

ABSTRACT

Title of Document: EXAMINING THE MEANING OF
PROCEDURAL JUSTICE AMONG SERIOUS
ADOLESCENT OFFENDERS

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Attempts to reduce delinquent/criminal behavior among juveniles tend to operate outside of the criminal justice system. Part of this emphasis is due to the fact that the criminal justice system has long prescribed to a control/deterrence framework even though this perspective has not been shown to be overly effective. However, a growing body of literature has begun to realize the importance of “process” over “control” within the criminal justice system; thus demonstrating that increasing perceptions of procedural justice and legitimacy can increase compliant behavior and reduce offending. This investigation seeks to add to the growing body of literature examining the normative perspective of compliance through the examination of the role of procedural justice and legitimacy among serious adolescent offenders.

The value of this work is in its contribution to important gaps in the extant literature. First, it expands the outcomes of interest to include official measures of

recidivism and substance use. More importantly, though, this research will examine how perceptions of legitimacy are formed through variable experiences and definitions of procedural justice among serious adolescent offenders, and, in turn, determine how these experiences and definitions are related to recidivism. Finally, this dissertation examines whether or not the relevance and meaning of procedural justice varies among males of different race/ethnicity.

Using a sample of 1,353 serious adolescent offenders from the Pathways to Desistance Study, weak evidence exists regarding the applicability of Procedural Justice Theory as a means to reduce recidivism. However, subsequent analyses reveal that the theory is better at predicting the relative frequency of criminal acts as well as overall recidivism among novice offenders. This dissertation also speaks to the importance of personal interactions with the police in the formation of perceptions of legitimacy and the reduction of recidivism rates among some serious adolescent offenders. This research has important implications for the generality of Procedural Justice Theory and it speaks to the need to continue to examine the relevance of the normative perspective of compliance among adolescents, in general, in order to determine if this population actually appeals to morality when making decisions to engage in crime.

EXAMINING THE MEANING OF PROCEDURAL JUSTICE AMONG SERIOUS
ADOLESCENT OFFENDERS

By

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Dedication

Thank you Sophie and Matt for all of your support and love! I know I missed a lot of visits to the zoo and park, but I hope this document makes you proud.

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Chapter 1: Introduction

Adolescents commit a higher number of criminal acts compared to any other age group in the U.S. population (Federal Bureau of Investigation, 2003; Snyder & Sickmund, 2006). Even though a large proportion of adolescents engages in some form of delinquent or criminal behavior (Moffitt, 1993), most of these adolescents and their criminal acts remain a part of the “dark figure of crime” and are unknown to the criminal justice system. The most serious and frequent of these adolescent offenders, though, do not remain impervious to the criminal justice system (Loeber & Farrington, 1998; Snyder & Sickmund, 1995; Wolfgang, Figlio & Sellin, 1972), and their first experience with the justice system is through law enforcement (i.e. the police). It is estimated that nearly 2,000,000 arrests of youths aged 10-17 were made in 2009 (Puzzanchera, Adams & Kang, 2012; see also Federal Bureau of Investigation, 2003; Snyder & Sickmund, 2006 for similar estimates in previous years). In fact, 13% of all males arrested in 2009 and 17% of all females arrested in 2003 were under the age of 18 (Federal Bureau of Investigation, 2010). Regarding seriousness, over a quarter of these arrests were for index offenses (Puzzanchera et al. 2012). Of all juvenile arrests in 2009, 55% of these cases were referred to juvenile court and nearly 8,000 cases were waived to criminal court (Puzzanchera, Adams & Hockenberry, 2012).

A staggering 6% of the adolescent population are arrested and handled in some way by the criminal justice system (Puzzanchera, Adams & Kang, 2012; Puzzanchera, Sladky & Kang, 2012), where one of the goals is to prevent further law breaking by offenders. However, one potential downside regarding the arrest and subsequent handling of juvenile offenders by the criminal justice system is that this contact has the

potential to *increase* the likelihood of subsequent criminal behavior (Bernburg, Krohn & Rivera, 2006; Sherman, 1993; see Smith & Paternoster, 1990, for a review). Therefore, we look to recidivism rates in order to get a better understanding of how the justice system promotes or inhibits juvenile crime. Unfortunately, general studies of recidivism rates among adolescent offenders who have had some form of contact with the criminal justice system are lacking. In 2010, the Sentencing Project compiled data on recidivism from all 50 states and the District of Columbia to provide a picture of general recidivism rates in the United States. Among the 99 studies analyzed, only 17 included juvenile offenders in their population, and these studies showed disparate recidivism rates ranging from 14.4% to 77%. In addition, many of these juvenile samples were limited to those who participated in some form of treatment or intervention program like drug courts as part of their disposition or sentence. We can also look to literature analyzing the effects of intervention services among arrested and/or adjudicated juvenile offenders in order to construct a picture of baseline rates of recidivism for juvenile offenders. An array of studies have shown that adolescents who are not given any form of treatment (e.g. Multisystemic Therapy, Functional Family Therapy, Multidimensional Treatment Foster Care) have recidivism rates (i.e. prevalence of subsequent arrest) that range from 50% to 87% (Barton et al., 1985; Borduin et al., 1997; Chamberlain & Reid, 1997; Chamberlain, Love & DeGarmo, 2007; Heneggeler, Melton & Smith, 1992; Schneider, 1986).¹ Youths who received some form of service from the juvenile justice system seemed to fare better regarding recidivism, with rates ranging from 22% to 47% (Barton et al., 1985; Borduin et al., 1997; Chamberlain & Reid, 1997; Chamberlain et al., 2007; Heneggeler, Melton &

¹ Although there are many ways to operationalize recidivism among adolescent offenders who have had contact with the justice system (e.g. subsequent offense, subsequent contact with police, subsequent conviction, etc.), the studies referenced operationalize recidivism as a subsequent arrest by police.

Smith, 1992; Schneider, 1986). Nevertheless, recidivism rates among the serious adolescent offender population remain high and are a source of concern for those who are worried about the perennial problem of juvenile crime. This is troublesome given that one of the fundamental goals of the juvenile justice system is to promote desistance from crime through positive behavior change and compliance with the law (Clark, 2001, p. 18).

Given the public concern regarding juvenile crime, more attention is warranted regarding how the justice system in the form of police, courts and correctional services can promote compliance with the law, impact recidivism rates and hasten desistance from crime (Mulvey et al., 2004; p. 3). Two different perspectives, which argue the criminal justice system can reduce offending behavior, have emerged: the instrumental perspective and the normative perspective. The instrumental perspective is based on the concept of deterrence. The idea of *deterrence* materialized from the work of Beccaria (1767; see also Becker, 1968; Geerken & Gove, 1975) who argued that through the manipulation of sanctions, crime can be rendered so costly as to deter a potential offender from engaging in criminal behavior. More specifically, if the justice system were to increase the certainty and severity of punishment, the costs of crime would become so high that people would refrain from engaging in criminal acts. Overall crime rates would decrease as a result.² Examples of the application of the instrumental perspective with regard to juvenile sanctions include arresting juveniles for offenses committed in schools, juvenile

² Beccaria (1767) also discussed the role of celerity of punishment as an inhibitor of crime. However, very little work has been done to investigate the role of swiftness of punishment and its effect on criminal behavior since it stands in direct contrast to “due process” as outline by the United States Constitution. Consequently, it is often neglected from the deterrence doctrine and literature.

waivers to adult court, and increasing the severity of punishments for juvenile offenders through the greater use of incarceration and blended sentences.

Two potential problems arise from the reliance on deterrence as a method to reduce juvenile crime. First, the evidence to support the deterrence perspective is modest at best (Nagin, 1998). Notably, some studies show that increasing the likelihood of arrest for juveniles and juvenile transfers to criminal courts actually have the unintended effect of increasing criminal behavior for at least some offenders (Loughran et al., 2010; McGowan et al., 2007; Redding, 2008; Steiner & Wright, 2006). Second, increasing the certainty and severity of punishment for juveniles is also controversial in its own right. Many juvenile rights advocates argue that juveniles do not have the mental capacity to fully understand their offenses and ramifications associated with offending in the same way as adults (Bishop, 2004; Feld, 2004). Advocates also draw upon the labeling perspective and argue that labeling juvenile offenders as “criminals” at such a young age stigmatizes these youth and sets them up for failure later in life. In addition, some advocates fear that incarcerating youth actually does more harm than good because they are sent to detention centers and prisons that can serve as breeding schools for crime. Overall, juvenile advocates including Voices for America’s Children argue that increasing the certainty of punishment through imprisonment and the severity of punishment by increasing sentence lengths is not only ineffective at reducing recidivism but potentially harmful, wasteful and inadequate at treating the needs of this vulnerable population.

A much less controversial attempt to secure compliance among juveniles is based on the normative perspective, which draws upon the work of Weber (1968) and his

concept of legitimacy. According to the normative perspective, compliance with the law and low crime rates can be achieved through the cultivation of legitimacy, the belief that one ought to obey the law. In other words, people will obey the law because they believe it is just and in line with their morality (Tyler, 1990; 2006). Among adults and adolescents alike, research has confirmed the link between beliefs in the legitimacy of the law and legal authorities and compliant behavior while controlling for numerous other factors such as deterrence, morality, and demographic factors (Fagan & Piquero, 2007; Fagan & Tyler, 2005; Tyler, 1990; Tyler & Huo, 2002). It follows, then, that legal authorities can play an active role in reducing recidivism rates and promoting compliant behavior among juveniles by increasing perceptions of legitimacy.

The question, then, is what can agents of the criminal justice system do in order to promote perceptions of legitimacy among juveniles. Tyler (1990; 2006) argues that the key factor determining one's perception of legitimacy is the experience of procedural justice in interactions with legal authorities. Perceptions of one's experience of procedural justice are based on assessments of fair procedures as administered by agents of the justice system during interactions with offenders and non-offenders alike. Important elements that determine one's experience of procedural justice include representation or voice, impartiality on the part of actors in the criminal justice system, accuracy in the collection of information regarding the event in question, consistency in treatment, ethical treatment, and the ability to correct potential mistakes made by agents of the criminal justice system by appealing to a higher authority (Leventhal, 1980; Thibaut & Walker, 1975; Tyler, 2006). The work of Tyler and colleagues has repeatedly demonstrated that there is a direct link between experiencing fairness and equity in

treatment during encounters with police officers and judges and beliefs about legitimacy of the law and legal authorities among adults (Tyler, 1990; Tyler & McGraw, 1986; Lind & Tyler, 1988). Furthermore, the experience of procedural justice affects compliance both directly (Paternoster et al., 1997) and indirectly through perceptions of legitimacy (Tyler, 1990; Tyler & Huo, 2002).

In general, our understanding of the normative perspective has come from research conducted on adult samples. The problem with generalizing research from adult samples to adolescents is that the experiences and perceptions of adolescents are likely to vary greatly from those of adults. For instance, Rosenberg and Pearlin (1978) argue that the lives and experiences of adults are much more heterogeneous given their place in the social structure as members of the workforce and mobility. Adolescents, on the other hand, reside in much more homogenous environments centered around home and school. As a result, their breadth of knowledge for comparisons regarding behavior and treatment is much smaller than that of adults. In addition, school children and adolescents are much more likely to view the self as “the same” as others in their environments whereas adults are much more aware of individual differences and base judgments of others by superiority or inferiority (Rosenberg & Pearlin, 1978). Further differentiating adults from adolescence is age and the development of the brain, which also are likely to affect perceptions of interactions and judgment of relationships (Beckman, 2004; Furman & Buhrmester, 1982). Fortunately, more recent work regarding the normative perspective has focused exclusively adolescent populations and has confirmed the link between perceptions of legitimacy and compliant behavior and minor forms of delinquency among conventional samples (Fagan and Tyler, 2005).

Unfortunately, research that examines the relevance of the normative perspective with regard to crime and delinquency among conventional samples is limited in its generalizeability to more serious offenders. Given their more extensive involvement in crime, serious offending youth are different from conventional samples. Therefore, it is important to examine the normative perspective among more serious adolescent offenders if we really want to know what effect agents of the justice system can have on recidivism. Moreover, we cannot rely upon studies that have examined the relevance of the normative perspective with regard to involvement in crime based on adult samples (e.g. Paternoster et al., 1997; Tyler, 1988) since youthful offenders vary from adult offenders. In fact, young offenders may be a more impressionable group compared to adults since their legal socialization has just begun. In addition, just treatment may make a significant difference in lives of this population in so much that it inhibits adolescent offenders from becoming embedded in a life of crime. Accordingly, Fagan and Piquero (2007) sought to determine the potential relevance of the normative perspective among adolescent offenders and found that positive perceptions of legitimacy are related to lower overall levels of offending among serious adolescent offenders (Fagan & Piquero, 2007). Other work has also confirmed that the experience of procedural justice is positively related to one's belief in the legitimacy of the law and legal authorities among convicted adolescent offenders (Boxx, 2008; Harvell, 2008; Fagan & Piquero, 2005), but has not established the link between procedural justice, legitimacy and recidivism among serious adolescent offenders. While these findings seem to suggest the relevance of Procedural Justice Theory among adolescent offenders and the promise of procedural justice in the reduction of recidivism, no research has confirmed the relationship between procedural justice and

crime among those youth who are in the “deep end of the system”. More so, we still have a rather limited understanding of how perceptions of procedural justice are formed, especially among juvenile delinquents. For example, we do not really know how adolescents evaluate interactions with authorities and form judgments of the experience of procedural justice.

Statement of Problem

“The police and courts are not only agents of regulation...they play a major role in helping secure compliance among citizens” (Tyler & Huo, 2002: p.1). Given the promise of procedural justice in the reduction of recidivism rates and criminal behavior among juveniles, it is surprising how limited our understanding of procedural justice is among the juvenile population. In general, the breadth of literature examining the effects of procedural justice on subsequent offending in adolescents is relatively sparse compared to the rather large literature discussing and evaluating the deterrence doctrine among conventional and delinquent adolescents. This is unfortunate given that fairness and equity in treatment is much less controversial than increasing the certainty (i.e. police officers in schools) and severity of sanctions (i.e. juvenile transfer laws and blended sentencing) for juvenile offenders. As it stands currently, extant literature has mainly focused on demonstrating the relationship between the three main constructs of the normative perspective: procedural justice, legitimacy and criminal behavior. I will now discuss four important limitations within the doctrine of the normative perspective and our general knowledge of how procedural justice operates among adolescent offenders that hampers our ability to form sensible policy that uses legal representatives within the criminal justice system to reduce juvenile crime.

First, existing literature examining the role of procedural justice on subsequent offending has looked at relatively few outcomes. For instance, research analyzing the effects of one's experience of procedural justice and view of legitimacy among adult samples has used a rather limited array of criminal behaviors such as running red lights, not paying taxes and domestic violence (Barnes, 1999; Paternoster et al., 1997; Sherman & Strang 2007; Sunshine & Tyler, 2003; Tyler, 1990; Tyler & Huo, 2002; Tyler et al., 2007). In fact, none of these studies have attempted to look at the relationship between procedural justice, legitimacy and serious crimes. More recent work has attempted to examine the relationship between procedural justice and offending among the adolescent population, including both general population samples and serious adolescent offenders. Yet this work has also been limited in the operationalization of offending behavior by using a global measure of self-reported offending with offenses ranging from status violations to minor forms of delinquency (Fagan & Tyler, 2005; 2007; Fondacaro, Dunkle & Pathak, 1998; Fondacaro, Jackson & Lueshcer, 2002) or by looking offending within correctional facilities (Kaasa, Malloy & Cauffman, 2008).

With the exception of the work of Fagan and Piquero (2007) who looked at long term patterns of involvement in serious crime, there has been a void in the literature on the normative perspective to determine the robustness of procedural justice and legitimacy as an inhibitor of a variety of criminal behaviors for adolescents. Criminal acts are diverse and the underlying motivations and reasoning for involvement in crime may vary by crime type. However, the normative perspective argues that through positive experiences of procedural justice, which foster positive perceptions of legitimacy, all forms of criminal and delinquent behavior, from substance use to violent

crime, should decrease. However, there has been no attempt to determine the scope of the normative perspective or whether or not the experience of procedural justice is more important in the inhibition of certain types of offenses such as violent crime compared to other types of offending such as income generating crime or substance use, among adults, adolescents, conventional samples or serious offenders alike. It is possible that the formation of positive perceptions of legitimacy based on the experience of procedural justice is only relevant for certain types of offenses; therefore, it is imperative to determine how exactly the normative perspective leads to compliant behavior among multiple offense categories.

Second, literature on the normative perspective provides very little information regarding the importance of the source of procedural justice in the formation of perceptions of legitimacy. While there is ample evidence to suggest that the behavior of both police and court actors (e.g. judges) are formative in the experience of procedural justice and are directly linked to perceptions of legitimacy and subsequent offending (Barnes, 1999; Casper, Tyler & Fisher, 1989; Fagan & Piquero, 2005; 2007; Paternoster et al., 1997; Sunshine & Tyler, 2003; Tyler, 1990; Tyler & Huo, 2002; see also Mazerolle et al., 2012 for a review of the literature examining the relationship between police behavior and perceptions of legitimacy), no work has examined the relative importance of procedural fairness in experiences with police compared to judges in an attempt to better understand the role that different actors of the justice system play in the promotion of compliant behavior. While it is likely that both personal experiences and vicarious experiences with agents of the criminal justice system work in tandem to affect one's perception of legitimacy, it is possible that it is the more recent interaction with an agent

of the justice system (i.e. a judge) that is formative in one's belief of legitimacy compared to earlier experiences (i.e. police). On the other hand, it may be that the first experience of procedural fairness with a police officer dominates one's view of legitimacy regardless of subsequent experiences of procedural justice with later agents of the justice system. In fact, the relative importance of the experience of procedural justice may not be limited to the ordering of the experience at all.

There has also been a void in the literature when examining the relevance of personal experiences of procedural justice compared to vicarious experiences of procedural justice. Drawing upon the deterrence literature, research has shown that subjective beliefs of deterrence are based on both vicarious experiences (i.e. prior perceptions) and individual experiences (Anwar & Loughran, 2011; Stafford & Warr, 1993). Therefore, it is likely that youth rely on their own experiences with agents of the criminal justice system in addition to others' experiences in order to form perceptions of legitimacy. Building upon prior literature, individuals who commit crime and recidivate are likely to have low perceptions of legitimacy. In addition, if one is at the beginning of his or her offending career, one's perception of legitimacy is probably based largely on vicarious experiences whereas personal experiences of procedural justice may become more important as the number of encounters with agents of the justice system increase. Consequently, it is important to determine how different sources of procedural justice are used to inform one's perception of procedural justice. As it stands currently, we do not know and the relationship between personal and vicarious experiences of procedural justice should be investigated further.

The third limitation speaks to our lack of knowledge regarding the importance of the different elements of procedural justice and fair treatment that are used to evaluate one's experience of procedural justice. Almost all of the research investigating the role of procedural justice in the formation of perceptions of legitimacy and subsequent offending has grouped the six elements of procedural justice together in one factor and has failed to examine the relative importance of each component. Drawing upon psychological literature, however, we know that individuals use "relevant criterion" to evaluate experiences and form judgments (Kruglanski, 1989). Therefore, it is important to determine the relevance of each of the criterion in the formation of perceptions of legitimacy. The small body of literature that has attempted to look at the different elements independently, though, has used conventional adult samples and found that only 3 of the 6 elements of procedural justice, impartiality, ethical treatment and representation, are significant predictors of perceptions of legitimacy (Tyler, 1988; 1990). At this time, though, we do not know if these same elements of procedural justice are relevant for adolescents. Given that information processing and perception formation varies by age due to illusory correlations and circumscribed accuracy of events that occur during adolescence (Cohn et al., 1995; Kruglanski, 1989; Rosenberg and Pearlin, 1978; Schaller, 1991; Swann, 1984), this suggests that the importance of each element of procedural justice may be different for adolescents. Moreover, the cognitive interpretation of events and relevance of different elements of fair treatment may also vary between conventional and offending youth. Therefore, it is important to determine not only the relevance of each criterion of procedural justice but also the relative

importance of each element in the formation of perceptions of legitimacy among serious adolescent offenders.

