, 1978; McGloin, Sullivan & Piquero, 2009; McNulty & Bellair, 2003) such that, although they constitute only a minor proportion of the population, they commit a disproportionately high number of offences. For example, the Federal Bureau of Investigation (1983) found that Blacks were responsible for 49%, 62.5 % and 39% of the arrests for rape, robbery, and aggravated assault, respectively (see also, Hindelang, 1978). Also Wolfgang et al. (1972) found in their study that 29% of Whites had police contact while 50% of non-Whites had police contact. Greater police contact could imply that non-Whites or rather Blacks begin offending earlier and continue offending longer than Whites.

Official record studies also show that Blacks exhibit higher levels of offending than Whites (Maxfield et al., 2000; Piquero & Brame, 2008). There seems to be considerable evidence that Blacks are involved in more serious crimes (Morenoff, 2005; Shannon, 1978; Wolfgang et al., 1972) and show a higher rate of personal violence than Whites (Sampson & Lauritsen, 1997). For example, McNulty and Bellair (2003) examined racial difference in serious violent adolescents. They found that Blacks were involved in serious crimes at a significantly higher rate than Whites. However, they noted that differences in self-reported offending between Whites and Blacks could be attributed to community disadvantage (see, Tracy, 2005). Although Elliot et al. (1983) found that Whites committed more theft than Blacks, Wilson and Herrnstein (1981) also found that Blacks were overrepresented in arrests for property crimes. These results indicate that, on the whole, black offenders are likely to have higher levels of chronicity, versatility and seriousness in offending compared to white offenders. They are also more likely to participate in crimes of robbery, assault, burglary, rape, and murder.

12.1.3 *Environmental Influences*

Most studies of the relationship between individual characteristics and offending have neglected the possibility that these relationships may be context dependent (Wikstrom & Loeber, 2000). For example, the impact on offending of poor parental monitoring and a high level of juvenile impulsivity may be different for individuals living in wealthy, social well-integrated neighbourhoods than for individuals living in poor, socially dis-integrated neighbourhoods. According to Moffitt's (1993) taxonomy, poor social environment increases the risk of deviant behaviour and possible contact with the

authorities. This suggests that housing area (neighbourhood) type could have a bearing on the key variables of criminal career research (see also, Farrington, 1995; Reiss, 1986).

Indeed, Elliot et al. (1987) found that career length varied by place of residence such that inner city youths had somewhat longer careers (see also, Shaw & McKay, 1972). A number of studies have also shown that there is a higher rate of offending amongst offenders of low socio-economic status living in low socio-economic status neighbourhoods (Lindstrom, 1995; Wikstrom, 1991). Not only is the rate of offending high, but these individuals are also more likely to progress to serious offenders (Loeber & Wikstrom, 1993). In sum, these findings suggest that offenders residing in low income housing areas are likely to have longer career lengths, higher levels of chronicity and seriousness in offending.

12.1.4 Employment Level and Educational Level Influences

Researchers, such as Lochner (2008), have argued that the better the employment level, the higher the wages, and, accordingly, the less the likelihood of offending. In line with this, a number of studies have found that wages, especially for low income earners, are an important factor in criminal careers (Fagan & Freeman, 1999; Gould, Weinberg & Mustard, 2002; Grogger, 1998; Machin & Meghir, 2004; May, 1999; Weinberg & Mustard, 2002). For example, Hindelang, Hirschi, & Weis (1981) found an over representation of working class individuals in samples of criminals (see also, Douglas, Ross, Hammond, & Mulligan, 1966; Farrington, 1995). However, whilst Hindelang et al. (1981) found that the working class offenders committed more theft and robbery

offences, middle class offenders committed more drug and fraud offences. In general, however, working class offenders tend to offend more often, and commit more serious offences (Elliot et al., 1986).

Educational level is also closely linked with employment type such that the higher the educational level the better the employment type and the higher the wages (Lochner & Moretti, 2004). A long series of studies has found a negative correlation between educational attainment levels and offending (Gottfredson, 1981; Lochner, 2008) such that an increase in educational level is related to a reduction in the commission of violent and property crimes. Lochner and Moretti (2004) examined the impact of education on arrests looking specifically at the types of offences. They found that, statistically, high school graduation had a significant effect on violent and property crimes. Individuals who had graduated were less likely to be involved in murder, assault, and motor vehicle theft. In another study, Freeman (1996) found that two thirds of all incarcerated men in 1993 had not graduated from high school (see also, Farrington, 1992; West & Farrington, 1973). Lochner (2004) investigated this relationship in greater detail and found again that educational attainment was negatively associated with criminal activity. He found that, of those men with criminal convictions, 34% had not finished high school, 24% had a high school degree and 17% had a post-high school education.

12.1.5 Specialism and Other Demographic Factors

Researchers have also examined how specialisation may differ in terms of demographic variables; though studies have been limited to gender and race. Farrington et al. (1988)

examined gender and specialisation and found that young males and females had similar overall levels of specialisation; though males had higher levels of specialisation for violence and serious theft offences while females had higher levels of public order and status offences (see also, DeLisi et al., 2011). Mazerolle et al. (2000) also found that males and females did not differ statistically in their respective overall levels of offending specialisation. However, whilst some studies have found no significant difference in specialisation between black and white offenders (Blumstein et al., 1988; Rojek & Erickson, 1982); other studies found specialisation to differ by the race of the offender; i.e. Blacks tend to show higher levels of specialisation (Bursik, 1980; Lattimore et al., 1994). The diversity of these findings on specialisation mirrors the general findings in specialisation research.

12.1.6 Violence and Other Demographic Factors

Violence in criminal careers has also been examined in relation to demographic variables. For example, variables such as race and gender have been found to be critical factors in violent offending (Elliot, 1994; Ezell, 2007; Piquero, 2004). Males are more likely to participate in violent offending in their criminal careers than females (Denno, 1994; Elliot, 1994; Kruttschnitt, 1994; Piquero, 2000). Research has also found that Blacks and Non-Whites start offending earlier and have longer careers than Whites (Elliot, 1994; Ezell, 2007; Piquero, 2004). For example, serious violent black offenders tend to start their careers earlier than serious violent white offenders (Elliot, 1994). It was also found that twice as many Blacks continued their violent careers into adulthood as Whites (Elliot, 1994; Ezell, 2007); i.e. there are more black violent offenders.

Violent crime has been found to vary significantly with the economic characteristics of communities. Violence has been found to be highest in underclass communities which are defined as poorly educated, unskilled and chronically under or unemployed (Elliot & Huizinga, 1983; Lichtern, 1988; Silberman, 1978; Wilson, 1987; Wolfgang, 1958). Additionally, Lochner (2008) found that there was a strong negative correlation between educational attainment and violent crime. Similarly, Grogger (1998) found that persons who were engaged in violence were usually unskilled and had not likely completed high school. In examining neighbourhoods and violence, Sampson et al. (1997) found that violence was associated with low socioeconomic status and residential instability of neighbourhoods, such that disadvantaged neighbourhoods increased exposure to violent offending (see also, Huizinga, 2005; Zimmerman & Messner, 2010). In sum, these results indicate a negative relationship between the level of violent offending and educational attainment, employment type and neighbourhood status.

12.1.7 Hypotheses

In view of these considerations, it was hypothesised that, in the present sample, male offenders, low income housing area residents, and low income employment types (blue collar workers) would commence their criminal careers earlier than female offenders, middle income housing area residents and middle income employment types (white collar workers); their career lengths would be longer; their levels of chronicity would be higher; their versatility would be greater; and their levels of seriousness higher. Males, low income housing area residents, and low income employment types would also commit

more of all offence types that females, middle income housing area residents and middle income employment types.

In the present sample, Blacks make up the majority of the sample; this is unusual as in most previous studies they have been in the minority (Bonczar & Beck, 1997; D'Alessio & Stolzenberg, 2003; McGloin, Sullivan & Piquero, 2009; McNulty & Bellair, 2003). It was hypothesised that compared to the minority, Whites in the present sample, Blacks would have an earlier age of onset, longer criminal careers and, higher levels of chronicity, versatility and seriousness of offending. Additionally, it was hypothesised that the lower the educational attainment, the earlier the age of onset, the longer criminal career, and the higher the levels of chronicity, versatility and seriousness of offending. Also, it was hypothesised that offenders with higher educational attainment would show lower participation in murder, robbery, and assault.

The diversity of findings in specialisation research has made it difficult to reach a hypothesis. However, taking together the overall findings from criminal career research, it was hypothesised that specialism would be greater in males, Blacks, low income housing area residents, blue collar workers, and low educational attainment offenders. Also, it was hypothesised that violent offenders would be male, Black, from low income housing areas, blue collar workers, and have achieved low educational attainment.

12.2 Method

The entire sample was used in the analysis. All variables used have been previously defined in Chapter Seven, with the exception of the classification of specialists which was described in Chapter Ten.

12.3 Results

12.3.1 Gender Differences

Independent samples t-tests were conducted to compare gender differences across onset age, career length, chronicity, versatility, seriousness. Table 12.3.1 reports the means and standard deviations of the key variables by gender. There was a significant difference between male and female offenders for all of the variables. These findings indicate that male offenders started offending earlier than female offenders. They also had longer career lengths, received significantly more charges, were more versatile, and committed more serious offences.

Table 12.3.1 Means (*SDs*) of Key Variables for Gender

Variables	Gender	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i> <
Onset age	Male	1636	22.30	7.58	-2.33 (58)	0.025
	Female	56	25.12	8.95		
Career Length	Male	1636	6.28	7.89	4.90 (64)	0.001
	Female	56	2.73	5.22		
Chronicity	Male	1636	7.22	10.39	6.47 (77)	0.001
	Female	56	2.96	4.53		
Versatility	Male	1636	2.86	1.87	8.95 (70)	0.001
	Female	56	1.64	0.96		
Seriousness	Male	1636	12.52	8.73	10.12 (68)	0.001
	Female	56	5.61	4.85		

Independent samples t-tests were also conducted to examine gender differences for the different types of offences: drug, weapon, sex, robbery, murder, assault, theft, burglary, public order. Table 12.3.2 reports the means and standard deviation of the offence types by gender. There was a significant difference between male and female offenders for all of the variables except public order offences. These findings indicate that male offenders committed more drug, weapon, sex, robbery, murder, assault, theft, and burglary offences than female offenders. However, there was no difference in the number of public order offences committed by males and females.

Table 12.3.2 Means (*SDs*) of Offence Type for Gender

Offences	Gender	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i><
Total Drug Offences	Male	1636	1.22	1.62	2.18 (73)	0.033
	Female	56	0.98	0.77		
Total Weapon Offences	Male	1636	0.32	0.80	9.06 (143)	0.001
	Female	56	0.04	0.19		
Total Sex Offences	Male	1636	0.44	0.85	12.23 (157)	0.001
	Female	56	0.04	0.19		
Total Robbery Offences	Male	1636	1.00	2.04	3.83 (68)	0.001
	Female	56	0.39	1.12		
Total Murder Offences	Male	1636	0.03	0.19	5.84 (1635)	0.001
	Female	56	0.00	0.00		
Total Assault Offences	Male	1636	1.05	1.91	5.90 (75)	0.001
	Female	56	0.32	0.86		
Total Theft Offences	Male	1636	1.17	3.94	2.57 (77)	0.013
	Female	56	0.54	1.68		
Total Burglary Offences	Male	1636	0.88	3.22	9.31 (898)	0.001
	Female	56	0.05	0.30		
Total PO Offences	Male	1636	1.11	2.25	1.86 (60)	0.069
	Female	56	0.61	1.99		

12.3.2 Racial Differences

Table 12.3.3 Means (*SDs*) of Key Variables for Race

Variables	Race	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i><
Onset age	Black	1681	22.38	7.66	-7.46 (166)	0.001
	White	11	25.12	4.67		
Career Length	Black	1681	6.19	7.85	10.76 (216)	0.001
	White	11	2.01	4.77		
Chronicity	Black	1681	7.11	10.30	11.67 (356)	0.001
	White	11	1.91	1.30		
Versatility	Black	1681	2.83	1.86	12.54 (213)	0.001
	White	11	1.45	0.69		
Seriousness	Black	1681	12.35	8.72	8.50 (11)	0.001
	White	11	4.27	3.07		

Independent samples t-tests were also used to examine racial differences across onset age, career length, chronicity, versatility, seriousness. Table 12.3.3 reports the means and standard deviation of the key variables for race. As can be seen from Table 12.3.3, Whites only make up 0.65% of the sample. There was a significant difference between Blacks and Whites for all of the variables. These findings indicate that black offenders commenced their criminal career earlier than white offenders. Blacks also had longer careers, received more charges, were more versatile and their offences were more serious than Whites.

Independent samples t-tests were again used to examine racial differences for types of offences: drug, weapon, sex, robbery, murder, assault, theft, burglary, public order. Table 12.3.4 reports the means and standard deviation of the offence types by race. There was a significant difference between Blacks and Whites for all of the variables except for drug

and weapon offences. These findings indicate that black offenders committed more sex, robbery, murder, assault, theft, burglary and public order offences than white offenders. However, there was no difference in the number of drug and weapon offences committed by Blacks and Whites.

Table 12.3.4 Means (SDs) of Offence Type for Race

Offences	Race	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i><
Total Drug Offences	Black	1681	1.22	1.61	0.59 (11)	0.570
	White	11	1.09	0.70		
Total Weapon Offences	Black	1681	0.31	0.79	-0.20 (10)	0.846
	White	11	0.36	0.81		
Total Sex Offences	Black	1681	0.42	0.84	3.58 (11)	0.005
	White	11	0.09	0.30		
Total Robbery Offences	Black	1681	0.99	2.02	19.95 (1680)	0.001
	White	11	0.00	0.00		
Total Murder Offences	Black	1681	0.03	0.18	5.83 (1680)	0.001
	White	11	0.00	0.00		
Total Assault Offences	Black	1681	1.03	1.89	22.40 (1680)	0.001
	White	11	0.00	0.00		
Total Theft Offences	Black	1681	1.15	3.90	6.27 (26)	0.001
	White	11	0.18	0.41		
Total Burglary Offences	Black	1681	0.86	3.18	3.42 (14)	0.005
	White	11	0.18	0.60		
Total PO Offences	Black	1681	1.10	2.25	20.09 (1680)	0.001
	White	11	0.00	0.00		

12.3.3 Housing Area Differences

There were four conditions for housing area type: low income, middle income, high income and no fixed place of abode. The income level for each residential location was determined by locating the residence on an income level map of Barbados located at the ministry of Housing and Lands. Households in areas where the average gross annual income was less than \$25,000 BDS (\$12,500 US) were considered low income.

Households, in neighbourhoods where the average gross annual income was greater than \$25,000BDS (\$12,500 US) but less than \$60,000 BDS (\$30,000 US), were considered middle income. Households in areas where the average gross annual income was over \$60,000 (\$30,000 US) were considered high income. The count in the category of high income and no fixed place of abode was only one each, therefore, these conditions were dropped. Independent samples t-tests were then used to examine differences in housing area type in terms of onset age, career length, chronicity, versatility, seriousness. Table 12.3.5 reports the means and standard deviation of the key variables for housing area type. There was a significant difference between middle and low income housing area for onset age, chronicity, seriousness of offending. Offenders who resided in middle income housing areas started offending later than those from low income housing areas, they also committed fewer offences and their offences were less serious. However, there was no significant difference between the career length and versatility of offenders living in either housing areas type.

Table 12.3.5 Means (SDs) for Key Variables for Housing Area Type

Variables	Housing Area	N	Mean	Std. Deviation	t (df)	p<
Onset age	Middle	70	24.27	8.19	2.11 (74)	0.039
	Low	1578	22.16	7.50		
Career Length	Middle	70	5.38	7.20	-1.10 (77)	0.275
	Low	1578	6.35	7.91		
Chronicity	Middle	70	4.83	4.88	-3.93 (100)	0.001
	Low	1578	7.34	10.53		
Versatility	Middle	70	2.53	1.59	-1.82 (78)	0.074
	Low	1578	2.88	1.88		
Seriousness	Middle	70	10.54	7.49	-2.24 (78)	0.029
	Low	1578	12.61	8.74		

Independent samples t-tests were also used to examine housing area types in terms of types of offences committed: drug, weapon, sex, robbery, murder, assault, theft, burglary, public order. Table 12.3.6 reports the means and standard deviation of the offence types by housing area type. There was a significant difference between middle and low income housing areas residents for offenders who committed robbery, theft, burglary and public order offences. Offenders who lived in low income housing areas committed more robbery, theft, burglary and public order offences. There was no significant difference in the number of drug, weapon, sex, murder, and assault offences for low or middle income housing area residents.

Table 12.3.6 Means (*SDs*) of Offence Type for Housing Area Types

Offences	Housing Area	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i><
Total Drug Offences	Middle	70	1.34	1.54	0.65 (76)	0.522
	Low	1578	1.22	1.63		
Total Weapon Offences	Middle	70	0.30	0.84	-0.24 (75)	0.813
	Low	1578	0.32	0.80		
Total Sex Offences	Middle	70	0.50	1.10	0.55 (73)	0.584
	Low	1578	0.43	0.83		
Total Robbery Offences	Middle	70	0.44	0.85	-5.15 (110)	0.001
	Low	1578	1.03	2.07		
Total Murder Offences	Middle	70	0.01	0.12	-0.86 (85)	0.392
	Low	1578	0.03	0.19		
Total Assault Offences	Middle	70	0.91	1.62	-0.73 (78)	0.470
	Low	1578	1.06	1.92		
Total Theft Offences	Middle	70	0.39	0.75	-6.10 (335)	0.001
	Low	1578	1.21	4.02		
Total Burglary Offences	Middle	70	0.23	0.71	-5.74 (253)	0.001
	Low	1578	0.90	3.27		
Total PO Offences	Middle	70	0.70	1.52	-2.32 (84)	0.024
	Low	1578	1.14	2.29		

12.3.4 *Employment Type Differences*

Independent samples t-tests were used to examine employment type differences in terms of the key criminal career variables. Table 12.3.7 reports the means and standard deviation of the key variables for employment type. There was a significant difference for all variables. These findings indicate that blue collar workers started offending earlier than white collar workers, they also had longer career lengths, committed more offences, were more versatile, and their offences were more serious.

Table 12.3.7 Means (SDs) for Key Variables for Employment Type

Variables	Employment Type	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i><
Onset age	White	41	28.48	9.53	4.21 (41)	0.001
	Blue	1444	22.15	7.42		
Career Length	White	41	3.86	8.23	-2.14 (42)	0.039
	Blue	1444	6.65	8.00		
Chronicity	White	41	3.56	7.11	-3.52 (45)	0.001
	Blue	1444	7.60	10.73		
Versatility	White	41	1.85	1.53	-4.43 (44)	0.001
	Blue	1444	2.93	1.89		
Seriousness	White	41	7.63	7.78	-4.15 (43)	0.001
	Blue	1444	12.76	8.85		

Independent samples t-tests were also used to examine employment types in terms of types of offences committed: drug, weapon, sex, robbery, murder, assault, theft, burglary, public order. Table 12.3.8 reports the means and standard deviation of the offence types by employment type. There was a significant difference between white and blue collar workers for offenders who committed drug, weapon, robbery, assault, and public order offences. Offenders who were blue collar workers committed more drug, weapon, robbery, assault, and public order offences. There was no significant difference in the number of sex, murder, theft and burglary offences committed by offenders who were blue or white collar workers.

Table 12.3.8 Means (*SDs*) of Offence Type for Employment Types

Offences	Employment Type	N	Mean	Std. Deviation	<i>t</i> (df)	<i>p</i> <
Total Drug Offences	White	41	0.93	0.93	-2.45 (48)	0.019
	Blue	1444	1.30	1.69		
Total Weapon Offences	White	41	0.15	0.53	-2.20 (46)	0.034
	Blue	1444	0.33	0.82		
Total Sex Offences	White	41	0.29	0.51	-1.72 (47)	0.093
	Blue	1444	0.44	0.85		
Total Robbery Offences	White	41	0.20	0.51	-8.64 (88)	0.001
	Blue	1444	1.04	2.11		
Total Murder Offences	White	41	0.05	0.22	0.72 (41)	0.479
	Blue	1444	0.02	0.16		
Total Assault Offences	White	41	0.46	1.12	-3.55 (47)	0.001
	Blue	1444	1.11	1.96		
Total Theft Offences	White	41	0.59	2.14	-1.88 (49)	0.067
	Blue	1444	1.25	4.12		
Total Burglary Offences	White	41	0.34	2.03	-1.82 (46)	0.077
	Blue	1444	0.94	3.35		
Total PO Offences	White	41	0.56	1.61	-2.34 (45)	0.025
	Blue	1444	1.17	2.31		

12.3.5 Educational Level Differences

To assess the effects of educational level, offenders were divided into four categories: primary, secondary, skilled and university conditions, as described in Chapter Seven. A series of One-Way ANOVAs was then conducted on the data to examine differences between these categories in terms of the key variables. The results are displayed in Table 12.3.9 below. There was a significant effect for educational level in terms of onset age, $F(3,1532)= 7.12, p<0.001$. Post hoc comparisons using the Tukey HSD test ($p<0.05$) indicated that those offenders who attended secondary school started offending earlier than those who only attended primarily school. Their onset age was also earlier than those who attended university. Offenders who attended skills training started offending

earlier than those who attended university. (Please note, in all post hoc analyses, only significant comparisons are reported.)

Table 12.3.9 Means (*SDs*) for Key Variables for Educational Levels

Variables	Educational Level	N	Mean	Std. Deviation
Onset age	Primary	151	23.99	9.08
	Secondary	1296	22.02	7.22
	Skills	71	22.99	8.74
	University	18	28.30	9.71
Career Length	Primary	151	9.16	10.31
	Secondary	1296	5.86	7.03
	Skills	71	9.01	11.60
	University	18	5.85	8.24
Chronicity	Primary	151	9.38	13.61
	Secondary	1296	7.08	10.18
	Skills	71	7.10	9.48
	University	18	6.11	9.04
Versatility	Primary	151	3.03	2.09
	Secondary	1296	2.83	1.86
	Skills	71	2.94	1.86
	University	18	2.61	1.94
Seriousness	Primary	151	12.93	9.90
	Secondary	1296	12.27	8.71
	Skills	71	12.56	8.89
	University	18	12.06	11.01

There was also a significant effect for educational level in terms of career length, $F(3,1532)= 11.33, p<0.001$. Post hoc comparisons using the Tukey HSD test indicated that those offenders who attended only primary school had a longer career length than those who attended secondary school, and those who attended secondary school had a shorter career than those who attended skills training.

There was no significant effect for educational level in terms of chronicity, $F(3,1532)=2.25$, $p<0.090$. There was also no significant effect for educational level in terms of versatility, $F(3,1532)=0.64$, $p<0.589$. Again, there was no significant effect for educational level in terms of seriousness, $F(3,1532)=0.27$, $p<0.847$. In other words, the educational level of the offender had no effect on his or her level of chronicity, versatility or seriousness of offending.

Another series of One-Way ANOVAs was conducted to examine differences between these categories of educational level in terms of offence types. The results are displayed in Table 12.3.10. There was a significant effect for educational level for murder, $F(3,1532)=6.85$, $p<0.001$. Post hoc comparisons using the Tukey HSD test indicated that those offenders who attended university committed more murder offences than those who only attended primary school; who in turn committed more murder offences than those who attended skills training; who also committed more murder offences than those who attended secondary school.