The final limitation hampering the development and promotion of the normative perspective of compliance is its failure to be analyzed across different social identities, groups with whom one self-identifies and feels belonging.³ Procedural justice has been found to be a consistent precursor to perceptions of legitimacy across gender and different racial and ethnic identities, but no attention has been given to the possibility that different groups may experience procedural justice in varying ways. A large body of research has found that young, minority males are treated more harshly by the criminal justice system and are more likely to perceive unjust treatment. Coupled with research that has shown that individuals derive identity judgments from social processes and behavior as well as pre-existing stereotypes and biases, it is possible that evaluations of fair treatment and the formation of perceptions of legitimacy may vary among males of different racial/ethnic groups. To buttress this argument, other risk factors for crime have been shown to operate differently across race/ethnicity. As a result, it is possible that procedural justice, itself, or the source of the experience of procedural justice may vary in importance across different racial/ethnic backgrounds because more weight is given to police in judgments of fair treatment because of preconceived biases towards the police who may be “targeting” young, black males in low-income neighborhoods. At this time, we simply do not know if the normative perspective operates differently across different

³ Stets and Burke (2000) explain the concept of social identities by stating that social identities are formed through the process of self-categorization often based on individual traits or characteristics. The authors go on to state, “a social identity is a person's knowledge that he or she belongs to a social category or group (Hogg and Abrams 1988). A social group is a set of individuals who hold a common social identification or view themselves as members of the same social category. Through a social comparison process, persons who are similar to the self are categorized with the self and are labeled the in-group; persons who differ from the self are categorized as the out-group” (p. 225).

social identities. Thus, it is worthwhile to fill his void in the literature given that different social identities experience risk and protective factors for crime in different ways (Matsueda & Heimer, 1987; Moffitt, Caspi, Rutter & Silva, 2001; Piquero, Moffitt & Lawton, 2005; Smith & Paternoster, 1987).

Current Research Aims

The current state of the literature regarding the normative perspective among adolescents, and more specifically among serious adolescent offenders, is underdeveloped and, therefore, worthy of investigation. Not only is this dissertation important in terms of theoretical refinement, but it also has potential to be valuable to the formation of policies aimed at reducing recidivism rates among the adolescent population. Therefore, the overarching goal of this dissertation is to add to the existing body of literature on procedural justice and explore its relationship with recidivism among serious adolescent offenders. Not only is it important to demonstrate whether or not these offenders are too far entrenched in the criminal justice system to benefit from fair treatment, but it is also important to demonstrate that perceptions of legitimacy are still malleable enough at this age and among this population to promote the use of the normative perspective as one of the many tools used by the justice system to reduce juvenile crime.

The first goal of this dissertation will be to test the mediational hypothesis originally proposed by Tyler (1990). According to Tyler, procedural justice is the key antecedent to legitimacy, and legitimacy, in turn, affects subsequent criminal behavior following release into the community. Therefore, this dissertation will answer the

following questions related to the validity of Procedural Justice Theory among serious adolescent offenders:

RQ1: Is procedural justice the key antecedent to perceptions of legitimacy among serious adolescent offenders?

RQ2: Does one's experience of procedural justice affect recidivism among serious adolescent offenders?

2a. Does one's experience of procedural justice affect subsequent contact with the police (arrest vs. non-arrest)?

2b. Does one's experience of procedural justice affect subsequent self-reported delinquency (overall levels of criminal behavior)?

2c. Does one's experience of procedural justice affect subsequent violent offending?

2d. Does one's experience of procedural justice affect subsequent income generating offending?

2e. Does one's experience of procedural justice affect subsequent drug use?

RQ3: Does one's perception of legitimacy mediate the relationship between procedural justice and recidivism among serious adolescent offenders?

In addition, this dissertation will fill the gaps in the literature on procedural justice and look across experiences of procedural justice in interactions with different criminal justice officials and determine the relative importance of different experiences of procedural justice on perceptions of legitimacy and recidivism. Continuing to use meditational analyses, this dissertation will answer the following research question:

RQ4: Does the source of the perception of procedural justice affect perceptions of legitimacy and recidivism?

4a. What is the relative importance of each experience of procedural justice with police and judges with respect to legitimacy and recidivism?

4b. What is the relative importance of personal and vicarious experiences of procedural justice with respect to legitimacy and recidivism?

Another limitation within the procedural justice literature is the lack of analyses regarding the importance of the different components of procedural justice. Accordingly, I will address this limitation in the procedural justice literature by answering following research question in my dissertation:

RQ5: What is the relative importance of the different components of procedural justice (i.e. representation, impartiality, consistency, accuracy, correctability, and ethical treatment) with respect to the formation of perceptions of legitimacy and recidivism?

Finally, given that all of the research examining procedural justice within a gender or racial perspective has been descriptive, this dissertation will also be exploratory in nature and investigate whether or not the Procedural Justice Theory operates consistently across males of different race/ethnicity. This is a result of the growing recognition that race and gender do not act alone to shape experiences; rather, they are simultaneously experienced and affect our experiences with others and how we construct our normal and criminal behavior (Burgess-Proctor, 2006; Daly and Stephens, 1995). Thus, it is important to stratify the sample by gender and race/ethnicity to examine whether the previously explored research questions vary among white males, black males and Hispanic males.

Summary

Much of the research on the normative perspective tends to look at adult and conventional samples. This work will add to the growing body of literature on procedural justice and its relationship with criminal behavior by examining the relationship between procedural justice and offending among a sample of serious adolescent offenders. In Chapter 2 of this dissertation, I will review the literature on the normative perspective. The first part of this chapter will discuss the role of legitimacy in the promotion of compliant behavior. Additionally, I will discuss the role of procedural justice in the formation of perceptions of legitimacy and summarize the literature examining the relationship between procedural justice, legitimacy and subsequent criminal behavior. Throughout this chapter, attention will be paid to variations in the source of the experience of procedural justice and potential gender and racial/ethnic differences in the way that one views a fair process. I will conclude this chapter with a discussion of the literature focusing on how perceptions of legal agents and the law vary across different social identities in order to support the analysis of procedural justice across gender and race/ethnicity.

Chapter 3 of this dissertation will describe the data and measures that will be used to address the research questions driving this dissertation. For instance, this dissertation uses the Pathways to Desistance Study data to address the relationship between experiences of procedural justice and subsequent offending behavior among adolescent offenders. The Pathways to Desistance data is a prospective longitudinal data set that follows a sample of serious adolescent offenders ($n = 1,354$) who have been adjudicated a delinquent from the juvenile court or found guilty in criminal court adult in two cities in

the United States. Chapter 4 will describe the analytic strategies that will be employed to address the research questions driving this dissertation. The results of this study are presented in Chapter 5 and Chapter 6. Chapter 5 will address the initial research questions guiding this dissertation while Chapter 6 will examine whether or not the previously explored relationships hold across white males, black males and Hispanic males. Finally, Chapter 7 will discuss the findings of this research as well as address the implications of this work, directions for future research and limitations of this study.

Chapter 2: Literature Review

The Normative Perspective

The issue of how legal authorities can secure compliant behavior among citizens is central to discussion surrounding the purpose and goals of the criminal justice system. Two contrasting perspectives have been proposed to explain why people obey the law and refrain from involvement in criminal activities. The instrumental perspective, also known as the deterrence or rational-choice doctrine, is based on the idea that people engage in behavior based on self-interest. With regard to crime, people shape their behavior based on the rewards and costs associated with criminal involvement. Judgments are made about the potential gains and losses associated with crime and when the rewards outweigh the costs, criminal behavior results. For instance, if the risk of apprehension and certainty and severity of a sanction associated with a criminal act are great enough to outweigh the potential benefits associated with crime, then a person will *choose* to refrain from involvement in criminal activity. It follows then that policy aimed at the reduction of criminal behavior derived from the instrumental perspective is based at least in part upon increasing the certainty of apprehension and sanction and the severity of the sanction associated with crime.

Contrary to the instrumental perspective, the normative perspective is based on the idea that people act in ways that are just and in line with one's moral code. According to the normative perspective, people voluntarily obey the law and defer to legal authorities based on perceptions of legitimacy. More specifically, "people feel that they ought to defer to decisions and rules, following them voluntarily out of

obligation or duty rather than out of fear of punishment or anticipation of reward” (Tyler, 2006: p. 375) as outlined by the deterrence doctrine. The idea of “legitimacy” comes from the sociological theorist Weber (1968). Weber argued that people have internal self-regulation, which means that one has internalized the principles of morality and feels responsible for deferring to legitimate authorities and their directives. Weber (1947) also discussed how an institution is considered to be a legitimate power when "the probability that certain commands (or all commands) from a given source will be obeyed by a given group of persons" (p. 324). He also stated that a basic criterion of legitimate power is a "minimum of voluntary submission" (Weber, 1947: p. 329) by members of the group (see also LaFree, 1999: p. 149). Although Weber did not speak directly about criminal behavior, he argued that people self-regulate their behavior and act according to the laws established by authorities when they believe those in charge possess the quality of legitimacy. Legitimacy, the central component of the normative perspective, is the quality possessed by an authority, the law or an institution (i.e. the police, court actors or the criminal justice system as a whole) that leads people to feel obligated to obey the decisions and directives of those agencies voluntarily. In other words, legitimacy leads to compliant behavior.

In his book *Losing Legitimacy*, LaFree (1998) argued that crime and deviant behavior are related to the legitimacy of political institutions and the criminal justice system (see also LaFree, 1999). This dissertation focuses on the relationship between the legitimacy of the criminal justice system and its agents and criminal behavior. Legitimacy is an important antecedent to compliance with the law and legal

authorities in everyday life (Tyler & Huo, 2002). Therefore, if one wants to encourage compliance with the law (i.e. refraining from involvement in crime), agents of the criminal justice system and the criminal justice system, itself, must be viewed as “legitimate” in the eyes of subjects. It follows, then, that perceptions of legitimacy will affect the degree to which people obey the law and refrain from involvement in criminal behavior. Furthermore, changes in the perception of legitimacy will affect one’s subsequent criminal behavior in a positive or negative way.

Procedural Justice as an Antecedent to Legitimacy

Tyler (2003) argued that views of legitimacy are rooted in judgments about the police and courts and whether or not they are acting fairly in their interactions with community residents (p. 286). In addition, it is actual experiences or encounters with agents of the criminal justice system that are especially important in the formation of perceptions of legitimacy (Tyler, 1994). The key normative judgment influencing one’s perception of legitimacy is the experience of procedural justice (see also Tyler, 1990; Tyler, 2003; Tyler, 2004; Tyler & Huo, 2002). Procedural justice refers to the fair and ethical treatment of citizens by officials in the criminal justice system. “Maintaining respect for people and their rights...supports long term efforts to control crime by encouraging [legitimacy and]...compliant behavior” (Tyler & Huo, 2002: p. 12). Furthermore, Tyler and Degoe (1996) argued that procedural justice is the key determinant of legitimacy because it builds trust, and trust is the central factor that determines one’s willingness to obey legal authorities and abide by

their rules. Trust is also important because it reaffirms the social connection between citizens and legal authorities (Tyler & DeGoey, 1996: p. 231).

The first insight into the importance of procedural justice came from the work of Thibaut and Walker (1975). Looking at people's evaluations of their experience in court, Thibaut and Walker (1975; 1978) found that people like to exert some control over decisions made by third parties, in this case the judge. In fact, people defined their experience in court as "fair" by the extent in which they got to voice their opinion and state their case regarding the matter at hand. This representation, in turn, was directly related to outcome satisfaction. Overall, Thibaut and Walker (1975) found that those respondents who had the ability to express one's "voice" or feel that their position was adequately presented to the judge were more likely to be satisfied with the outcome and positively evaluated their court experience. This relationship held even if the outcome was not viewed as favorable. Satisfaction with the outcome of one's experience is referred to as the instrumental perspective of procedural justice, and Thibaut and Walker (1975) argued that the key determinant of the instrumental perspective of procedural justice is "voice" or "representation."

Over time, the idea of procedural justice has expanded beyond the idea of satisfaction with outcomes (i.e. the instrumental perspective of procedural justice). In fact, people are just as concerned about the aspects of their treatment and experience with authority figures as they are with outcome satisfaction. The normative perspective of procedural justice argues that the following aspects are fundamental to the experience of procedural justice: neutrality; a lack of bias by authorities; honesty; efforts to be fair; politeness and respect for citizen rights. Moreover, the normative

perspective of procedural justice argues that it is the administration of the procedure that matters and determines a person's view of authority and not just the outcome. In fact, Tyler (1990) argued that procedure matters more than the favorability of the outcome in determining a person's overall evaluation of his or her interaction with authorities and perception of legitimacy. Reiterating, while the favorability of the outcome matters, it is how the outcome is attained that is most important (Tyler, 1990; Tyler & Huo, 2002).

Elements of Procedural Justice

According to the normative theory of compliance, people obey the law because they feel an obligation to do so. This sense of obligation to obey the rules is a result of the perception that the legal rules and legal authorities are legitimate sources of power. Tyler (1990) made the argument that people attribute legitimacy to the law and legal authorities as a result of fair treatment. In other words, if people believe that the law is being administered in a fair manner and legal authorities are treating people in a fair manner, then people will attribute a sense of legitimacy to the law and authorities and feel a sense of obligation to obey their directives. Therefore, in order to be seen as legitimate in the eyes of the public, legal authorities must engage in fair treatment of citizens in order to be perceived as legitimate and secure compliance among members of the group. This raises the question, what constitutes fair treatment?

In his seminal work discussing the relevance of procedural justice, Tyler (1990) drew upon the work of Leventhal (1980) to operationalize the concept of "procedural justice." Leventhal (1980) argued that there are six elements of fair

treatment, later described by Tyler (1990) as procedural justice. Leventhal's (1980) first element of fair treatment is taken from Thibaut and Walker's (1975; 1978) instrumental perspective of procedural justice based on process control (control over the opportunity to present evidence to the decision maker). Thibaut and Walker (1978) proposed an instrumental theory of "truth" and "justice" (p. 541) based on the belief that process control was fundamental to a sense of procedural justice. In their analysis of conflict resolutions in the court system, Thibaut and Walker (1975) found that satisfaction with conflict resolution depends heavily on a person's assessment of whether or not he or she had some control over their case in court. This control came in the form of *representation* or *voice* (subsequently referred to as representation). According to Thibaut and Walker (1975), people feel a sense of control over their case when they have the opportunity to state their side of the case to a non-biased third party who serves as the decision maker. This opportunity, then, enables a person to feel as though he or she has some control over the outcome, even if the outcome is viewed unfavorably. Representation also has a "value expressive function" (Lind et al., 1980; Paternoster et al., 1997; Tyler, Rasinski & Spodick, 1985) by reinforcing one's feelings of being a valued member of a group. Consequently, people view this sense of control in the conflict resolution process as fair treatment by authorities (Houlden, Latour, Walker & Thibaut, 1978; Lind, Lissak & Conlon, 1983; Tyler, 1987; Tyler, Rasinski & Spodick, 1985).

The remaining elements of procedural justice speak to the importance of decision-making in the evaluation of fair treatment and procedural justice. Tyler (1990) argued that these elements represent *how hard* a decision maker tries to be fair

when making decisions that affect citizens. These elements are important because they reinforce a person's sense of self-respect and acknowledge the recognition of citizen rights by the decision maker (Tyler & Folger, 1980, as cited by Tyler, 1990).

The second element of procedural justice relies upon the emphasis people place on the motives of authorities during the decision-making processes. *Impartiality* refers to the lack of bias on the part of the decision maker and the ability of the decision maker to act in a neutral way that is no more favorable to one party or group compared to any other parties or groups. Impartiality is a key component of fair treatment because it conveys a sense of trust in authorities that is necessary in the formation of legitimacy (Tyler, 1986).⁴ When a person believes that an authority has acted in a biased or self-interested manner, they begin to believe that the deference he or she has given to the authority is unjustified, stirring feelings of anger and distrust. As a result of the feeling that the legal authorities are not serving one's best interests or the group's best interests in the long run, a person withdraws the legitimacy given to the authority. In addition, one no longer feels obligated to obey the authority's directives or the law from which it draws its power. Leventhal (1980) argued that there are two important criteria that determine impartiality of the authority or decision maker. First, the authority must not have vested interest in the outcome of the conflict other than what is in the best interest of society as a whole. This means that the resolution to the problem should not have any personal benefit for the decision maker. Second, the authority or decision maker must not rely upon prior views, opinions or prejudices when making decisions. He or she must be completely neutral

⁴ Other work has referred to impartiality as neutrality in decision-making (i.e. Tyler and Lind, 1992; Tyler and Blader, 2003).

and act upon the available facts of the case. Generally, measures of impartiality include three components: a lack of bias; honesty; and efforts to be fair (Barrett-Howard & Tyler, 1986; Tyler, 1990).

The next element of procedural justice, *consistency* in decision-making, refers to the similarity of treatment over time and across persons. In essence, it refers to equal treatment for all parties at all times. Leventhal (1980) and the subsequent work of Tyler (1990) measure consistency by asking respondents how their current experience with authorities compared to experiences that they had in the past, if their experience was in line with their expectations of treatment, and if they believed that their experience was similar to the experiences of the generalized public as well as the treatment of family, friends and neighbors (Tyler, 1990).

Tyler (1990) failed to find evidence that consistency was related to judgments of fair treatment and legitimacy. He argued that it is possible that consistency is less important to the experience of procedural justice because there is a general lack of awareness of how others are treated. However, other literature has shown that offenders are very much aware of “typical” behavior by police and courts (Casper, 1972, 1978) and it is doubtful that individuals have no other experiences, either direct or indirect, to draw upon given the vast transmission of knowledge through media outlets including the news, the internet, and the entertainment industry. More plausible is the argument that consistency may not be important to one’s assessment of fair treatment because in many cases differences in treatment are justified due to differences in the nature and circumstance of the situation at hand (Tyler, 1990; 2006;

see also Cornelius, Kanfer & Lind, 1986).⁵ Therefore, a global measure of consistency would not be related to the experience of procedural justice because minor nuances in circumstance and context make it hard to define situations as comparable for consistency in treatment. Subsequent work, however, has found consistency to be related to perceptions of legitimacy and compliant behavior (Paternoster et al., 1997; Boxx, 2007). Most literature, though, included consistency as an element of procedural justice on a single factor with the other five elements of procedural justice (Fagan & Piquero, 2005; Fagan & Piquero, 2007; Harvell, 2008; Piquero et al., 2005) and have not looked at the individual contribution of consistency to perceptions of legitimacy and compliant behavior.

The fourth element of procedural justice as identified by Leventhal (1980) and Tyler (1990) is *accuracy*. Accuracy refers to the ability of the decision maker to deliver an outcome of high quality because he or she has made every attempt to collect information from all relevant parties. More so, the information that the decision maker uses is truthful. Accuracy is often measured in two ways. First, respondents were asked whether the authorities had gotten all of the information they needed to make a good decision (Tyler, 1990, p. 136) Second, respondents were asked if the authorities had brought the problem out into the open so that it could be solved (Tyler, 1990, p. 136).

The ability of an individual to have the opportunity to challenge any decision made by an authority figure by appealing to a higher authority constitutes the fifth element of procedural justice. This potential for *correctability* is seen as a procedural

⁵ Tyler's subsequent work analyzing the relationship between procedural justice, legitimacy and compliant behavior did not include the element of consistency (e.g. Tyler and Huo, 2002; Sunshine and Tyler, 2003).

safeguard that ensures fair treatment. Moreover, the ability to challenge a decision by appealing to a higher authority provides a person with the sense of general concern for individual rights. Tyler (1990) operationalized this element of procedural justice by asking respondents whether or not there was an agency or organization that they could have complained to in the case of unfair treatment or an unfair outcome (p. 136).