There was also significant effect for educational level for burglary offences $F(3,1532)=2.80$, $p<0.05$. Post hoc comparisons using the Tukey HSD test indicated that those offenders who attended only primary school committed more burglary offences than those who attended secondary school.

Table 12.3.10 Means (SDs) of Offence Type for Educational Level

Offences	Educational Level	N	Mean	Std. Deviation
Total Drug Offences	Primary	151	1.59	1.90
	Secondary	1296	1.24	1.63
	Skills	71	1.39	1.51
	University	18	1.00	1.53
Total Weapon Offences	Primary	151	0.31	0.93
	Secondary	1296	0.32	0.78
	Skills	71	0.39	0.93
	University	18	0.33	0.69
Total Sex Offences	Primary	151	0.54	1.14
	Secondary	1296	0.41	0.80
	Skills	71	0.41	0.69
	University	18	0.50	0.86
Total Robbery Offences	Primary	151	0.87	1.94
	Secondary	1296	1.02	2.10
	Skills	71	0.79	1.95
	University	18	0.39	0.70
Total Murder Offences	Primary	151	0.05	0.24
	Secondary	1296	0.02	0.14
	Skills	71	0.04	0.20
	University	18	0.17	0.38
Total Assault Offences	Primary	151	1.21	2.18
	Secondary	1296	1.04	1.91
	Skills	71	1.13	1.67
	University	18	0.94	1.59
Total Theft Offences	Primary	151	1.78	4.04
	Secondary	1296	1.14	4.11
	Skills	71	0.90	1.98
	University	18	0.83	2.26
Total Burglary Offences	Primary	151	1.62	5.35
	Secondary	1296	0.81	2.87
	Skills	71	0.99	4.15
	University	18	0.89	3.10
Total PO Offences	Primary	151	1.42	3.04
	Secondary	1296	1.09	2.18
	Skills	71	1.04	1.86
	University	18	1.06	2.04

There was no significant effect for educational level for drug offences, $F(3,1532)= 2.32$, $p<0.075$, nor weapon offences, $F(3,1532)= 0.21$, $p<0.894$, nor sex offences, $F(3,1532)= 1.17$, $p<0.323$; nor for robbery offences, $F(3,1532)= 1.00$, $p<0.395$; nor assault offences, $F(3,1532)= 0.41$, $p<0.745$; nor for theft offences, $F(3,1532)= 1.32$, $p<0.268$; nor for public order offences, $F(3,1532)= 1.03$, $p<0.379$. This indicated that the educational level of the offender had no effect on the number of drug, weapon, sex, robbery, assault, theft or public order offenses committed.

12.3.6 Specialism and Other Factors

Table 12.3.11 reports the results of a Chi-squared test that was used to examine the gender of the offender in terms of the classification of specialists using the 50% rule as described in Chapter Ten. The relationship between these two variables was significant, $\chi^2(1, N=1692) = 5.45$, $p<0.05$. Male offenders were significantly more likely to be classified as a specialist than female offenders.

Table 12.3.11 Cross-tabulation for Specialism and Gender

Classification		Gender		Total
		Female	Male	
Specialist @50%	Non-Specialist	47	1135	1182
	Percentage Non-Specialist	(3.98)	(96.02)	(100.00)
	Specialist	9	501	510
	Percentage Specialist	(1.76)	(98.24)	(100.00)
Total		56	1636	1692

A Chi-squared test was also used to examine the race of the offender in terms of the classification of specialists as reported in Table 12.3.12. The relationship between these two variables did not approach significance, $\chi^2(1, N=1692) = 0.20$, $p<0.653$. Black offenders were no more likely than white offenders to be classified as specialists.

Table 12.3.12 Cross-tabulation for Specialism and Race

Classification		Race		Total
		White	Black	
Specialist @50%	Non-Specialist	7	1175	1182
	Percentage Non-Specialist	(0.59)	(99.41)	(100.00)
	Specialist	4	506	510
	Percentage Specialist	(0.78)	(99.22)	(100.00)
Total		11	1681	1692

Table 12.3.13 Cross-tabulation for Specialism and Housing Area Type

Classification		Housing Area Type		Total
		Low	Middle	
Specialist @50%	Non-Specialist	1090	50	1140
	Percentage Non-Specialist	(95.61)	(4.39)	(100.00)
	Specialist	488	20	508
	Percentage Specialist	(96.06)	(3.94)	(100.00)
Total		1578	70	1648

Again, a Chi-squared test was used to examine the housing area type of the offender in terms of the classification of specialists. The results are reported in Table 12.3.13. The relationship between these two variables did not approach significance, $\chi^2(1, N=1648) = 0.17, p < 0.677$. The type of housing area in which the offender resided did not have a significant effect on the classification of specialists.

A Chi-squared test was also used to examine the employment type of the offender in terms of the classification of specialists and the results are reported in Table 12.3.14. The relationship between these two variables was significant, $\chi^2(1, N=1485) = 6.96, p < 0.01$. Offenders who were blue collar workers were significantly more likely to be labelled specialists than offenders who were white collar workers.

Table 12.3.14 Cross-tabulation for Specialism and Employment Type

Classification		Employment Type		Total
		Blue	White	
Specialist @50%	Non-Specialist	989	36	1025
	Percentage Non-Specialist	(96.49)	(3.51)	(100.00)
	Specialist	455	5	460
	Percentage Specialist	(98.91)	(1.09)	(100.00)
Total		1444	41	1485

Table 12.3.15 Cross-tabulation for Specialism and Educational Level

Classification		Level of Education				Total
		Primary	Secondary	Skills	University	
Specialist @50%	Non-Specialist	103	902	47	16	1068
	Percentage Non-Specialist	(9.64)	(84.46)	(4.40)	(1.50)	(100.00)
	Specialist	48	394	24	2	468
	Percentage Specialist	(10.26)	(84.19)	(5.13)	(0.42)	(100.00)
Total		151	1296	71	18	1536

Again, a chi-squared test was used to examine the level of education of the offender in terms of the classification of specialists. The results are reported in Table 12.3.15. The relationship between these two variables did not approach significance, $\chi^2(3, N=1536) = 3.68, p < 0.299$. These results indicate that the level of education attained by an offender had no bearing on whether he or she was classified a specialist.

12.3.8 Violence and Other Factors

A Chi-squared test was used to examine the gender of the offender for violent and nonviolent offenders. Table 12.3.16 reports the results. The relationship between these

two variables was significant, χ^2 (1, N=1692) = 29.44, $p < 0.001$. Males were more likely to be violent offenders than females.

Table 12.3.16 Cross-tabulation for Gender for Violent and Nonviolent Offenders

Classification		Gender		Total
		Female	Male	
Violent Offender	Nonviolent	39	562	601
	Percentage Nonviolent	(6.49)	(93.51)	(100.00)
	Violent	17	1074	1091
	Percentage Violent	(1.56)	(98.44)	(100.00)
Total		56	1636	1692

Table 12.3.17 reports the results for a Chi-squared test that was also used to examine the race of the offender for violent and nonviolent offenders. The relationship between these two variables was significant, χ^2 (1, N=1692) = 14.83, $p < 0.001$. Black offenders were more likely to be violent offenders than white offenders.

Table 12.3.17 Cross-tabulation for Race for Violent and Nonviolent Offenders

Classification		Race		Total
		White	Black	
Violent Offender	Nonviolent	10	591	601
	Percentage Nonviolent	(1.66)	(98.34)	(100.00)
	Violent	1	1090	1091
	Percentage Violent	(0.09)	(99.91)	(100.00)
Total		11	1681	1692

A Chi-squared test was also used to examine the housing area of the offender for violent and nonviolent offenders and Table 12.3.18 reports the results. The relationship between these two variables did not approach significance, χ^2 (1, N=1648) = 0.63 $p < 0.428$. The housing area in which an offender resided did not affect whether he or she committed violence offences.

Table 12.3.18 Cross-tabulation for Housing Area Type for Violent and Nonviolent Offenders

Classification		Housing Area Type		Total
		Low	Middle	
Violent Offender	Nonviolent	536	27	563
	Percentage Nonviolent	(95.20)	(4.80)	(100.00)
	Violent	1042	43	1085
	Percentage Violent	(96.04)	(3.96)	(100.00)
Total		1578	70	1648

Table 12.3.19 Cross-tabulation for Employment Type for Violent and Nonviolent Offenders

Classification		Employment Type		Total
		Blue	White	
Violent Offender	Nonviolent	495	24	519
	Percentage Nonviolent	(95.38)	(4.62)	(100.00)
	Violent	949	17	966
	Percentage violent	(98.24)	(1.76)	(100.00)
Total		1444	41	1485

Another, Chi-squared test was used to examine the employment type of the offender for violent and nonviolent offenders and Table 12.3.19 reports the results. The relationship between these two variables was significant, χ^2 (1, N=1485) = 10.32 $p < 0.01$. The offenders who were blue collar workers were more likely to be violent offenders than those who were white collar workers.

A Chi-squared test was used to examine the educational level of the offender for violent and nonviolent offenders. Table 12.3.20 reports the results. The relationship between these two variables did not approach significance, χ^2 (3, N=1536) = 1.53 $p < 0.677$. The

level of education attained by the offender did not assist in distinguishing between violent and nonviolent offenders.

Table 12.3.20 Cross-tabulation for Educational Level for Violent and Nonviolent Offenders

Classification		Level of Education				Total
		Primary	Secondary	Skills	University	
Violent Offender	Nonviolent	59	467	23	8	557
	Percentage Nonviolent	(10.59)	(83.84)	(4.13)	(1.44)	(100.00)
	Violent	92	829	48	10	979
	Percentage Violent	(9.40)	(84.68)	(4.90)	(1.02)	(100.00)
Total		151	1296	71	18	1536

12.4 Discussion

To reiterate, the main aim of this study was to investigate how the key criminal career variables were influenced by demographic factors. As hypothesised, there were gender, racial, housing area, employment type and educational level differences for the key variables: onset age, career length, chronicity, versatility and seriousness.

In this study male offenders started offending earlier than female offenders, had longer careers, were more violent and specialised, had higher levels of chronicity, versatility and seriousness in offending. These findings are in line with previous work (Bennett et al., 2005; DeLisi et al., 2011; Farrington, 1987; Steffensmeier, 1986; Tarling, 1993; Wolfgang & Tracy, 1982). Male offenders also committed more drug, weapon, sex, robbery, murder, assault, theft, and burglary offences than female offenders. However, there was no significant difference in terms of the number of public order offences

committed by male and female offenders. This finding is in line with previous research where it has been found that females are quite similar to males in terms of committing minor offences (Simpson & Herz, 1999; Smith & Visser, 1980; Steffensmeier & Allan, 1996).

Black offenders also had an earlier onset, a longer career, were more violent, and had higher levels of chronicity, versatility and seriousness in offending than white offenders; which also fits with previous research (see, Hindelang, 1978; Maxfield et al., 2000; Morenoff, 2005; Piquero & Brame, 2008; Shannon, 1978; Wolfgang et al., 1972). Black offenders also committed more sex, robbery, murder, assault, theft, burglary and public order offences. However, there were no racial differences in the levels of drug and weapon offending; this accords with previous research indicating that Blacks are more likely to participate in crimes of robbery, assault, burglary, rape, and murder (McNulty & Bellair, 2003; Wilson & Herrnstein, 1981). There was also no difference in the number of black and white specialists, indicating that race had no impact on the number of specialists in the sample. This accords with previous studies that have found no significant difference in specialisation between black and white offenders (Blumstein et al., 1988; Rojek & Erickson, 1982).

Additionally, in line with previous research, it was found that residents of low income housing areas started offending earlier, had higher levels of chronicity and seriousness than residents of middle income housing areas (see, Lindstrom, 1995; Loeber & Wikstrom, 1993; Wikstrom, 1991). However, there was no difference in terms of career length and versatility for offenders of either housing area. This finding departs from

previous research that found that career length varied by place of residence (Elliot et al., 1987; Shaw & McKay, 1972). Low income housing area residents committed more crime than middle income housing area residents, but had, on average, the same career length indicating that although middle income housing area residents committed fewer offences they did so over the same period of time as low income housing area residents and showed similar versatility.

It was also found that residents from low income housing areas committed more robbery, theft, burglary and public order offences than middle income housing area residents. However, there were no differences in the number of drug, weapon, sex, murder and assault offences committed by either housing area type. These findings suggest that different offences may be committed for different reasons. For example, offenders from low income housing areas due to a lack of money may be more inclined to commit robbery, theft and burglary offences for material gain. However, these same offenders may have the same psychological needs as those in middle income housing areas when it comes to drug, weapon, sex, murder and assault offending. As a result, the need for power, intimacy and lack of self-control allows these offenders to be similar in their offending despite the difference in housing areas. There was also no difference in the number of specialists or violent offenders for either housing area offender type. Overall, however, these findings do appear to indicate that criminal careers are context dependent (see, Wikstrom & Loeber, 2000), and housing area type may be an important contextual factor (see also, Farrington, 1995; Moffitt, 1993; Reiss, 1986).

In the present sample, offenders who were blue collar workers started offending earlier, had longer careers, were more violent and specialised, had higher levels of chronicity,

versatility and seriousness in offending than white collar workers. These findings are in keeping with previous research which found an over representation of the working class in crime activities (Douglas et al., 1966; Farrington, 1995; Hindelang et al., 1981). However, whilst more drug, weapon, robbery, assault, and public order offences were committed by offenders who were blue collar workers, there was no difference in the number of sex, murder, theft, and burglary offences committed by blue or white collar offenders. These results conflict with previous research that found that working class offenders committed more property and serious offences and the middle class offenders committed more drug and fraud offences (Douglas et al., 1966; Elliot et al., 1986; Farrington, 1995).

The relationship between offender educational level of attainment and the key criminal career research was found to be quite complex. There was a significant effect for educational level of the offenders in terms of onset age. Those offenders who attended secondary school started offending earlier than those who only attended primary school and those who attended university. Those offenders who attended skills training also started offending earlier than those who attended university. There was also a significant effect for educational level of offenders in terms of career length. Both offenders who only attended primary school and who attended skills training had longer criminal careers than those who attended secondary school. There was no significant effect for educational level of offenders on the level of chronicity, versatility and seriousness in offending.

There was a significant effect for educational level of offender in terms of the number of murder and burglary offences committed. Offenders who attended university committed

more murder offences than offenders that only attended primary school who committed more murder offences than offenders who attended skills training who committed more murder offences than offenders who attended secondary school. These results conflict with previous research which found that higher levels of educational attainment had a substantial effect on offences of murder such that those with higher levels of educational attainment rarely committed murder offences (Lochner & Moretti, 2004). Those offenders who only attended primary school committed more burglaries than those offenders who attended secondary school. This finding is consistent with previous research that has found that an increase in educational level is likely to reduce the subsequent commission of property crimes (Gottfredson, 1981; Lochner, 2008). There was no significant effect for educational level of offenders on the number of drug, weapon, sex, robbery, assault, theft, and public order offences. There was also no significant difference for educational level of offenders in terms of the number of specialists or violent offenders.

In this sample, evidence of specialisation was found amongst males, and blue collar workers. These results underscore those found in Chapters Nine and Ten, indicating that there is evidence of specialisation in this sample, and are in line with previous findings that have also found evidence of specialisation (DeLisi, 2011; Piquero et al., 1999). However, the fact that specialisation tends to be limited to these groups highlights the need for future research to examine the factors underlying the relationship between demographic factors and specialisation.

Violent offenders were found to be male, black, and blue collar workers. Race and gender have been found to be critical factors in violent offending (Elliot, 1994; Ezell, 2007; Piquero, 2004). Previous studies have found that males are more likely to participate in violent offending in their criminal careers than females (Denno, 1994; Kruttschnitt, 1994; Piquero, 2000) and Blacks are more likely to participate in violent offending than Whites (Elliot, 1994; Ezell, 2007). These findings were reproduced in this study. However, the current findings apparently conflict with those of previous studies which have found that violent offenders are more likely to come from underclass communities and who had not completed high school (Elliot & Huizinga, 1983; Grogger, 1998; Lichtern, 1988; Silberman, 1978; Wilson, 1987; Wolfgang, 1958).

Taken together, arguably it could be said that the majority of the results reported in this chapter support the hypotheses put forward at the beginning, and are generally in line with previous findings. There are, however, some notable exceptions. Particularly intriguing are the findings that 1) there was no difference in the number of sex, murder, theft, and burglary offences committed by blue or white collar offenders; 2) there was no difference in terms of career length and versatility for offenders from high and low income housing areas; 3) there was no significant effect for educational level of offenders on the level of chronicity, versatility, seriousness and violence in offending; indeed, and particularly interesting, 4) offenders who attended university committed more murder offences than offenders than those less well educated. There are a number of points that one can make here.

Firstly, social class factors such as housing area type and employment level are fraught with definitional problems unlike gender and racial correlates. These definitional problems make it difficult to compare research findings and explain conflicting findings (Feldman, 1993). Nevertheless, secondly, it must be remembered that these figures do not necessarily contradict economic models of crime as they refer to comparisons *within* a sample of offenders, not the proportions of individuals from various backgrounds who commit various criminal acts. For example, the present results indicate that offenders who have attended university are more likely to commit murder than those who have not. It does not, however, indicate that individuals who have attended university commit more murders than those who have not attended university. In the same way, there is no contradiction in saying that, in general, white collar workers commit fewer crimes of sex, murder, theft, and burglary than blue collar workers; however, *when they do offend*, white collar workers commit as many offences sex, murder, theft, and burglary offences as blue collar workers. In other words, when demographic trends *within* samples of offenders mirror trends in the general population, they doubly reinforce the strength of underlying theories that hypothesise such trends. However, when they do not mirror general trends in the population, this does not necessarily contradict theories that aim to explain why some categories of society are more likely to offend than others. Consequently, the apparently discrepant findings in the present chapter cannot be interpreted as contradicting hypotheses that relate higher levels of crime to demographic factors such housing, employment and education. They do, however, suggest that *when they do offend*, individuals from Barbados who come from more ‘privileged’ backgrounds do not always behave that differently from those from less privileged back grounds, and may even engage in more violent types of crime (i.e. murder).

This leads us to ask why? Given that more privileged offenders are still ‘offenders’, it would not necessarily be surprising if they behaved like less privileged offenders when they actually offend. However, what is interesting is that other studies have found demographic differences, even within groups of offenders that did not occur with the present sample. This suggests that there may be something about the culture or subcultures of Barbados that makes offending less sensitive to demographic factors relating to socio-economic status than those of more developed nations. A possible explanation may be that, in Barbados, the distinction between socio economic status levels (as defined in the thesis) is blurred. Around the time of independence in Barbados, 1960s, the population consisted of an elite upper class of plantation owners, a group of professionals e.g. accountants, lawyers, and a large group of lower class field labourers and domestic servants. Since that time, however, whilst the upper class has remained about the same size, and the lower and middle classes have combined to form one huge class; encompassing everyone from the blue-collar work to a wide range of white collar workers and professionals with a common identity (Schomburg, 1998). Consequently, in terms of perceptions, those from a middle class background may consider themselves to be no more privileged than those from a lower class background.

The possible cultural differences highlighted in this chapter provide a pathway to the next chapter where a comparison of criminal career research across cultures will be made.

Chapter Thirteen

Criminal Career Research: Comparisons across Cultures

13.1 Introduction

Criminal career research has mainly been conducted in countries such as the United States (USA), the United Kingdom (UK) and Canada, as mentioned previously in Chapter 5. These countries share a number of commonalities. Most importantly, they are all first world countries i.e. they are among those countries that lead the world in economic activity and progression, technological advances, modern medicine, excellent transportation systems and a high standard of living. Perhaps because of this, findings in criminal career research for these countries are generally quite similar (see Chapter 5). However, for countries that are less advanced or maybe considered third world countries, are such findings applicable? This chapter endeavours to investigate this issue by comparing the criminal career findings for the present sample from the developing country of Barbados with criminal career research findings for the more advanced, well-developed countries of the USA, the UK, and Canada.

It should be noted that cross-cultural comparisons of criminal careers are likely to be complicated for a number of reasons. For example, the definition of crime and criminal offences, and the probability of a crime being reported, or even recorded, vary somewhat by country (Feldman, 1993). Thus certain offences in one country may not be considered crimes in other and, therefore, not reported (Radzinowicz & King, 1977). Also the dark

figure may vary by country. The dark figure represents the crimes not captured by official statistics through errors of omission by the public reporting to the police, or through differences in police recording. For example, the police may opt to give the offender a stern warning and not lodge an official report especially if the offender is a juvenile (Feldman, 1977). Moreover, Skogan (1984) also argues that crime rates may be lower in the less developed nations, as citizens have to walk to report the crime and the police may be less professional.

Other evidence that points towards possible cultural variation comes from an examination of historical and cultural trends within countries in which crime statistics are more accurate and freely available. For example, crime trends in the USA have been linked to cultural changes in Western society (Feldman, 1993). Guur (1981) listed a number of factors that may have influenced change over the years: these include rapid urbanisation and industrialisation, sudden economic prosperity and decline, demographic factors (increased percentage of young males in the society), and sensitivity to interpersonal crimes. Moreover, Wilson and Herrnstein (1985) have argued that the ratio of young people to the rest of the population was an important factor in understanding changing crime rates along with the introduction of a professional police force, greater use of prison sentences, changes in social life and the level of alcohol use. Such within culture factors suggest that one might expect differential cross-cultural effects on crime and criminal careers.

13.2 Comparison of General Characteristics

Table 13.1 General Country Characteristics for Barbados, Canada, the UK and the USA

Characteristics	Barbados	Canada	UK	USA
Area (sq km)	431	9,984,670	244,820	9,826,630
Climate	Tropical	Temperate/Sub-artic	Temperate	Mostly, Temperate
Agricultural Land %	44.2	7.4	73.1	45.0
Population	281,968	33,212,696	60,943,912	303,824,640
Rural Population %	60	20	10	18
Median Age (years)	35.4	40.1	39.9	36.7
Sex Ratio (male/female)	1.01	1.06	1.05	1.05
Infant mortality (per 1000 live births)	11.05	5.08	4.93	6.3
Life expectancy at birth	73.21	81.16	78.85	78.14
Literacy (%)	99.7	99.0	99.0	99.0
Legal system	English common law	English common law	English common law with other influences	Each state has its own unique system
GDP per capita (\$)	18,900	38,600	35,000	45,800
Inflation rate (%)	5.5	2.1	2.3	2.9
Unemployment rate (%)	10.7	6	5.3	4.6

Table 3.1 lists the general country characteristics for Barbados, Canada, the UK, and the USA. Barbados is miniscule in comparison to the size of the USA, the UK, and Canada. The climate is tropical and almost half of the land is used for agricultural purposes; which is similar to agricultural land usage in the USA. However, the population is a fraction of the population of the other countries and more than have of the population live in rural areas, whereas approximately 20% of the population in the USA, the UK and Canada live in rural areas. The median age in Barbados is 35.4 years where as it is 36.7, 39.9, and 40.1 years for the USA, the UK and Canada, respectively. This suggests that the population of Barbados is generally younger. Also, the people of Barbados do not on

average live as long as people in the USA, the UK and Canada as indicated by the life expectancy rates in Table 13.1.

For such a small country, the GDP per capita for Barbados is just under half of the GDP per capita of the other countries. However, the inflation and unemployment rates are approximately double the rates of those in the other countries. Whereas the GDP per capita give a good indication that Barbados is a strongly developing country, the inflation and unemployment rates indicate it has quite a way to go.

Because of the lower GDP per capita in Barbados we might expect there to be differences in criminal activity. However, it is important to note that this does not necessarily mean that there are fundamental differences in nature of, or the factors influencing criminal careers, in Barbados. For example, intentional homicide represents the most serious end of the spectrum of violent crime and is a key crime indicator. According to homicide statistics drawn from the United Nation Office on Drugs and Crime (UNODC) for 2010, the world's average homicide rate per 100,000 persons is 7.60. UNODC results for the world suggest that the highest homicide levels are found in the Americas and Africa and the lowest levels are found in Europe. For the countries considered here, Barbados has the highest rate at 17.00, followed by the USA (5.00), Canada (1.81), and the United Kingdom (1.28). This could be construed as a preliminary indicator that crime rates generally are higher in Barbados. However, the evidence also suggests that the lethality of assaults has dropped dramatically in North America and Western Europe due to developments in medical technology and medical support systems (Aebi, 2004). This is

one reason why the homicide rates are lower in North America and Europe, and might also account for the higher rates of homicide in Barbados without postulating that, for example, offenders in Barbados are more ‘violent’, or offend more frequently.

As just noted, another factor which might spuriously affect cross-cultural comparisons is that of differences in legal systems. However, although the UK legal system also has Roman and modern continental influences and the individual states in the USA all have their own unique legal elaborations; essentially the legal system in Barbados is based on English Common Law as are the legal systems in the UK and Canada, and these bear considerable similarity to those used in the USA. Consequently, it seems reasonable to suggest that there are sufficient similarities in the legal systems of these countries to argue that this is not likely to be a confounding factor when comparing criminal careers across the cultures.

Bearing such considerations in mind, a comparison of the present results with those found in the USA, UK and Canada shows the following.

13.3 Criminal Career Research Comparisons

As a starting point for comparison, it can be noted that one of the most pervasive findings in criminal career research is that a small percentage of offenders are found to be responsible for a large percentage of the offending. As mentioned in Chapter Five, Wolfgang et al. (1972) identified these offenders (6% of cohort and 18% of offenders) in

his Philadelphia Cohort Study and found them to be responsible for 52% of the offences committed (see also, Tracy et al., 1990). The studies in the UK also found that most crimes were committed by a group of ‘chronic’ offenders (West & Farrington, 1973; 1977). Importantly, this was also the case for the present sample from Barbados; i.e. 13% of the offenders committed 52% of all offences. With further regard to the key criminal career variables, and specialisation, violence and demographics variables the comparative findings are as follows.

13.3.1 *Onset Age*

The average age of onset in the sample from Barbados was 22.38 years whereas in the USA the average age of onset was in the early and mid-teens (Petersilia et al., 1978; Peterson et al., 1980; Shannon, 1976; Tracy et al., 1990; Wolfgang et al., 1972) and in the United Kingdom the average age of onset was between 14 and 17 years (Farrington, 1992; HOSB, 1989). The age of the offender ranged from 8.87 to 69.86 years in the sample from Barbados. However, the datasets in the USA and the UK examined mainly juveniles and followed them for approximately 40 years, which may partly account for the lower average onset age. Additionally, while in the present thesis, onset age was defined as the age at which the offender had received his/her first charge, (see Chapter Seven), a number of studies in the comparison countries defined onset age by age of first police contact (which does not necessarily lead to a charge) and police contact generally precedes a charge. This factor might also account for the difference seen in average onset age.

Across all three comparison countries, it was generally found that the earlier the onset of the career, the more lengthy, serious and pervasive the offending as the career progresses (Day et al., 2008; Farrington, 1992; Glueck & Glueck, 1950; HOSB, 1989; Le Blanc & Frechette, 1989; McCord, 1978; Shannon, 1976; Tracy & Kempf-Leonard, 1996; Tracy et al., 1990; West & Farrington, 1973; 1977; Wolfgang et al., 1972). This was also the case in the present thesis; as shown in Chapter Eight, the earlier the onset age, the longer the criminal career, the more offences committed, the more serious the offences and the more versatile the offender.

13.3.2 *Career Length*

Career length was defined, in Chapter Seven, as the number of years between the first charge received and the last. The average career length in the sample was 6.11 years where as in the USA the average career length ranged from 6 to 7 years (Spelman, 1994); in the United Kingdom the average career length ranged from 5 to 10 years (Barnett et al., 1987; Farrington, 1992; HOSB, 1995; Tarling, 1993) and in Canada the average career length was found to be 8.4 years (Day et al., 2008). These data suggest that the average career length for the sample from Barbados falls comfortably within the estimates for the first world countries.

13.3.3 *Chronicity*

In Chapter Seven, chronicity was defined as the total number of charges received. The average chronicity was 7.08 charges in the Barbados sample. However, although chronicity has been examined in the literature it has been used mainly as a way to classify

offenders (e.g. as 'Chronic') rather than as a continuous variable, hence mean chronicity figures are not generally available (Barnett et al., 1987; 1989; Svensson, 2002; Wolfgang et al., 1972). Nevertheless, Farrington (1992) found that the average criminal career resulted in 4.5 offences leading to convictions. However, this may be misleading as a comparison figure as Farrington (1992) only followed his sample to age 32 and it is highly likely that the average number of offences committed in the criminal career would increase with an older cut-off point.

13.3.4 *Seriousness*

Seriousness was measured by a scale created in this thesis, details of which can be found in Chapter Seven. The seriousness score indicates the level of seriousness in offending for each offender and, in the present sample, it ranged from 1 to 45. The average level of seriousness was 12.29. Scores of seriousness have not generally been reported in the studies conducted in the USA, the UK and Canada because of the difficulties researchers have had in developing a scale. As mentioned previously in Chapter Seven, most scales of seriousness have been based on subjective judgments (Gorsuch, 1938; Sellin & Wolfgang, 1964; Broadhurst & Indermaun, 1982). Seriousness has also been used as a way to classify offenders based on their participation in criminal activity (Elliot, 1994; Kempf-Leonard et al., 2001). It is only in recent research that progress has been made on developing a scale of seriousness. Such research has generally shown that seriousness increases as the number of offences committed increases (Farrington, 1989; Petersilia et al., 1978; Shannon, 1978; Tracy et al., 1990; Wolfgang et al., 1972). The present results replicate this finding (see Chapter Eight); i.e. seriousness and chronicity were found to be highly positively correlated.

13.3.5 *Versatility*

Many studies have been confounded the subject of versatility by defining versatility as the polar opposite of specialisation and in turn examine versatility by studying the lack of specialisation. As a result, there are very few measures of versatility and very few studies that use them. In this thesis, versatility is defined as the number of different offence types the offender has participated in (see, Chapter Seven). In the present sample, the average versatility was 2.82 offences. The Rand Study in the USA found that half of the inmates reported committing at least four different types of crimes during the three-year period preceding their current imprisonment (Petersilia et al., 1978). However, the Rand Study used a sample of habitual offenders, therefore the versatility is likely to be higher for that sample as Day et al. (2008) reported that versatility increased with the number of offences committed in his sample from Canada.

13.3.6 *Types of Offending*

The offences committed by the sample of offenders from Barbados were grouped in to nine offence types: drug, weapon, sex, robbery, murder, assault, theft, burglary, and public order offences as explained in Chapter Seven. The offences most often committed in this sample were drugs and theft. This is in keeping with previous results from the UK and Canada, where it was found that the most popular crimes were property offences inclusive of theft and burglary (Day et al., 2008; Farrington, 1989; 1992; Le Blanc & Frechette, 1989).

Previous research has found that offence type may vary within criminal careers. For example, Wolfgang et al. (1972) found that criminal careers often started with minor offences and progressed to more serious offences. In addition, Farrington (1989) showed that the age-crime curve differed from one offence type to another. This also suggests that the age of onset of offending differs according to offence type such that there was a progression in offending where shoplifting tended to be committed before burglary and burglary before robbery. The results reported in Chapter 8 (see Table 8.3.2) generally replicate these findings where assault and theft offences were generally committed at an earlier age than drugs and sex offences. These findings support previous findings that suggest that there is a general progression from relatively minor offences to more serious ones and that certain offences occur at an earlier age than other offences (Farrington, 1989; Petersilia et al., 1980).

13.3.7 *Specialisation*

Older findings in criminal career research in the USA, the UK, and Canada predominately found little to no evidence of specialisation (Petersilia et al., 1978; Peterson et al., 1980; West & Farrington, 1973; 1977; Wolfgang et al., 1972); however, more recent studies have found stronger evidence of specialisation (Francis et al., 2004; McGloin et al., 2009; Sullivan et al., 2006). Specialisation has been found to be more evident in repeat offenders and more pronounced as the number of offences committed increases (Le Blanc & Frechette, 1989; Tracy et al., 1990). In Chapter Nine, some degree of specialisation was also found in the present sample which is consistent with the more recent research.

Specialisation has been examined in various types of offending and it has been found to be more prominent in a few. For example, specialisation has been found to be quite high in drug, property, and violent offences (Armstrong, 2008; Blumstein et al., 1988; Brennan et al., 1989; Farrington et al., 1988; Schwaner, 2000). These findings were also replicated in this sample from Barbados. In Chapter Ten, it was found that drug, property and assault offending showed higher levels of specialisation. Previous research in specialisation in violent offending has revealed mixed findings. Some studies have found no tendency to specialise in violent offending (Blumstein & Cohen, 1979; Hamparian, Schuster, Dinitz, & Conrad, 1978; Piquero, 2000b; Rojek & Erickson, 1982; West & Farrington, 1977; Wolfgang et al., 1972), while others have found evidence of specialisation in violent offending (Brennan et al., 1989; Buikhuisen & Jongman, 1970; Bursik, 1980; Farrington et al., 1988; Peterson et al., 1962; Walker et al., 1967). The current research provides support for specialisation in violent offending.

13.3.8 *Violence*

Research in the first world countries have found that generally violent offenders have an earlier age of onset compared to other offenders (DeLisi, 2006; Moffitt, 1994; O'Grady et al., 2007; Piquero et al., 2007; Weiner, 1989); they have longer careers (Blumstein et al., 1982; Ezell, 2007; Piquero, 2004); they tend to commit more crimes (both violent and nonviolent) than nonviolent offenders (Brame et al., 2001; Cohen, 1986; Elliot, 1994; Farrington, 1991; Loeber 1988; Loeber et al., 1998); and they been found to be very versatile (Elliot, 1994; O'Grady, et al., 2007; Petersilia et al., 1997; Peterson et al., 1981).

The study reported in Chapter Eleven, found that, in the present sample, violent offenders, when compared to nonviolent offenders, had an earlier age of onset, a longer career length, higher chronicity, greater versatility, and higher levels of seriousness. The study also found that violent offenders committed significantly more weapon, theft, burglary, and public order offences than nonviolent offenders. In other words, the present results are very consistent with research from the three comparison countries.

13.5 *General Discussion*

Overall, the results from the present sample from Barbados seem generally consistent with findings from studies conducted in the USA, the UK and Canada. In all countries, a small percentage of offenders commit a disproportionate number of criminal offences. Also, the earlier an offender commences his or her career, the longer the career and the greater the chronicity, versatility and seriousness of offending. Violent offenders are also found to start offending earlier than nonviolent offenders, have longer careers, commit more offences, are more versatile and commit more serious offences.

There are, however, a few differences which are worthy of comment. For example, whereas in all countries, the criminal career begins early in life, the average age of onset in the Barbados sample is generally older than the average age of onset in the studies conducted in the USA, the UK and Canada. This deviation from previous findings could have occurred for a variety of reasons, but, as mentioned previously, perhaps the most likely is that the present sample included more late-onset offenders, pushing the average

onset age of the sample upwards. For example, Farrington (1991) found that in his sample where onset age was measured by age at first conviction, a quarter of the fathers did not receive their first conviction until age 35 and they were considered late-onset offenders.

In general, as indicated by the homicide and chronicity data, offenders in Barbados seem to lead more prolific criminal careers, though. More comparative data would solidify this conclusion. Perhaps the most obvious reason for this is that the GDP per capita is much lower in Barbados, and we know that lower incomes are related to higher rates of crime (Lochner, 2004; Petersilia et al., 1978; Peterson et al., 1980).

The data from Barbados also indicate drug and theft were particularly popular offences. In contrast, while theft and property offences were also the most committed offences in the USA, the UK and Canada, drugs were not. However, developing nations have been found to be vulnerable to the offences of smuggling, drug trafficking and bribery. This is particularly so of countries that lay between South and North America, as Barbados does; these countries are often used as trans-shipment points and hence develop a thriving illegal drug market (United Nations Office on Drug and Crime & Latin American and the Caribbean Region of the World Bank, 2007).

However, there are also a number of other factors that have been identified by researchers as possibly influencing criminal careers that were not specifically investigated in the present studies; these include, lax discipline, poor supervision, weak emotional bonds

between parent and child in family structure; settling down with a significant other; job stability; troublesomeness; convicted parents; impulsivity; poor housing; living in public housing in the inner city; socially disorganised communities, low school grades and I.Q. (Farrington, 1989; 1995; Glueck & Glueck, 1950; Le Blanc & Frechette, 1989; McCord, 1978; Shannon, 1976; West & Farrington, 1973; 1977). Future research in these areas with a dataset from Barbados might prove fruitful. Notwithstanding, the differences, however, perhaps the main conclusion to be drawn from the results considered in this chapter, is that with regard to criminal career variables, the results from the Barbados sample are more similar than dissimilar to those found in the comparison to first world countries.

PART 3:

GENERAL DISCUSSION & CONCLUSIONS

Chapter Fourteen

General Discussion of Results

As it was emphasised at the beginning of this thesis, the criminal career approach has helped to shape the field of delinquency and crime over the last quarter of a century. In particular, the criminal career approach has provided a framework that enables the researcher to partition the criminal careers of offenders into a number of relevant variables or factors that, when examined, may aid in the understanding of criminal thought, behaviour, and development. Accordingly, the study of criminal careers and the associated key variables (such as onset age, career length, chronicity, versatility, seriousness) has engaged the interests of many academics, especially psychologists and criminologists. Nevertheless, despite the growing psychological and criminological literature on criminal careers, there are still gaps in our knowledge concerning how the main key variables relate to each other and other factors such as offence types and demographic characteristics. Also, and very significantly, most of the research has been confined to a few highly developed countries, so we do not know whether it can be generalised to less developed countries and cultures.

In light of this, a central focus of this thesis was to determine whether findings regarding the criminal careers of a sample of offenders in Barbados, a developing country, are generally representative of findings of previous studies in the criminal career approach in other countries. To reiterate, a number of key issues were investigated in an effort to achieve this goal: 1) the relationship between the key criminal career variables of onset age, career length, chronicity, versatility, and seriousness; 2) the relationship between the

key criminal career variables and offence type; 3) the degree of specialisation in the sample and how specialisation relates to the key variables and offence types; 4) violence in criminal careers and how it relates to the key variables, specialisation and offence types; 5) the relationship of the aforementioned variables to demographic factors; 6) criminal career findings for a sample in Barbados as compared to criminal career findings in first world countries. By gathering data pertinent to these issues it was hoped not only to extend our knowledge of the nature of relationship between these variables, but to determine whether the results from a sample in Barbados can be considered generally representative of similar findings from previous studies in other countries.

14.1 The Importance of the Key Variables

As mentioned previously in Chapter Two, the importance of age and crime has been the most keenly researched topic in criminal career research with studies dating back to 1831 when Quetelet examined how the propensity to commit crime varied with age. Therefore, an examination of the relationship between onset age and the other key career variables was considered a good starting point for the empirical research. In Chapter Eight, it was predicted that a negative relationships would exist between onset age and career length, chronicity, versatility and seriousness, and that these variables would correlate positively with each other. In addition, it was predicted that public order offences and theft offences would occur at an earlier age in the criminal career than more serious offences of sex and robbery; and also that property offenders (e.g. theft and burglary offenders) would have shorter career lengths, lower chronicity, less versatile careers, and commit less serious offences than personal offenders (e.g. sex offenders, robbery offenders).

Studies have generally found that the average age of onset, tends to be quite early between 8 and 17 (DeLisi, 2006; Patterson et al., 1998; Tibbetts & Piquero, 1999). The average age of onset in the sample (22.4 years) is higher than generally seen in previous studies. However, this may have been due to a greater age range in the sample or a greater proportion of older offenders.

One of the most robust findings in criminal career research is that onset age is related to future delinquency and offending (Bacon et al., 2009) such that the earlier the onset age the greater the likelihood of future offending, the longer the criminal career, the higher the chronicity, the more versatile the offender and the more serious the crimes (Blumstein et al., 1986; Elliot, 1994; Farrington et al., 1990; Loeber & Le Blanc, 1990; Synder, 1988; Tolan, 1987). In line with the hypothesis, this finding was replicated in this thesis. It can be noted that the age at which an offender commences his criminal career may be particularly important as it might signal the developmental stage at which an individual is most vulnerable to participation in deviant behaviour and it might draw attention to the social influences that are critical at that developmental stage. For, example, deviant peers or a criminogenic environment may be crucial factors in the commencement of a criminal career.

Although it might be expected that the other key criminal career variables would be strongly linked to one another, few studies have explored their interrelationships, and when they have, results have been mixed (Monahan & Piquero, 2009). However, in line with the relevant hypothesis in the present thesis, significant positive relationships were

also found to exist between career length, versatility, chronicity, and seriousness. This is in line with studies that have found that these variables are directly interrelated (Chaiken & Chaiken, 1982; Farrington et al., 1996; Reiss & Roth, 1993; Smith & Smith, 1984; Spelman, 1994; Tolan & Gorman-Smith, 1998). And, importantly, such findings could be construed as supporting Gottfredson and Hirschi's (1990) view that there may be a single underlying construct, such as criminal propensity, that underlies engagement in criminal careers.

To assess the relative importance of onset age as a predictor of the other variables, a series of multiple linear regressions was conducted. All of the criminal career variables significantly predicted career length, versatility, chronicity, and seriousness. Versatility, however, had the greatest influence of all predictors moreover, seriousness, not onset age, was found to be the strongest predictor of versatility. However, by way of explanation, in Chapter Eight it was argued that, as versatility is measured by the number of different kinds of crimes that an offender commits, it could be construed as a particularly good indicator of the extent to which an offender is committed to a general criminal lifestyle (Commonwealth of Pennsylvania, 1991; Steffensmeier, 1986). Consequently an offender who scores high on versatility might be more likely to start offending earlier, have a longer career, commit more offences, and commit more serious offences. Correspondingly, as criminals become more versatile, they are to commit more serious offences.

Although, the variables of onset age and career length have been related to various offence types, few studies have examined the level of chronicity, versatility and seriousness in criminal careers by offences. In terms of onset age, a number of studies have found that minor offences such as theft, public order and burglary offences tend to occur earlier in the criminal career, whereas assault occurs later (Le Blanc & Frechette, 1989; Piquero et al., 2007). However, in the present sample, assault offences occurred earlier in the criminal career. As a possible explanation for this, in Chapter Eight it was argued that assault offences are generally more commonplace in Barbados and, therefore, are likely to occur earlier in the criminal career of an offender from Barbados. For example, Wilson and Hernnstein (1985) noted that the ratio of property to personal crimes was about 8:1 in developed countries, whereas in developing countries the ratio was about equal; indicating that personal crimes were just as popular as property crimes in developing countries.

In the present sample, the career length for sex and drug offenders was shortest while the career length for burglary and theft offenders was longest. These findings are consistent with Le Blanc and Frechette's (1989) study, where offenders who committed crimes against the person had short career lengths while and those who committed burglary and petty larceny had the longest career length. These findings suggest that persons who commit burglary and theft offences are more persistent offenders and, therefore, have longer careers and are likely to have higher chronicity, greater versatility and more serious offences. This was confirmed by the present finding that burglary offenders committed the most crimes, showed the greatest versatility and their offences were most serious.

However, a closer examination of sex and drug offenders found that they were quite different from the other types of offenders and each other. Sex offenders and drug offenders showed the lowest chronicity, the least versatility, and the lowest levels of seriousness. Also, sex offenders did not differ in the number of offences committed compared to non-sex offenders, and non-sex offenders were more versatile than sex offenders. Furthermore, non-drug offenders showed higher seriousness than drug offenders. In Chapter Eight it was argued that sex and drug offenders may, therefore, be unique in some respects compared to other offenders; for example, their motivation may not involve material gain per se, or a general propensity to commit crime, but may correspond to more specific personal needs.

As noted in Chapter Eight, taken together, the initial findings in this study seem to support the general propensity theory of crime as articulated by Gottfredson and Hirschi (1990); however, the latter findings seem to offer support for a more discrete theory of crime (Blumstein et al., 1986); i.e. the distinction made between sex and drug offenders and the other offenders indicates more complexity in criminal careers. Therefore whilst a general criminal propensity may underlie much or even most criminal behaviour, certain offences e.g. sex, drug may be motivated by other factors and hence may be fuelled by other psychological processes.

14.2 Specialisation in the Sample

The study of specialisation is an important aspect of criminal career research. It implies heterogeneity among offenders on more than one underlying theoretical dimension and has important implications for theories of criminal behaviour. Evidence for specialisation in criminal careers has been varied with little evidence of specialisation in juvenile offending and mixed results with adults (DeLisi, 2002; Klein, 1971; Piquero et al., 2003; Wolfgang et al., 1972). However, given some trends in the literature (for example, Armstrong & Britt, 2004; Britt, 1996; Deane et al., 2005; Kempf, 1987), it was hypothesised that specialisation would be apparent in the present sample, that there would be a positive correlation between specialisation and career length, and that specialisation would be most evident for burglary, theft, assault, drug and public order offences.

In line with the hypotheses, the present results described in Chapters Nine and Ten indicated some degree of specialisation in the sample (30% of the sample showed evidence of specialisation using the 50% rule). This is consistent with studies that have found evidence of specialisation in criminal careers (Armstrong & Britt, 2004; Britt, 1996; Deane et al., 2005; Kempf, 1987).

A variety of evidence suggests that specialisation may start earlier in the criminal career but increases with age and, by extension, criminal career length (Brame & Dean, 1999; Mazerolle et al., 2000; Piquero et al., 1999; Simon, 1997). This was also the case in the present sample; i.e. the onset age of a specialist was significantly earlier than that of a non-specialist, and greater specialisation was associated with longer career lengths.

There are a number of possible explanations for this that are not mutually exclusive; for example, it could be that, as the criminal career proceeds, certain types of offence are most likely to satisfy their needs and goals than others. Also, they may simply become more skilled or confident in committing certain kinds of offence rather than others.

In the present sample, it was also found that specialists showed a lower level of crime seriousness, but did not differ from non-specialists in terms of chronicity. Perhaps not surprisingly, specialists also showed lower versatility, but it should be emphasised, that, the majority of offenders (70%) did not show evidence of specialisation. This appears to support an emerging body of evidence suggesting that specialisation and versatility may coexist, at least within the same sample (Britt, 1994; Farrington et al., 1988; Stander et al., 1989).