The final element of procedural justice deals with the interpersonal aspect of decision-making procedures. *Ethicality* or *Ethical Treatment* is the degree to which a decision maker or authority figure treats the parties involved with the fairness and respect that is deserved by valued members of a group. This element of procedural justice is important because people place a high value on being treated politely even when the outcome associated with the treatment is not favorable (Lane, 1986; Tyler, 1986; Tyler & Folger, 1980). Per the group-engagement model of procedural justice, ethical treatment reinforces a positive self-image and a sense of worth to a group. This, in turn, strengthens a person's desire to put their trust in legal authorities and obey their directives and laws (Lane, 1986). Tyler (1990) established two components of the ethical treatment concept: politeness of authorities and respect for citizen rights (see also Tyler, 1988).

Importance of the Elements of Procedural Justice

While each of the six elements of procedural justice has been shown to be relevant to one's experience of procedural justice and a predictor of legitimacy, very little work has examined the relative importance of each dimension. Prior to Tyler's proposal of Procedural Justice Theory, four studies partially analyzed the importance

of Leventhal's six components of procedural justice and found that consistency was the strongest predictor of satisfaction with legal decision-making (Barrett-Howard & Tyler, 1986; Fry & Leventhal, 1979; Fry & Chaney, 1981; Greenberg, 1986; for an exception see Tyler, 1990). Furthermore, Barrett-Howard and Tyler (1986) found that consistency across people was a stronger predictor of satisfaction with one's outcome than consistency over time. However, these evaluations of the varying importance of the components of procedural justice were limited by their inclusion of only four elements of procedural justice: consistency; impartiality; accuracy; and representation. In addition, these four studies only examined the relationship between the four aforementioned elements and satisfaction with one's outcome and did not look at the varying importance of the elements of procedural justice with regard to perceptions of legitimacy and subsequent compliant behavior.

In one of the only pieces of literature analyzing the relative importance of each element of procedural justice, Tyler (1988; see also Tyler, 1990 for a replication of this work) used zero-order correlations between each criterion of procedural justice and overall assessments of fairness as well as computed beta weights in regression analyses to evaluate the importance of each element on assessments of procedural justice. When ranking the importance of each element with regard to fairness of procedures, Tyler (1988, 1990) found that impartiality was the strongest predictor of fairness of procedures followed by honesty, ethical treatment, representation, accuracy, and correctability. In his analysis of the relationship between the components of procedural justice and assessments of the fairness of authorities, Tyler (1990) found that impartiality was the strongest predictor followed by ethical

treatment and representation. Surprisingly, consistency, accuracy and correctability were not related to assessments of fairness of authorities. Tyler (1988) also looked at whether or not the relative importance of each element of procedural justice varied across the source of the experience and found that the importance of the elements of procedural justice varied between experiences with police and courts. More specifically, the strength of accuracy, correctability and impartiality in predicting assessments of procedural justice with police and courts were significantly different.

Although valuable in its elaboration of Procedural Justice Theory, the original test of Procedural Justice Theory by Tyler (1990) is limited in its generalizeability. First, Tyler used a random sample of Chicago citizens who had some form of contact with the police or courts in the past year. This means that these respondents may have been offenders (including citations, misdemeanors or felonies), victims of a crime or petitioners of legal services to resolve a dispute (e.g. calling the police to deal with a noisy neighbor). Therefore, it is hard to determine if the findings of Tyler will hold among a sample of serious offenders. Later work by Paternoster and colleagues (1997) attempted to analyze the importance of the elements of procedural justice among a sample of domestic violence offenders. Instead of analyzing the relative importance of each element of procedural justice, the authors used a 3-item composite measure of procedural justice including representation, consistency and impartiality and assessed its impact on subsequent episodes of domestic violence. While the authors found that one's experience of procedural justice reduced the likelihood of recidivism, they were not able to speak to the relative importance of the components of procedural justice among this group of offenders. Consequently, the

relative importance of the individual elements of procedural justice for serious offenders is unknown.

Although some evidence suggests that not all of the elements of procedural justice may be relevant to perceptions of legitimacy and compliant behavior, more recent research seems to imply that each of the elements of procedural justice is important in assessments of fairness given the inclusion of each of the six elements of procedural justice in global measures of the concept (for examples see Fagan & Tyler, 2005; Fagan & Piquero, 2005, 2007; Harvell, 2008; Kaasa, Malloy & Cauffman, 2012; Tyler & Huo, 2002). However, the original test of Procedural Justice Theory by Tyler (1990) as well as subsequent research still leaves many questions unanswered regarding how each element is related to perceptions of legitimacy and compliant behavior among different populations.

Importance of Procedural Justice in the Formation of Perceptions of Legitimacy

Tyler (1990) streamlined the normative perspective of procedural justice and argued that in order to cultivate a positive perception of legitimacy regarding legal authorities, people want procedural justice. Furthermore, they evaluate their experience of procedural justice on individual treatment and the administration of fair procedures in interactions with agents of the criminal justice system (Tyler & Huo, 2002). The question, then, is why people focus on fair procedures when determining perceptions of legitimacy. Relational models of justice have been used to explain the relationship between procedural justice, legitimacy and compliant behavior. “The basic assumption of the relational model is that people are predisposed to belong to social groups and that they are very attentive” to treatment which communicates their

position within these groups (Tyler, 1994). Therefore, the experience of procedural justice is used to evaluate one's social standing within the group. Specifically, two different relational models of justice have been proposed to explain why the experience of procedural justice is important in the evaluation of the legitimacy of an authority: the group-value model (Lind & Tyler, 1988; see also Tyler, 1989 and Tyler & Lind, 1992) and the group-engagement model (Tyler & Blader, 2000; see also Blader & Tyler, 2003).

Lind and Tyler (1988) proposed the group-value model as a way to explain the relationship between procedural justice, perceptions of legitimacy, and compliant behavior. The group-value model is based upon the premise that people identify with different social groups, including society as a whole. These groups provide their members with resources, self-knowledge and social rewards (Lind & Tyler, 1988). They also provide a sense of identity, status and prestige. Due to the numerous benefits (i.e. resources) that a person derives from group membership, people value their membership within the group and do not want to jeopardize their standing within the group by defying authority – the law and legal authorities. However, if the authorities of the group are not viewed as fair nor are the ways in which they administer their authority completed in a fair and unbiased manner, members of the group begin to feel as though they are no longer valued members of the group. Feeling as though their resource needs will no longer be met, their sense of obligation to obey the authority of the group begins to decline. Thus, as one's perception of legitimacy declines, people are less inclined to obey the law and legal authorities.

Nearly 10 years later, Tyler and Blader (2000) proposed the group-engagement model of procedural justice. Like the group-value model, the group-engagement model argued that people need to feel like valued members of a group in order to view the authorities as legitimate and be compliant. In order to feel like a valued member of a group, resource judgments, the foundation of the group-value model, are not enough. Identity judgments are just as important as resource judgments in the formation of one's perception of legitimacy. Therefore, Tyler and Blader (2000) argued that the group-value model is incomplete because it fails to account for how interpersonal treatment affects identity judgments and subsequent perceptions of legitimacy. Interpersonal treatment by authorities is important because it has the potential to promote or challenge feelings of pride and respect among group members. The encouragement of pride and respect among members of the group directly shapes a person's attitude toward authority and perception of legitimacy. Therefore, authorities not only need to encourage one's sense of belonging to the group to promote legitimacy but they must also treat their members with respect in order to continue to foster the feelings of belonging and value to the group. Interpersonal treatment by agents of authority are formative in the promotion of a valued status, pride and a sense of identity as a valued group member. Therefore, interpersonal treatment is crucial to evaluations of process and the experience of procedural justice.

One of the advantages of the group-engagement model of procedural justice is its universality in application. When procedures are viewed as fair and a person feels like he or she is being treated in a respectable manner, this reinforces the belief that

one is a valued member of society. The United States is a pluralistic society with many different moralities and different views about favorability of outcomes; thus, it is hard to establish consensus and legitimacy based solely on distributive justice (e.g. fairness of outcomes). However, there is a general and noncontroversial consensus regarding what constitutes fair procedures and fair treatment in decision-making processes (Merry, 1985; Sanders & Hamilton, 1987; Tyler, 1990; Tyler & Huo, 2002). Moreover, there is a general consensus regarding what constitutes respectable and ethical treatment. As a result, there is a general agreement regarding what constitutes procedural justice among diverse populations. Consequently, perceptions of legitimacy are based upon experiences of procedural justice for all persons, and it follows that not experiencing fair procedures will directly undermine satisfaction with legal authorities and perceptions of legitimacy (Tyler & Huo, 2002: p. 172).

The group-value model of procedural justice and the group-engagement model of procedural justice remain theoretical concepts that explain the link between procedural justice, perceptions of legitimacy and compliant behavior, but important elements of these models have yet to be tested empirically.

Testing the Normative Perspective of Complaint Behavior

Until the early 1990s, there was a general weakness in empirical literature examining the link between legitimacy and adherence to the law. Beginning with the work of Tyler (1990), a few studies have begun to examine the normative perspective and demonstrate the link between perceptions of legitimacy and compliant behavior (Fagan & Piquero, 2007; Fagan & Tyler, 2005; LaFree, 1999; Sunshine & Tyler, 2003; Tyler, 1990; 2004; 2006; Tyler & Huo, 2002). One of the first studies

examining the relationship between perceptions of legitimacy and compliant behavior came from the Chicago Study of compliance by Tyler (1988; 1989; 1990; 2006). The Chicago Study is comprised of a random sample of 1,575 Chicago residents who had a personal experience with the police or courts in the past year. One of the key goals of this study was to determine whether or not perceptions of legitimacy made an independent contribution to compliant behavior (Tyler, 1990). Tyler operationalized legitimacy in two ways: the perceived obligation to obey the law and support for legal authorities (i.e. the police and courts, respectively). Perceived obligation to obey the law consisted of six items including, “I always try to obey the law even if I think it is wrong” and “It is difficult to break the law and keep one’s self-respect.” Support for legal authorities was constructed from 8 questions (4 regarding the police and 4 regarding the courts) including one’s sense of respect for the police, the belief that the people get a fair trial, and the belief that police and judges are honest. Compliant behavior was operationalized using six items including speeding, parking illegally, making noise loud enough to disturb one’s neighbors, littering, driving while intoxicated and stealing from a store. Using panel analyses, Tyler (1990) found that as one’s perception of legitimacy increased so did one’s compliant behavior.

In a follow-up to the Chicago Study on compliant behavior, Tyler and Huo (2002) conducted the California Study of Personal Experiences with the Police and Courts to determine the relationship between perceptions of legitimacy and compliant behavior, with a specific focus on minorities (African Americans and Hispanics). The authors used residents from two California cities, Oakland and Los Angeles, and

interviewed them about their most recent experience with a police officer or judge and their level of satisfaction with that authority. Tyler and Huo (2002) operationalized the concept of legitimacy in a similar way as the Chicago Study by asking respondents how much they agreed with the following three statements: “I feel that I should accept the decisions made by legal authorities; People should obey the law even if it goes against what they think is right; and It is difficult to break the law and keep one’s self-respect” (p. 109). The respondents (N = 1,656) were then asked about their voluntary acceptance of decisions and directives issued by the authority in question (Tyler & Huo, 2002: p. 28). Similar to the Chicago Study, Tyler and Huo (2002) found that perceptions of legitimacy were related to compliant behavior (i.e. directives of agents of the criminal justice system) in a sample of primarily minority residents in California.

Other work has also supported the link between legitimacy and compliant behavior. Sunshine and Tyler (2003) used two different samples of New York residents to examine the relationship between perceptions of legitimacy of the police and subsequent compliant behavior. The authors found that one’s overall perception of police legitimacy was directly related to compliant behavior.⁶ Moreover, the authors found that legitimacy was also related to cooperation with the police and police empowerment, further suggesting the importance of perceptions of legitimacy with respect to deference to legal authorities.

⁶ Sunshine and Tyler (2003) used the same measures of compliance as Tyler (1990) including parking illegally, littering, making loud noise at night, speeding or breaking traffic laws and stealing items from stores or restaurants without paying in addition to two new measures of compliance including buying stolen property and using drugs.

The importance of procedural justice as an antecedent to the legitimacy of legal authorities is also well established in the research literature. Numerous studies have demonstrated the link between the experience of procedural justice and citizen judgments about the police and courts (Barrett-Howard & Tyler, 1986; Buckler, Cullen & Unnever, 2007; Casper, Tyler & Fisher, 1988; Elliott, Thomas & Ogloff, 2011; Sunshine & Tyler, 2003; Tyler, 1984, 2001; 2003; 2004; Tyler & Rasinski, 1994; Tyler & Wakslak, 2004). It should be noted, though, that some studies have used “satisfaction with authorities” as the outcome instead of “legitimacy.” Moreover, these studies have shown that procedural justice is a more important predictor of legitimacy than distributive justice (i.e. Barrett-Howard & Tyler, 1986; Tyler, 1990; Tyler & Huo, 2002).

With specific regard to the police, research has demonstrated a link between the experience of procedural justice and perceptions of legitimacy (Sunshine & Tyler, 2003; Tyler & Wakslak, 2004). For instance, Sunshine and Tyler (2003) found that evaluations of legitimacy of the police were based on assessments of procedural justice more so than distributive justice (i.e. outcome satisfaction). Mazzerole and colleagues (2012) recently conducted a systematic review of the literature examining the relationship between police behavior and perceived perceptions of procedural justice and legitimacy. Through meta-analysis research techniques, the authors analyzed 4 studies with 7 effect sizes and found that 6 of the 7 effect sizes had an odds ratio greater than one indicating a positive effect of police behavior on perceptions of legitimacy. However, only one of these effect sizes was statistically significant. Although the overall effect size of police behavior on perceptions of

legitimacy was positive (1.58), the confidence interval suggested that there may not be a discernable effect of police behavior on legitimacy (Mazerolle et al., 2012: p. 57). This suggests that the link between the experience of procedural justice with police and perceptions of legitimacy may not be as strong as much of the research has previously suggested.

Extant literature has also shown that procedural justice is important to perceptions of legitimacy of courts. Using a sample of defendants in traffic and misdemeanor court, Tyler (1984) found that procedural justice, measured by the respondents' assessment of how just and impartial the procedures in the court were, was directly related to outcome satisfaction. Buckler and colleagues (2007) also examined the antecedents of satisfaction with criminal courts. Dividing their measure of procedural justice into egalitarian fairness and discriminatory fairness, the authors found that procedural justice predicted court satisfaction controlling for instrumental concern, prior involvement in the justice system and demographic factors.

In his review of several general population studies analyzing the importance of procedural justice, Tyler (2001) found that the most important factor shaping an individual's views of the police and courts was the fairness with which the police and courts treated citizens. For instance, Tyler (2001; see also Tyler, 2003) looked at 346 residents in high crime neighborhoods in Oakland and found that the quality of treatment by the police was the primary factor shaping overall attitudes toward the police and perceptions of legitimacy. Tyler (2001) also reviewed findings from a national survey of state and local courts, which demonstrated that the primary source of people's negative perceptions of the court system was poor treatment (see also

Tyler, 2003 for a review of these findings). He inferred from these studies that interpersonal treatment and procedural justice are the key determinants of people's respect for the court and views of the court system as a legitimate source of legal authority.

Research has also demonstrated the applicability of the normative perspective among offending populations. For instance, Tyler, Casper and Fisher (1988) used a panel design of 628 defendants accused of felonies and found that neither outcome fairness nor outcome favorability influenced one's perception of legitimacy of the legal system. Rather, Procedural Justice Theory was supported and fair treatment in the form of procedural justice was the primary factor determining one's overall assessment of legal authorities and the legitimacy of the law. Elliott and colleagues (2012) also evaluated the relevance of procedural justice among offenders. Using quantitative data from in-depth interviews with persons who had committed at least one crime in the past year, the authors found that their measure of procedural justice (14 items tapping into representation, neutrality, interpersonal treatment and trustworthiness) in the most recent encounter with police was the strongest predictor of legitimacy of the police controlling for prior criminal history and outcome satisfaction. Their qualitative analyses supported the finding that procedural justice predicted legitimacy as represented by the following quotes: "[The] Police won my trust, I respect them, I want to do the right thing myself" and "[The experience] Encourages me to obey the law, not take action in your own hands."

Procedural justice has also been linked to short-term and long-term compliant behavior, which is expected given its importance in the cultivation of legitimacy

(Bouffard & Piquero, 2010; Paternoster et al., 1997; Mastrofski, Snipes & Supina, 1996; McCluskey, Mastrofski, & Parks, 1998; McEwen & Maiman, 1984; Pruitt et al., 1993; Tyler et al., 2007). In a set of studies by Mastrofski and colleagues, it was found that police behavior in interactions with citizens had an immediate effect on compliant behavior (Mastrofski, Snipes & Supina, 1996; McCluskey, Mastrofski & Parks, 1998). Specifically, favorable evaluations of police treatment of citizens were positively associated with compliance in the form of police directives to leave the scene of the incident, ceasing the behavior leading to a disturbance, and the cessation of illegal behavior (Mastrofski, Snipes & Supina, 1996; McCluskey, Mastrofski & Parks, 1998).

Paternoster and colleagues (1997) also found a relationship between the experience of procedural justice and complaint behavior among a sample of male perpetrators of domestic violence. Using assessments of fair procedures among 479 offenders who were arrested for spousal assault, the authors tested Lind and Tyler's group-value model of procedural justice to ascertain whether fair treatment by police officers was associated with reduced levels of recidivism. The authors found that greater levels of perceived procedural justice, measured as representation (process control), consistency and impartiality, were associated with reduced levels of recidivism. This work is important given that it is one of the first studies to demonstrate that fair treatment by police is an important determinant in future criminal conduct and can have a significant effect on serious criminal conduct.

Subsequent work has built upon the findings of Paternoster and colleagues (1997) to further substantiate the finding that the experience of procedural justice and

perceptions of legitimacy can reduce offending behavior among samples of criminal offenders. In their evaluation of the Australian Reintegrative Shaming Experiments (RISE) among drunk drivers, Tyler et al. (2007) found that initial assessments of procedural justice from restorative justice conferences and court experiences were positively related to perceptions of legitimacy, defined as the perceived obligation to obey the law, two years later. Moreover, assessments of procedural justice were related to less self-reported incidents of drinking and driving two years after the initial offense and arrests for drinking and driving four years later. Although not a direct test of the relationship between procedural justice and subsequent offending, the work of Bouffard and Piquero (2010) also supports the link between procedural justice and subsequent offending behavior. The authors used data from the 1945 Philadelphia birth cohort and found that men who defined their sanctioning process (i.e. arrest and adjudication) as “fair” were less likely to continue offending over the life course compared to those men who defined their sanctioning process as unfair or stigmatizing.

Adolescence and the Normative Perspective

Tyler (1990) argued that procedural justice is more important in situations of constraint, where authorities impose themselves on others (p. 105). Not only does this mean that procedural justice is most important in situations where legal agents such as the police and judges insert themselves into the lives of offenders, but it also means that procedural justice should be especially relevant in the lives of adolescents who are constrained by their position as dependents in society.

The proposition that procedural justice should be especially relevant in the lives of adolescent offenders is echoed in the words of Emler and Reicher (1995). “If delinquency is the expression of a negative orientation to formal authority...how is it possible to improve this orientation?” (Emler & Reicher, 1995: pp. 224, 226). Emler and Reicher argued that in order to reduce delinquent behavior, adolescents need to feel as though they are valued members of society. Therefore, they claimed that the most effective way to communicate to adolescents that they are valued members of society is through fair and respectful treatment. This is very similar to the group-value model of procedural justice developed by Lind and Tyler in 1998. Therefore, procedural justice holds great promise in the reduction of delinquent behavior because it promotes fair and ethical treatment of adolescents by agents of the criminal justice system.