Also, specialisation appeared to be most prominent in burglary, drugs, robbery and theft offences. These findings are also in line with previous research (Brennan et al., 1989; Rojek & Erickson, 1982; Tunnell, 2006; Armstrong, 2008). For example, Shover (1996) found that some offenders tended to see themselves as burglars or robbers and restrict themselves to these types of crimes. In the case of burglary, robbery and theft, it may be that the monetary gains received reinforce the frequency with which they are committed. And, in the case of drugs, as alluded to earlier, it could be that psychological factors, such as addiction, may influence the need to repeatedly commit these types of crime. The results also indicated very little specialisation, however, for murder, weapon, and sex offences. These findings are also consistent with previous research (Lussier et al., 2005;

Rojek & Erickson, 1982). This could be because, for most offenders, unlike burglary or theft, murder and the use of weapons are unlikely to be used repeatedly as a method of achieving a particular goal, such as material gain. Hence unlike burglary and theft, 'serial killing' is a relatively rare offence. Sex offences, are particularly interesting as sex offenders tend to be both low in terms of both specialism and versatility. However, sex offenders also tend to be lowest on chronicity, which might account for both their low specialisation and versatility; that is, they commit fewer crimes generally.

14.3 Violence in the Sample

A number of researchers have argued that the possible distinction between violent and nonviolent offenders has important implications for the general and discrete factors issue in criminal career research (Brame, Bushway, Paternoster, & Thornberry, 2005; Laub & Sampson, 2003; MacDonald, Haviland & Morral, 2009; Piquero, Brame, Mazerolle, & Haapanen, 2002). Consequently, violence is given special attention in the present thesis. In particular, it was hypothesised that violent offenders would commence their criminal careers earlier than nonviolent offenders; their career lengths would be longer; their levels of chronicity would be higher, their versatility would be greater, and their levels of seriousness higher (see, Blumstein et al., 1986; Loeber & Hay, 1997; Loeber & LeBlanc, 1990; Loeber & Stouthamer-Loeber, 1998; Nagin & Tremblay, 1999; 2001). It was also hypothesised that early onset violent offenders would commit more crimes (violent crimes included) than late onset violent offenders. In contrast, there would be no difference in the number of specialists amongst violent offenders as compared to nonviolent offenders.

Results broadly supported the hypothesised effects; i.e. violent offenders when compared to nonviolent offenders had an earlier age of onset, a longer career length, higher chronicity, greater versatility, and higher levels of seriousness. Violent offenders also committed more kinds of other crimes as well as violent crimes (in particular, more weapon, theft, burglary, and public order offences) than nonviolent offenders. These results are in line with the finding in previous studies that violent offenders are essentially frequent offenders (Brame et al., 2001; Capaldi & Patterson, 1996; Cohen, 1986; Ezell, 2007; Farrington, 1991; Guttridge et al., 1983; Loeber 1988; Loeber et al., 1998; Martinez, 1997). Early onset violent offenders committed more offences in general as well as more violent offences than late onset violent offenders. These results reinforce the importance of early onset age in criminal career research and support the growing consensus view that violent offenders commence their criminal careers earlier (Blumstein et al., 1986; Mazerolle et al., 2000; Simons et al., 1994).

However, violent offenders, in the present sample, had significantly fewer drug charges than nonviolent offenders; this is contrary to previous research findings and may reflect something about the drug culture in Barbados. For example, there are a number of different types of drug offenders, such as, drug users, drug pushers, drug traffickers, and drug importers. These different types of offender may vary in terms of their willingness to use violence and non-violent categories may be more prominent in Barbados.

As predicted, it was also found that violent offenders were no more likely to specialise than nonviolent offenders. This finding is consistent with previous studies that have found that offenders do not specialise in violence (Elliot, 1994; Farrington, 1991; O'Grady et al., 2007; Petersilia et al., 1997; Peterson et al., 1981). For example, O'Grady et al. (2007) found that the criminal careers of serious (violent) offenders were composed of a wider variety of offences and that they showed no tendency to specialise in any particular type of offence, including violent offences.

In sum, the findings of the present study support the view that the reason why some offenders exhibit more occasions of violent offending than others is simply because they offend more often. And, as such these findings could be considered to offer support for the general theory of crime proffered by Gottfredson and Hirschi (1990).

14.4 Key Variables and Other Demographic Variables

Given it is now commonly accepted that demographic factors may influence crime, hence, in the present thesis, the role of demographic factors in criminal careers was also investigated. On the basis of previous literature a range of hypotheses were generated (for details see Chapter Five). Thus, it was hypothesised that black offenders, male offenders, low income housing area residents, low income employees (blue collar workers), and those with low educational achievement, would commence their criminal careers earlier than white offenders, female offenders, middle income housing area residents, middle income employment types (white collar workers) and those with greater educational achievements; moreover, their career lengths would be longer; their levels of

chronicity would be higher, their versatility would be greater, their levels of seriousness higher, their degree of specialism higher and their use of violence higher. They would also show a higher propensity to commit crimes of murder, robbery, and assault, in particular (see, for example, Bennett et al., 2005; DeLisi et al., 2011; Farrington, 1987; Steffensmeier, 1986; Tarling, 1993; Wolfgang & Tracy, 1982).

In line with these hypotheses, many of the findings were consistent with previous literature. For example, male offenders started offending earlier than female offenders. They had longer criminal careers, were more violent and specialised, had higher levels of chronicity, versatility and seriousness in offending. Male offenders offended more in every offence type than female offenders with the exception of public order offending. There was no significant difference in public order offending with respect to gender. This finding is in keeping with previous research where it has been found that females are quite similar to males in terms of minor offences (Simpson & Herz, 1999; Smith & Visher, 1980; Steffensmeier & Allan, 1996).

There were, however, a number of exceptions as discussed in Chapter Twelve. Blue collar or white collar offenders committed on average the same the number of sex, murder, theft, and burglary offences. There was no difference in career length and the versatility for high and low income housing areas offenders. Education level did not significantly affect the level of chronicity, versatility, seriousness and violent offending. Offenders who attended university committed more murder offences than offenders who did not.

As noted in Chapter Twelve, these discrepancies, by themselves, cannot necessarily be interpreted as contradicting viewpoints that relate higher levels of crimes to demographic factors such as housing, employment, and education, as the data were derived from a sample of offenders and thus do not relate these variables to the proportions of offenders to non-offenders from these categories. The aforementioned results do, however, suggest that *when they do offend*, individuals from Barbados may be inclined to behave similarly despite the differences in their backgrounds and may even be motivated to engage in more violent types of crime (i.e. murder). It was, therefore, suggested in Chapter Twelve, that cultural factors may make Barbados less sensitive to demographic factors relating to socioeconomic status than those of developed nations. If this is the case, a possible explanation may be that, in Barbados, the distinction between socioeconomic status levels (as defined in the thesis) is blurred. As a result, in terms of perceptions, those from a middle class background may consider themselves to be no more privileged than those from a lower class background.

14.5 A Comparison across the Cultures

As emphasised on a number of occasions in this thesis, criminal career research has been mainly conducted in countries such as the United States (USA), the United Kingdom (UK) and Canada. These countries share a number of commonalities, the most obvious being that they are all first world countries. Perhaps because of this, findings in criminal career research for these countries are generally quite similar. It was, therefore, imperative to determine if findings with respect to criminal careers from a sample of offenders in Barbados would be generally representative of findings from previous studies in these other countries.

As detailed in Chapter Thirteen, overall, the results from the present sample from Barbados seem generally consistent with findings from studies conducted in the USA, the UK and Canada. However, a few differences were noted: 1) the average onset age in the Barbados sample was generally older; 2) offenders in Barbados seem to lead more prolific criminal career; 3) drug offences were more popular in Barbados. Various reasons were given for these differences; for example, the present sample included more late onset offenders, GDP per person is lower in Barbados, and developing nations have been found to be vulnerable to the offences of smuggling, drug trafficking and bribery. Differences aside, however, the main conclusion is that with regard to criminal career variables, the results from the Barbados sample are more similar than dissimilar to those from the USA, UK and Canada.

14.6 Summary of the Main Findings

In terms of the issues identified for investigation, the main findings of the present thesis can, therefore, be summarised as follows.

- There was a negative relationship between career length, chronicity, versatility and seriousness and onset age. There was also a positive relationship between career length, chronicity, versatility and seriousness.
- The career length for sex and drug offenders was shortest while the career length for burglary and theft offenders was longest. The onset age of sex offences was significantly higher than all other offences except drug and murder offences. However, the onset age of burglary, weapon, theft, assault and public order

offences did not differ from each other significantly. Burglary offenders committed the most crimes, had an early onset age, showed the greatest versatility and their offences were most serious. Sex offenders and drug offenders showed the lowest chronicity, the least versatility, and the lowest levels of seriousness.

- There was some degree of specialisation in the sample. The onset age of a specialist was earlier than that of a non-specialist; specialists also had longer careers, lower versatility, and a lower level of seriousness.
- Violent offenders had an earlier age of onset, a longer career length, higher chronicity, greater versatility, and a higher level of seriousness. There was no evidence of specialism in violent offenders. Violent offenders were essentially frequent offenders.
- There were differences in gender, race, housing area, employment type and educational level for a number of key criminal career variables in the predicted directions; i.e. black offenders, male offenders, low income housing area residents, and low income employees (blue collar workers), and those with low educational achievement, commenced their criminal careers earlier and scored higher on the key variables. However, notable exceptions were there was no difference in terms of career length and the versatility for offenders from high and low income housing areas, and there was no significant effect for educational level of offenders on the level of chronicity, versatility, seriousness and violence in offending.
- Findings regarding the criminal careers of a sample of offenders in Barbados were generally similar to findings of previous studies in the criminal career approach in

other countries. Exceptions were that, the average onset age in the Barbados sample was generally older; offenders in Barbados seem to lead more prolific criminal career and drug offences were more frequent in Barbados.

14.7 Limitations, Future Research and Possible Methodological Recommendations

Several possible limitations of the research conducted in this thesis have been mentioned earlier and are reprised here.

The data were drawn from official records and, therefore, were not collected specifically for scientific research. As here, official records consist of criminal histories, police reports, and court records (Blackburn, 1993). The quality of the data may, therefore, have been affected by the ability of the authorities to systematically collect, record, and properly store recorded information, differences in legal definitions, and the likelihood of reporting an offence. Despite these limitations, official data remain the most useful to criminal career research as it contains the most relevant information for the measurement of the key variables. Nevertheless, self-report instruments (such as structured interviews and questionnaires) can be used to provide much richer information on offences, offenders' backgrounds, and motivations. Future research in criminal career could, therefore, effectively utilise both official and self-reported methods of data collection in an effort to create a more complete criminal career profile.

The thesis sample used charge data as the main measure of offending. There are a number of issues surrounding the use of charge data as not all charges lead to convictions. A conviction increases the certainty that the offence was committed by the perpetrator, however, because of the legal processes involved, convictions underestimate the amount of criminal activity that takes place. In future research, therefore, it would be useful to compare the influence of the two different measures on the results.

This draws attention to a general problem in criminal career research; different studies may use different measures. For example onset age has been variously measured as the age at the first police contact, arrest, charge and conviction. In the present study chronicity was measured by a scale, whereas in most previous research it has been expressed as a category variable (Wolfgang et al., 1972; Svensson, 2002).

Also, the seriousness scale, in this thesis, was developed by combining elements from the Crime Seriousness Scale developed by the Oregon Criminal Justice Commission and the scale of seriousness used in the Spohn's (2000) research for the National Institute of Justice study. Although, both of these scales have been used frequently with great success, their amalgamation does not necessarily equate to a successful scale. Both scales are sequential scales however, the numeric value has no meaning and the distance between these value do not reflect the difference in the level of seriousness. In future research it would clearly make sense to standardize these measures.

The criminal participation of the sample was still active and therefore the results were based on truncated data. The values of the key criminal career variables are, therefore, a snapshot in time as is the case for most criminal career studies. It should, however be acknowledged that different results may have been obtained for offenders whose criminal careers have ceased. Also, the current data was limited in scope because of the selection process. A complete examination of all of the offence types would provide a more comprehensive understanding of criminal career research in Barbados.

The studies in this thesis were cross-sectional investigations of criminal career research in that data were collected at one time from a sample to reflect a larger population. Longitudinal and cross-sectional studies are the main study design types found in criminal career research. Longitudinal studies collect data at different times from a specified set of subjects. Each design is useful for different reasons. Cross sectional studies are useful in discovering relationships between variables at the time of the study whereas longitudinal studies are useful when examining change and causal factors in criminal career research. Future research could combine the studies in such a way that at specific time during a longitudinal study, a cross-sectional study is also conducted to investigate particular variables.

Related to this, the study population or sample is obviously an important methodological consideration. There are three main types of study populations: cohort, random samples of the general population, and, as here, groups of offenders identified at some point in criminal careers. Again each type has its utility. Cohort samples are useful in

determining early predictors and progression of criminal careers. Random samples provide current information about the population. Samples of offenders provide information about that specific group (for example, violent offenders) who are harder to study in cohort and random samples, as their prevalence is low. Nevertheless, it would be useful to know whether the present results could be replicated and extended using a different kind of sample.

Notwithstanding these considerations, however, it can be noted that the present results often showed a remarkable correspondence with previous findings. This would suggest that, although they should be treated with some caution, they are very likely not negated by methodological limitations; indeed, the measures used may be considered quite robust. Moreover, the fact that so many results do correspond with previous findings suggests that, when exceptions occur, they are more likely to reflect real differences in factors such as culture and population sampling rather than idiosyncrasies of the measurement procedures.

14.8 Conclusions: Implications for Theory, Research and Practice

As well as providing useful data on criminal activity in Barbados, it could be argued that findings of the present thesis offer a number of contributions to criminal career research generally. The findings highlight the possibility of adopting a conceptual position between the discrete and general theories of criminal careers which tend to be somewhat polarised (see also, Nagin & Land, 1993; Sampson & Laub, 1993). For example, offenders who commit sex and drug offences appear to be uniquely different from all

other offenders, suggesting there may be discrete factors (such as motivational processes) that apply to sex offending but not to other offence types.

Contrary to some research showing no evidence of specialisation, the presence of specialisation and specialists in the present sample suggests that theories of criminal careers should accommodate this. They also should explain why there is more specialisation in some offences than others, and why specialisation tends to increase with successive offences. A general theory of criminal careers does not do this. This also highlights the need to study each type of offence individually as well as the need to create crime-specific interventions (Lynam et al., 2004). A solid understanding of specialisation may help the police to infer the possible criminal history of an unknown offender when a crime is committed and this may assist in suspect prioritisation and elicitation (Piquero et al., 2007). This knowledge is also important to the justice system in predicting later offences in an effort to reduce crime by incapacitation (Piquero et al., 2007). The findings also demonstrate how both specialisation and versatility characterise criminal careers, offering support for some of the most recent work in specialisation (Armstrong, 2008; DeLisi et al, 2011; Lussier, 2005; McGloin et al., 2009; Osgood & Schreck, 2007; Sullivan et al. 2006; William & Arnold, 2000).

Sex offending is often seen as a small part of a broader pattern in research but for policy makers and the judicial system, sex offending and its reduction is of the utmost importance (Feldman, 1977). The current research has underscored that sex offending is distinctly different from other forms of offending. However, the findings do not fully

support the stance that law makers have taken towards sex offending. Law makers see sex offenders as dangerous, persistent, obdurate offenders. However, the current findings suggest that sex offenders have shorter criminal careers than other types of offenders and participate in less serious crimes. Thus there seems to be a disparity between the actual portrait of a sex offender and how the sex offender is perceived by legal authorities. However, findings in violent offending could be considered to support the position taken by the judicial system that violent offenders should be considered to be a greater threat to society, and consequently be awarded harsher sentences than non-violent offenders, as violent offenders tend to be more prolific offenders.

It is notable that existing psychological and criminological theories tend to place most focus on offending during teenage years (Farrington, 1992); and, indeed, in recent years there has been an increase in emphasis on the treatment of young offenders or delinquents by judicial systems across the world. Efforts are being made to create community programmes, mentorship systems, and counselling for young people who are seen to be 'going astray'. However, it has been argued that effective public policy as it relates to crime and control is only as good as the assumptions made about criminal careers and offending (Miethe et al., 2006). The findings of the present research could be considered to support these movements in that they reinforce the view that intervention in the younger years may help to prevent a life of crime; and this particularly true of serious offenders who tend to commence their criminal careers earlier. However, deciding what form the early intervention should take remains a major challenge.

This draws attention to another issue. In understanding crime, it is important not to place too much emphasis on young offenders. The findings in the current thesis highlight the importance of examining the entire criminal career. In fact, a wider focus might also give additional insights into crime prevention. Previous theories have tended to focus rather narrowly on the prevalence and frequency of offending, whereas one of the implications of the present research, and the criminal career approach generally, is that, for a more complete picture, theories should address other dimensions that could be said to characterise criminal careers: i.e. onset age, career length, chronicity, versatility, seriousness and specialisation. However, there are other factors which could usefully be explored. For example, two aspects of criminal career research that were not investigated in this research were intermittency and desistance. Desistance is particularly important in criminal career research because it is at the point of desistance that the criminal career ends (Piquero et al., 2007). However, research has shown that some offenders tend to have intermittent careers where there are long periods between their offending and the gap is so large that they are judged to have desisted. Indeed, it has been often been argued that the only way you can be sure that an offender has desisted is when he or she has died (Piquero et al., 2007). Research on intermittency and desistance, therefore, requires an extensive longitudinal study to uncover the criminal career factors that relate to the temporary and permanent abandonment of crime by offenders. This would obviously be a useful direction for future research for a number of reasons; including the possibility that if we know some of the key factors that result in individuals giving up on crime, we may be able to assist them to reduce criminal activity.

However, perhaps the most important implication of the present thesis is that it strongly endorses the view that criminal activity is not static. It is not the case that some people are predisposed to crime and their behaviour in this regard remains relatively constant throughout their lifetime. Instead criminal behaviour may usefully be conceptualised from the viewpoint of developmental psychology; indeed, the focus on onset age in the literature, and the solid reproduction of previous findings in this thesis, lends particular support for this approach.

A major problem, however, as alluded to earlier, is that the kinds of data commonly used in criminal career research, as here, are insufficiently detailed to enable us to discern the factors, especially psychological factors, that bring about the various developmental changes. If we are to gain the necessary comprehensive information we will need to adopt considerable improvements in crime recording. Looking at offence types and frequencies tells us little about the psychological processes and influences that underlie these behaviours. If one of the fundamental, overarching aims of research into criminal behaviour is to help reduce crime, it is difficult to see how this can be done effectively without such knowledge. If we really are to divert from the idea of simply locking up offenders and want to develop more effective schemes for crime prevention, we need this kind of information.

Finally, it is obviously important to know how generalisable the present results are; we already know that there is considerable overlap between the present results and previous research, but how generalisable are the differences, and what might be the causes?

Although a developing nation, Barbados, is considered the 51st richest country in the world in terms of GDP by the World Bank, compared to many other nations, it still has a well-developed mixed economy, and moderately high standard of living. However, high rates of unemployment and lack of economic development; along with drug trafficking are endemic in Caribbean Nations (United Nations Office on Drugs and Crime & Latin American and the Caribbean Region of the World Bank, 2007). These conditions have been found to breed crime and violence. Will the characteristics of criminal career variables for such countries be similar to those from Barbados? That is, is Barbados generally representative of the Caribbean? It is reasonable to suggest that because of the stage in economic, technological and political advancement that Barbados has achieved, it may be more similar in criminal career dimensions to the United States, the United Kingdom and Canada than it is to other struggling Caribbean islands. The logical next step, therefore, is to apply the measures used in the present thesis to a sample in another Caribbean nation, and perhaps to other countries that may have fundamentally different cultures. The methodological and practical problems may be considerable, but if it is possible to locate a set of constructs that can be practically applied across cultures to explain criminal careers, perhaps we may address the impasse that is preventing or breaking individuals entering into criminal careers.

REFERENCES

- Aebi, M. F. (2004). Crime trends in Western Europe from 1990 to 2000. *European Journal on Criminal Policy and Research*, 110(2), 163-186.
- Agresti, A., & Agresti, B. F. (1978). Statistical analysis of qualitative variation. *Sociological Methodology*, 9, 204-237.
- Aichhorn, A. (1955). *Wayward youths*. New York: Meridian Books.
- Akers, R. L. (1991). Self-control as a general theory of crime. *Journal of Quantitative Criminology*, 7(2), 201-211.
- Akers, R. L. (1998). *Social learning and social structure: A general theory of crime and deviance*. Boston, Massachusetts: Northeastern University Press.
- Akers, R. L., Krohn, M. D., Lanza-Kaduce, L., & Radosevich, M. (1979). Social learning and deviant behaviour: A specific test of a general theory. *American Sociological Review*, 44(4), 636-655.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorder* (4th Ed., text rev.). Virginia: American Psychiatric Publishing.
- Anderson, C. A. (1987). Temperature and aggression: Effects on quarterly, yearly, and city rates of violent and nonviolent crime. *Journal of Personality and Social Psychology*, 52(1), 161-173.
- Anderson, E. (1999). *Code of the street: Decency, violence and the moral life of the inner city*. New York: Norton.
- Armstrong, T. A. (2008). Are trends in specialization across arrests explained by changes in specialization occurring with age? *Justice Quarterly*, 25, 201-222.

- Armstrong, T. A., & Britt, C. L. (2004). The effect of offender characteristics on offense specialization and escalation. *Justice Quarterly*, 21(4), 843-876.
- Arnold, R. (1989). Processes of criminalization from girlhood to womanhood. In M. Zinn, & B. Dill (Eds.), *Women of Color in American Society*. Philadelphia: Temple University Press.
- Ayers, C. D., Williams, J. H., Hawkins, J. D., Peterson, P. L., Catalano, R. F., & Abbott, R. D. (1999). Assessing correlates of onset, escalation, de-escalation, and desistance of delinquent behaviour. *Journal of Quantitative Criminology*, 15, 277-306.
- Bacon, S., Paternoster, R., & Brame, R. (2009). Understanding the relationship between onset age and subsequent offending during adolescence. *Journal of Youth Adolescence*, 38, 301-311.
- Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, New Jersey: Prentice Hall.
- Barnett, A., Blumstein, A., & Farrington, D. P. (1987). Probabilistic models of youth criminal careers. *Criminology*, 25, 83-108.
- Barnett, A., Blumstein, A., & Farrington, D. P. (1989). A prospective test of a criminal career model. *Criminology*, 27(2), 373-388.
- Bartol, C. R., & Bartol, A. M. (2005). *Current perspectives in forensic psychology and criminal justice*. London: Sage.

- Becker, G. (1968) Crime and punishment: An economic approach. *Journal of Political Economy*, 76(2), 169-217.
- Bennett, S., Farrington, D. P., & Huesmann, L. R. (2005). Explaining gender differences in crime and violence. *Aggression and Violent Behaviour*, 10, 263-288.
- Berkowitz, L. (1965). The concept of aggressive drive: Some additional considerations. In L. Berkowitz (Ed.) *Advances in Experimental Social Psychology*, Vol. 2. New York: Academic Press.
- Berkowitz, L. (1974). Some determinants of impulsive aggression: Role of mediated associations with reinforcement for aggression. *Psychological Review*, 81, 165-176.
- Blackburn, R. (1993). *The psychology of criminal conduct: Theory, research and practice*. Wiley Series in Clinical Psychology. Chichester: Wiley.
- Blumstein, A. (1979). *The identification of 'Career Criminals' from 'Chronic Offenders' in a cohort*. Unpublished Paper, Carnegie Mellon University, Pittsburgh.
- Blumstein, A. (1993). Racial disproportionality of U.S. prison populations revisited. *University of Colorado Law Review*, 64(3), 743-760.
- Blumstein, A. (1995). Youth violence, guns, and the illicit-drug industry. *Journal of Criminal Law and Criminology*, 86(1), 10-36.
- Blumstein, A., & Cohen, J. (1979). Estimations of individual crime rates from arrests records. *Journal of Criminal Law and Criminology*, 70, 561-585.