The majority of work analyzing the importance of procedural justice on perceptions of legitimacy and compliant behavior uses adult samples. While we know that process matters for adults, the empirical research on procedural justice is scant when it comes to juveniles, especially juvenile offenders. While it is tempting to generalize the findings from adult samples to adolescent populations, this is unwise given the differences in experiences, environments, and cognitive abilities between adolescents and adults (Cohn et al., 1995; Rosenberg & Pearlin, 1978). More so, it is possible that the normative perspective may be more or less important in the lives of adolescents given their position as dependents who are seeking a new identity in their transition into a life of autonomy as adults. Youth may not yet feel like they are valued members of society; therefore, just treatment by authority figures may be

especially important in their self-perception of status and membership in society as a whole. It is also possible that these aspects of adolescent life may differentially affect the relationship between procedural justice, legitimacy and offending behavior. This renders the study of the normative perspective among adolescents worthy in its own right.

Early research examining the relevance of the normative perspective among adolescents has used a cross-sectional design to evaluate the relationship between the experience of procedural justice, one's perception of legitimacy and compliant/delinquent behavior. Brown (1974) demonstrated that those adolescents who had higher perceptions of legitimacy, measured as a positive orientation toward the law, a positive orientation towards the police and a positive orientation towards the court system, were less likely to engage in unlawful behavior. Fondacaro and colleagues applied the normative perspective of compliant behavior to family relationships and examined the importance of the experience of procedural justice in parental discipline and its relationship to subsequent delinquent behavior (Fondacaro, Dunkle & Pathak, 1998; Fondacaro, Jackson & Luescher, 2002; Jackson & Fondacaro, 1999). Using adolescent assessments of procedural justice administered by parents, it was found that the experience of procedural justice in family disputes was related to less defiant behavior among youth and less deviant behavior (including minor offending), in general. Fagan and Tyler (2005) looked at the relevance of procedural justice among a community sample of juveniles and found that assessments of perceived fairness by legal authorities (i.e. procedural justice), which included school officials, store security guards and police, were associated with

higher perceptions of legitimacy and less self-reported delinquent behavior. Unfortunately, each of these studies used a cross-sectional design and, therefore, was unable to establish causal ordering where the experience of procedural justice predicts perceptions of legitimacy, which, in turn, predicts compliant behavior as outlined by the normative perspective. Nevertheless, Fagan and Tyler (2005) argued that procedural justice holds promise as an innovative strategy to prevent juvenile delinquency.

This dissertation, though, is interested in the relevance of the normative perspective among adolescent offenders and the viability of reducing recidivism and hastening desistance from crime through fair treatment. Therefore, the remainder of this section will focus on the small but growing body of literature examining the relevance of the normative perspective among adolescent offenders.

The majority of studies that have examined the relevance of procedural justice and legitimacy among adolescent offenders have focused largely on juvenile offenders' experiences of procedural justice in court settings. For instance, Greene et al. (2010) looked at juvenile offenders and found that the experience of procedural justice during the court experience was related to higher perceptions of legitimacy of the legal system in general. Building off of the previously mentioned work, Spratt and Greene (2010) sought to determine how the quality of treatment of youth in the court by one's own lawyer, the prosecutor and the judge affected perceptions of legitimacy. The respondents were asked whether not each agent of the court believed in them, listened to them, gave them good advice, fought hard for them, was honest, wanted justice to be served and treated the respondent with respect – tapping into

different elements of procedural justice. While the authors found that the experience of procedural justice with each court actor predicted one's perception of legitimacy, the strongest predictor of legitimacy was the experience of procedural justice in interactions with the judge, thus suggesting that subsequent work analyzing the relationship between procedural justice and perceptions of legitimacy among adolescent offenders should include questions pertaining to judicial interactions with offenders in order to adequately depict the relationship between experiences of procedural justice and perceptions of legitimacy.

In her dissertation examining the relevance of procedural justice among a sample of incarcerated juvenile offenders in Virginia, Harvell (2008) focused on assessments of procedural justice in experiences with the police. Using structural equation modeling, she found that fairness in interactions with the police, based on Leventhal's (1980) and Tyler's (1990) six elements of procedural justice, promoted more positive views of legal authorities and more positive opinions regarding case outcomes. This dissertation further confirmed the link between procedural justice and the willingness to obey the law as proposed by procedural justice theory, and reified the importance of police-juvenile offender interactions in the formation of one's perception of legitimacy. However, she did not examine the relationship between procedural justice and legitimacy and subsequent behavior.

Other work has also confirmed the importance of the normative perspective among adolescent offenders by demonstrating the relationship between the experience of procedural justice and subsequent misbehavior while institutionalized. For instance, Kaasa, Malloy and Cauffman (2008) looked at the effects of procedural

justice on compliant behavior among a sample of 373 incarcerated male offenders who were part of the California Youth Authority. Kaasa and colleagues (2008) found that perceptions of unjust treatment in the correctional facility (no specific agent of the criminal justice system was the referent) were related to less positive views about the justice system. These lower perceptions of legitimacy, in turn, were related to a greater frequency of offending and a wider variety of offending behavior in the detention facility. Subsequent work by this group of researchers also used a short-term longitudinal design to examine the relevance of the normative perspective among a sample of 94 incarcerated females in a high security juvenile facility (Tatar, Kaasa & Cauffman, 2011). Unlike the previously described study, this research looked at the experience of procedural justice with the judge, the respondent's lawyer and the prosecutor. The authors found that perceived injustice by each of these agents of the criminal justice system was related to institutional offending (Tatar, Kaasa & Cauffman, 2011). However, the authors did not attempt to determine whether or not one's perception of legitimacy mediated the effect of the experience of procedural justice on subsequent offending behavior while institutionalized. Still, both studies are important because they demonstrate the importance of procedural justice and legitimacy on compliant behavior among juvenile offenders.

Two other studies have used the Pathways to Desistance data to examine the relevance of the normative perspective among serious adolescent offenders. There are two main benefits to using the Pathways to Desistance study to investigate the relevance of the normative perspective among adolescent offenders. First, the respondents are queried about their experiences of procedural justice with both police

and court personnel, providing a more encompassing picture of how experiences of procedural justice affect perceptions of legitimacy and subsequent behavior. Second, the Pathways to Desistance Study is comprised of a longitudinal data set that follows offenders over a period of 7 years with periodic inquiries about delinquent and criminal behavior. Thus, researchers have the ability to investigate the relationship between procedural justice, legitimacy and subsequent compliant behavior. In the first work using the Pathways data, Piquero and colleagues (2005) investigated the relevance of the experience of procedural justice in interactions with legal authorities (i.e. the police and court officials) among a sample of serious adolescent offenders and found that “situational experiences with criminal justice personnel influence more general attitudes about the law and legal system” (p. 296). In other words, the authors found that more positive evaluations of procedural justice at baseline predicted higher ratings of legitimacy over a period of four years (Piquero et al., 2005). This research is important not only because it confirmed the importance of procedural justice in the formation of perceptions of legitimacy among the adolescent offender population, but it also demonstrated that perceptions of procedural justice in experiences with the police were lower than perceptions of procedural justice with the courts. This latter finding speaks to the potential for specific policies for police to be developed to increase the experience of procedural justice in interactions with youth in the effort to reduce juvenile offending.

Birkhead (2009) argued that the next step in the advancement of the normative perspective as a means to reduce juvenile offending behavior is to explore empirically whether or not a causal relationship exists between juvenile perceptions of procedural

justice and recidivism. Using the same sample of adolescent offenders from the Pathways to Desistance Study data, Fagan and Piquero (2007) used growth curve models to assess the effects of procedural justice and legitimacy on self-reported offending over a period of four years after contact with the juvenile justice or criminal justice system. The authors found that the experience of procedural justice with the police and the experience of procedural justice with the courts (more specifically the judge) were significant and positive predictors of legitimacy and perceptions of legitimacy were related to subsequent offending behavior. However, the methods used by the authors were questionable and limit the amount of confidence that can be placed in the results. For instance, the selection of growth curve models was not appropriate to address the research question at hand. Although the authors claim that the normative perspective of compliance predicts recidivism, in actuality, the authors only demonstrated that legitimacy can account for long term patterns of behavior. The authors do not really speak to the effect of procedural justice and legitimacy on immediate behavior. Another limitation of this work is that while the modeling procedures adequately accounted for age and its effects on offending behavior over time, they failed to properly account for temporal ordering in the normative perspective. More specifically, the authors allowed experiences of procedural justice and perceptions of legitimacy at baseline to predict patterns of offending over a period of 4 years but they did not attempt to account for how subsequent experiences of procedural justice within this window of time may affect offending behavior. They treated the experience of procedural justice and one's perception of legitimacy as static concepts and ignored the potential for Bayesian updating. The authors also did

not attempt to differentiate between personal and vicarious experiences of procedural justice with each respective agent of the criminal justice system. Thus, a reanalysis of the data is needed in which the analysis is limited to a shorter temporal window in order to confirm the importance of the normative perspective among this sample of serious adolescent offenders, as well as an analysis that pays closer attention to how this offending population constructs perceptions of legitimacy.

Although a growing body of literature has begun to analyze the relationship between the experience of procedural justice, perceptions of legitimacy and offending behavior, only one study has attempted to analyze the importance of each of the elements of procedural justice among the adolescent population. Boxx (2008) looked at each individual element of procedural justice (i.e. representation, impartiality, consistency, accuracy, correctability and ethical treatment) to determine its relationship with perceptions of legitimacy. Boxx (2008) drew upon the work of Tyler (1990) to construct measures of the six elements of procedural justice among a sample of 46 juvenile detainees in Florida. She also operationalized legitimacy in the same way as Tyler (1990) by asking the youth a set of questions regarding their perceived obligation to obey the law and their support for legal authorities. Using zero order correlations, Boxx (2008) found that impartiality, consistency and representation were positively and significantly correlated with the measure of legitimacy. Contrary to expectations, ethical treatment was negatively correlated with perceptions of legitimacy, although this relationship was not significant. In subsequent regression analyses, Boxx (2008) did not find that any of the elements of procedural justice were significantly related to perceptions of legitimacy; however,

she cautioned that the likely cause of the null effects in her research was the small sample size and suggested that further research attempt to determine the relationship between the elements of procedural justice and perceptions of legitimacy among the adolescent population.

Assessing Procedural Justice across Gender and Race/Ethnicity

Within the doctrine regarding the normative perspective of compliant behavior, sparse attention has been given to the potential effects of race/ethnicity on one's experience of procedural justice and how it may impact the formation of perceptions of legitimacy and subsequent behavior. This is unfortunate given that these elements of our social identity may shape our experiences with others and the formation of attitudes. More so, there is a rather large body of literature that has documented differential attitudes and experiences with the criminal justice system across among young males across race/ethnicity. Gender, age and race/ethnicity are pertinent to how we construct our normal and criminal behavior (Burgess-Proctor, 2006; Daly & Stephens, 1995). Thus, it is plausible that these concepts of the normative perspective may be constructed using different criteria or have differential effects on offending behavior among certain groups. There is also the potential for social institutions such as the criminal justice system to vary in importance across males of different race/ethnicity in the explanation of criminal behavior. This would mean that perceptions of legitimacy of the criminal justice system and its agents would be irrelevant in the explanation of criminal behavior if other social institutions are more relevant in the explanation of crime. Therefore, this dissertation will draw upon extant literature demonstrating differential treatment among young males across

race/ethnicity, the differential relationship between attitudes and involvement in criminal behavior among this same population, and the differential importance of social institutions across race/ethnicity to justify the examination of the normative perspective across race/ethnicity.

Focusing on gender and race/ethnicity in analyses of the effects of the criminal justice system on subsequent offending behavior is important given that minority and male experiences with the criminal justice system are different from the experiences of those of whites and females. More specifically, young, black and Hispanic males seem to be treated more harshly by agents of the criminal justice system compared to other social identities. For instance, observational studies of police practices have demonstrated that gender and race/ethnicity play an important role in police behavior and arrest decisions.⁷ For instance, an analysis of over 5,500 police encounters with citizens from 3 different cities demonstrated that African Americans were more likely to be arrested than their white counterparts when stopped by police (Smith, Visher & Davidson, 1984). In another analysis of these same police interactions with citizens, Visher (1983) also found that African American females were more likely to be arrested than white females.

Perhaps the best evidence indicating differential treatment by law enforcement across gender and race/ethnicity comes from analyses of traffic stops. Multiple studies have demonstrated that males, African Americans and Hispanics are more

⁷ While observational studies show that police are more likely to arrest, use force and be suspicious of minority suspects, this differential treatment is often mediated by neighborhood context such as socioeconomic status and racial composition (Smith et al., 1984; Smith, 1986; Terrill & Reisig, 2003). Nevertheless, minority suspects are more likely to have negative experiences with the criminal justice system given that they are more likely to live in lower class neighborhoods comprised of mostly minority residents.

likely to be stopped, searched and ticketed in highway traffic stops compared to whites (Antonovics & Knight, 2009; Lundman & Kauffman, 2003; Ridgeway, 2006; Engel & Calnon, 2004; Warren et al., 2006). In their analyses of citizen self-reports of traffic stops, Lundman and Kauffman (2003) found that African Americans, Hispanics and males were more likely to report being stopped by police. In addition, they found that African Americans and Hispanics were more likely to report that they were stopped by the police for no reason, meaning they were victims of differential policing or potentially biased treatment. In addition, African Americans and Hispanics were more likely to say that the police treated them improperly and were victims of discrimination (Lundman & Kauffman, 2003).

There is also ample evidence to suggest differential treatment by the courts at every stage of the adjudication process including charging decisions, plea offers, departure decisions, alternative sanctions, imprisonment decisions and sentence length across gender and race/ethnicity (Albonetti, 1997; Daly & Bordt, 1995; Hartley, Madden & Spohn, 2007; Johnson, 2009; Johnson & DiPietro, 2012; Mitchell, 2005; Spohn, 2000; Steffensmeier, Ulmer & Kramer, 1998; Steffensmeier & Demuth, 2000; Wooldredge, 2010). The most comprehensive studies of court decisions examining the experience of offenders across gender and race/ethnicity find that young, minority males receive harsher treatment than their counterparts. Steffensmeier and colleagues (1998) used sentencing data from Pennsylvania and found that young, black males were more likely to be imprisoned and receive harsher sentences controlling for prior offending history and offense characteristics. Analyses of judicial responses for sentencing practices also revealed that judges defined young,

minority males as more blameworthy for their crimes (Steffensmeier, Ulmer & Kramer, 1998). In an analysis of sentencing practices in three cities across the United States, Kansas City, Miami and Chicago, Spohn and Holleran (2002) found similar results. Young, African American and Hispanic males received harsher treatment by the courts in the form of higher rates of incarceration and longer sentences.

More pertinent to this work is the analysis of differential treatment of juvenile offenders across gender and race/ethnicity. Bridges and Steen (1998) looked at a sample of juvenile offenders and found evidence of differential treatment by social identity. Although the authors were only able to look at differential sentencing practices across race, they found ample evidence to suggest that African American youth experienced differential treatment based on negative attributions regarding the causes of crime. In their analysis of probation officer reports, Bridges and Steen (1998) found that African American youths were portrayed differently than white youth. Specifically, the authors found that African American youth were perceived as more dangerous with criminal behavior linked to internal traits such as personality and temperament. The causes of crime among white youth were attributed to outside factors such as family life and community; therefore, they were portrayed as less blameworthy, thus deserving of more lenient treatment by the courts. As a result of these attributions, African American youth were more likely to be confined, less likely to receive a sentencing departure and spent more time under the supervision of the court compared to white offenders (Bridges & Steen, 1998).

While extant research clearly suggests that young, minority males are treated more harshly by different agencies and agents of the criminal justice system, it is

important to acknowledge that these differential experiences may affect attitudes toward the criminal justice system. Furthermore, Hagan and Albonetti (1982) argue that “perceptions of justice are determined in large part by the times, places, and positions in the social structure from which they are derived” (p. 330). This includes one’s social identity of gender and race/ethnicity. In their analysis of attitudes towards the criminal justice system, Hagan and Albonetti (1982) found that race was a significant predictor of attitudes of injustice, and this relationship was particularly strong for the police. African Americans were much more likely than whites to believe that the police treated suspects poorly and were biased. Thus, it is important to take into account how differential experiences and attitudes may inform the normative perspective of compliance which is based on judgments of fair treatment and perceptions of legitimacy.

Research has also documented how experiences with the police structures attitudes and perceptions of injustice and legal cynicism (Fagan & Tyler, 2005; Hagan, Shedd & Payne, 2005; Shaefer, Huebner & Bynum, 2003; Weitzer & Tuch, 2004). Weitzer and Tuch (2004) examined how police misconduct including verbal abuse, the use of excessive force, and unwarranted police stops are shaped by race and ethnicity. The authors found that

“race [was] a strong predictor [of attitudes towards the police] in large part because blacks and Hispanics are more likely than whites to report having negative interactions with police, to be exposed to media reports of police misconduct, and to live in high-crime neighborhoods where policing may be

contentious—each of which increases perceptions of police misconduct”
(Weitzer & Tuch, 2004: 305).

Similar arguments were made by Taylor and colleagues (2001) who investigated whether or not gender and race had any effect on attitudes towards the police and assessments of treatment. The authors used a seven-item measure to construct attitudes toward the police asking youth whether they thought police were honest, rude, hardworking, friendly, courteous, respectful and prejudiced.⁸ Although the authors found that overall juveniles were relatively indifferent in their attitudes towards the police, they did find significant variations in attitudes across gender and race/ethnicity. ANOVA analyses revealed that whites had the most favorable attitudes towards the police followed by African Americans, and Hispanics. Finally, the authors documented that there was a direct relationship between experience with the police and attitudes, demonstrating the need for subsequent research to analyze the impact of individual experiences on attitudes towards agents of the criminal justice system across race/ethnicity.

A focus on race/ethnicity is necessary to the study of the normative perspective due to the potential for some groups to not rely on perceptions of legitimacy in their justification for criminal behavior. The work of Sampson and Bartusch (1998) informs this discussion. Sampson and Bartusch (1998) drew upon the work of Durkheim and his concept of anomie and coined the term “legal cynicism” to reflect negative beliefs about the legitimacy of the law and appropriate social norms. Relying upon Durkheim’s view of anomie as a state of normlessness where the rules

⁸ Questions asking respondents whether or not they thought the police were rude and were prejudiced against minority persons were reversibly scored so that a summative measure of attitudes could be created.

of society and its legal system are no longer binding (Sampson & Bartusch, 1998: 782), the authors argued that normlessness or legal cynicism is a result of the application of rules and laws in society. In other words, when the rules of society are not applied in a fair or just manner, legal cynicism which can be considered the opposite of legitimacy accrues and deviant behavior results. Using the Project on Human Development in Chicago Neighborhoods data, Sampson and Bartusch (1998) examined the relationship between race/ethnicity and legal cynicism. The authors constructed a measure of legal cynicism from respondents' level of agreement to five questions including "it is ok to do anything you want," "to make money, there are no right and wrong ways anymore" and "nowadays a person has to live pretty much for today and let tomorrow take care of itself" (Sampson & Bartusch, 1998: 786). This measure was intended to tap into the sense in which respondents do not consider the laws of society to be binding and therefore believe that behavior outside of the law is acceptable (Sampson & Bartusch, 1998: p. 786). Relevant to this dissertation is the finding that African Americans displayed higher levels of legal cynicism even though they were less tolerant of deviance. This finding speaks to the potential for the varying importance of attitudes towards the criminal justice system and its agents in the study of compliant behavior. More specifically, it is possible that perceptions of legitimacy may be irrelevant for African Americans in the decision to engage in criminal behavior relative to other factors such as costs and benefits of crime.

Expanding the study of legal cynicism to adolescents, Carr, Napolitano and Keating (2007) looked at the effect of gender and race/ethnicity on attitudes of legal cynicism among a sample of delinquent and non-delinquent youth in Philadelphia. In

their attempt to determine whether or not legal cynicism among youth diminishes perceptions of police legitimacy, the authors found that negative interactions with the police accounts for a large proportion of negative attitudes towards the police. Moreover, some of the African American and Hispanic youth constructed their negative interactions with police in terms of discrimination by race/ethnicity (Carr, Napolitano & Keating, 2007: p. 459). As a result, the authors claimed that they found limited support for a procedural justice approach to differences in attitudes towards the police. In other words, their in-depth interviews with youth revealed that negative experiences with the police (i.e. procedural injustice) had a direct effect on overall dispositions towards law enforcement. However, the authors did not investigate the relationship between interactions, attitudes and subsequent criminal behavior.