- Blumstein, A., Cohen, J., & Farrington, D. P. (1988). Criminal career research, its value for criminology. *Criminology*, 26, 1-35.
- Blumstein, A., Cohen, J., & Hsieh, P. (1982). *The duration of adult criminal careers*. (Final report submitted to the National Institute of Justice). Pittsburgh, PA, Carnegie Mellon University, School of Urban and Public Affairs.
- Blumstein, A., Cohen, J., Roth, J. A., & Visher, C. A. (1986). *Criminal careers and career criminals*, Vol. 2. Washington, National Academy Press.
- Blumstein, A., & Graddy, E. (1982). Prevalence and recidivism in index arrests: A feedback model. *Law and Society Review*, 16, 265-290.
- Bonczar, T. P., & Beck, A. J. (1997). *Lifetime likelihood of going to state or federal prison*. Washington, DC: Bureau of Justice Statistics.
- Brame, R., Bushway, S., Paternoster, R., & Thornberry, T. P. (2005). Temporal linkages in violent and non-violent criminal activity. *Journal of Quantitative Criminology*, 21, 149-174.
- Brame, R., Mulvey, E. P., & Piquero, A. (2001). On the development of different kinds of criminal activity. *Sociological Methods and Research*, 29(3), 319-41.
- Brennan, P., Mednick, S., & John, R. (1989). Specialization in violence: Evidence of a criminal subgroup. *Criminology*, 27(3), 437-453.
- Britt, C. L. (1994). Versatility. In T. Hirschi & M. Gottfredson (Eds.), *The generality of deviance*. New Brunswick, NJ: Transaction.

- Britt, C. L. (1996). The measurement of specialization and escalation in the criminal career: An alternative modeling strategy. *Journal of Quantitative Criminology*, 12, 193-222.
- Broadhurst, R., & Indermaun, D. (1982). Crime seriousness ratings: The relationship of information accuracy and general attitudes in Western Australia. *Australian & New Zealand Journal of Criminology*, 15(4), 219-234.
- Budd, T. (1999). *Burglary of domestic dwellings: Findings from the British Crime Survey*. Home Office Statistical Bulletin Issue 4/99.
- Buikhuisen, W., & Jongman, R. W. (1970). A legalistic classification of juvenile delinquents. *British Journal of Criminology*, 10, 109-123.
- Burgess, R. L., & Akers, R. L. (1966). A differential association-reinforcement theory of criminal behaviour. *Social Problems*, 14(2), 128-147.
- Burke, R. H. (2001). *An introduction to criminological theory*. Devon, UK: Willan Publishing.
- Bursik, R. J. (1980). The dynamics of specialization in juvenile offences. *Social Forces*, 58, 851-864.
- Bursik, R. J. (1988). Social disorganization of crime and delinquency: Problems and prospects. *Criminology*, 26, 19-51.
- Buss, A. H. (1961). *The psychology of aggression*. New York: Wiley.
- Canter, D. (1996). *Psychology in action*. Aldershot, UK: Dartmouth Publishing.

- Canter, D., & Alison, L. (2003). Converting evidence into data: The use of law enforcement archives as unobtrusive measurement. *The Qualitative Report*, 8(2), 151-176.
- Capaldi, D. N., & Patterson, G. R. (1996). Can violent offenders be distinguished from frequent offenders: Prediction from childhood to adolescence. *Journal of Research in Crime and Delinquency*, 33(2), 206-31.
- Catalano, R. F., & Hawkins, J. D. (1996). The social development model: A theory of anti-social behaviour. In J. D. Hawkins (Ed.) *Delinquency and Crime: Current Theories*. Cambridge, UK: Cambridge University Press.
- Catalano, R. F., Oxford, M., Harachi, T., Abbott, R., & Haggerty, K. (1999). A test of the social development model to predict problem behaviour during elementary school period. *Criminal Behaviour and Mental Health*, 9, 39-56.
- Chaiken, J. M., & Chaiken, M. R. (1982). *Varieties of criminal behaviour*. Rand Report no. R-2814-NIJ. Santa Monica, California: Rand
- Chambliss, W. J. (1994). Policing the ghetto underclass: The politics of law and law enforcements. *Social Problems*, 41(2), 177-194.
- Clanon, T. L., & Jew, C. (1985). Predictions of assessments of violent offenders under stress: A fifteen-year experience. *Criminal Justice and Behaviour*, 12, 485-499.
- Cleckley, H. (1964). *The mask of sanity* (4th Ed). St. Louis, Missouri: Mosby.
- Cloward, R. A., & Ohlin, L. E. (1960). *Delinquency and opportunity*. Glencoe, IL: Free Press.

- Cohen, J. (1986). Research on criminal careers: Individuals frequency rates and offense seriousness. In A. Blumstein, J. Cohen, J. A. Roth, & C. A. Visher (Eds.), *Criminal careers and career criminals*. Washington, DC: National Academy Press.
- Cohen, L. E., & Cantor, D. (1981). Residential burglary in the United States: Life-style and demographic factors associated with the probability of victimization. *Journal of Research in Crime and Delinquency*, 18(1), 113-127.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44, 588-608.
- Cohen, M., Seghorn, T., and Calmas, W. (1969). Sociometric study of the sex offender. *Journal of Abnormal Psychology*, 74, 249-255.
- Colman, A. M. (2001). *A dictionary of psychology*. Oxford: Oxford University Press.
- Colvin, M., & Pauly, J. (1983). A critique of criminology: Towards an integrated structural-marxist theory of delinquency production. *American Journal of Sociology*, 89, 513-551.
- Commonwealth of Pennsylvania. (1991). *Organized crime in Pennsylvania: The 1990 report*. Pennsylvania: Penn. Crime Comm.
- Cornish, D. B., & Clarke, R. V. (1986). *The reasoning criminal: Rational choice perspectives on offending*. New York: Springer-Verlag.
- Curtis, L. A. (1975). *Violence, race and culture*. Lexington, Massachusetts: Heath.

- D'Alessio, S. J., & Stolzenberg, L. (2003). Race and probability of arrest. *Social Forces*, 81(4), 1381-1397.
- Danner, T., Blount, W., Silverman, I., & Vega, M. (1995). The female chronic offender: Exploring life contingency and offense history dimensions for incarcerated female offenders. *Women and Criminal Justice*, 6, 45-65.
- Datemans S. K., & Aickin, M. (1984). Offense specialization and escalation among status offenders. *Journal of Criminal Law and Criminology*, 75, 1246-1275.
- Day, D. M., Bevc, I., Theodor, F., Rosenthal, J. S., & Duchesne, T. (2008). *Change and continuity in criminal offending: Criminal trajectories of the Toronto sample*. Final report submitted to the Ministry of Children and Youth Services.
- Dean, C. W., Brame, R., & Piquero, A. (1996). Criminal propensities, discrete groups of offenders, and persistence in crime. *Criminology*, 34(4), 547-75.
- Deane, G., Armstrong, D. P., & Felson, R. B. (2005). An examination of offense specialization using marginal logit models. *Criminology*, 43, 955-988.
- Decker, S. H., & Salert, B. (1986). Predicting the career criminal: An empirical test of the Greenwood scale. *Journal of Criminal Law and Criminology*, 77, 215-236.
- DeLisi, M. (2001). Extreme career criminals. *American Journal of Criminal Justice*, 25, 239-252.
- DeLisi, M. (2002). Not just a boy's club: An empirical assessment of female career criminals. *Women and Criminal Justice*, 3(4), 27-45.

- DeLisi, M. (2006). Zeroing in on early arrest onset: Results from a population of extreme career criminals. *Journal of Criminal Justice*, 34(1), 17-26.
- DeLisi, M., Beaver, K. M., Wright, K. A., Wright, J. P., Vaughn, M. J., & Trulson, C. R. (2011). Criminal specialization revisited: A simultaneous quantile regression approach. *American Journal of Criminal Justice*, 36, 73-92.
- Dengerink, H. A., Schnedler, R. W., & Covey, M. V. (1978). The role of avoidance in aggressive responses to attack and no attack. *Journal of Personality and Social Psychology*, 36(1), 44-53.
- Denno, D. (1994). Gender, crime, and criminal law defenses. *Journal of Criminal Law and Criminology*, 85(1), 80-180.
- Dill, J. C., & Anderson, C. A. (1995). Effects of frustration justification on hostile aggression. *Aggressive Behaviour*, 21, 359-369.
- Dollard, J., Miller, N., Doob, L., Mowrer, O. H., and Sears, R. R. (1939). *Frustration and aggression*. New Haven, Connecticut: Yale University Press.
- Douglas, J. W. B., Ross, J. M., Hammond, W. A., & Mulligan, D. G. (1966). Delinquency and social class. *British Journal of Criminology*, 6, 294-302.
- D'Unger, A. V., Land, K. C., McCall, P.L., & Nagin, D. S. (1998). How many latent classes of delinquent/criminal careers? *American Journal of Criminology*, 103, 1593-1630.
- Ehrlich, I. (1973). Participation in illegitimate activities: A theoretical and empirical investigation. *Journal of Political Economy*, 81(3), 521-565.

- Ekland, W. R., & Ekland-Olson, S. (1991). The response of the criminal justice system to prison overcrowding: Recidivism patterns among four successive parolee cohorts. *Law and Society Review*, 3, 601-620.
- Elliot, D. S. (1994). Serious violent offenders: Onset, developmental course and termination. *Criminology*, 32(1), 1-21.
- Elliot, D. S., Dunford, F. W., & Huizinga, D. (1983). *The identification and prediction of career offenders utilizing self-reported and official data*. Boulder, Colorado: Behavioral Research Institute.
- Elliot, D. S., & Huizinga, D. (1983). Social class and delinquent behavior in a national youth panel. *Criminology*, 21, 149-177.
- Elliot, D. S., Huizinga, D., & Ageton, S. S. (1985). *Explaining delinquency and drug use*. Beverly Hills, California: Sage.
- Elliot, D. S., Huizinga, D., & Menard, S. (1989). *Multiple problem youth: Delinquency, substance use and mental health problems*. New York: Springer.
- Elliot, D. S., Huizinga, D., & Morse, B. (1986). Self-reported violent offending: A descriptive analysis of juvenile violent offenders and their offending careers. *Journal of Interpersonal Violence*, 1(4), 472-514.
- Entorf, H., & Spengler, H. (1998). *Socio-economic and demographic factors of crime in Germany: Evidence from panel data of the German states*. Retrieved from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=155274.
- Erickson, E. H. (1959). *Identity and the life cycle*. New York: International Universities Press.

- Eysenck, H. J. (1964). *Crime and personality*. Boston, Massachusetts: Houghton Mifflin.
- Eysenck, H. J. (1977). *Crime and personality* (3rd Ed.). London: Routledge & Kegan Paul.
- Ezell, M. E. (2007). Examining the overall and offense-specific criminal career lengths of a sample of serious offenders. *Crime & Delinquency*, 53(1), 3-37.
- Fagan, J., & Freeman, R. (1999). Crime, work and unemployment. In M. Tonry (Ed.), *Crime and Justice: An review of research*, 25, 113-178. Chicago: University of Chicago Press.
- Farrington, D. P. (1973). Self-reports of deviant behaviour: Predictive and stable? *The Journal of Criminal Law and Criminology*, 64(1), 99-110.
- Farrington, D. P. (1982). Longitudinal analysis of criminal violence. In M. E. Wolfgang & N. A. Weiner (Eds.), *Criminal Violence*. Beverley Hills, California: Sage.
- Farrington, D. P. (1986). Age and crime. In M. Tonry & N. Morris (Eds.), *Crime and Justice*, 7, 189-250.
- Farrington, D. P. (1987). Predicting individual rates. In D. M. Gottfredson & M. Tonry (Eds.), *Prediction and Classification: Criminal justice decision making*. Chicago: University of Chicago Press.
- Farrington, D. P. (1991). Childhood aggression and adult violence: Early precursors and later life outcomes. In D. J. Pepler & K. H. Rubin (Eds.), *The Development and Treatment of Childhood Aggression*. Hillsdale, New Jersey: Lawrence Earlbaum.

- Farrington, D. P. (1992). Explaining the beginning, progress and ending of anti-social behaviour from birth to adulthood. In J. McCord (Ed.), *Facts, frameworks and forecasts: Advances in criminological theory*, 3. New Brunswick, New Jersey: Transaction.
- Farrington, D. P. (1995). The twelfth Jack Tizard memorial lecture: The development of offending and antisocial behaviour from childhood: Key findings from Cambridge study in delinquent development. *Journal of Child Psychology and Psychiatry*, 36(6), 929-964.
- Farrington, D. P. (2005). The integrated cognitive antisocial potential (ICAP) theory. In D. P. Farrington (Ed.), *Advances in Criminological Theory Vol. 14, Integrated Development and Life-Course Theories of Offending*. New Brunswick, NJ: Transaction Publishers.
- Farrington, D. P., Biron, L., & LeBlanc, M. (1982). Personality and delinquency in London and Montreal. In J. Gunn & D. P. Farrington (Eds.), *Abnormal offenders, delinquency, and the criminal justice system* (pp. 153-201). New York: Wiley.
- Farrington, D. P., Lambert, S., & West, D. J. (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., Loeber, R., Elliot, D. S., Hawkins, J. D., Kandel, D. B., & Klein, M. (1990). Advancing knowledge about the onset of delinquency and crime. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in clinical child psychology*, Vol. 13. New York: Plenum.

- Farrington, D. P., & Maughan, B. (1999). Criminal careers of two London cohorts. *Criminal Behaviour and Mental Health*, 9(1), 91-106.
- Farrington, D. P., Synder, H. N., & Finnegan, T. A. (1988). Specialization in juvenile court careers. *Criminology*, 26, 461-487.
- Farrington, D. P. & Wikstrom, P. O. H. (1994). Criminal Careers in London and Stockholm: A cross-national comparative study. In E. G. M. Weitekamp & H. J. Kerner (Eds.), *Cross-national longitudinal research on human development and criminal behaviour*. Dordrecht, the Netherlands: Kluwer.
- Federal Bureau of Investigation. (1983). *Uniform crime reports*. Washington, DC: US Government Printing Office.
- Feldman, M. P. (1977). *Criminal behaviour: A psychological analysis*. London, UK: Wiley.
- Feldman, P. (1993). *The psychology of crime*. Cambridge: Cambridge University Press.
- Felson, R. B. (1978). Aggression as impression management. *Social Psychology*, 41, 205-213.
- Felson, M. (2002). *Crime and everyday life*. Thousand Oaks, CA: Sage.
- Fergusson, D. M., Horwood, L. J., & Lynskey, M. T. (1993). The effects of conduct disorder and attention deficit in middle school childhood on offending and scholastic ability at age 13. *Journal of Child Psychology and Psychiatry*, 34, 899-916.

- Field, S. (1990). Trends in crime and their interpretation: A study of recorded crime in post-war England and Wales. *Home Office Research Study, No. 119*. London: Her Majesty's Stationary Office.
- Forrester, D., Chatterton, M., & Pease, K. (1988). The Kirkholt burglary prevention project, Rochdale. *Crime Prevention Unit: Paper 13*. London: Home Office.
- Fox, J. A., & Tracy, P. E. (1988). A measure of skewness in offence distributions. *Journal of Quantitative Criminology*, 4(3), 259-273.
- Francis, B., Liu, J., & Soothill, K. (2010). Criminal lifestyle specialization: Female offending in England and Wales. *International Justice Review*, 20, 188-204.
- Francis, B., Soothill, K., & Fligelstone, R. (2004). Identifying patterns and pathways of offending patterns: A new approach to typologies of crime. *European Journal of Criminology*, 1, 48-87.
- Freeman, R. (1996). Why do so many young Americans commit crimes and what might we do about it? *Journal of Economic Perspectives*, 10, 25-42.
- Freud, S. (1920). *A general introduction to psychoanalysis*. New York, NY: Boni and Liveright.
- Freud, S. (1961). Neurosis and psychosis. In J. Strachey (Ed.), *The Standard Edition of the Complete Psychological Works of Sigmund Freud*. London: Hogarth Press.
- Ge, X., Donellan, M. B., & Wenk, E. (2003). Difference in personality and patterns of recidivism between early starters and other serious male offenders. *Journal of American Academic Psychiatry and Law*, 31, 68-77.

- Gibbens, T. C. N. (1981). Shoplifting. *British Journal of Psychiatry*, 138, 346-7.
- Gibbens, T. C. N., Palmer, C., & Prince, J. (1971). Mental health aspects of shoplifting. *British Medical Journal*, 3, 612-5.
- Glueck, S., & Glueck, E. (1950). *Unraveling juvenile delinquency*. Cambridge, Massachusetts: Harvard University Press.
- Goddard, H. H. (1914). Feeble mindedness. In D. J. Shoemaker (Ed.), *Theories of Delinquency: An examination of explanations of delinquent behaviour*. New York, NY: Oxford University Press.
- Goldstein, P. J. (1985). The drug/violence nexus: A tripartite conceptual framework. *Journal of Drug Issues*, 15, 493-508.
- Gorsuch, J. (1938). A scale of seriousness of crime. *Journal of Criminal Law and Criminology*, 29(2), 245-252.
- Gottfredson, G. D. (1981). Schooling and delinquency. In S. E. Martin, L. B. Sechrest, & R. Redner (Eds.), *New Directions in The Rehabilitation of Criminal Offenders*. Wahsington, DC: Academic Press.
- Gottfredson, M. R., & Hirschi, T. (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, 213-234.
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Palo Alto, CA: Stanford University Press.

- Gould, E., Weinberg, B., & Mustard, D. (2002). Crime Rates and Local Labor Market Opportunities in the United States: 1979-97. *Review of Economics and Statistics*, 84(1), 45-61.
- Greenberg, D. F. (1975). The incapacitative effect of imprisonment on policies of crime: Some estimates. *Law and Society Review*, 9, 541-580.
- Greenberg, D. F., & Ezell, M. E. (2011). *Criminal careers: Discrete or continuous?* For presentation for Modern Modeling Methods Conference, University of Connecticut, Storrs (Draft).
- Greenwood, P. W. (1977). *The disposition of felony arrests: Prosecution and sentencing policies in California, and their effects on crime*. Unpublished Paper, The Rand Corporation, Santa Monica, California.
- Greene, M. A. (1977). *The incapacitative effect of imprisonment on policies of crime*. Unpublished doctoral dissertation, Carnegie-Mellon University, Pittsburgh, PA. (University Microfilms, Ann Arbor, MI).
- Grogger, J. T. (1998). Market wages and youth crime. *Journal of Labor Economics*, 16(4), 756-791.
- Guerette, R. T., Stenius, V. M. K., & McGloin, J. M. (2005). Understanding offense specialization and versatility: A reapplication of rational choice perspective. *Journal of Criminal Justice*, 33, 77-87.
- Gurr, T. R. (1981). Historical trends in violent crime: A critical review of the evidence. In M. Tonry & N. Morris (Eds.), *Crime and Justice: An Annual Review of Research*, Vol. 3 (pp. 295-353). Chicago: University of Chicago Press.

- Guttridge, P. W., Gabrielli, W. F., Mednick, S. A., & van Dusen, K. T. (1983). Criminal violence in a birth cohort. In K. T. van Dusen, & S. A. Mednick (Eds.) *Prospective studies of crime and delinquency*. Boston: Kluwer-Nijhoff.
- Haberman, S. J. (1973). The analysis of residuals in cross-classified tables. *Biometrics*, 29, 205-220.
- Hamparian, D. M., Schuster, R., Dinitz, S., & Conrad, J. P. (1978). *The violent few*. Lexington, Massachusetts: Lexington Books, D. C. Heath.
- Harding, R., & Maller, R. (1997). An improved methodology for analyzing age-arrest profiles: Application to a Western Australian offender population. *Journal of Quantitative Criminology*, 13(4), 349-372.
- Hare, R. D. (1981). Psychopathy and violence. In J. R. Hays, T. K. Roberts, & K. S. Soloway (Eds.), *Violence and the violent individual*. Jamaica, NY: Spectrum.
- Hare, R. D. (1998). The Hare PCL-R: Some issues concerning its use and misuse. *Legal and Criminological Psychology*, 3, 101-122.
- Henry, B., Caspi, A., Moffitt, T. E., & Silva, P. A. (1996). Temperamental and familial predictors of violent and nonviolent criminal convictions; from age 3 to age 18. *Development Psychopathology*, 32, 614 -623.
- Hill, D., & Pond, D. A. (1952). Reflections on 100 capital cases submitted to electroencephalography. *Journal of Mental Science*, 98, 23-43.
- Hindelang, M. J. (1978). Race and involvement in common law personal crimes. *American Sociological Review*, 43, 93-109.

- Hindelang, M. J., Hirschi, T., & Weis, J. G. (1981). *Measuring delinquency*. Beverly Hills, California: Sage.
- Hirschi, T. & Hindelang, M. J. (1977). Intelligence and delinquency: A revisionist review. *American Sociological Review*, 42(4), 571-587.
- Hollin, C. R. (1989). *Psychology and crime: An introduction to criminological psychology*. New York: Routledge.
- Home Office Statistical Bulletin. (1987). *Criminal careers of those born in 1953: Persistent offenders and desistance*. London: Home Office.
- Home Office Statistical Bulletin. (1989). *Criminal and custodial careers of those born in 1953, 1958, and 1963*. London: Home Office.
- Home Office Statistical Bulletin. (1995). *Criminal careers of those born between 1953 and 1973*. London: Home Office.
- Howell, J. C., Krisberg, B., Hawkins, J. D., & Wilson, J. J. (1995). *Sourcebook on serious, violent, and chronic juvenile offenders*. Thousand Oaks, CA: Sage.
- Howells, K. (1982). Mental disorder and violent behaviour. In M.P. Feldman (Ed.), *Developments in The Study of Criminal Behaviour, Vol. 2*. Chichester: Wiley.
- Huizinga, D. (2005) *Effects of neighborhood and family structure on violent victimization and violent delinquency*. A Report of the Denver Youth Survey.
- Jang, S. J., & Krohn, M. D. (1995). Developmental patterns of sex differences in delinquency among African-American adolescents: A test of the sex-invariance hypothesis. *Journal of Quantitative Criminology*, 11, 195–222.

- Janson, C. G. (1984). *Project Metropolitan: A presentation and progress report*. Stockholm Department of Sociology, Stockholm University.
- Jolliffe, D., Farrington, D. P., Hawkins, J. D, Catalano, R. F., Hill, K. G., & Kosterman, R. (2003). Predictive, concurrent, prospective and retrospective validity of self-reported delinquency. *Criminal Behaviour and Mental Health*, 13, 179-197.
- Kazemian, L. & Farrington, D. P. (2005). Comparing the validity of prospective, retrospective and official onset for different offending categories. *Journal of Quantitative Criminology*, 21(2), 127-147.
- Kazemian, L. & Farrington, D. P. (2006). Exploring residual career length and residual number of offenses for two generations of repeats offenders. *Journal of Research in Crime and Delinquency*, 43, 89-113.
- Kempf, K. L. (1987). Specialization and the criminal career. *Criminology*, 25, 399-420.
- Kempf, K. L. (1988). Crime severity and criminal career progression. *Journal of Criminal Law and Criminology*, 79, 201-216.
- Kempf, K. L. (1989). Delinquency: Do the dropouts drop back in? *Youth and Society*, 20, 269-289.
- Kempf- Leonard, K., Tracy, P. E., & Howell, J. C. (2001). Serious, violent, and chronic juvenile offenders: The relationship of delinquency career types to adult criminality. *Justice Quarterly*, 18(3), 449-478.
- Kendler, H. H. (1985). Behaviourism and psychology: An uneasy alliance. In S. Koch & D. E. Leary (Eds.), *A Century of Psychology as Science*. New York, NY: McGraw-Hill.

- Klein, M. W. (1971). *Street gangs and street workers*. Englewood Cliffs: Prentice Hall.
- Klein, M. W. (1984). Offense specialization and versatility among juveniles. *British Journal of Criminology*, 24, 185-194.
- Kling, J. (2002). *The effect of prison sentence length on the subsequent employment and earnings of criminal defendants*. Working Paper, Princeton University.
- Koenen, K. C., Caspi, A., Moffitt, T. E., Rijdsdijk, F., & Taylor, A. (2006). Genetic influences on the overlap between low IQ and anti-social behavior in young children. *Journal of Abnormal Psychology*, 115(4), 787-797.
- Kohlberg, L. (1964). Development of moral character and moral ideology. In M. Hoffman & L. Hoffman (Eds.), *Review of Child Development Research, Vol. 1*. New York, NY: Russell Sage Foundation.
- Kolvin, I., Miller, F. J. W., Fleeting, M., & Kolvin, P. A. (1988). Social and parenting factors affecting criminal offense rates: Findings from the Newcastle Thousand Family Study (1947-1980). *The British Journal of Psychiatry*, 152, 80-90.
- Kolvin, I., Miller, F. J. W., Scott, D. M., Gatzanis, S. R. M., & Fleeting, M. (1990). *Continuities of deprivation?* Aldershot: Avebury.
- Kratzer, L., & Hodgins, S. (1997). Adult outcomes of child conduct problems: a cohort study. *Journal of Abnormal Psychology*, 25, 65-81.
- Krohn, M. D., Thornberry, T. P., Rivera, C., & Le Blanc, M. (2001). Later delinquency careers. In R. Loeber & D. P. Farrington (Eds.), *Child Delinquents: Development, Intervention and Serious Needs*. Thousand Oaks, CA: Sage

- Kruttschnitt, C. (1994). Gender and interpersonal violence. In J. Roth & A. Reiss (Eds.), *Understanding and Preventing Violence: Social Influence*. Washington, DC: National Academy of Science.
- Kutash, S. B. (1978). Psychoanalytic theories of aggression. In I. L. Kutash, S. B. Kutash, & L. B. Schlesinger (Eds.), *Violence: Perspectives on murder and aggression*. San Francisco: Jossey-Bass.
- Lattimore, P. K., Visher, C. A., & Linster, R. L. (1995). Predicting rearrest for violence among serious youthful offenders. *Journal of Research in Crime and Delinquency*, 32(1), 54-83.
- Lattimore, P. K., Visher, C. A., & Linster, R. L. (1994). Specialization in juvenile career: Markov results for a California cohort. *Journal of Quantitative Criminology*, 10, 291-316.
- Laub, J. H., & Sampson, R. J. (2003). *Shared beginnings, divergent lives: Delinquent boys to age 70*. Cambridge, Massachusetts: Howard University Press.
- Le Blanc, M. (1990). Two processes of development of persistent offending: Activation and escalation. In N. L. Robin & M. Rutter (Eds.), *Straight and devious pathways from childhood to adulthood*. Cambridge: Cambridge University Press.
- Le Blanc, M., & Frechette, M. (1989). *Male criminal activity from childhood through youth: Multilevel and developmental perspectives*. New York: Springer Verlag.
- Le Blanc, M., & Loeber, R. (1998). Developmental criminology. In M. Tonry (Ed.), *Crime and justice and annual review of research, Vol. 23*. Chicago: University Chicago Press.

- Leech, S. L., Day, N. L., Richardson, G. A., & Goldschmidt, L. (2003). Predictors of self-reported delinquent behavior in a sample of young adolescence. *Journal of Early Adolescence*, 23(1), 78-106.
- Lichtern, D. (1988). Racial differences in unemployment in American Cities. *American Journal of Sociology*, 13, 771-792.
- Lindberg, N., Holi, M. M., Tani, P., & Virkkunen, M. (2005). Looking for pyromania: Characteristics of a consecutive samples of Finnish male criminals with histories of recidivist fire-setting between 1973 and 1993. *BMC Psychiatry*, 5, 5-47.
- Lindstrom, P. (1995). School context and delinquency. *Project Metropolitan Research Report No. 41*. Department of Sociology, University of Stockholm.
- Lo, C. C., Kim, Y. S., & Cheng, T. C. (2008). Offence specialization of arrestees: An event history analysis. *Crime and Delinquency*, 54, 341-365.
- Lochner, L. (2004). Education, work and crime: A human capital approach. *International Economic Review*, 45, 811-843.
- Lochner, L. (2008). Education and crime. *International Encyclopedia of Crime* (3rd Ed.).
- Lochner, L., & Moretti, E. (2004). The effect of education on crime: Evidence from prison inmates, arrests, and self-reports. *The American Economic Review*, 94(1), 155-89.
- Loeber, R. (1988). Natural histories of conduct problems, delinquency, and associated substance use: Evidence for developmental progressions. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in Child Psychology, Vol. 11*. New York, New York: Plenum.

- Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., & Van Kammen, W. B. (1998). *Antisocial behaviour and mental health problems: Explanatory factors in childhood and adolescence*. Hillsdale: Lawrence Erlbaum.
- Loeber, R., Farrington, D. P., Waschbusch, D. A. (1998). Serious and violent juvenile offenders. In R. Loeber, & D. P. Farrington (Eds.), *Serious and Violent Juvenile Offenders*. Thousand Oaks, California: Sage.
- Loeber, R. D., & Hay, D. (1997). Key issues in the development of aggression and violence from childhood to early adulthood. *Annual Review of Psychology*, 48, 371-410
- Loeber, R. D., & LeBlanc, M. (1990). Toward a developmental criminology. In Tonry, M. (Ed.) *Crime and Justice: An Annual Review of Research*. Chicago: University of Chicago Press.
- Loeber, R. D., & Stouthamer-Loeber, M. (1998). The development of juvenile aggression and violence: Some common misconceptions and controversies. *American Psychologists*, 53, 242-259.
- Loeber, R., Van Kammen, W. B., & Fletcher, M. (1996). *Serious violent and chronic offenders in the Pittsburgh Youth Study: Unpublished Data*. Pittsburgh, Pennsylvania: Western Psychiatric Institute and Clinic.
- Loeber, R., & Wikstrom, P. H. (1993). Individual pathways to crime in different neighborhoods. In D. P. Farrington, R. J. Sampson, & P. H. Wikstrom (Eds.), *Integrating Individual and Ecological Aspects of Crime*. Stockholm: Swedish National Council for Crime Prevention.

- Lorenz, K. (1966). *On aggression*. London: Methuen.
- Lussier, P. (2005). The criminal activity of sexual offenders in adulthood: Revisiting the specialization debate. *Sex Abuse: A Journal of Research and Treatment*, 17, 269-292.
- Lussier, P., Le Blanc, M., & Proulx, J. (2005). The generality of criminal behavior: A confirmatory factor analysis of the criminal activity of sex offenders in adulthood. *Journal of Criminal Justice*, 33, 177-189.
- Lynam, D., Moffitt, T., & Stouthamer-Loeber, M. (1993). Explaining the relation between IQ and delinquency: Class, race, test motivation, school failure or self-control? *Journal of Abnormal Psychology*, 102(2), 187-196.
- Lynam, D. R., Piquero, A. R., & Moffitt, T. E. (2004). Specialization and the propensity to violence: Support from self-reports but not official records. *Journal of Contemporary Criminal Justice*, 20(2), 215-228.
- MacDonald, J. M., Haviland, A., & Morral, A. R. (2009). Assessing the relationship between violent and nonviolent criminal activities among serious adolescent offenders. *Journal of Research in Crime and Delinquency*, 46(4), 553-580.
- Machin, S., & Meghir, C. (2004). Crime and economic incentives. *The Journal of Human Resources*, 39, 958-979.
- Magnusson, D. (1988). *Individual development from an interactional perspective*. Hillsdale, New Jersey: Lawrence Erlbaum.
- Marsh, P. (1985). Patterns of aggression – not unnaturally. In E. Karas (Ed.), *Current Issues in Clinical Psychology*, Vol. 2. London: Plenum.

- Marshall, W. L., & Barbaree, H. E. (1984). Disorders of personality, impulse and adjustment. In S. M. Turner & M. Hersen (Eds.), *Adult Psychopathology and Diagnosis*. New York: Wiley.
- Martinez, R., Jr. (1997). Predictors of serious violent recidivism: Results from a cohort study. *Journal of Interpersonal Violence*, 12, 216-228.
- Mawby, R. I. (2001). *Crime and society series: Burglary*. Cullompton: Willan Publishing.
- Maxfield, M. G., Luntz Weiler, B., & Spatz Widom, C. (2000). Comparing self-reports and official records of arrests. *Journal of Quantitative Criminology*, 16(1), 87-110.
- May, S. (1999). *Wages and youth arrests*. Cambridge: Massachusetts Institute of Technology. Unpublished.
- Mazerolle, P., Brame, R., Paternoster, R., Piquero, A., & Dean, C. (2000). Onset age, persistence, and offending versatility: Comparisons across gender. *Criminology*, 38(4), 1143-1172.
- Mazerolle, P., Piquero, A., & Brame, R. (2010). Violent onset offenders: Do initial experience shape criminal career dimensions? *International Criminal Justice Review*, 20(2), 132-146.
- McCord, J. (1978). A thirty-year follow-up of treatment effects. *American Psychologist*, 33(3), 284-289.
- McCord, J. (1979). Some child-rearing antecedents of criminal behaviour in adult men. *Journal of Personality and Social Psychology*, 37(9), 1477-1486.

- McCord, J. (1992). The Cambridge-Somerville Study: A pioneering longitudinal-experimental study of delinquency prevention. In J. McCord & R. E. Tremblay (Eds.), *Preventing Antisocial Behaviour: Interventions from Birth through Adolescence*. New York: Guilford.
- McCord, J. (1999). Alcoholism and crime across generations. *Criminal Behaviour and Mental Health*, 9, 107-117.
- McCord, J. (2000). Developmental trajectories and intentional actions. *Journal of Quantitative Criminology*, 16(2), 237-253.
- McGloin, J. M., Pratt, T. C., & Maahs, J. (2004). Rethinking the IQ-delinquency relationship: A longitudinal analysis of multiple theoretical models. *Justice Quarterly*, 21(3), 603-635.
- McGloin, J. M., Sullivan, C. J., & Piquero, A. R. (2009). Aggregating to versatility: Transitions among offender types in the short-term. *British Journal of Criminology*, 49, 243-264.
- McGloin, J. M., Sullivan, C. J., Piquero, A. R., & Pratt, T. C. (2007). Local life circumstances and offending specialization/versatility: Comparing opportunity and propensity models. *Journal of Research in Crime and Delinquency*, 44(3), 321-346.
- McNulty, T. L., & Bellair, P. E. (2003). Explaining racial and ethnic differences in serious adolescent violent behavior. *Criminology*, 41(3), 709-748.

- Megargee, E. I. (1982). Psychological determinants and correlates of criminal violence. In M. E. Wolfgang & N. A. Weiner (Eds.), *Criminal Violence*. Beverly Hills, California: Sage.
- Miethe, T. D., Olson, J., & Mitchell, O. (2006). Specialization and persistence in the arrest histories of sex offenders: A comparative analysis of alternative measures and offense types. *Journal of Research in Crime and Delinquency*, 43(3), 204-229
- Miller, E. (1986). *Street women*. Philadelphia: Temple University Press.
- Miller, N. E. (1941). The frustration-aggression hypothesis. *Psychological Review*, 48, 337-342.
- Miller, J. D., & Lyman, D. (2001). Structural models of personality and their relation to antisocial behavior: A meta-analytic review. *Criminology*, 39, 765-798.
- Miller, S. J., Dinitz, S., & Conrad, J. P. (1982). *Careers of the violent: The dangerous offender and criminal justice*. Lexington: D. C. Heath.
- Moffitt, T. E. (1993). Adolescence-limited and life-course persistent antisocial behaviour: A developmental taxonomy. *Psychological Review*, 100, 674-701.
- Moffitt, T. E. (1994). Natural histories of delinquency. In E.G.M. Weitekamp & H. J. Krener (Eds.), *Cross-national Longitudinal Research on Human Development and Criminal Behaviour*. Dordrecht, the Netherlands: Kluwer Academic.
- Moffitt, T. E. (1997). Adolescence-limited and life-course-persistent offending: A complimentary pair of theories. In T. R. Thornberry (Ed.), *Developmental theories of crime and delinquency, Advances in criminology theory*, Vol. 7 (pp.11-54) New Brunswick: Transaction Publishing.

- Moffitt, T. E., Gabrielli, W. F., Mednick, S. A., Schulsinger, F. (1981). Socio-economic status, IQ and delinquency. *Journal of Abnormal Psychology*, 90(2), 152-156.
- Moffitt, T. E., Krueger, R. F., Caspi, A., & Fagan, J. (2000). Partner abuse and general crime: how are they the same? How are they different? *Criminology*, 38, 199-232.
- Moffitt, T. E., & Silva, P. A. (1988). IQ and delinquency: A direct test of the differential detention hypothesis. *Journal of Abnormal Psychology*, 97, 330-333.
- Monahan, J., & Steadman, H. J. (1983). Crime and mental disorder: an epidemiological approach. In M. Tonry & N. Morris (Eds.), *Crime and Justice: An Annual Review of Research, Vol. 4*. Chicago: University of Chicago Press.
- Monahan, K. C., & Piquero, A. R. (2009). Investigating the longitudinal relationship between offending frequency and offending variety. *Criminal Justice and Behaviour*, 36(7), 653-673.
- Moore, M. (2011). Psychological theories of crime and delinquency. *Journal of Human Behaviour in the Social Environment*, 21(3), 226-239.
- Morenoff, J. D. (2005). Racial and ethnic disparities in crime and delinquency in the United States. In M. Rutter & M. Tienda (Eds.), *Ethnicity and causal mechanisms* (pp. 139-173). Cambridge, UK: Cambridge University Press.
- Moyer, K. (1981). Biological substrates of aggression: Implications for control. In P. F. Brain and D. Benton (Eds.), *The Biology of Aggression*. Alphen aan der Rijn: Sijthoff and Noordhoff.
- Muthén, B. O. (2002). Beyond SEM: General latent variable modeling. *Behaviormetrika*, 29, 81-117.

- Mutsaers, P. (1996). *Residential burglary*. The Hague, Netherlands: Netherlands Ministerie Van Justice.
- Nagel, I. H., & Hagan, J. (1983). Gender and crime: Offense patterns and criminal court sanctions. In M. Tonry & N. Morris (Eds.), *Crime and Justice: An Annual Review of Research, Vol. 4* (pp. 91-144). Chicago: University of Chicago Press.
- Nagin, D. S., & Farrington, D. P. (1992). The onset and persistence of offending. *Criminology*, 30(4), 501-522.
- Nagin, D. S., Farrington, D. P., & Moffitt, T. E. (1995). Life course trajectories of different types of offenders. *Criminology*, 33, 111-139.
- Nagin, D. S., & Land, K. C. (1993). Age, criminal careers, and population heterogeneity: Specification and estimation of a non-parametric, mixed poisson model. *Criminology*, 31(3), 327-362.
- Nagin, D. S., & Paternoster, R. (1991). On the relationship of past to future delinquency. *Criminology*, 29, 163-189.
- Nagin, D. S., & Paternoster, R. (1993). Enduring individual differences and rational choice theories of crime. *Law and Society Review*, 27, 467-96
- Nagin, D. S., & Tremblay, R. E. (1999). Trajectories of boys physical aggression, opposition and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development*, 70, 1181-1196.
- Nagin, D. S., & Tremblay, R. E. (2001). Analyzing developmental trajectories of distinct but related behaviours: A group-based method. *Psychological Methods*, 6, 18-34.

- Newson, A., Newson, E., & Adams, M. (1993). The social origins of delinquency. *Criminal Behaviour and Mental Health*, 3, 19-29.
- O'Grady, K. E., Kinlock, T. W., & Harlon, T. E. (2007). Prediction of violent history in substance-abusing inmates. *The Prison Journal*, 87(4), 416-433.
- Oregon Criminal Justice Commission (2004). *Oregon administrative rules contain OARS filed through September 17*. Retrieved from <http://www.oregon.gov/CJC/2003.pdf?ga=t>
- Osgood, D. W., & Rowe, D. C. (1994). Bridging criminal careers, theory and policy through latent variables models of individual offending. *Criminology*, 32(4), 517-554.
- Osgood, D. W., & Schreck, C. J. (2007). A new method for studying the extent, stability, and predictors of individual specialization in violence. *Criminology*, 45(2), 273-312.
- Osgood, D. W., Wilson, J. K., O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (1996). Routine activities and individual deviant behavior. *American Sociological Review*, 61, 635-655.
- Paternoster, R., Brame, R., Piquero, A., Mazerolle, P., & Dean, C. W. (1998). The forward specialization coefficient: Distributional properties and subgroup differences. *Journal of Quantitative Criminology*, 14, 133-54.
- Patterson, G. R. (1982). *Coercive Family Process*. Eugene, Or: Castalia.

- Patterson, G. R., Frogatch, M. S., Yoerger, K. L., & Stoolmiller, M. (1998). Variables that initiate and maintain an early-onset trajectory for juvenile offending. *Development Psychopathology*, 10(3), 531-547.
- Patterson, S., Lennings, C. J., & Davey, J. (2000). Methadone clients, crime and substance use. *International Journal of Offender Therapy and Comparative Criminology*, 44(6), 667-680.
- Petersilia, J. (1980). Criminal career research: A review of recent evidence. *Crime and Justice*, 2, 321-379.
- Petersilia, J., Greenwood, P. W., & Lavin, M. (1978). *Criminal careers of habitual felons*. Washington, DC: U.S. Government Printing Office.
- Peterson, M., Braiker, H., & Polich, S. (1980). *Doing crime: A survey of California inmates*. Santa Monica, California: The Rand Corporation.
- Peterson, R. A., Pittman, D. J., & O'Neal, P. (1962). Stabilities in deviance: A study of assaultive and non-assaultive offenders. *Journal of Criminal Law, Criminology and Police Science*, 53, 44-48.
- Pfohl, S. (1994). *Imaged of deviance and social control: A sociological history*. New York, New York: McGraw Hill.
- Piaget, J. (1932). *The moral judgement of the child*. London: Kegan Paul.
- Piaget, J. (1959). *Language and thought of the child*. London: Routledge and Kegan Paul.
- Piaget, J. (1983). Piaget theory. In P. Mussen (Ed.), *Handbook of Child Psychology*, (4th Edn.), Vol. 1. New York: Wiley.

- Piper, E. S. (1985). Violent chronicity and recidivism in the 1958 Philadelphia cohort. *Journal of Quantitative Criminology*, 1, 319-344.
- Piquero, A. (2000). Are chronic offenders the most serious offenders? Exploring the relationship with special attention to offense skewness and gender differences. *Journal of Criminal Justice*, 28, 103-16.
- Piquero, A. (2000b). Frequency, specialization, and violence in offending careers. *Journal of Research in Crime & Delinquency*, 37(4), 392-418.
- Piquero, A. (2004). Somewhere between persistence and desistance: The intermittency of criminal careers. In S. Maruna & R. Immarigeon (Eds.) *After crime and punishment: Pathways to offender reintegration* (pp. 102-125). Devon, UK: Willan.
- Piquero, A. R., Blumstein, A., Brame, R., Haapanen, R., Mulvey, E. P., & Nagin, D. S. (2001). Assessing the impact of exposure time and incapacitation on longitudinal trajectories of criminal offending. *Journal of Adolescent Research*, 16, 54-74.
- Piquero, A. R., & Brame, R. W. (2008). Assessing the race-crime and ethnic-crime relationship in sample of serious adolescent delinquents. *Crime & Delinquency*, 54(3), 390-422.
- Piquero, A. R., Brame, R., & Lynam, D. (2004). Studying criminal career length through early adulthood among serious offenders. *Crime and Delinquency*, 50, 412-435.
- Piquero, A. R., Brame, R., Mazerolle, P., & Haapanen, R. (2002). Crime in emerging adulthood. *Criminology*, 40, 137-169.

- Piquero, A. R., & Chung, H. L. (2001). On the relationship between gender, early onset and the seriousness of offending. *Journal of Criminal Justice*, 29, 189-206.
- Piquero, A. R., Farrington, D. P., & Blumstein, A. (2003). The criminal career paradigm. In Tonry, M. (Ed.), *Crime and Justice: A review of research*, Vol. 30 (pp. 359-506). Chicago: University of Chicago Press.
- Piquero, A. R., Farrington, D. P., & Blumstein, A. (2007). *Key issues in criminal career research: New analyses of the cambridge study in delinquent development*. New York: Cambridge University Press.
- Piquero, A. R., Paternoster, R., Mazerolle, P., Brame, R., & Dean, C. (1999). Onset age and offense specialization. *Journal of Research in Crime and Delinquency*, 36, 275-299.
- Polaschek, D. L. L., Hudson, S. M., Ward, T., & Siegert, R. J. (2001). Rapists' offense processes: A preliminary descriptive model. *Journal of Interpersonal Violence*, 15, 523-544.
- Pyle, F. P. (1974). The spatial dynamics of crime. *The University of Chicago Department of Geography Research Paper No. 159*.
- Radzinowicz, L., & King, J. (1977). *The Growth of Crime: The International Experience*. London: Hermish Hamilton.
- Ramirez, I. L. (2005). Criminal history and assaults on intimate partners by Mexican-Americans and non-Mexican white college students. *Journal of Interpersonal Violence*, 20(12), 1628-1647.