Although a rather large body of literature demonstrates that experiences with the criminal justice system and attitudes toward the criminal justice system vary across gender and race/ethnicity, the empirical investigation for gender and racial/ethnic effects in the procedural justice literature has been relatively limited. Generally, gender has been entered into regression models evaluating the importance of procedural justice on legitimacy and complaint behavior as a control variable (Fagan & Piquero, 2007; Fagan & Tyler, 2005; Piquero et al., 2005; Sprott & Greene, 2010; Sunshine & Tyler, 2003; Tyler, 1988, 1990; Tyler & Huo, 2002) or the analysis of the importance of procedural justice has been limited to same-sex samples (Casper, Tyler & Fisher, 1986; Kaasa, Malloy & Cauffman, 2008; Paternoster et al., 1997; Tatar, Kaasa & Cauffman, 2011). What has been taken from both types of studies is that the experience of procedural justice and legitimacy matter for both men and

women. In a similar vein, race and ethnicity control variables have also been entered into regression models (Fagan & Piquero, 2007; Fagan & Tyler, 2005; Lee, Steinberg & Piquero, 2010; Tyler, 1990). However, the significant effects of gender and race/ethnicity were generally viewed as minor and dismissed as unimportant to the overall contribution of the work to the literature on procedural justice (Tyler, 1994; Lind, Huo & Tyler, 1994).

Tyler and Huo (2002) looked directly at racial/ethnic group differences in experiences of procedural justice with legal authorities among a sample of adult residents from Los Angeles and Oakland. Drawing upon the body of literature that indicates minority group members feel as though they are more likely to be victims of bias and unjust treatment (Hagan & Albonetti, 1982; Hindelang, 1974; Mastrofski et al., 1998; Wortley, Hagan & MacMillan, 1997 as cited by Tyler & Huo, 2002) and have more negative attitudes towards the police and courts (Hagan & Albonetti, 1982; as cited by Tyler & Huo, 2002), Tyler and Huo (2002) explored whether or not assessments of favorable experiences with the police or courts varied across race and ethnicity. In general, the authors found that minority respondents were less positive in their evaluations of legal authorities, with significant differences between African Americans and whites and Hispanics and whites. Furthermore, minorities were also more likely to say that the procedures used by legal authorities were unfair and they indicated that they were also more distrusting of the motivations of the authorities (Tyler and Huo, 2002; p. 149). Unfortunately, the authors only looked at how perceptions of procedural justice varied across race/ethnicity and did not examine whether or not perceptions of procedural justice were formed the same way across

race/ethnicity or had differential effects on perceptions of legitimacy and compliant behavior across race/ethnicity.

Altogether, the research on procedural justice has generally argued that procedural justice and legitimacy are universal concepts that are important in the facilitation of compliant behavior. Nevertheless, there is reason to suspect that the importance of procedural justice and legitimacy may vary across gender and race/ethnicity. It is also possible that the individual components of procedural justice may be weighted differently across different social identities. Each individual has a distinct social location (Baca Zinn & Thornton Dill, 1996 as cited by Burgess-Proctor, 2006) and everyone's life is framed by inequalities of gender and race/ethnicity (Barak, 1998: 251, as cited by Burgess-Proctor, 2006). This, in turn, affects how people act, the opportunities that are made available to them and the way that social behavior is defined and accepted (Lynch, 1996: p.4). These social identities may also affect how people define experiences, especially in terms of fairness.

This raises the question as to why the experience of procedural justice may vary across gender and race/ethnicity. According to the group-engagement model of procedural justice (Tyler & Blader, 2003), in interactions with legal authorities people like to feel as though the authority is treating them as a respected member of the group (e.g. society). Unfortunately, there is ample evidence to suggest that certain classes of people feel alienated from legal authorities and feel as though they are treated as second-class citizens. Hence, it is possible that different elements of one's social identity including gender and race/ethnicity may affect how one defines the

experience of procedural justice and willingness to obey legal authorities and their mandates.

Although not a direct test of the relationship between the experience of procedural justice and perceptions of legitimacy, Lieber and colleagues (1998) examined whether or not police interactions, which were evaluated in terms of fairness and ethical treatment, predicted attitudes of respect for the police.⁹ Not only did the authors find that interactions with police predicted overall attitudes of respect toward the police, but they also found that attitudes were driven in part by the effect of race/ethnicity on evaluations of police fairness in treatment. Meeker and Fossati (1994) looked at a sample of California residents to evaluate the effects of direct and indirect experiences of procedural justice in court across race/ethnicity. The authors discovered that the experience of procedural justice in courts was related to perceptions of legitimacy in the overall sample, but when this relationship was analyzed across race/ethnicity, current experiences of procedural justice were not important in overall assessments of procedural justice and legitimacy for Hispanics. Only prior opinions and vicarious experiences of procedural justice determined current evaluations of procedural justice and perceptions of legitimacy among this group. Thus, this work speaks to the importance of analyzing the role of race/ethnicity in the evaluations of the experience of procedural justice. On the other hand, a study by Higgins and Jordan (2005) did not find that gender or race/ethnicity affected assessments of fair treatment. Using national polling data, Higgins and Jordan (2005) found that the experience of fair treatment had the same effect on

⁹ Recall that Tyler (1990) included a question regarding the amount of respect that one has for legal authorities in the construction of his measure of “legitimacy.”

evaluations of the court across each subgroup. Taken together, these works substantiate the need to further investigate whether or not the criterion used to form judgments of procedural justice varies by gender and race/ethnicity as well as its relationship with legitimacy and compliant behavior.

Unfortunately, no research has examined the relative importance of the individual elements of procedural justice across gender and race/ethnicity. However, Sun and Wu (2006) developed Differential Experience Theory to explain how men and women may vary in judgments of a fair experience, although the authors never attempted to test their claims. In sum, the authors argued that men develop an ethic of justice that is based on individual rights and the absolute rule of truth while women tend to be more concerned with the ethic of care when they evaluate the fairness of experience. Therefore, it is likely that men will be more concerned with representation and accuracy whereas women will be more focused on ethical treatment in their evaluation of procedural justice. Even though the authors did not speak to potential racial/ethnic differences in judgments of fair experience, Sun and Wu's (2006) discussion of Differential Experience Theory necessitates the importance of looking at the potential differential weighting of the components of procedural justice across gender and race/ethnicity as well. Therefore, one of the overarching goals of this dissertation will be to contribute to the existing literature on procedural justice by examining its importance or potential irrelevance of the concepts of the normative perspective of compliance across the aforementioned social identities.

Ample evidence suggests that young males of different races/ethnicities are treated differently by agents of the criminal justice system. Extant literature also acknowledges that young males of different races/ethnicities hold varying attitudes towards the justice system and its agents. While this is evidence of potential differences in overall levels of procedural justice and legitimacy, it does not provide convincing evidence that experiences of procedural justice and perceptions of procedural justice will have the same impact on criminal behavior among adolescent males. Recall that LaFree (1998) argues that social institutions such as the family, school, the criminal justice system and the economy are important in the explanation of criminal behavior. It has been suggested that race is the central organizing principle of these social institutions (Omi & Winant, 1994). Furthermore, it has been hypothesized that racial and ethnic groups differ in how they view and prioritize the importance of social, political and economic institutions (Lieberson, 1961). A small body of literature has begun to examine how the varying importance of these institutions may affect the delinquent and criminal behavior of adolescents across race/ethnicity. For instance, black adolescents tend to have more intimate relationships with their family members and the presence or absence of these relationships is a greater protective/risk factor for delinquent behavior (Cernkovich and Giordano, 1987; 1992; Giordano et al., 1986). Other work has also suggested that school-related risk factors for crime and delinquency as well as delinquent peers are less important among black adolescents due to an ambivalence of blacks towards education (MacLeod, 1987; for contradictory findings see Cernkovich and Giordano, 1992).

Limitations of Existing Research

Within the literature on the normative perspective with regard to the adolescent population, there is a rather limited understanding of how procedural justice affects perceptions of legitimacy and criminal behavior among adolescent offenders. Furthermore, extant literature examining the effects of procedural justice on criminal behavior has been limited to self-reported measures of offending or limited in the types of criminal behaviors examined among adult and adolescent samples alike. Therefore, this dissertation will add to the growing body of literature examining the importance of procedural justice among the serious adolescent offender population by examining the relationship between procedural justice and recidivism across multiple measures of recidivism including an official measure of recidivism, overall self-reported criminal behavior, self-reported violent behavior, self-reported involvement in income-generating crime and self-reported substance use. The inclusion of an official measure of recidivism is important because it will speak to the effectiveness of the ability of the normative perspective of compliance to reduce offending behavior that is serious enough to come to the attention of authorities. The inclusion of substance use will also benefit the growing body of literature on the normative perspective because it will demonstrate the universality of normative perspective of compliance on offending behaviors in which there is less consensus in society regarding its immorality and illegality.

This research will also address gaps in the literature and examine the importance of the source of the experience of procedural justice and how one defines his or her experience of procedural justice among serious adolescent offenders. With

specific regard to the source of the experience of procedural justice, most of the work examining the importance of procedural justice is limited to interactions with one agent or agency of the criminal justice system. Initial studies specifically looked at samples of court participants including felony offenders (Casper, Tyler & Fisher, 1988; Thibaut & Walker, 1975) to determine the relevance of procedural justice. Other work has focused specifically on samples of offenders and their interactions with the police to analyze how the experience of procedural justice affects long-term compliance and offending behavior (Mastrofski, Snipes & Supina, 1996; Paternoster et al. 1997). An even smaller body of literature has expanded the analysis of the experience of procedural justice to include respondents who had some form of contact with either the police (i.e. call for service or an interaction due to offending behavior) or the court in the past year in order to determine if the experience of procedural justice had an effect on perceptions of legitimacy and compliant behavior (Tyler, 1990; Tyler & Huo, 2002). Finally, most studies examining the importance of procedural justice among adolescent offenders has focused on either interaction with the police or court and not both. More recent work, however, have used samples of adolescent offenders and inquired as to how one's evaluation of the experience of procedural justice with police and court actors (in most case judges) affect perceptions of legitimacy and subsequent criminal behavior (Fagan & Piquero, 2007; Piquero et al., 2005). However, the experience of procedural justice with police and the experience of procedural justice with court officials were kept separate in regression models and no known attempts were made by the authors to determine the relationship between the two experiences of procedural justice, the relative

importance of each interaction of procedural justice, or the potential for the two experiences to interact to predict perceptions of legitimacy. This is unfortunate given that the timing of the experience of procedural justice may play a large role in formation of perceptions of legitimacy. For instance, if an offender has a poor experience with one's first contact with the criminal justice system in the form of police, it may not matter how fair a lawyer, judge or correctional authorities may be. The offender's perception of the legitimacy of the criminal justice system may already be formed or updated.¹⁰ In contrast, it may be that the most recent experience of procedural justice, interactions with judges that determines one's perception of legitimacy and affects subsequent offending behavior. Furthermore, no research has attempted to examine the differential effect of personal versus vicarious experiences of procedural justice on perceptions of legitimacy and criminal behavior. We have little knowledge regarding the importance of personal experiences of procedural justice compared to others' experiences other than suppositions that can be derived from the research examining general versus specific deterrence within the instrumental perspective of compliance (see Stafford & Warr, 1993).

Of equal importance is the gap in the literature regarding the varying importance of the sources of procedural justice is the rather shallow literature regarding how judgments of procedural justice are formed. Given initial literature examining how perceptions of procedural justice are formed (Barrett-Howard & Tyler, 1986; Leventhal, 1980; Tyler, 1988, 1990; Tyler & Huo, 2002), it is surprising that very little research has attempted to determine the importance of the individual

¹⁰ Indirectly testing this premise was a study conducted by Sun and Wu (2006) that used national survey data of citizen experiences with the criminal justice system and found that evaluations of interactions with the police affected subsequent evaluations of court experiences.

elements in relation to one another in recent work examining procedural justice among offenders and/or adolescents. Unfortunately, the body of literature examining the different elements of procedural justice has generally relied upon community samples of adults to determine the relative importance of the different elements of procedural justice. The only other study that has attempted to determine whether or not each of the elements of procedural justice were, in fact, related to perceptions of legitimacy among adolescent offenders was hampered by a small sample size and unable to speak to the issue at hand (Boxx, 2008). In addition, no attempts have been made to determine the relative importance of each component of procedural justice among the adolescent offending population. As a result, more research is needed to indicate how the different elements of procedural justice are used to determine perceptions of legitimacy and reduce criminal behavior.

Finally, given the rather large amount of literature regarding differential treatment by the criminal justice system, differential attitudes towards police and the criminal justice system and the varying importance of social institutions across race/ethnicity, the relative inattention to the potential varying effects of procedural justice across these different social identities is regrettable. At this point, it is unwise to insist on the generality of Procedural Justice Theory across race/ethnicity. Therefore, the final goal of this study is twofold. First, this dissertation will be exploratory and address the validity of Procedural Justice Theory among serious adolescent offenders across young males of different race/ethnicity. Second, this work will examine the potential relevance or irrelevance of the sources and elements of procedural justice on perceptions of legitimacy and criminal involvement.

Chapter 3: Data

Data

The data for this dissertation come from the Pathways to Desistance Project. This large-scale, two-site longitudinal study was founded in order to examine the processes associated with desistance from crime among a sample of serious adolescent offenders (Schubert et al., 2004). More specifically, the designers of the project used a prospective longitudinal design to collect data from a sample of adolescent offenders with serious criminal charges and arrest histories in order to examine how developmental processes, social context, interventions, and *sanctioning experiences* affect the process of desistance from crime. In order to do this, multiple sources of information were used to provide a picture of intra-individual change over time including self-report, collateral report and official criminal record information (Schubert et al., 2004). More information regarding the rationale behind the Pathways to Desistance Project can be found in Mulvey et al. (2004).

The Pathways to Desistance Project and data include information on 1,354 adjudicated adolescents who were recruited from the juvenile and adult court systems in Philadelphia, Pennsylvania and Phoenix, Arizona. The sites of Philadelphia and Phoenix were selected for many reasons, including the following which are especially relevant to this dissertation. First, both cities had high enough rates of serious crime committed by juveniles in order to ensure a large enough sample for enrollment within a given time frame (based on statistical power analyses; Schubert et al. 2004). Second, the two sites were selected since they provide a diverse racial and ethnic mix of participants, with Philadelphia's adolescent offending population being primarily

African American whereas Phoenix's adolescent offending population is mainly white and Hispanic (Schubert et al., 2004). Finally, there was a large enough population of adolescent offenders who were female in each city, therefore enabling the examination of sex differences in the processes of desistance from crime (Schubert et al., 2004).¹¹

In order to be included in the Pathways to Desistance Project, an adolescent from Philadelphia or Phoenix must have committed an eligible crime including all felony offenses (with the exception of less serious property offenses), a misdemeanor weapons offense or a misdemeanor sexual assault during the recruitment period (November 2000 through January 2003). In addition, the authors limited the proportion of offenders who were male drug offenders to 15% at each site given that male drug offenders account for the vast majority of adolescent offenders (Schubert et al., 2004; Stahl, 2003). The offenders in this sample represent approximately one in three adolescents adjudicated on eligible charges in each city, respectively, during the time period.

Each of the youths who agreed to participate in the study completed a baseline interview, which was conducted within 75 days of the petition date for youths who were adjudicated within the juvenile justice system. For those youths tried in the adult system, the baseline interview was completed within 90 days of either the decertification hearing in Philadelphia¹² or the arraignment hearing in Phoenix.¹³

¹¹ Schubert and colleagues (2004) also outline three other reasons for the selection of Philadelphia, Pennsylvania and Phoenix, Arizona. These include contrasting perspectives in which the justice systems operate, with Philadelphia having a more extensive treatment focus while Phoenix does not, political support for the study among practitioners and in the juvenile and criminal justice systems in each location, and the presence of experienced researchers to manage data collection on-site.

¹² The decertification hearing in Philadelphia is a hearing at which it is determined if the juvenile's case will remain in adult court or if it will be sent back to juvenile court (Schubert et al., 2004).

Collateral information was also collected from an adult informant (80% of informants were a parent) at the baseline interview as well. Two additional types of interviews were collected subsequent to the baseline interview. Time-point interviews were administered to each subject at 6-month intervals beginning at 6 months after the baseline interview for a period of 3 years (period 1 through period 6). Three years after enrollment in the study, yearly time-point interviews were collected through year 7 (period 7 through period 10). The baseline and time-point interviews collected information within six domains: background characteristics, individual functioning, psychosocial development and attitudes, family context, personal relationships and community context. In addition, collateral information was obtained from self-nominated peers of the respondent one year after the baseline interview and at yearly intervals through year 3. The second type of interview was limited to a subset of respondents who completed any stay of more than one week at a residential facility. This interview focused on the respondents' report of treatment content at the facility and the environment within the facility (for a full description of the interview schedule and the interview content, see Schubert et al., 2004). The designers of the project combined data from the adolescent samples in Philadelphia and Phoenix to create one dataset known as the Pathways to Desistance Study.

Sample

As previously mentioned, the sample used to address the research questions driving this investigation come from the Pathways to Desistance Study. A total of

¹³ In Phoenix, the arraignment hearing is the point in the adult system where charges are formally presented before a judge and the defendant has the opportunity to enter a plea of guilty or not guilty on the charges stipulated (Schubert et al., 2004).

1,354 adolescents, who were ages 14 to 17 years old at the time of enrollment, were recruited to participate in the study because they were adjudicated as delinquent for serious offense in juvenile court or found guilty in the criminal court system in Philadelphia, Pennsylvania or Phoenix, Arizona (average age at adjudication was 15.9 years old). Nearly 52% of the sample came from Philadelphia while the other 48% of offenders were from Phoenix. The sample was also predominantly male (86.4%) and consisted largely of minorities (41.4% Black, 33.5% Hispanic, and 4.8% listed as other race/ethnicity). Table 1 provides a more detailed description of the sample, including the proportion of the sample population from each site.

The data used in this research come from the baseline interview (average age of respondents is 16.04 years old) and the first two time-point interviews (defined as period 1 and period 2). Also, information from the official criminal records of each respondent are used to account for official criminal histories. The data are rather complete through the 6-month and 12-month interview with a 95% retention rate at each period of data collection. In addition, 92% of the sample have full data (completed the baseline, period 1 and period 2 interview) through the second period of data collection, and another 6% of the sample had data available from the baseline interview and at least one of the time-point interviews (for more information regarding the time-point retention rates and the cumulative interview retention rates, please see Schubert et al., 2004). As a result, the data for the sample used to investigate the research questions are rather complete. Analyses using data from the

Table 1. Description of Initial Pathways to Desistance Study Sample (N = 1,354)

	Mean	Standard Deviation
City		
Philadelphia	.517	-
Phoenix	.483	-
Gender		
Male	.864	-
Female	.136	-
Race/Ethnicity		
White	.202	-
Black	.414	-
Hispanic	.335	-
Other	.048	-
Adjudicated Offense		
Person	.404	-
Property	.252	-
Weapons	.100	-
Drugs	.155	-
Sex	.039	-
Other	.039	-
Age at Baseline	16.045	1.143
Prior Arrests	3.27	4.790

baseline interview only have a sample size of 1,353.¹⁴ Analyses that include data from the follow-up interviews are more restricted in sample size. Specifically, the sample size regarding analyses through period 1 is 1,261, and the sample size regarding analyses through period 2 is 1,216.

Variables

Outcomes of Interest

Arrest. In order to assess the effects of the experience of procedural justice and perceptions of legitimacy on recidivism, this dissertation first examines how these two components of Procedural Justice Theory are related to official measures of recidivism. Using the official criminal records of each respondent, the binary measure *Arrest* indicates whether or not each participant in the study was subsequently arrested for a new criminal offense after the original arrest and petition to court that enabled the respondent to be enrolled in the study. Seventy-four percent of the sample was subsequently arrested for a new criminal offense during entire recall period (through period 10).¹⁵ A secondary measure of official recidivism is also constructed using the official criminal records of each respondent. This variable, *Time to Arrest*, is a continuous measure indicating the number of days from the initial petition date to court for the originating offense until an arrest for a new criminal offense was made, if at all ($\bar{x} = 786.3$, s.d. = 586.8).

¹⁴ One respondent within the Pathways to Desistance sample did not answer any questions pertaining to legitimacy or procedural justice in the baseline interview. Therefore, the sample size is reduced to 1,353 respondents available for analysis.

¹⁵ This binary measure of arrest is only constructed for those respondents who remained in the sample for the entire period of data collection (N = 1,175).

Self-reported Total Offending. At each time-point interview, the respondent self-reported on his/her involvement in 24 different antisocial and illegal activities, including destroying or damaging property, setting fires, stealing, selling drugs, carrying a gun, and killing someone. The questions pertaining to self-reported offending are a revised version of a common delinquency measure (Elliott, Huizinga and Menard, 1989; Huizinga, Esbensen and Weiher, 1991). For each activity endorsed, information was also collected regarding the number of times the respondent had engaged in the activity since the last interview. The self-report scale frequently used in delinquency research is a trimmed version of prior scales, only including the 22 most serious offenses. The self-report offending scale was found to have good internal consistency (alpha: 0.88) for total offending.¹⁶ In order to measure overall involvement in crime, *Total Offending*, this research uses a binary measure of self-reported offending. This measure combines data from the period 1 and period 2 interviews on each of the 22 offenses in order to construct a binary variable indicating whether or not the respondent engaged in any criminal activities subsequent to his or her adjudication. Table 2 summarizes the overall level of involvement in criminal activities by respondents in the Pathways to Desistance Data through the period 1 (6 months) and through period 2 (1 year). Nearly 58% of the sample indicated that they had committed at least one crime in the 6 months subsequent to adjudication as a delinquent or the finding of guilt in criminal court and a little over 70% of the sample had committed at least one criminal act in the year following their verdict.

¹⁶ A complete list of the 22 offenses included in the total offending measure can be found in Appendix A.

Violent Crime. The 22 different crimes used in the self-report total crime measure can be broken down into two different categories: violent crime and income-generating crime. The *Violent Crime* measure is a binary indicator of involvement in at least 1 of 11 violent offenses in period 1 and period 2. The offenses included in this measure are 1) destroying or damaging property, 2) setting fire to a house or building, 3) rape, 4) murder, 5) shooting someone, 6) shooting at someone, 7) beating up someone badly, 8) being in a fight, 9) beating up, threatening, or attacking someone as part of a gang, 10) taking something from another by force with a weapon, and 11) taking something from another by force without a weapon. It was determined that these items have good internal consistency (alpha: 0.74) and make an acceptable scale indicating involvement in violent crime. Fifty-two percent of participants in the study committed a violent crime in the six months following entrance into the study and 64% had committed a violent crime by the period 2 interview.

Income-generating Crime. The *Income-generating Crime* measure is a dummy variable indicating involvement in at least 1 of 8 separate income-generating offenses taken from the period 1 and period 2 interviews including 1) entering/breaking into a building to steal, 2) stealing something from a store, 3) buying receiving or selling something stolen, 4) using checks/credit cards illegally, 5) stealing a car or motorcycle to keep or sell, 6) selling marijuana, 7) selling other drugs and 8) breaking into a car to steal something. These items show good

Table 2. Descriptive Statistics: Outcomes of Interest

	N	Mean	Standard Deviation	Minimum	Maximum
Arrest	1126	.744	-	0	1
Days to Arrest	1354	786.299	583.837	30	2688
Total Offending					
6 Months	1261	0.583	-	0	1
1 Year	1216	0.701	-	0	1
Violent Offending					
6 Months	1261	0.519	-	0	1
1 Year	1216	0.638	-	0	1
Income Generating Offending					
6 Months	1261	0.312	-	0	1
1 Year	1216	0.420	-	0	1
Substance Use					
6 Months	1261	0.328	-	0	1
1 Year	1214	0.468	-	0	1
Legitimacy (Baseline)	1353	2.296	0.574	1	4

internal consistency (alpha: 0.80) and were deemed to be an acceptable indicator of involvement in income-generating crime. A little over 31% of respondents had committed an income-generating crime within 6 months of entrance into the study and this number increased to 47% by the period 2 interview.

Substance Use. The measure of substance use for this research focuses on the adolescent's self-reported use of marijuana. This *Substance Use* measure is a binary variable indicating whether or not the respondent used marijuana. On average, 32% of respondents had used marijuana by the period 1 interview and 47% of respondents had used marijuana at least once by the period 2 interview.

Legitimacy. Stemming from the work of Weber (1968), legitimacy has been viewed as an important concept in the explanation of compliant behavior (see also Tyler, 1990). Given that this dissertation seeks to explain compliant (or a lack of criminal behavior) among a sample of adolescent offenders, it is important to include a measure of legitimacy to explain the relationship between differential experiences of procedural justice with agents of the criminal justice system and recidivism. Within the Pathways to Desistance data, there are 11 questions pertaining to the concept of legitimacy, as outlined by Tyler (1997). These questions represent the respondent's evaluation of the law and its underlying norms. This dissertation uses a pre-constructed measure of *legitimacy* created by the originators of the Pathways to Desistance Study.¹⁷ This measure is constructed from 11 questions in the baseline

¹⁷ The working group of the Pathways to Desistance Study provided the precreated scale of legitimacy to this author. None of the factor loadings for any of the precreated scales provided by the Pathways working group were provided; however, the following information regarding the legitimacy scale is available online at <http://www.pathwaysstudy.pitt.edu/codebook/procedural-justice-sb.html>: alpha: .80; NFI: .91; NNFI: .90; CFI: .92; RMSEA: .07.

interview which ask respondents how much they agreed with statements such as “I have a great deal of respect for the police” and “Overall, judges in the courts here are honest.” Respondents answered these questions in the following way: 1) strongly disagree, 2) somewhat disagree, 3) somewhat agree and 4) strongly agree. Originators of the Pathways to Desistance Study conducted a one-factor confirmatory factor analysis to demonstrate that these individual questions are related and can be combined to produce an adequate representation of one’s perception of legitimacy (alpha: 0.80). The measure of legitimacy is the mean of these 11 items, with higher values indicating more positive perceptions of legitimacy (for a full list of the questions included in this measure, see Appendix B).¹⁸ On average, respondents who are part of the Pathways to Desistance Study tend to have neutral perceptions of legitimacy regarding the police and courts ($\bar{x} = 2.3$, s.d. = 0.6).

Independent Variables

Procedural Justice. The main concept of interest driving this dissertation is Tyler’s (1990) adaptation of procedural justice, based upon the work of Thibaut and Walker (1975) and Leventhal (1980). Within the Pathways to Desistance data, there are 38 questions in the baseline interview that tap into the concept of procedural justice. These items can be divided into 11 different measures that encompass important elements within the global concept of procedural justice.

The first measure of procedural justice is a summary measure. In his work examining the relationship between procedural justice, legitimacy and compliant

¹⁸ The originators of the Pathways to Desistance data created the measure of legitimacy by adding together all of the responses to the individual components of legitimacy and then dividing it by the total number of questions answered. Therefore, if a respondent only answered 9 of the 11 questions pertaining to perceptions of legitimacy, the summative score was divided by 9 instead of 11.

behavior, Tyler (1990; see also Tyler & Huo, 2002) asked respondents about different aspects of their most recent interactions with the police or the courts such as whether or not they felt as though they were treated the same way over time and across persons. He combined the answers regarding their experience(s) of procedural justice, whether with the police only, the courts only, or both, into one descriptive measure representing procedural justice. This work will do the same. Given that the 38 questions regarding one's experience of procedural justice have responses in different Likert-scale formats (i.e. 1) strongly agree, 2) agree, 3) neither agree nor disagree, 4) disagree and 5) strongly disagree, and 1) all of it, 2) most of it, 3) some of it and 4) none of it), all items were recoded so that higher scores indicated more positive experiences of procedural justice and then standardized so that they could be combined with the other measures of procedural justice (alpha: 0.84). The first measure of *procedural justice* is the average of the standardized scores for each of the 38 questions regarding the experience of procedural justice ($\bar{x} = 0.0$, s.d. = 0.4).

The second measure, *procedural justice police*, is a measure of procedural justice created by the originators of the Pathways data and it is constructed from 19 questions asking respondents about their interactions with the police. For two of the 19 questions, "During your last contact with the police when you were accused of a crime, how much of your story did the police let you tell?" and "Of the people you know who have had a contact with the police (in terms of crime accusation), how much of their story did the police let them tell," respondents' answers were in the following form: 1) all of it, 2) most of it, 3) some of it, and 4) none of it. These responses were reverse-coded and then converted to a 5-point Likert scale so that they

could be combined with the remaining 17 questions tapping into other dimensions of experiences of procedural justice with the police.¹⁹ The remaining questions asked participants how much they agreed with statements such as “During my last encounter with the police, they treated me in a way that I expected they would treat me” and “Police used evidence that was fair and neutral.” Respondents’ answered these 17 questions in the following form: 1) strongly disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, 5) strongly agree. The measure of procedural justice regarding interactions with the police is the mean score of the 19 questions, with higher values indicating more positive experiences of procedural justice (for a full list of questions included in this measure, see Appendix C).²⁰ The mean score for this measure is 2.77 (s.d. = 0.51).

The third measure of procedural justice is also a summary measure created by the originators of the Pathways data and it is related to interactions with the judges during the adjudication process. This measure, *procedural justice judges*, was created from 19 questions asking respondents about their most recent interaction with the judge who presided over their case as well as prior experiences in the court and other people’s experiences in the court process. Respondents were asked, “During your last contact with the court system when you were accused of a crime, how much did the judge let you tell your side of the story” and “Of the people you know who have had contact with the courts (in terms of crime accusation), how much did the judge let them tell their side of the story?” Respondents’ answers to these two questions were

¹⁹ This was done by the originators of the Pathways to Desistance Study data. No additional information regarding how this was done was made available to the author.

²⁰ No information regarding the reliability score or a confirmatory factor analysis for this precreated scale was provided to the author from the Pathways to Desistance Study working group.

in the following form: 1) all of it, 2) most of it, 3) some of it, and 4) none of it. These responses were reverse-coded and then converted to a 5-point Likert scale so that they could be combined with the remaining 17 questions concerning the experience of procedural justice with judges.²¹ The remaining questions pertaining to the experience of procedural justice with judges asked respondents how much they agreed with statements such as “During my last encounter with a judge, they treated me in a what that I expected they would treat me” and “The Judge used evidence that was fair and neutral.” Respondents’ answers to these 17 questions were in the following form: 1) strongly disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, 5) strongly agree. The measure of procedural justice with judges is the mean score of the 19 questions, with higher values indicating more positive experiences of procedural justice with judges (for a full list of questions included in this measure, see Appendix C).²² The mean score of the measure of procedural justice with judges is 3.17 (s.d. = 0.53).

The authors of the Pathways to Desistance data created 4 other subscales of procedural justice from the 38 questions asked during the baseline interview: direct experience of procedural justice with the police, others’ experience of procedural justice with the police, direct experience of procedural justice with the judge, and others’ experiences of procedural justice with a judge. The *personal experience of procedural justice with police* measure is the mean of 14 items included in the procedural justice police measure pertaining to each respondent’s individual

²¹ This was done by the originators of the Pathways to Desistance Study data. No additional information regarding how this was done was made available to the author.

²² No information regarding the reliability score or a confirmatory factor analysis for this precreated scale was provided to the author from the Pathways to Desistance Study working group.

experiences with the police during his or her most recent encounter as well as other prior encounters. This measure includes items such as “Police considered the evidence/viewpoints in this incident fairly” and “Police were honest in the way they handled this case” (for a full list of questions included in this measure, see Appendix C). The designers of the Pathways to Desistance Study conducted a one-factor confirmatory factor analysis to demonstrate the relationship among these items (alpha: 0.74).²³ The average score for this measure is 2.81 (s.d. = 0.56). The Pathways to Desistance Study data also contain a premade measure of *vicarious experiences of procedural justice with police*. This variable is the mean of 5 items contained in the procedural justice police measure that asks respondents how much they agree about more general statements regarding people’s experiences with the police such as “Police treat people differently depending on their race/ethnic group” (for a full list of questions contained in this measure, see Appendix C). A one factor confirmatory factor analysis by the designers of the Pathways data was conducted (alpha: 0.57) and the mean value of this measure is 2.63 (s.d. = 0.69).²⁴

The mean of 14 items asking each respondent about their most recent experience with a judge was used to create a measure of one’s *personal experience of procedural justice with judges*. Items in this measure include questions such as “The judge made up his/her mind prior to receiving any information about the case” (for a full list of questions contained in this measure, see Appendix C). A one factor

²³ The Pathways to Desistance Study working group did not provide this author with any information regarding any of the factor analyses that were done to create the different measures of procedural justice. However, the following information regarding this measure was available online at <http://www.pathwaysstudy.pitt.edu/codebook/procedural-justice-sb.html>: alpha: .74; NFI: .79; NNFI: .78; CFI: .81; RMSEA: .08.

²⁴ The following information regarding this scale was available online at <http://www.pathwaysstudy.pitt.edu/codebook/procedural-justice-sb.html>: alpha: .57; NFI: .96; NNFI: .93; CFI: .97; RMSEA: .06.

confirmatory factor analysis confirmed the relationship among these variables (alpha: 0.74) and the mean score for this measure is 3.2 (s.d. = 0.60).²⁵ A precreated measure of *vicarious experiences of procedural justice with judges* is also available in the Pathways data. This variable is the mean of 5 items, which ask respondents how much they agree about more general statements regarding people's experiences with the judges such as "Judges treat males and females differently" (for a full list of questions contained in this measure, see Appendix C). Once again, a one factor confirmatory factor analyses revealed a relationship among these individual items (alpha: 0.66)²⁶ and the respondents evaluations of vicarious experiences with judges generated mean score of 3.26 (s.d. = 0.67).²⁷

The 38 questions pertaining to the experience of procedural justice in the baseline interview were adapted from the work of Tyler (1997) and Leventhal's (1980) six elements of procedural justice. Thus, it is possible to create each of the 6 individual component measures of procedural justice within the Pathways to Desistance data. The first element of procedural justice is representation. The measure of *representation* was created from 4 questions asking each respondent about how much he, she or others were allowed to tell their side of the story to the respective agents of the criminal justice system (alpha: 0.80; for a full list of questions contained in this measure, see Appendix D). Each item was reverse-coded

²⁵ The following information regarding this scale was available online at <http://www.pathwaysstudy.pitt.edu/codebook/procedural-justice-sb.html>: alpha: .74; NFI: .79; NNFI: .78; CFI: .81; RMSEA: .08.

²⁶ The following information regarding this scale was available online at <http://www.pathwaysstudy.pitt.edu/codebook/procedural-justice-sb.html>: alpha: .66; NFI: .93; NNFI: .90; CFI: .94; RMSEA: .08

²⁷ If respondent information was missing on any of the individual items contained in each of the previously described measures, the originators of the Pathways to Desistance scales dropped the individual item from the scale.

so that higher scores represent just treatment by the police and judges and was then standardized. The measure representation is the average of the z-scores (s.d. = 0.80).²⁸ The second individual component of procedural justice is *impartiality*, and this measure was created from 4 different questions asking respondents about the bias of the authorities with whom they or others have come into contact (alpha: 0.63; for a full list of questions, see Appendix D). Each response was standardized and the measure of impartiality is the average of the 4 z-scores (s.d. = 0.63). The third individual element of procedural justice is *consistency*, and this measure was created from 12 questions posed to the respondents regarding how he or she felt he or she was treated compared to others of different race/ethnicities, gender, neighborhoods, and age. It also includes two questions about whether or not the respondent felt his or her treatment by agents of the criminal justice system was similar to previous experiences, if any (alpha: 0.74). Each individual item was standardized and the sum of the z-scores is used as the final measure of consistency (s.d. = 0.52; for a full list of questions contained in this measure, see Appendix D). The fourth element of procedural justice is *accuracy*, and it contains 6 items asking respondents about whether or not the evidence considered by the police and judges was fair and neutral in addition to whether or not the police or judge overlooked any evidence when making their respective decisions (alpha: 0.56). The measure of accuracy was created from the average of these responses after they were standardized (s.d. = 0.66; for a full list of questions contained in this measure, see Appendix D). Correctability, the fifth component of procedural justice, was created from the standardized scores of 4 questions within the Pathways to Desistance data related to the ability of the

respondent to appeal the decision or seek out a higher authority to review the case (alpha: 0.43; for a full list of questions contained in this measure, see Appendix D). The average of the standardized responses to each of the 4 questions is used to represent an individual's score of correctability (s.d. = 0.61). The final element of procedural justice is ethical treatment. This measure contains 8 questions including whether or not the criminal justice agent respected one's rights and treated the respondent with respect and dignity (alpha: 0.73; for a full list of questions contained in this measure, see Appendix D). Given the varying response sets of the individual questions, each item was standardized and the average of the standardized scores was used to create the measure of ethical treatment (s.d. = 0.60). It also should be noted that, when necessary, each individual measure was reverse-coded so that for all individual variables, higher scores represented more positive experiences of procedural justice.^{29, 30}

Moderator Variables

Given that this investigation examines the relationship between procedural justice, legitimacy and subsequent offending across race/ethnicity, four

²⁹ Each respective measure was created from the available responses. In order for the 6 individual measures of procedural justice to be created, each respondent must have answered at least 2 questions pertaining to the relevant aspect of procedural justice.

³⁰ Among the 38 questions that were used to construct the 6 measures representing the individual components of procedural justice, less than 1% of the sample had missing data on 20 or more of the questions. Eight percent of the sample had missing data on 14 variables, and 5% of the sample had missing data on 4 of the questions. A sensitivity analysis was conducted to determine the randomness of the missing data, and only 1 pattern was found. Missing data on one question significantly predicted other missing data (in general).

Table 3. Descriptive Statistics: Procedural Justice Measures at Baseline

	N	Mean	Standard Deviation	Minimum	Maximum
Procedural Justice Police					
Full Measure	1353	2.767	0.514	1.390	4.490
Personal Experience	1353	2.812	0.564	1.150	4.630
Vicarious Experience	1353	2.634	0.693	1.000	5.000
Procedural Justice Judges					
Full Measure	1353	3.165	0.527	1.180	5.000
Personal Experience	1353	3.200	0.597	1.230	5.000
Vicarious Experience	1353	3.259	0.671	1.150	5.000
Procedural Justice Individual Measures					
Representation	1353	0.007	0.797	-	-
Impartiality	1353	-0.000	0.626	-	-
Consistency	1353	-0.000	0.515	-	-
Accuracy	1353	0.002	0.655	-	-
Correctability	1353	-0.001	0.607	-	-
Ethical Treatment	1353	0.001	0.601	-	-

stratifying variables have been created. The measure of gender is a binary variable indicating whether or not the respondent is *male*. There are also 3 variables tapping into the respondent's self-identified race/ethnicity: *black* (1 = black, 0 = other), *white* (1 = white, 0 = other), and *Hispanic* (1= Hispanic, 0 = other).

Control Variables

Exposure Time. In order to effectively investigate the relationship between the experience of procedural justice and subsequent offending behavior among a sample of serious adolescent offenders, there needs to be a measure that accounts for the amount of time that each respondent has at least some contact with the community and is available to commit criminal acts. The measure of exposure time in this work is a ratio of the total number of days that each respondent was in his or her community divided by the total number of days between the baseline interview and the period 1 and period 2 interviews, respectively. On average, respondents were in the community 52% of the time during their first 6 months after entrance into the study and 54% of the time within the first year of entrance into the study.