- Reilly, B., & Witt, R. (1996). Crime deterrence and unemployment in England and Wales: An empirical analysis. *Bulletin of Economic Research*, 48, 137-59.
- Reiss, A., & Roth, J.A. (1993). *Understanding and preventing violence*. Washington, DC: National Academies Press.
- Reiss, A. J., Jr. (1986). Why are communities important in understanding crime? In A. J. Reiss Jr. & M. Tonry (Eds.), *Crime and Justice: An Annual Review of Research*, Vol. 8 (pp. 1-35). Chicago: University of Chicago Press.
- Rojek, D. G., & Erickson, M. L. (1982). Delinquent Careers. *Criminology*, 20, 5-28.
- Ross, R. R., & Fabiano, E. A. (1985). *Time to Think: A cognitive model of delinquency prevention and offender rehabilitation*. Johnson City, Tennessee: Institute of Social Sciences and Arts.
- Rotton, J. & Frey, J. (1985). Air pollution, weather, and violent crimes: concomitant time-series analysis of archival data. *Journal of Personality and Social Psychology*, 49(1), 207-220.
- Rowe, D. C., Osgood, D. W., & Nicewander, A. W. (1990). A Latent Trait Approach to Unifying Criminal Careers. *Criminology*, 28(2), 237-270.
- Sampson, R. J., & Laub, J. H. (1993). *Crime in the making: Pathways and turning points through life*. Cambridge: Harvard University Press.
- Sampson, R. J., & Lauritsen, J. L. (1994). Violent victimization and offending: individual-, situation- and community-level risk factors. In A. R. Reiss, Jr. & J. A. Roth (Eds), *Understanding and Preventing Violence, Vol. 3: Social influences*.

National Research Council Panel on Understanding and Control of Violent Behaviour.

Sampson, R. J., & Lauritsen, J. L. (1997). Racial and ethnic disparities in crime and criminal justice in the United States. In M. Tonry (Ed.), *Ethnicity, crime and immigration: Comparative and cross-national perspectives, crime and justice. An Annual Review of Research, Vol. 21* (pp. 311-374). Chicago: University of Chicago Press.

Sampson, R. J., Morenoff, J. D., & Raudenbush, S. W. (2005). Social anatomy of racial and ethnic disparities in violence. *American Journal of Public Health, 95*(2), 224-232.

Sampson, R. J., Raudenbush, S. W., & Earls F. (1997). Neighborhoods and violent Crime: A multi-level study of collective efficacy. *Science, 277*, 918-924.

Schechter, H. (2003). *Serial killers*. US: Random House Publishing.

Schomburg, R. H. (1998). *The history of Barbados: Comprising a geographical and statistical description of the island; a sketch of the historical events since the settlement; and an account of its geology and national production*. Cambridge: Cambridge University Press.

Schwaner, S. L. (1998). Patterns of violent specialization: Predictors of recidivism for a cohort of parolees. *American Journal of Criminal Justice, 23*, 1-17.

Schwaner, S. L. (2000). Burglary specialization within a parole cohort: Criminal lifestyle of moonlighting? *Journal of Crime & Justice, 23*, 95-108.

- Schwartz, L. R. (1972). Conflict without violence and violence without conflict in a Mexican mestizo village. In J. F. Short, Jr. & M. E. Wolfgang (Eds.), *Collective Violence*. Chicago, Illinois: Aldine Atherton.
- Sellin, T., & Wolfgang, M. E. (1964). *The measurement of delinquency*. New York: Wiley.
- Shannon, L. W. (1976). *Predicting adult careers from juvenile careers*. Unpublished Paper, Iowa Urban Community Research Center, University of Iowa, Iowa City.
- Shannon, L. W. (1978). A longitudinal study of delinquency and crime. In Wellford, C. (Ed.) *Quantitative Studies in Criminology*. Beverly Hills, California: Sage Publishing.
- Shannon, L. W. (1982). *Assessing the relationship of adult criminal careers to juvenile criminal careers: A summary*. Unpublished Paper, Iowa Urban Community Research Center, University of Iowa, Iowa City.
- Shaw, C. R. (1928). *The Jack Roller: A delinquent boy's own story*. Chicago: University of Chicago Press.
- Shaw, C. R., & McKay, H. D. (1972). *Juvenile delinquency and urban areas: A study of rates of delinquency in relation to differential characteristics of local communities in American cities*. Chicago: University of Chicago Press.
- Sheldon, W. H. (1942). *The varieties of temperament: A psychology of constitutional differences*. New York: Harper & Row.
- Shinnar, S., & Shinnar, R. (1975). The effects of the criminal justice system on the control of crime: A quantitative approach. *Law and Society Review*, 9, 581-612.

- Shoemaker, D. J. (2005). *Theories of delinquency: An examination of explanations of delinquent behaviour*. New York: Oxford University Press.
- Shover, N. (1996). *Great pretenders: Pursuits and careers of persistent thieves*. Boulder, Colorado: Westview.
- Siann, G. (1985). *Accounting for aggression: Perspectives on aggression and violence*. London: Allen & Unwin.
- Silberman, C. (1978). *Criminal violence, criminal justice*. New York: Random House.
- Simon, L. M. J. (1997). Do offenders specialize in crime type? *Applied and Preventive Psychology*, 6, 35-53.
- Simons, R., Wu, C. I., Conger, R. & Lorenz, L. (1994). Two routes to delinquency: Differences in the impact of parenting and deviant peers for early verses late starters. *Criminology*, 32, 247-275.
- Simpson, S. S., & Herz, D. C. (1999). Gender, crime and criminal justice. In J. S. Chafetz (Ed.), *Handbook of the Sociology of Gender*. New York: Kluwer Academic/Plenum Publishers.
- Skinner, B. F. (1974). *About behaviourism*. London: Cape
- Smallbone, S. W., & Wortley, R. K. (2004). Onset, persistence and versatility of offending among adult males convicted of sexual offenses against children. *Sexual Abuse: A Journal of Research and Treatment*, 16(4), 285-298.

- Smith, D. A., & Visser, C. (1980). Sex and involvement in deviancy and crime: a quantitative review of empirical literature. *American Sociological Review*, 45, 697-701.
- Smith, D. R., & Smith, W. R. (1984). Patterns of delinquent careers: An assessment of three perspectives. *Social Science Research*, 13, 129-158.
- Sommers, I., Baskin, D., & Fagan, J. (1994). Getting out of the life: Crime desistance by female street offenders. *Deviant Behaviour*, 15, 125-149.
- Soothill, K., Francis, B., Ackerley, E., & Humphreys, L. (2008). Changing patterns of offending behaviour among young adults. *British Journal of Criminology*, 48, 75-95.
- Spelman, W. (1994). *Criminal Incapacitation*. New York: Plenum.
- Spence, J., Walton, W. S., Miller, F. J. W., & Court, S. D. M. (1954). *A Thousand Families in Newcastle upon Tyne: An Approach to the Study of Health and Illness in Children*. Oxford: Oxford University Press.
- Spohn, C. (2000). *Offender Race and Case Outcome: Do Crime Seriousness and Strength of Evidence Matter?* Final Activities Report submitted to the National Institute of Justice. Rockville: MD
- Stander, J., Farrington, D. P., Hill, G., and Altham, P. M. E. (1989), Markov chain analysis and specialization in criminal careers. *The British Journal of Criminology*, 29, 317 – 335.
- Steffensmeier, D. (1986). *The Fence: In the shadows of two worlds*. New Jersey: Rowman & Littlefield.

- Steffensmeier, D., & Allan, E. (1996). Gender and crime: Towards a gendered theory of female offending. *Annual Review of Sociology*, 22, 459-487.
- Steffensmeier, D., & Ulmer, J. T. (2005). *Confessions of a dying thief: Understanding criminal careers and criminal enterprise*. New Brunswick, NJ: Transaction Aldine.
- Storr, A. (1970). *Human Aggression*. Harmondsworth: Penguin.
- Sullivan, C. J., & McGloin, J. M. (2011) *Explaining Qualitative Change in Offending: Revisiting Specialization in the Short-Term*. Paper presented at the annual meeting of the American Society of Criminology, Royal York, Toronto. 2011-03-14 from http://www.allacademic.com/meta/p32094_index.html
- Sullivan, C. L., McGloin, J. M., Pratt, T. C., & Piquero, A. R. (2006). Rethinking the 'Norm' of Offender Generality: Investigating Specialization in the Short-term. *Criminology*, 44, 199-233.
- Sullivan, C. L., McGloin, J. M., Ray, J.V., & Caudy, M. S. (2009). Detecting Specialization in Offending: Comparing Analytic Approaches. *Journal of Quantative Criminology*, 25, 419-441.
- Sutherland, E. H. (1937). *The professional thief*. Chicago: University of Chicago Press.
- Sutherland, E. H. (1947). *Principles of criminology* (4th Edn). Philadelphia: Lippincott.
- Sutherland, E. H., & Cressey, D. R. (1970). *Criminology* (8th Edn). Philadelphia: Lippincott.

- Svensson, R. (2002). Strategic offences in the criminal career context. *British Journal Criminology*, 42, 395-411.
- Synder, H. N. (1998). *Court careers of juvenile offenders*. Washington, D.C.: Office of Juvenile Justice and Delinquency Prevention.
- Tarling, R. (1993). *Analyzing offending: Data, models and interpretations*. London: Her Majesty's Stationery Office.
- Taylor, P. J., & Gunn, J. (1984). Violence and psychosis: Part 1. Risk of violence among psychotic men. *British Medical Journal*, 288, 1945-1949.
- Tedeschi, J. T. (1983). Social influence theory and aggression. In R. G. Geen & E. I. Donnerstein (Eds.), *Aggression: Theoretical and Empirical Reviews, Vol. 1*. New York: Academic Press.
- Thomas-Cottingham, A. (2004). *Psychology made simple: From Freud to forensics, an invaluable introduction to the most popular of all modern sciences*. Broadway, New York: Random House.
- Thornberry, T. P. (2005). Explaining multiple patterns of offending across the life course and across generations. *Annals of Academy of Political and Social Sciences*, 602, 156-195.
- Tibbetts, S. G., & Piquero, A. R. (1999). The influence of gender, low birth weight, and disadvantaged environment in predicting early onset of offending: A test of Moffitt's interactional hypothesis. *Criminology*, 37, 843-878.
- Toch, H. (1969). *Violent men*. Harmondsworth: Penguin Books.

- Tolan, P. H. (1987). Implications of age of onset for delinquency risk. *Journal of Abnormal Child Psychology*, 15, 46-65.
- Tolan, P. H., & Gorman-Smith, D. (1998). Developmental of serious and violent offending careers. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful intervention*. Thousand Oaks, California: Sage Publications.
- Tolan, P. H., Gorman-Smith, D., & Loeber, R. (2000). Developmental timing of onset of disruptive behaviours and later delinquency of inner city youth. *Journal of Child and Family Studies*, 9(2), 203-220.
- Tolan, P. H., & Thomas, P. (1995). The implications for age of onset for delinquency risks II: longitudinal data. *Journal of Abnormal Child Psychology*, 23(2), 157-181.
- Tonry, M. H. (1995). *Malign neglect: Race, crime and punishment in America*. New York: Oxford University Press.
- Tracy, P. E. (2005). Race, ethnicity and juvenile justice: Is there a bias in post-arrest decision making? In D. Hawkins & K. Kempf- Leonard (Eds.), *Our children, their children: Confronting racial and ethnic differences in American juvenile justice* (pp. 300-347). Chicago: University of Chicago Press.
- Tracy, P. E., & Kempf-Leonard, K. (1996). *Continuity and discontinuity in criminal careers*. New York: Plenum.
- Tracy, P. E., Wolfgang, M. E., & Figlio, R. M. (1990). *Delinquency career in two birth cohorts*. New York: Plenum Press.
- Tunnell, K. D. (2006). *Living off crime* (2nd edn). Lanham, MD: Rowan and Littlefield.

- United Nations Office on Drugs and Crime & Latin American and the Caribbean Region of the World Bank. (2007). *Crime violence, and development: Trends, cost, and policy options in the Caribbean*. (Report No. 37820). Retrieved from: <http://siteresources.worldbank.org/INTHAITI/Resources/Crimeandviolenceinthecaribbeanfullreport.pdf>.
- Van Kammen, W. B., & Loeber, R. (1994). Are fluctuations in delinquent activities related to the onset and offset of juvenile illegal drug use and drug dealing? *Journal of Drug Issues* , 24, 9-24.
- van Wijk, A. P., Mali, B. R. F., Bullens, R. A. R., & Vermeiren, R. R. (2007). Criminal profiles of violent juvenile sex and violent juvenile non-sex Offenders: An explorative longitudinal study. *Journal of Interpersonal Violence*, 22(10), 1340-1355.
- Vermunt, J. K., & Magidson, J. (2004). Latent class analysis. In Lewis-Beck, M. S., Bryman, A., & Liao, F. T. (Eds.), *The Sage Encyclopedia of Social Science Research Methods*. Newbury Park: Sage.
- Walker, N., Hammond, W., & Steer, D. (1967). Repeated violence. *The Criminal Law Review*, 207, 564-572.
- Walsh, D. P. (1980). *Break-ins: Burglary from private houses*. London: Constable.
- Ward, T., Loudon, K., Hudson, S. M., & Marshall, W. L. (1995). A descriptive model of the offence chain of child molesters. *Journal of Interpersonal Violence*, 10, 452-472.

- Warren, M., & Rosenbaum, J. (1987). Criminal careers of female offenders. *Criminal Justice and Behaviour*, 13, 393-418.
- Weiburd, D., & Waring, E. (2001). *White-collar crime and criminal careers*. Cambridge, UK: Cambridge University Press.
- Weiner, N. A. (1989). 'Violent Criminal Careers' and 'Violent Career Criminals': An overview of research literature. In N. A. Weiner & M. E. Wolfgang (Eds.), *Violent Crime, Violent Criminals*. Newbury Park, California: Sage.
- Weitekamp, E. G. M., Kerner, H. J., Schindler, V., & Schubert, A. (1995). On the 'Dangerousness' of chronic/habitual offenders: A re-analysis of the 1945 Philadelphia Cohort Data. *Studies on Crime and Crime Prevention*, 4(2), 159-175.
- West, D. J., & Farrington, D. P. (1973). *Who become delinquent?* London: Heinemann.
- West, D. J., & Farrington, D. P. (1977). *The delinquent way of life*. London: Heinemann.
- Williamson, S., Hare, R. D., & Wong, S. (1987). Violence: criminal psychopaths and their victims. *Canadian Journal of Behavioural Science*, 19(4), 454-462.
- Wilson, E. O. (1978). *On human nature*. Cambridge, Massachusetts: Harvard University Press.
- Wilson, J. Q., & Herrnstein, R. J. (1985). *Crime and human nature*. New York: Simon and Schuster.
- Wilson, W. J. (1987). *The truly disadvantaged*. Chicago: Chicago University Press.
- Wikstrom, P. H. (1985). *Everyday violence in contemporary Sweden*. Stockholm: National Council for Crime Prevention.

- Wikstrom, P. H. (1991). Housing tenure, social class and offending. *Criminal Behaviour and Mental Health*, 1, 69-89.
- Wikstrom, P. H., & Loeber, R. (2000). Do disadvantaged neighbourhoods cause well-adjusted children to become adolescent delinquent? A study of male juvenile serious offending, individual risk and protective factors, and neighbourhood context. *Criminology*, 38(4), 1109-1142.
- Wolfgang, M. E. (1958). *Patterns of criminal homicide*. Philadelphia: University of Pennsylvania Press.
- Wolfgang, M. E., & Feracutti, F. (1967). *The subculture of violence*. London: Tavistock.
- Wolfgang, M. E., Figlio, R. M., & Sellin, T. (1972). *Delinquency in a birth cohort*. Illinois: University of Chicago Press.
- Wolfgang, M. E., & Sellin, T. (1964). *The measurement of delinquency*. New York: John Wiley.
- Wolfgang, M. E., Thornberry, T. P., & Figlio, R. M. (1987). *From boy to man, from delinquency to crime*. Chicago: University of Chicago Press.
- Wolfgang, M. E., & Tracy, P. E. (1982). *The 1945 and 1958 birth cohorts: A comparison of the prevalence, incidence, and severity of the delinquent behavior*. Paper read to the Conference on Public Danger, Dangerous Offenders, and the Criminal Justice System, Kennedy School of Government, Harvard University.
- Yochelson, S. and Samenow, S. E. (1976). *The criminal personality, Vol. 1: A profile for change*. New York: Jason Aronsen.

Zillmann, D. (1979). *Hostility and aggression*. Hillsdale, New Jersey: Erlbaum.

Zimmerman, G. M., & Messner, S. F. (2010). Neighborhood context and the gender gap in adolescent violent crime. *American Sociological Review*, 75(6), 958-980.

APPENDICES

APPENDIX A

Crime Content Dictionary

1. Drug Offences encompasses cannabis, cocaine, and ecstasy possession, supply, trafficking, importation and cultivation. Possession of drug paraphernalia is also included.
2. Weapon Offences encompass possession of an offensive weapon, firearm and ammunition.
3. Sex Offences encompass sex by force; sex with a minor; indecent assault; assault to rape; serious indecency; bestiality; buggery.
4. Robbery Offences encompass robbery; aggravated robbery; assault to rob, aggravated burglary.
5. Murder Offences encompass murder and manslaughter.
6. Assault Offences encompass grievous bodily harm; serious bodily harm; actual bodily harm; simple assault; assault of a police officer.
7. Theft Offences encompass fraud; theft; shoplifting; theft of vehicle; theft from vehicle; theft of a cellular phone; handling stolen goods; unlawful possession of goods.
8. Burglary Offences encompass residential burglary; commercial burglary; burglary with intent.
9. Public Order Offences encompass: threatening language; violent disorder; endangering life; criminal damage; insulting language, indecent language; kidnapping; indecent exposure; resisting a police officer; obstructing a police officer; escaping from custody; going equipped; loitering; trespassing; child abandonment; arson; wandering; desertion; traffic offences; exposing marketable goods for sale

without a permit; wearing camouflage; harassment; gambling; wasteful employment of the police force; begging; offensive behaviour; causing a disturbance; affray.

10. Violent Offences encompass weapon, sex, robbery and murder offences.

11. Property offences encompass theft and burglary offences.

APPENDIX B

Demographic Variable Content Dictionary

1. Age at start of study was the age of offender on January 1, 2007.
2. A Black offender was an offender of solely African descent.
3. A non-Black offender encompassed White, Asian, Mixed and any other race.
4. A Barbadian offender was an offender who was born in Barbados.
5. A non-Barbadian offender was an offender who was born in any other country.
6. A low income housing designation was assigned when the offender indicated his place of residence to be in an area where the majority of the persons in the neighbourhood held low-income jobs e.g. labourer or construction worker.
7. A middle housing designation was assigned when the offender indicated his place of residence to be in an area where the majority of the persons in the neighbourhood held middle-income jobs e.g. salesman, bank teller.
8. Primary education level was assigned when the offender completed his education only up to the primary level.
9. Secondary education level was assigned when the offender completed his education only up to the secondary level.
10. Skilled education level was assigned when the offender who may not have completed his secondary education but went on to attend a skills training course or did an apprenticeship.
11. University education level was assigned when the offender completed his education up to and possibly beyond the university level.
12. A Blue Collar worker was one who held a labour intensive position e.g. labourer.

13. A White Collar worker was one who held an office position or a job that required a relatively high level of intellectual ability e.g. bank teller, secretary, reporter.

APPENDIX C

Paired Sample t-tests for Chapter Nine

Paired Sample T-Test Results for Offenders with at Least One Drug Offence across All Offending Categories

		Paired Differences					<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Drug Offences - Total Weapon Offences	1.590	1.658	.051	1.490	1.690	31.120	1052	.000
Pair 2	Total Drug Offences - Total Sex Offences	1.718	1.723	.053	1.614	1.822	32.354	1052	.000
Pair 3	Total Drug Offences - Total Robbery Offences	1.031	2.465	.076	.882	1.180	13.579	1052	.000
Pair 4	Total Drug Offences - Total Murder Offences	1.928	1.649	.051	1.828	2.028	37.937	1052	.000
Pair 5	Total Drug Offences - Total Assault Offences	.827	2.275	.070	.690	.965	11.799	1052	.000
Pair 6	Total Drug Offences - Total Theft Offences	.550	4.418	.136	.283	.817	4.038	1052	.000
Pair 7	Total Drug Offences - Total Burglary Offences	.939	3.790	.117	.710	1.168	8.041	1052	.000
Pair 8	Total Drug Offences - Total PO Offences	.710	2.453	.076	.562	.859	9.398	1052	.000

Paired Sample T-Test Results for Offenders with at Least One Weapon Offence across All Offending Categories

		Paired Differences					<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Weapon Offences - Total Drug Offences	-.195	2.242	.126	-.442	.052	-1.551	317	.122
Pair 2	Total Weapon Offences - Total Sex Offences	1.170	1.417	.079	1.013	1.326	14.718	317	.000
Pair 3	Total Weapon Offences - Total Robbery Offences	-.358	2.889	.162	-.677	-.040	-2.213	317	.028
Pair 4	Total Weapon Offences - Total Murder Offences	1.619	.994	.056	1.510	1.729	29.066	317	.000
Pair 5	Total Weapon Offences - Total Assault Offences	-.739	2.721	.153	-1.039	-.439	-4.843	317	.000
Pair 6	Total Weapon Offences - Total Theft Offences	-1.346	6.866	.385	-2.103	-.588	-3.495	317	.001
Pair 7	Total Weapon Offences - Total Burglary Offences	-.025	3.822	.214	-.447	.396	-.117	317	.907
Pair 8	Total Weapon Offences - Total PO Offences	-.871	3.260	.183	-1.231	-.511	-4.764	317	.000

Paired Sample T-Test Results for Offenders with at Least One Sex Offence across All Offending Categories

		Paired Differences					<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Sex Offences – Total Drug Offences	.654	1.746	.077	.503	.804	8.541	519	.000
Pair 2	Total Sex Offences – Total Weapon Offences	1.081	1.135	.050	.983	1.179	21.714	519	.000
Pair 3	Total Sex Offences – Total Robbery Offences	.502	1.964	.086	.333	.671	5.828	519	.000
Pair 4	Total Sex Offences – Total Murder Offences	1.337	.995	.044	1.251	1.422	30.622	519	.000
Pair 5	Total Sex Offences – Total Assault Offences	.277	2.001	.088	.105	.449	3.156	519	.002
Pair 6	Total Sex Offences – Total Theft Offences	.312	3.240	.142	.032	.591	2.193	519	.029
Pair 7	Total Sex Offences – Total Burglary Offences	.492	2.739	.120	.256	.728	4.099	519	.000
Pair 8	Total Sex Offences – Total PO Offences	.171	2.405	.105	-.036	.378	1.623	519	.105

Paired Sample T-Test Results for Offenders with at Least One Robbery Offence across All Offending Categories

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Robbery Offences - Total Drug Offences	1.223	2.818	.107	1.013	1.432	11.447	695	.000
Pair 2	Total Robbery Offences - Total Weapon Offences	1.861	2.536	.096	1.672	2.049	19.352	695	.000
Pair 3	Total Robbery Offences - Total Sex Offences	2.016	2.501	.095	1.830	2.202	21.260	695	.000
Pair 4	Total Robbery Offences - Total Murder Offences	2.335	2.572	.097	2.143	2.526	23.950	695	.000
Pair 5	Total Robbery Offences - Total Assault Offences	.559	2.781	.105	.352	.766	5.302	695	.000
Pair 6	Total Robbery Offences - Total Theft Offences	.322	4.514	.171	-.014	.658	1.881	695	.060
Pair 7	Total Robbery Offences - Total Burglary Offences	.773	4.421	.168	.444	1.102	4.612	695	.000
Pair 8	Total Robbery Offences - Total PO Offences	.647	3.332	.126	.399	.895	5.120	695	.000

Paired Sample T-Test Results for Offenders with at Least One Murder Offence across All Offending Categories

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Murder Offences - Total Drug Offences	-.050	1.218	.193	-.440	.340	-.260	39	.797
Pair 2	Total Murder Offences - Total Weapon Offences	.050	1.709	.270	-.497	.597	.185	39	.854
Pair 3	Total Murder Offences - Total Sex Offences	.300	1.588	.251	-.208	.808	1.194	39	.239
Pair 4	Total Murder Offences - Total Robbery Offences	-.600	2.073	.328	-1.263	.063	-1.831	39	.075
Pair 5	Total Murder Offences - Total Assault Offences	-1.100	2.216	.350	-1.809	-.391	-3.139	39	.003
Pair 6	Total Murder Offences - Total Theft Offences	-.250	2.227	.352	-.962	.462	-.710	39	.482
Pair 7	Total Murder Offences - Total Burglary Offences	-.225	2.824	.446	-1.128	.678	-.504	39	.617
Pair 8	Total Murder Offences - Total PO Offences	-.575	2.726	.431	-1.447	.297	-1.334	39	.190

Paired Sample T-Test Results for Offenders with at Least One Assault Offence across All Offending Categories

		Paired Differences					<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Assault Offences - Total Drug Offences	1.068	2.544	.098	.876	1.260	10.930	677	.000
Pair 2	Total Assault Offences - Total Weapon Offences	1.976	2.096	.080	1.818	2.134	24.555	677	.000
Pair 3	Total Assault Offences - Total Sex Offences	2.066	2.349	.090	1.889	2.244	22.904	677	.000
Pair 4	Total Assault Offences - Total Robbery Offences	.796	2.691	.103	.594	.999	7.707	677	.000
Pair 5	Total Assault Offences - Total Murder Offences	2.509	2.238	.086	2.340	2.678	29.187	677	.000
Pair 6	Total Assault Offences - Total Theft Offences	.478	5.106	.196	.093	.863	2.437	677	.015
Pair 7	Total Assault Offences - Total Burglary Offences	1.249	3.889	.149	.956	1.542	8.365	677	.000
Pair 8	Total Assault Offences - Total PO Offences	.425	2.786	.107	.215	.635	3.970	677	.000

Paired Sample T-test results for offenders with at least one theft offence across all offending categories

		Paired Differences					<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Theft Offences - Total Drug Offences	2.171	6.145	.277	1.626	2.715	7.835	491	.000
Pair 2	Total Theft Offences - Total Weapon Offences	3.309	6.174	.278	2.762	3.856	11.887	491	.000
Pair 3	Total Theft Offences - Total Sex Offences	3.407	6.556	.296	2.826	3.987	11.525	491	.000
Pair 4	Total Theft Offences - Total Robbery Offences	1.913	6.395	.288	1.346	2.479	6.634	491	.000
Pair 5	Total Theft Offences - Total Murder Offences	3.904	6.417	.289	3.336	4.473	13.496	491	.000
Pair 6	Total Theft Offences - Total Assault Offences	1.927	6.099	.275	1.387	2.467	7.008	491	.000
Pair 7	Total Theft Offences - Total Burglary Offences	1.472	7.322	.330	.823	2.120	4.458	491	.000
Pair 8	Total Theft Offences - Total PO Offences	1.553	5.880	.265	1.032	2.074	5.858	491	.000

Paired Sample T-Test Results for Offenders with at Least One Burglary Offence across All Offending Categories

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Burglary Offences - Total Drug Offences	2.453	6.196	.340	1.786	3.121	7.226	332	.000
Pair 2	Total Burglary Offences - Total Weapon Offences	3.688	6.023	.330	3.038	4.337	11.172	332	.000
Pair 3	Total Burglary Offences - Total Sex Offences	3.727	6.173	.338	3.061	4.392	11.016	332	.000
Pair 4	Total Burglary Offences - Total Robbery Offences	1.916	6.377	.349	1.228	2.603	5.482	332	.000
Pair 5	Total Burglary Offences - Total Murder Offences	4.282	5.992	.328	3.636	4.928	13.042	332	.000
Pair 6	Total Burglary Offences - Total Assault Offences	2.180	6.664	.365	1.462	2.899	5.970	332	.000
Pair 7	Total Burglary Offences - Total Theft Offences	.339	8.547	.468	-.582	1.261	.725	332	.469
Pair 8	Total Burglary Offences - Total PO Offences	1.745	6.313	.346	1.064	2.425	5.043	332	.000

Paired Sample T-Test Results for Offenders with at Least One Public Order Offence across All Offending Categories

		Paired Differences					<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total PO Offences – Total Drug Offences	1.129	3.132	.123	.888	1.371	9.188	648	.000
Pair 2	Total PO Offences – Total Weapon Offences	2.239	2.799	.110	2.023	2.455	20.374	648	.000
Pair 3	Total PO Offences – Total Sex Offences	2.353	2.967	.116	2.124	2.582	20.199	648	.000
Pair 4	Total PO Offences – Total Robbery Offences	1.142	3.604	.141	.864	1.420	8.070	648	.000
Pair 5	Total PO Offences – Total Murder Offences	2.817	2.853	.112	2.597	3.037	25.154	648	.000
Pair 6	Total PO Offences – Total Assault Offences	.732	3.049	.120	.497	.967	6.116	648	.000
Pair 7	Total PO Offences – Total Theft Offences	.370	5.348	.210	-.042	.782	1.762	648	.079
Pair 8	Total PO Offences – Total Burglary Offences	.995	5.140	.202	.599	1.392	4.933	648	.000

APPENDIX D

Second Order Transition Matrices for the First Five Charges

Second Order Transition Matrices for the First Five Charges: Transition One

			Charge K								
Charge K-2	Charge K-1	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	Drugs	33	0.485	0.121	0.000	0.000	0.000	0.121	0.030	0.030	0.212
	Weapon	3	0.333	0.000	0.000	0.000	0.000	0.333	0.000	0.000	0.333
	Sex	3	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.333
	Robbery	10	0.200	0.100	0.000	0.300	0.000	0.200	0.000	0.000	0.200
	Murder	1	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	23	0.174	0.000	0.043	0.130	0.000	0.391	0.000	0.043	0.217
	Theft	12	0.000	0.083	0.083	0.083	0.000	0.167	0.500	0.000	0.083
	Burglary	7	0.000	0.000	0.000	0.000	0.000	0.143	0.286	0.571	0.000
	Public	17	0.294	0.000	0.000	0.059	0.000	0.294	0.059	0.000	0.294
Weapon	Drugs	2	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.000
	Weapon	8	0.125	0.125	0.000	0.000	0.000	0.125	0.250	0.000	0.375
	Sex	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000
	Robbery	5	0.200	0.000	0.200	0.200	0.000	0.200	0.200	0.000	0.000
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	3	0.333	0.333	0.000	0.333	0.000	0.000	0.000	0.000	0.000
	Theft	4	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.250	0.250

	Burglary	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000
	Public	8	0.125	0.250	0.125	0.000	0.000	0.375	0.125	0.000	0.000
Sex	Drugs	5	0.200	0.200	0.000	0.200	0.000	0.200	0.000	0.000	0.200
	Weapon	1	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000
	Sex	4	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.000	0.250
	Robbery	6	0.167	0.000	0.333	0.333	0.000	0.000	0.000	0.000	0.167
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	6	0.000	0.000	0.000	0.167	0.000	0.500	0.000	0.167	0.167
	Theft	1	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
	Burglary	4	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.250
	Public	6	0.000	0.000	0.000	0.000	0.000	0.333	0.167	0.167	0.333
Robbery	Drugs	8	0.250	0.000	0.125	0.125	0.000	0.375	0.000	0.000	0.125
	Weapon	4	0.000	0.500	0.000	0.250	0.250	0.000	0.000	0.000	0.000
	Sex	3	0.000	0.333	0.333	0.000	0.000	0.333	0.000	0.000	0.000
	Robbery	25	0.040	0.080	0.040	0.520	0.000	0.160	0.040	0.080	0.040
	Murder	2	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.000	0.000
	Assault	8	0.000	0.125	0.000	0.250	0.000	0.500	0.125	0.000	0.000
	Theft	9	0.000	0.000	0.111	0.000	0.000	0.111	0.333	0.000	0.444
	Burglary	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000
	Public	12	0.000	0.000	0.000	0.083	0.000	0.083	0.000	0.000	0.833
Murder	Drugs	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Weapon	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
	Sex	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Robbery	3	0.000	0.000	0.000	0.333	0.000	0.333	0.000	0.000	0.333
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Theft	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000

	Burglary	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Public	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Assault	Drugs	9	0.222	0.000	0.111	0.111	0.000	0.111	0.111	0.000	0.333
	Weapon	8	0.000	0.250	0.000	0.125	0.000	0.125	0.250	0.250	0.000
	Sex	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
	Robbery	7	0.000	0.000	0.000	0.286	0.000	0.286	0.143	0.000	0.286
	Murder	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
	Assault	42	0.143	0.071	0.000	0.119	0.000	0.214	0.095	0.048	0.310
	Theft	11	0.000	0.000	0.091	0.091	0.000	0.364	0.273	0.000	0.182
	Burglary	11	0.091	0.000	0.000	0.182	0.000	0.455	0.000	0.273	0.000
	Public	40	0.075	0.025	0.050	0.075	0.000	0.250	0.100	0.025	0.400
Theft	Drugs	14	0.643	0.000	0.000	0.071	0.000	0.000	0.000	0.214	0.071
	Weapon	8	0.250	0.000	0.000	0.125	0.000	0.250	0.250	0.125	0.000
	Sex	3	0.333	0.000	0.333	0.000	0.000	0.333	0.000	0.000	0.000
	Robbery	7	0.143	0.143	0.000	0.143	0.000	0.000	0.286	0.143	0.143
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	11	0.091	0.091	0.091	0.000	0.000	0.455	0.091	0.091	0.091
	Theft	41	0.122	0.049	0.024	0.000	0.000	0.049	0.585	0.073	0.098
	Burglary	18	0.111	0.056	0.000	0.000	0.000	0.111	0.111	0.389	0.222
	Public	13	0.077	0.000	0.000	0.077	0.000	0.154	0.308	0.077	0.308
Burglary	Drugs	6	0.167	0.000	0.000	0.000	0.000	0.000	0.167	0.167	0.500
	Weapon	2	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000
	Sex	2	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Robbery	3	0.000	0.000	0.000	0.667	0.000	0.000	0.000	0.333	0.000
	Murder	1	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	12	0.000	0.000	0.000	0.000	0.000	0.417	0.417	0.000	0.167
	Theft	15	0.133	0.133	0.000	0.067	0.067	0.200	0.200	0.133	0.067

	Burglary	38	0.000	0.000	0.026	0.079	0.000	0.079	0.079	0.658	0.079
	Public	7	0.143	0.286	0.000	0.143	0.000	0.000	0.429	0.000	0.000
Public	Drugs	10	0.700	0.000	0.000	0.100	0.000	0.100	0.000	0.100	0.000
	Weapon	5	0.000	0.400	0.000	0.000	0.000	0.400	0.000	0.000	0.200
	Sex	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
	Robbery	5	0.000	0.200	0.000	0.200	0.000	0.400	0.200	0.000	0.000
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	13	0.000	0.154	0.000	0.077	0.000	0.462	0.000	0.077	0.231
	Theft	12	0.167	0.167	0.083	0.083	0.000	0.083	0.250	0.083	0.083
	Burglary	7	0.143	0.143	0.143	0.000	0.000	0.143	0.000	0.429	0.000
	Public	41	0.073	0.000	0.049	0.073	0.000	0.171	0.098	0.049	0.488

Second Order Transition Matrices for the First Five Charges: Transition Two

			Charge K								
Charge K-2	Charge K-1	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	Drugs	38	0.579	0.026	0.026	0.026	0.000	0.079	0.000	0.105	0.158
	Weapon	5	0.000	0.400	0.200	0.000	0.000	0.400	0.000	0.000	0.000
	Sex	2	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
	Robbery	6	0.167	0.000	0.000	0.333	0.000	0.167	0.333	0.000	0.000
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	10	0.300	0.000	0.000	0.200	0.000	0.300	0.000	0.000	0.200
	Theft	3	0.333	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000
	Burglary	7	0.143	0.000	0.000	0.286	0.000	0.286	0.286	0.000	0.000
	Public	16	0.250	0.000	0.000	0.063	0.000	0.500	0.000	0.125	0.063
Weapon	Drugs	4	0.500	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000
	Weapon	8	0.375	0.125	0.000	0.125	0.000	0.125	0.000	0.000	0.250
	Sex	2	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000
	Robbery	3	0.333	0.000	0.000	0.333	0.000	0.333	0.000	0.000	0.000
	Murder	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
	Assault	8	0.125	0.125	0.000	0.125	0.000	0.125	0.375	0.000	0.125
	Theft	6	0.000	0.000	0.000	0.500	0.000	0.167	0.333	0.000	0.000
	Burglary	3	0.000	0.000	0.667	0.000	0.000	0.000	0.333	0.000	0.000
	Public	5	0.200	0.000	0.000	0.000	0.000	0.200	0.000	0.200	0.400
Sex	Drugs	3	0.333	0.000	0.000	0.000	0.000	0.333	0.000	0.333	0.000
	Weapon	1	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
	Sex	5	0.000	0.200	0.200	0.200	0.000	0.000	0.400	0.000	0.000

	Robbery	1	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	4	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.250
	Theft	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000
	Burglary	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Public	3	0.000	0.000	0.000	0.000	0.000	0.333	0.333	0.000	0.333
Robbery	Drugs	6	0.333	0.000	0.000	0.167	0.000	0.167	0.167	0.167	0.000
	Weapon	5	0.000	0.200	0.000	0.000	0.000	0.400	0.400	0.000	0.000
	Sex	4	0.250	0.000	0.250	0.250	0.000	0.000	0.250	0.000	0.000
	Robbery	26	0.038	0.115	0.000	0.500	0.000	0.115	0.038	0.115	0.077
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	12	0.000	0.000	0.000	0.333	0.000	0.333	0.083	0.083	0.167
	Theft	6	0.000	0.000	0.000	0.333	0.000	0.000	0.333	0.000	0.333
	Burglary	4	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.250
	Public	8	0.125	0.000	0.000	0.125	0.000	0.250	0.125	0.000	0.375
Murder	Drugs	2	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.000
	Weapon	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Sex	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Robbery	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	2	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000
	Theft	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Burglary	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Public	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Assault	Drugs	12	0.083	0.000	0.000	0.167	0.000	0.333	0.083	0.083	0.250
	Weapon	8	0.125	0.250	0.000	0.250	0.000	0.250	0.125	0.000	0.000
	Sex	2	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000

	Robbery	13	0.000	0.231	0.000	0.154	0.000	0.385	0.077	0.077	0.077
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	41	0.073	0.024	0.024	0.122	0.000	0.463	0.073	0.024	0.195
	Theft	11	0.182	0.091	0.000	0.091	0.000	0.091	0.182	0.273	0.091
	Burglary	6	0.167	0.000	0.000	0.000	0.000	0.167	0.167	0.500	0.000
	Public	25	0.200	0.120	0.040	0.120	0.000	0.040	0.080	0.080	0.320
Theft	Drugs	9	0.222	0.111	0.000	0.000	0.000	0.222	0.000	0.222	0.222
	Weapon	7	0.143	0.286	0.000	0.143	0.000	0.286	0.000	0.000	0.143
	Sex	6	0.000	0.000	0.167	0.333	0.000	0.333	0.167	0.000	0.000
	Robbery	4	0.000	0.000	0.000	0.750	0.000	0.000	0.250	0.000	0.000
	Murder	2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	13	0.077	0.000	0.000	0.000	0.000	0.231	0.308	0.077	0.308
	Theft	43	0.070	0.023	0.047	0.093	0.000	0.023	0.558	0.140	0.047
	Burglary	7	0.143	0.000	0.000	0.143	0.000	0.000	0.286	0.286	0.143
	Public	15	0.000	0.067	0.000	0.133	0.000	0.133	0.267	0.000	0.400
Burglary	Drugs	4	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.500
	Weapon	2	0.000	0.000	0.000	0.000	0.000	0.500	0.500	0.000	0.000
	Sex	3	0.000	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.667
	Robbery	6	0.000	0.333	0.000	0.000	0.000	0.000	0.333	0.333	0.000
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	12	0.083	0.167	0.000	0.083	0.000	0.333	0.083	0.083	0.167
	Theft	7	0.143	0.000	0.000	0.143	0.000	0.000	0.143	0.429	0.143
	Burglary	46	0.065	0.000	0.022	0.065	0.000	0.043	0.130	0.609	0.065
	Public	8	0.250	0.125	0.125	0.000	0.000	0.125	0.000	0.250	0.125
Public	Drugs	14	0.429	0.071	0.000	0.071	0.000	0.143	0.071	0.071	0.143
	Weapon	5	0.200	0.000	0.000	0.200	0.000	0.200	0.000	0.200	0.200
	Sex	5	0.000	0.000	0.200	0.200	0.000	0.200	0.200	0.000	0.200
	Robbery	10	0.000	0.100	0.000	0.400	0.000	0.100	0.300	0.000	0.100

	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	30	0.100	0.067	0.033	0.233	0.000	0.233	0.100	0.033	0.200
	Theft	18	0.056	0.056	0.111	0.056	0.000	0.056	0.278	0.167	0.222
	Burglary	5	0.200	0.200	0.000	0.000	0.000	0.000	0.000	0.200	0.400
	Public	57	0.088	0.070	0.035	0.053	0.000	0.263	0.070	0.035	0.386

Second Order Transition Matrices for the First Five Charges: Transition Three

			Charge K								
Charge K-2	Charge K-1	N	Drugs	Weapon	Sex	Robbery	Murder	Assault	Theft	Burglary	Public
Drugs	Drugs	37	0.459	0.027	0.000	0.054	0.000	0.108	0.054	0.081	0.216
	Weapon	3	0.667	0.000	0.000	0.000	0.000	0.333	0.000	0.000	0.000
	Sex	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000
	Robbery	5	0.000	0.000	0.200	0.800	0.000	0.000	0.000	0.000	0.000
	Murder	1	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	16	0.375	0.063	0.063	0.125	0.000	0.188	0.000	0.063	0.125
	Theft	3	0.000	0.000	0.000	0.333	0.000	0.000	0.667	0.000	0.000
	Burglary	11	0.182	0.000	0.091	0.091	0.000	0.091	0.091	0.455	0.000
	Public	15	0.200	0.067	0.000	0.133	0.000	0.133	0.067	0.000	0.400
Weapon	Drugs	6	0.167	0.167	0.000	0.000	0.000	0.167	0.167	0.000	0.333
	Weapon	8	0.375	0.125	0.000	0.000	0.000	0.250	0.000	0.125	0.125
	Sex	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
	Robbery	5	0.200	0.000	0.000	0.200	0.000	0.600	0.000	0.000	0.000
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	11	0.182	0.091	0.091	0.000	0.091	0.273	0.000	0.091	0.182
	Theft	5	0.000	0.200	0.000	0.400	0.000	0.000	0.400	0.000	0.000
	Burglary	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000
	Public	4	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Sex	Drugs	4	0.500	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000
	Weapon	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
	Sex	6	0.000	0.000	0.333	0.000	0.000	0.167	0.000	0.167	0.333

	Robbery	5	0.000	0.000	0.000	0.600	0.000	0.000	0.200	0.000	0.200
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	4	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000
	Theft	5	0.000	0.000	0.200	0.000	0.000	0.200	0.000	0.000	0.600
	Burglary	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Public	4	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.250
Robbery	Drugs	3	0.000	0.000	0.000	0.333	0.000	0.333	0.000	0.000	0.333
	Weapon	9	0.222	0.333	0.000	0.111	0.000	0.333	0.000	0.000	0.000
	Sex	1	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000
	Robbery	25	0.120	0.040	0.000	0.520	0.000	0.080	0.120	0.040	0.080
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	12	0.083	0.167	0.250	0.167	0.000	0.250	0.000	0.000	0.083
	Theft	10	0.000	0.000	0.000	0.300	0.000	0.200	0.500	0.000	0.000
	Burglary	6	0.000	0.167	0.000	0.167	0.000	0.167	0.167	0.167	0.167
	Public	4	0.250	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.250
Murder	Drugs	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Weapon	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Sex	2	0.500	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000
	Robbery	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	1	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000
	Theft	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Burglary	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Public	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Assault	Drugs	13	0.385	0.000	0.000	0.308	0.000	0.000	0.077	0.154	0.077
	Weapon	7	0.143	0.286	0.000	0.143	0.143	0.000	0.000	0.000	0.286
	Sex	3	0.000	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.333

	Robbery	20	0.150	0.000	0.050	0.200	0.000	0.250	0.250	0.100	0.000
	Murder	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000
	Assault	42	0.190	0.048	0.024	0.190	0.000	0.333	0.024	0.048	0.143
	Theft	15	0.133	0.067	0.000	0.267	0.000	0.200	0.000	0.067	0.267
	Burglary	5	0.400	0.000	0.000	0.000	0.000	0.200	0.200	0.200	0.000
	Public	26	0.192	0.077	0.154	0.154	0.000	0.154	0.038	0.077	0.154
Theft	Drugs	8	0.000	0.000	0.000	0.000	0.000	0.375	0.125	0.125	0.375
	Weapon	3	0.333	0.333	0.000	0.000	0.000	0.000	0.333	0.000	0.000
	Sex	4	0.000	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.000
	Robbery	14	0.071	0.000	0.000	0.429	0.000	0.143	0.214	0.000	0.143
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	4	0.500	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000
	Theft	36	0.028	0.000	0.083	0.056	0.000	0.083	0.472	0.139	0.139
	Burglary	16	0.000	0.000	0.000	0.125	0.000	0.000	0.438	0.375	0.063
	Public	10	0.000	0.000	0.000	0.300	0.000	0.300	0.200	0.000	0.200
Burglary	Drugs	7	0.571	0.143	0.000	0.000	0.000	0.000	0.000	0.143	0.143
	Weapon	1	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
	Sex	4	0.000	0.000	0.250	0.500	0.000	0.250	0.000	0.000	0.000
	Robbery	7	0.143	0.000	0.000	0.429	0.000	0.143	0.000	0.143	0.143
	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	5	0.400	0.000	0.000	0.200	0.000	0.200	0.200	0.000	0.000
	Theft	12	0.000	0.083	0.000	0.167	0.000	0.000	0.083	0.417	0.250
	Burglary	35	0.086	0.000	0.029	0.000	0.000	0.057	0.029	0.714	0.086
	Public	7	0.143	0.000	0.000	0.143	0.000	0.000	0.286	0.000	0.429
Public	Drugs	18	0.500	0.000	0.000	0.000	0.000	0.167	0.167	0.000	0.167
	Weapon	9	0.222	0.111	0.000	0.000	0.000	0.222	0.000	0.111	0.333
	Sex	4	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.250	0.250
	Robbery	10	0.100	0.100	0.000	0.500	0.000	0.000	0.100	0.000	0.200

	Murder	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Assault	31	0.129	0.065	0.032	0.161	0.032	0.419	0.032	0.000	0.129
	Theft	12	0.000	0.000	0.167	0.167	0.000	0.083	0.250	0.167	0.167
	Burglary	9	0.222	0.000	0.000	0.111	0.000	0.222	0.333	0.000	0.111
	Public	44	0.091	0.091	0.068	0.023	0.000	0.182	0.068	0.068	0.409