Legal Cynicism. This dissertation also controls for several key variables that are related to recidivism among adolescent offenders. The first control variable is a measure representing legal cynicism. Following Sampson and Bartusch (1998), a modified version of Srole's (1956) legal anomie scale is used to determine each respondent's attitudes as to whether or not laws or rules are binding or applicable in the lives of adolescents today. Respondents reported their level of agreement to 5 questions including "laws are meant to be broken" and "there are no right or wrong ways to make money." *Legal Cynicism* is the mean of these five items (alpha: 0.57).

Instrumental Perspective. Representing the instrumental perspective of compliance, pre-created measures of an adolescent's perceived likelihood of detection and punishment for criminal offenses were adapted from the work of Nagin and Paternoster (1993). A measure of *certainty of punishment*, including items asking about the certainty of punishment for oneself and the certainty of punishment for others, was created by calculating the mean of 14 items such as "How likely is it that you would be caught and arrested for fighting?" and "How likely is it that kids in your neighborhood would be caught and arrested for fighting?"³¹ As an extension of the deterrence perspective, rational choice theories argue that perceived costs and benefits of crime are related to compliant behavior/offending during adolescence (Grasmick & Bursik, 1990; and Williams & Hawkins, 1986). Therefore, a measure of punishment costs and a measure of personal rewards of crime are included as control variables. A pre-created variety score of *punishment costs* was created from 18 items asking the respondents about different material and freedom costs related to punishment including, "If the police catch me doing something that breaks the law, how likely is it that I would be suspended from school?" If the respondent answered likely or very likely, then the item was coded as a punishment cost. The sum of the affirmative responses to the 18 different items was then used to create the variety score (alpha: 0.68). A measure of *personal rewards of crime* is also included in this analysis. This precreated measure was created by taking the mean of

³¹ Within the Pathways to Desistance Data, there are two scales measuring certainty of punishment: certainty of punishment for oneself and certainty of punishment for others. Both scales display good internal consistency (certainty of punishment for self, alpha: 0.82; certainty of punishment for others, alpha: 0.89). Also, these two measures of certainty of punishment are highly correlated ($r=.612$, $p<.001$) posing potential problems for estimates of the true effect of certainty of punishment on subsequent offending. As a result, analyses were performed and it was discovered that multicollinearity is an issue when both measures are included in the same regression model. Therefore, a summative measure of certainty of punishment was created which also shows good internal consistency (alpha: .75).

7 items asking the sample about potential personal benefits of crime (e.g. “How much ‘thrill’ or ‘rush’ is it to break into a store or home?” alpha: 0.87).

Offending History. The next set of control variables represents one domain of risk factors related to recidivism among adolescent offenders: the criminal domain (Emeka & Sorensen, 2009; Loeber & Farrington, 1998; Piquero, Farrington & Blumstein, 2007; van der Put et al. 2010). This domain includes offending history and offense type. Official criminal history data were used to construct a measure of the *number of arrests* prior to the arrest that led to the adolescent’s entry in to the Pathways to Desistance Study ($\bar{x} = 4.27, s. d. = 4.79$). Also, five binary measures of offense type at adjudication are also included in the analyses: *violent; property; weapons; drug; and sex offense.*

Treatment. A measure of drug and alcohol treatment subsequent to adjudication is also included in the analyses given that substance abuse and offending are co-morbid behaviors. The measure of *treatment* is a binary variable indicating whether or not the respondent received any drug or alcohol treatment in the time prior to the period 2 interview.³²

Family Environment. A set of variables related to one’s familial environment is also included in this analysis. *Socioeconomic Status* is constructed from both the subject and the collateral reporter in the baseline interview indications of the highest level of education obtained by the respondent’s parents. This measure of SES relies on the lowest level of education as reported from either the respondent or the collateral reporter.

The actual SES score is the mean of the biological mother and father's education level, or

³² Due to the large number of missing data associated with this variable (nearly 10%), separate models are run with the inclusion of this variable.

if only the education level of one parent is provided, the education level of that parent. Higher SES values reflect higher levels of education ($\bar{x} = 4.30, s.d. = 1.06$). Family structure is a binary variable indicating whether or not the respondent lived in a household with *both biological parents* prior to adjudication or sentencing ($\bar{x} = .147$).³³

Demographic variables. All of the models account for *age*, which is a continuous variable taken from the baseline interview ($\bar{x} = 16.04, s.d. = 1.14$). Finally, a binary measure indicating the *city* of the respondent is included (1 = Philadelphia, 0 = Phoenix).

³³A variable indicating the criminal history of one's parents was also included as a control in initial analyses. *Parent's criminal history* is a binary variable indicating whether or not either of the respondent's parents has been arrested in the past ($\bar{x} = .436$). However, this variable was never significant and it was dropped from the final analyses.

Table 4: Descriptive Statistics: Control Variables

	N	Mean	Standard Deviation	Minimum	Maximum
Male	1,354	0.864	-	0	1
White	1,354	0.202	-	0	1
Black	1,354	0.414	-	0	1
Hispanic	1,354	0.335	-	0	1
Age	1,354	16.044	1.143	14	19
Both Parents	1,354	0.147	-	0	1
SES	1,329	4.303	4.303	1	6
Legal Cynicism	1,353	2.024	0.609	1	4
Costs of Crime	1,346	9.724	6.670	0	18
Rewards of Crime	1,353	2.362	2.418	0	10
Certainty of Punishment	1,352	5.412	2.331	0	10
Drug/Alcohol Treatment*	1,220	.117	-	0	1
Priors	1,354	2.160	2.214	0	14
Exposure Time					
6 months	1,262	0.521	-	0	1
1 year	1,218	0.549	-	1	1

*Separate analyses are run with this variable given that nearly 10% of the sample is lost when this variable is included in the models due to listwise deletion.

Chapter 4: Analytic Plan

Testing Procedural Justice Theory

The first research question asks whether or not Procedural Justice Theory, as outlined by Tyler (1990), holds in so much as the experience of procedural justice is a risk factor/protective factor for recidivism. In order to address this question, the global measure of procedural justice including one's experience with the police and judge is used to predict subsequent offending behavior. More specifically, this dissertation investigates the relationship between procedural justice, legitimacy and 5 different outcomes related to recidivism: arrest, self-reported total offending, violent offending, income-generating offending and substance use.

Procedural Justice as an Antecedent of Legitimacy

The first causal pathway outlined by Procedural Justice Theory (Tyler, 1990) posits that one's experience of procedural justice predicts perceptions of legitimacy. Given that the variable *legitimacy* is approximately normally distributed (see Appendix E), ordinary least squares regression (Long, 1997) is used to determine the relationship between legitimacy and

$$\text{Ordinary Least Squares Regression Equation} = y = \alpha + \beta x_i + \varepsilon$$

one's overall experience of procedural justice.

Procedural Justice as a Predictor of "Compliant" Behavior

The next step of this dissertation is to verify the relationship between the experience of procedural justice subsequent criminal behavior or noncompliant behavior.

With regard to official recidivism, I use two specific measures of arrest. The first measure of arrest is a binary measure that indicates whether or not the respondent was arrested at any time during the entire follow-up period (84 months after the initial petition date). Given the binary nature of this outcome variable, logistic regression analyses are employed (Long, 1997). Logit coefficients, odds ratios and t-values are reported in order to determine the significance of procedural justice as a predictor of rearrest. A second

$$\text{Logistic Regression Model} = y_i^* = x_i\beta + \varepsilon$$

measure of arrest is used that can account for the length of time that each member of the Pathways to Desistance sample remained in the study (e.g. attrition from the sample).

This second measure of arrest is a continuous variable indicating the number of days between the initial petition date and subsequent arrest for a new criminal offense. If the subject remained in the study for its entirety and was not arrested for a new criminal offense, then he or she is censored at 2,688, the maximum number of days that the respondent was in the sample and official criminal records were available. If the respondent dropped out of the study prior to its completion, then he or she is right-censored at the number of days until the last consent was given to check criminal record information (last interview period). Due to randomness of the right-censoring, ordinary least squares regression is not appropriate for this analysis (Allison, 1995; Singer and Willet, 2003); therefore, survival analysis is used to examine the relationship between

$$\text{Survival Analysis Regression Function} = S(t_{ij}) = \Pr[T_i > j]$$

one's experience of procedural justice and the time to recidivism (as indicated by official criminal record information). Point estimates and t-values will be reported to determine

whether or not the experience of procedural justice increases the time to arrest among this sample of adolescent offenders.

This research also explores the relationship between procedural justice and self-reported offending. Recall there are four different self-reported offending measures, total self-reported involvement in crime, self-reported involvement in violent crime, self-reported involvement in income-generating crime and self-reported drug use. Given that each self-reported offending outcome is binary in nature, logistic regression analyses are employed to investigate the relationship between procedural justice and each outcome independently.

For each of the self-reported offending outcomes, three different sensitivity analyses are performed to ensure the robustness of the results. First, each of the previously described analyses are repeated using outcome data from the first interview only (with a follow-up period of 6 months) in order to limit the effects of subsequent experiences of procedural justice on offending behavior.³⁴ Second, an ordinal variable representing frequency of involvement in each type of crime will be used to further analyze the impact of procedural justice on one's level of involvement in crime. For each of the self-reported outcomes, total crime, violent crime, income-generating crime and substance use, a categorical variable has been constructed indicating whether or not each subject was involved in the respective criminal behavior: 0 = never; 1 = once; 2 = 2 or

³⁴ This sensitivity analysis was determined to be important given that 28.4% of the sample was arrested prior to the period 2 interview. Therefore, it is likely that subsequent experiences of procedural justice may affect offending behavior and perceptions of legitimacy. Only 10.8% of the sample was rearrested prior to the period 1 interview; thus allowing for more confidence in the relationship between procedural justice, legitimacy and subsequent offending.

more criminal events.³⁵ Multinomial logistic regression is used to assess the relationship between procedural justice and legitimacy among these different

$$\log \frac{P(Y = 1 \text{ Offense})}{P(Y = \text{No Offenses})} = \alpha + x_1\beta$$
$$\log \frac{P(Y = 2 + \text{ Offenses})}{P(Y = \text{No Offenses})} = \alpha + x_1\beta$$

offending groups.³⁶ Finally, given that research has found that more seasoned offenders tend to update their perceptions affecting the likelihood of offending less than novices (Anwar and Loughran 2011), this dissertation attempts to account for the fact that those adolescents who have had prior contacts with agents of the criminal justice system may be affected less by their most recent experiences with the police and court officials compared to those offenders who just experienced their first arrest and sanctioning. Therefore, the dissertation also performs a sensitivity analysis by dividing the sample into novice offenders (i.e. defined by first arrest) and seasoned offenders (i.e. one or more prior arrests) and compares the relevance of the procedural justice measures across these two potentially unique samples.³⁷ Twenty-six percent of the respondents are considered to be novice offenders.

Legitimacy as a Mediator between Procedural Justice and Recidivism

The final step in examining the validity of Procedural Justice Theory is to determine whether or not perceptions of legitimacy mediate the relationship between

³⁵ This sensitivity analyses is thought to be necessary given that involvement in only one criminal act subsequent to adjudication such as a physical fight is likely to be very different from frequent involvement in crime such as drug dealing.

³⁶ Multinomial logistic regression will be used instead of ordinal regression given that when each model is estimated using ordinal regression the proportional regression assumption is violated (i.e. $X^2 = 33.425$, $df=19$, $p=0.0215$ for total offending).

³⁷ When necessary, this author compares the size and magnitude of coefficients across the samples using predicted probabilities and the formula outlined by Paternoster and colleagues (1997).

procedural justice and subsequent offending. This is done by re-running each model and examining the relationship between procedural justice and recidivism (e.g. arrest, days to arrest, total self-reported offending, self-reported violent offending, self-reported income-generating crime, and self-reported substance use) with the inclusion of the variable *legitimacy*.³⁸

Examining the Sources of Procedural Justice

Procedural Justice by Agent of the Justice System

The next research question driving this dissertation inquires as to whether the source of the experience of procedural justice affects perceptions of legitimacy and subsequent offending behavior. The first step in addressing this research question is to reexamine the relationship between each experience of procedural justice, procedural justice with the police and procedural justice with judges, and legitimacy. Standardized beta coefficients are calculated and the absolute value of the t-score is presented in order to compare the relative importance of each experience of procedural justice on perceptions of legitimacy. Larger standardized beta coefficients and t-values represent a larger contribution to the perception of legitimacy. Given that standardized beta coefficients cannot be calculated for each model examining the relationship between procedural justice and subsequent offending behavior, the absolute value of the t-values are used to examine the relative importance of each source of procedural justice on recidivism.^{39,40}

³⁸ All sensitivity analyses are also replicated with the inclusion of perceptions of legitimacy in the model.

³⁹ Relying solely on t-scores to determine the relative importance of the different aspects of procedural justice is unwise given that multicollinearity, where there is the potential for inflated the standard errors, may render an estimate insignificant at the traditional level of $\alpha = .05$. Thus, caution will be used when interpreting the results.

Personal and Vicarious Experiences of Procedural Justice

This dissertation also investigates whether or not personal and vicarious experiences of procedural justice have varying effects on perceptions of legitimacy. In order to investigate this question, 4 different variables are used as predictors of legitimacy and subsequent offending: personal experience of procedural justice with the police, vicarious experiences of procedural justice with the police, personal experience of procedural justice with the judge, and vicarious experiences of procedural justice with the judge.⁴¹ In the model predicting perceptions of legitimacy, standardized beta coefficients and the absolute value of the t-score are compared in order to determine the relative strength of each aspect of procedural justice. In the models predicting subsequent offending, predicted probabilities and comparisons of the absolute t-score can be used to determine the relative importance of each facet of procedural justice when necessary.

Examining the Elements of Procedural Justice

The next research question guiding this work asks whether or not each of the individual elements of procedural justice, as identified by Leventhal (1980), is important in the formation of perceptions of legitimacy and on subsequent offending behavior. In addition, it also inquires as to the relative importance of each element of procedural justice as a predictor of legitimacy and subsequent offending behavior. To answer these questions, variables representing each element of procedural justice (e.g. representation, impartiality, consistency, accuracy, correctability and ethical treatment) are used as

⁴⁰ Bivariate Pearson correlation coefficients have revealed that the experience of procedural justice with the police and the experience of procedural justice with the judge are significantly correlated with legitimacy (police: $r = .523$, $p\text{-value} < .001$; judge: $r = .501$, $p\text{-value} < .001$).

⁴¹ A correlation matrix presenting the relationship between each of the different aspects of procedural justice is presented in Appendix F.

predictors of perceptions of legitimacy and each outcome of criminal behavior instead of the other measures of procedural justice. For analyses regarding perceptions of legitimacy, standardized beta coefficients in addition to absolute value of the t-score are used to determine the significance of each element of procedural justice and the relative importance of each element as a predictor of legitimacy. With regard to recidivism, the absolute value of the t-score is analyzed to determine not only the significance of each element of procedural justice on subsequent involvement in criminal activities but also the relative importance of each element.

Analyses Among Males of Difference Race/Ethnicities

The final goal of this dissertation is to use further examine the applicability of Procedural Justice Theory among male, adolescent offenders by examining whether or not Procedural Justice Theory (Tyler, 1990) holds across different social identities. More specifically, I seek to determine the relevance of Procedural Justice Theory among young males of different race/ethnicities who potentially have different experiences and attitudes towards the criminal justice system. Thus, the Pathways to Desistance sample will be stratified by gender and race/ethnicity to determine the relevance of procedural justice and each aforementioned component of procedural justice on perceptions of legitimacy and subsequent offending behavior among the entire sample of males, white males, black males and finally Hispanic males.^{42, 43} Each of the previously described models are then rerun for each sample to determine the applicability of Procedural Justice

⁴² Too few adolescents representing “other race/ethnicity” exist in the sample to determine the relevance of Procedural Justice Theory among these minority groups (n =54).

⁴³ While ideal, this research will not be able to examine the role of procedural justice and legitimacy for white females, Black females and Hispanic females due to extremely small sample sizes (e.g. white females = 49 , Black females = 68 , Hispanic females = 56).

Theory for each subgroup. When necessary, tests for the equality of coefficients are conducted to determine the relative strength of each element of procedural justice on legitimacy and recidivism across race/ethnicity using the following formula (Paternoster et al., 1997b; Brame et al., 1998). Unfortunately, this formula

$$Z = \frac{b_1 - b_2}{\sqrt{SEb_1^2 + SEb_2^2}}$$

can only be used to compare the equality of coefficients among estimates generated through ordinary least squares regression and maximum likelihood regression with the exception of logistic regression (Paternoster et al., 1997b). Therefore, the predicted probability of arrest/self-reported crime can be calculated for each subgroup, respectively, with the procedural justice covariates and other control variables set to their mean values in order to compare the strength of the procedural justice variables as predictors of unlawful behavior in models with significant coefficients.

Chapter 5: Results

The Malleability of Procedural Justice and Perceptions of Legitimacy over Time

Before testing the validity of Procedural Justice Theory among serious adolescent offenders, it is important to determine whether or not one's experience of procedural justice and perceptions of legitimacy vary across time. Therefore, paired samples difference-in-means t-tests have been performed between the experience of procedural justice at baseline, period 1 and period 2 and legitimacy at the same three time points among the sample. With respect to differences in the overall experience of procedural justice, there is not a significant difference in means between the baseline interview ($\bar{x} = 0.002, s. d. = 0.402, n = 1,261$) and the period 1 interview ($\bar{x} = 0.005, s. d. = 0.453, n = 1,261$) at an alpha level of 0.05. However, there is a significant difference in the mean experience of procedural justice between the baseline interview ($\bar{x} = 0.001, s. d. = 0.402, n = 1,216$) and the period 2 interview ($\bar{x} = 0.016, s. d. = 0.469, n = 1,216$) at an alpha level of 0.01, suggesting that some updating of procedural justice does occur over time. Analyses of the different operationalizations of procedural justice show variable results. The mean evaluation of one's experience of procedural justice with police is significantly different between the baseline interview ($\bar{x} = 2.771, s. d. = 0.516, n = 1,261$) and the period 1 interview ($\bar{x} = 2.806, s. d. = 0.538, n = 1,261$) at an alpha level of 0.05 and the baseline interview ($\bar{x} = 2.774, s. d. = 0.520, n = 1,216$) and the period 2 interview ($\bar{x} = 2.830, s. d. = 0.571, n = 1,216$) at an alpha level of 0.01 with increasing perceptions of procedural justice with police over time. Analysis of the difference in means regarding the experience of procedural justice with judges shows a similar result;

the mean evaluation procedural justice with judges is significantly higher (alpha level of .05) at period 1 ($\bar{x} = 3.162, s. d. = 0.523, n = 1,261$) compared to the baseline interview ($\bar{x} = 3.095, s. d. = 0.551, n = 1,261$) and period 2 ($\bar{x} = 3.166, s. d. = 0.528, n = 1,216$) compared to the baseline interview ($\bar{x} = 3.119, s. d. = 0.573, n = 1,216$).

Turning to the other measures of procedural justice, personal experiences of procedural justice with police and vicarious experiences of procedural justice police show similar results. Personal experiences of procedural justice with the police and vicarious experiences of procedural justice with the police increase over time and are significantly different between the baseline interview and the period 1 interview as well as the baseline interview and the period 2 interview. With respect to personal and vicarious experiences of procedural justice with judges, only personal experiences of procedural justice with the judge vary over time, with a significant difference in the mean evaluation of personal experiences of procedural justice with judges between the baseline interview and the period 1 interview at an alpha level of .01. There is no significant difference in the evaluation of personal experiences of procedural justice with judges between the baseline interview and the period 2 interview. The mean evaluation of vicarious experiences of procedural justice with judges does not vary across interviews. Finally, there are no significant differences in the assessment of the different elements of fair treatment (i.e. representation, impartiality, consistency, accuracy, correctability and ethical treatment) over time.⁴⁴

⁴⁴ This includes comparisons between the baseline interview and the wave 1 interview, the baseline interview and the wave 2 interview, and the wave 1 and wave 2 interviews.

The data also show a significant change in perceptions of legitimacy over time among this sample of serious adolescent offenders. Unlike the measures of procedural justice, though, perceptions of legitimacy significantly decline over time with perceptions of legitimacy at the baseline interview ($\bar{x} = 2.302, s. d. = 0.570, n = 1,261$) being significantly higher at an alpha level of .05 compared to perceptions of legitimacy at wave 1 ($\bar{x} = 2.272, s. d. = 0.582, n = 1,261$) and wave 2 ($\bar{x} = 2.275, s. d. = 0.580, n = 1,216$).

Procedural Justice Theory and Recidivism

The overarching goal of this dissertation is to determine whether or not the experience of procedural justice, and more specifically Procedural Justice Theory predicts recidivism among serious adolescent offenders. In order to address this research question, one must first investigate the relationship between the experience of procedural justice and one's perception of legitimacy. Table 5 depicts the results from this analysis. The experience of procedural justice is a significant predictor of one's perception of legitimacy ($\beta = 0.750, s.e.= 0.033$); in fact, it is the strongest predictor of one's perception of legitimacy.⁴⁵ Therefore, the first element of Procedural Justice Theory is upheld; procedural justice is the key antecedent of perceptions of legitimacy even among serious adolescent offenders.

The second element of Procedural Justice Theory states that the experience of procedural justice should predict recidivism and that this experience of procedural justice is mediated by perceptions of legitimacy. Recall that this dissertation will

⁴⁵ This was determined by analyzing the absolute value of the standardized beta coefficient.

Table 5: Ordinary Least Squares regression model examining relationship between the experience of procedural justice and perceptions of legitimacy (N = 1,320) ⁴⁶

	Estimate (S.E.)	B
Procedural Justice	0.750*** (0.033)	0.521
Male	-0.002 (0.038)	0.001
Black	-0.104** (0.038)	0.089
Hispanic	0.021 (0.035)	0.017
Age	-0.019 (0.011)	0.039
Philadelphia	-0.016 (0.034)	0.014
Both Parents	-0.015 (0.035)	0.009
SES	-0.001 (0.014)	0.001
Legal Cynicism	-0.122*** (0.021)	0.129
Rewards of Crime	-0.018** (0.006)	0.076
Costs of Crime	0.000 (0.002)	0.000
Certainty of Punishment	0.028*** (0.006)	0.116
Prior Arrests	0.002 (0.006)	0.009
Person	-0.079 (0.059)	0.067
Property	-0.002 (0.061)	0.001
Drug	-0.032 (0.065)	0.020
Weapon	-0.086 (0.068)	0.045
Sex	-0.019 (0.084)	0.007

B = [Standardized Beta Statistic]

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

⁴⁶Nineteen cases were dropped from these analyses due to missing information on socioeconomic status, which is the largest number of respondents lost for any covariate. A sensitivity analysis was performed to determine if those respondents with missing information on socioeconomic status were significantly different from the rest of the sample on any of the covariates and outcomes. The two groups only differed with regard to living with both parents, with those who had missing information on socioeconomic status less likely to live with both parents.

look at the relationship between procedural justice, legitimacy and 6 different outcomes related to recidivism: subsequent arrest; time to arrest; total self-reported offending; self-reported violent offending; self-reported income-generating offending; and self-reported drug use. Table 6 depicts the relationship between the experience of procedural justice, legitimacy and the first outcome of interest – subsequent arrest. According to model 1, the experience of procedural justice is not a predictor of subsequent arrest among serious adolescent offenders. Model 2 demonstrates that legitimacy is not a predictor of subsequent arrest as well. Contrary to Procedural Justice Theory, neither the experience of procedural justice nor one’s perception of legitimacy predict this official measure of recidivism (see model 3 in Table 6). With regard to the control variables, being male, each prior offense and higher evaluations of awards associated with crime increase the likelihood of subsequent arrest. Age, on the other hand, has a negative effect on these official measures of recidivism. Table 7 displays the results of the relationship between procedural justice, legitimacy and a second indicator of recidivism – time to arrest.⁴⁷ Once again, neither procedural justice nor legitimacy is a significant predictor of the time to arrest.

I now assess the validity of Procedural Justice Theory among self-reported measures of recidivism.⁴⁸ Analysis of the relationship between procedural justice and

⁴⁷ Many of the relationships between the covariates and this measure of recidivism seem counterintuitive. This is likely due different dispositions or criminal sentences given to the respondents affecting the number of days until one’s next arrest. Unfortunately, no data regarding the type of sentence is available for analysis and the number of days on the street measure does not chronologically account for time in the community, which may affect survival rates.

⁴⁸ Within this sample of offenders, 28.4% of the respondents were arrested for a new offense within 365 days or one year after the baseline interview. While this offense would be included in the self-reported total offending measure of recidivism, it is still worthwhile to determine what type of criminal activity (i.e. violent, income-generating, and drug) the respondent is involved as well as additional types of offenses in which these youths may be involved.

Table 6: Logistic regression models analyzing the relationship between procedural justice, legitimacy and subsequent arrest (N = 1,097)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]
Procedural Justice	-0.189 (0.197)	0.828	-	-	-0.15 (0.233)	.985
Legitimacy	-	-	-0.226 (0.140)	0.798	-0.229 (0.1635)	1.099
Male	1.126 (0.193)	3.083***	1.142 (0.194)	3.132***	1.133 (0.193)	4.533***
Black	0.099 (0.223)	1.104	0.055 (0.224)	1.057	0.072 (0.224)	1.666
Hispanic	0.301 (0.204)	1.351	0.287 (0.205)	1.332	0.301 (0.205)	2.018
Age	-0.203 (0.067)	0.816**	-0.210 (0.067)	0.810**	-0.210 (0.067)	0.925**
Philadelphia	-0.127 (0.201)	0.881	-0.144 (0.201)	0.865	-0.130 (0.201)	0.878
Both Parents	-0.090 (0.209)	0.913	-0.083 (0.209)	0.920	-0.088 (0.209)	0.916
SES	-0.011 (0.086)	0.989	-0.011 (0.085)	0.989	-0.012 (0.086)	0.988
Legal Cynicism	0.046 (0.131)	1.047	0.010 (0.133)	1.010	0.020 (0.132)	1.020
Rewards of Crime	0.073 (0.034)	1.076*	0.066 [†] (0.035)	1.068	0.069 (0.0348)	1.071*
Costs of Crime	-0.007 (0.012)	0.993	-0.009 (0.133)	0.991	-0.007 (0.012)	0.992
Certainty of Punishment	-0.033 (0.033)	0.968	-0.026 (0.034)	0.975	-0.027 (0.034)	.0973
Prior Arrests	0.212 (0.045)	1.236***	0.197 (0.045)	1.217***	0.215 (0.045)	1.240***
Person	0.341 (0.302)	1.406	0.293 (0.304)	1.340	0.320 (0.303)	1.378
Property	1.020 (0.320)	2.773**	0.983 (0.330)	2.674**	1.020 (0.329)	2.778**
Drug	0.754 (0.352)	2.125*	0.718 (0.354)	2.051*	0.750 (0.353)	2.118*
Weapon	0.620 (0.377)	1.859	0.555 (0.388)	1.741	0.598 (0.367)	1.820
Sex	0.437 (0.462)	1.548	0.398 (0.466)	1.489	0.423 (0.463)	1.527

† OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 7: Survival analysis models examining the relationship between procedural justice, legitimacy and time to arrest (N = 1,304)

	Model 1	Model 2	Model 3
	Estimate (S.E.)	Estimate (S.E.)	OR [†]
Procedural Justice	0.001 (0.094)	-	0.071 (0.112)
Legitimacy	-	-0.061 (0.067)	-0.093 (0.080)
Male	0.454*** (0.121)	0.449*** (0.121)	0.454*** (0.121)
Black	-0.008 (0.111)	-0.016 (0.112)	-0.019 (0.112)
Hispanic	0.158 (0.097)	0.157 (0.099)	0.159 (0.987)
Age	-0.081** (0.032)	-0.082** (0.032)	-0.083** (0.032)
Philadelphia	-0.088 (0.098)	-0.103 (0.098)	-0.092 (0.098)
Both Parents	0.012 (0.101)	0.006 (0.100)	0.010 (0.101)
SES	-0.003 (0.040)	-0.004 (0.041)	-0.004 (0.041)
Legal Cynicism	0.029 (0.063)	0.028 (0.063)	0.021 (0.063)
Rewards of Crime	0.040* (0.016)	0.038* (0.016)	0.038* (0.015)
Costs of Crime	-0.004 (0.005)	-0.004 (0.006)	-0.004 (0.006)
Certainty of Punishment	-0.041 (0.032)	0.016 (0.016)	-0.041 (0.032)
Prior Arrests	0.060*** (0.010)	0.059*** (0.016)	0.062*** (0.016)
Person	0.022 (0.174)	0.005 (0.175)	0.012 (0.175)
Property	0.384* (0.178)	0.364* (0.179)	0.381 [†] (0.178)
Drug	0.172 (0.191)	0.154 (0.192)	0.164 (0.191)
Weapon	0.147 (0.201)	0.121 (0.202)	0.138 (0.201)
Sex	0.024 (0.249)	0.012 (0.249)	0.023 (0.249)

[†] p < .10 (two-tailed test)
* p < .05 (two-tailed test)
** p < .01 (two-tailed test)
***p < .001 (two-tailed test)

Table 8: Logistic regression models examining the relationship between procedural justice, legitimacy and total self-reported offending over 1 year (N = 1,187)

	Model 1		Model 2		Model 2	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.372 (0.181)	0.689*	-	-	-0.268 (0.214)	0.765
Legitimacy	-	-	-0.242 (0.130)	0.785 [†]	-0.139 (0.154)	0.870
Time on the Street	-0.562 (0.223)	0.570*	-0.540 (0.223)	0.583*	-0.557 (0.223)	0.573*
Male	0.851 (0.194)	2.341***	0.863 (0.194)	2.370***	0.853 (0.192)	2.348*
Black	-0.279 (0.209)	0.757	-0.304 (0.210)	0.738	-0.297 (0.210)	0.744
Hispanic	-0.303 (0.194)	0.739	-0.295 (0.194)	0.744	-0.297 (0.194)	0.743
Age	-0.172 (0.062)	0.841**	-0.170 (0.061)	0.844**	-0.176 (0.062)	0.839**
Philadelphia	-0.163 (0.187)	0.852	-0.132 (0.185)	0.876	-0.160 (0.187)	0.853
Both Parents	-0.106 (0.193)	0.897	-0.110 (0.193)	0.896	-0.110 (0.193)	0.896
SES	-0.088 (0.080)	0.916	-0.095 (0.080)	0.909	-0.089 (0.080)	0.914
Legal Cynicism	0.123 (0.121)	1.131	0.098 (0.122)	1.103	0.106 (0.122)	1.112
Rewards of Crime	0.198 (0.035)	1.218***	0.193 (0.035)	1.213***	0.195 (0.035)	1.215***
Costs of Crime	-0.007 (0.013)	0.993	-0.005 (0.013)	0.995	-0.007 (0.013)	0.993
Certainty of Punishment	0.064 (0.031)	0.938*	-0.061 (0.031)	0.940 [†]	-0.060 (0.031)	0.942 [†]
Prior Arrests	0.015 (0.035)	1.016	0.019 (0.035)	1.020	0.016 (0.035)	1.017
Person	-0.474 (0.346)	0.623	-0.484 (0.348)	0.616	-0.482 (0.347)	0.617
Property	-0.389 (0.358)	0.677	-0.405 (0.357)	0.667	-0.288 (0.358)	0.678
Drug	-0.048 (0.384)	0.953	-0.066 (0.384)	0.936	-0.051 (0.384)	0.951
Weapon	0.171 (0.407)	1.187	0.151 (0.407)	1.163	0.165 (0.407)	1.179
Sex	-0.152 (0.474)	0.859	-0.153 (0.474)	0.858	-0.153 (0.474)	0.858

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

total self-reported offending reveals that more positive evaluations of the experience of procedural justice decrease the likelihood of subsequent offending ($\beta = -0.372$, $s.e.=0.181$, $OR = 0.689$; see model 1 in Table 8). When legitimacy is added to the model to predict recidivism, the experience of procedural justice is no longer significant. Thus, legitimacy mediates the effect of procedural justice on recidivism, but contrary to Procedural Justice Theory, one's perception of legitimacy does not significantly predict subsequent offending.⁴⁹ Table 9 depicts a similar relationship between procedural justice, legitimacy and self-reported aggressive offending. While model 1 indicates that the experience of procedural justice is a marginally significant predictor of violent offending ($\beta = -0.309$, $s.e.=0.172$, $OR = 0.734$, $p<.10$), this effect disappears when legitimacy is included in the model (see model 2 in Table 9). On its own, legitimacy is a significant predictor of violent offending ($\beta = -0.269$, $s.e.=0.124$, $OR = 0.764$; see model 2 in Table 9), but this effect also disappears when controlling for perceptions of legitimacy (see model 3). For the other two outcomes of self-reported criminal behavior, income-generating crime and drug use, procedural justice does not predict subsequent offending (see Table 10 and Table 11). However, one's perception of legitimacy is negatively related to drug use, although this effect is only marginally significant when controlling for procedural justice (see model 3 in Table 11).

Though not all of the control variables are statistically significant predictors of self-reported recidivism, most are in the anticipated direction based on theory and previous research. The exception is time on the street. Time on the street or in the

⁴⁹ Tests for multicollinearity between procedural justice, legitimacy and the other covariates in the models were conducted using the Variance Inflation Factor (VIF) adjusted by the weight matrix with the lowest standard VIF level of 2 as an indicator of multicollinearity (Allison, 2012; Davis et al., 1986). None of the VIF factors were above 2 indicating the multicollinearity is not an issue in these models.

Table 9: Logistic regression models examining the relationship between procedural justice, legitimacy and self-reported violent offending over 1 year (N = 1,187)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.309 (0.172)	0.734 [†]	-	-	-0.153 (0.204)	.0858
Legitimacy	-	-	-0.269 (0.124)	0.764*	-0.210 (0.147)	0.810
Time on the Street	-0.722 (0.213)	0.486***	-0.704 (0.213)	0.494***	-0.714 (0.213)	0.489**
Male	0.782 (0.191)	2.187***	0.792 (0.191)	2.210***	0.787 (0.191)	2.197***
Black	-0.109 (0.198)	0.897	-0.138 (0.198)	0.871	-0.133 (0.199)	0.875
Hispanic	0.013 (0.183)	1.013	0.023 (0.184)	1.023	0.023 (0.187)	1.022
Age	-0.196 (0.059)	0.822***	-0.197 (0.059)	0.821***	-0.200 (0.060)	0.818***
Philadelphia	-0.182 (0.178)	0.833	-0.167 (0.178)	0.846	-0.183 (0.179)	0.833
Both Parents	-0.073 (0.184)	0.930	-0.077 (0.185)	0.926	-0.076 (0.185)	0.927
SES	-0.103 (0.076)	0.902	-0.109 (0.115)	0.897	-0.106 (0.076)	0.900
Legal Cynicism	0.138 (.114)	1.148	0.108 (0.115)	1.115	0.113 (0.116)	1.120
Rewards of Crime	0.179 (0.032)	1.196***	0.174 (0.032)	1.190***	0.175 (0.032)	1.191***
Costs of Crime	-0.001 (0.012)	0.993	-0.006 (0.012)	0.994	-0.007 (0.012)	0.993
Certainty of Punishment	-0.051 (0.030)	0.950 [†]	-0.047 (0.029)	0.954	-0.046 (0.030)	0.955
Prior Arrests	0.008 (0.033)	1.008	0.011 (0.033)	1.011	0.009 (0.033)	1.009
Person	-0.648 (0.337)	0.523 [†]	-0.664 (0.338)	0.515*	-0.663 (0.338)	0.515 [†]
Property	-0.419 (0.348)	0.658	-0.428 (0.348)	0.652	-0.418 (0.348)	0.658
Drug	-0.491 (0.368)	0.612	-0.505 (0.369)	0.604	-0.497 (0.368)	0.608
Weapon	-0.112 (0.388)	0.894	-0.131 (0.390)	0.878	-0.123 (0.390)	0.885
Sex	-0.222 (0.458)	0.801	-0.222 (0.459)	0.800	-0.224 (0.459)	0.800

♦ OR = Odds Ratio
[†] p < .10 (two-tailed test)
* p < .05 (two-tailed test)
** p < .01 (two-tailed test)
***p < .001 (two-tailed test)

Table 10: Logistic regression models examining relationship between procedural justice, legitimacy and self-reported income-generating offending over 1 year (N = 1,187)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.258 (0.171)	0.773	-	-	-0.210 (0.202)	0.810
Legitimacy	-	-	-0.146 (0.124)	0.864	-0.065 (0.146)	0.937
Time on the Street	-0.166 (0.209)	0.847	-0.152 (0.209)	0.859	-0.164 (0.209)	0.849
Male	0.910 (0.216)	2.485***	0.920 (0.216)	2.509***	0.912 (0.216)	2.489***
Black	-0.519 (0.194)	0.595**	-0.533 (0.194)	0.587**	-0.526 (0.194)	0.591**
Hispanic	-0.272 (0.178)	0.762	-0.268 (0.178)	0.765	-0.270 (0.178)	0.763
Age	-0.096 (0.058)	0.908 [†]	-0.092 (0.058)	0.912 [†]	-0.097 (0.058)	0.907 [†]
Philadelphia	-0.122 (0.174)	0.885	-0.103 (0.173)	0.903	-0.123 (0.174)	0.885
Both Parents	-0.154 (0.181)	0.857	-0.160 (0.181)	0.852	-0.157 (0.181)	0.855
SES	-0.115 (0.075)	0.891	-0.121 (0.075)	0.886	-0.116 (0.075)	0.891
Legal Cynicism	0.337 (0.111)	1.401**	0.325 (0.112)	1.383**	0.392 (0.113)	1.390**
Rewards of Crime	0.191 (0.029)	1.211***	0.190 (0.029)	1.209***	0.190 (0.029)	1.210***
Costs of Crime	-0.007 (0.012)	0.993	-0.006 (0.012)	0.994	-0.007 (0.123)	0.993
Certainty of Punishment	-0.097 (0.029)	0.908***	-0.096 (0.029)	0.909**	-0.065 (0.029)	0.910**
Prior Arrests	0.025 (0.032)	1.026	0.028 (0.310)	1.028	0.026 (0.032)	1.026
Person	0.278 (0.310)	1.320	0.274 (0.310)	1.316	0.274 (0.309)	1.315
Property	0.420 (0.321)	1.522	0.409 (0.320)	1.506	0.412 (0.320)	1.522
Drug	0.946 (0.344)	2.574**	0.937 (0.343)	2.552**	0.944 (0.343)	2.570**
Weapon	0.615 (0.358)	1.850 [†]	0.604 (0.358)	1.829 [†]	0.611 (0.358)	1.843 [†]
Sex	-0.072 (0.450)	0.930	-0.060 (0.450)	0.942	-0.070 (0.450)	0.932

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 11: Logistic regression models examining relationship between procedural justice, legitimacy and self-reported drug use over 1 year (N = 1,187)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.174 (0.166)	0.840	-	-	0.009 (0.198)	1.009
Legitimacy	-	-	-0.243 (0.120)	0.784*	-0.247 (0.143)	0.781 [†]
Time on the Street	0.601 (0.203)	1.824**	0.608 (0.203)	1.837**	0.609 (0.203)	1.838**
Male	0.223 (0.191)	1.249	0.226 (0.192)	1.254	0.227 (0.192)	1.254
Black	-0.001 (0.189)	0.991	-0.035 (0.190)	0.966	-0.035 (0.190)	0.965
Hispanic	-0.157 (0.175)	0.855	-0.145 (0.176)	0.865	-0.145 (0.176)	0.865
Age	-0.005 (0.057)	0.995	-0.009 (0.057)	0.991	-0.009 (0.057)	0.991
Philadelphia	-0.187 (0.171)	1.159	-0.186 (0.170)	0.830	-0.185 (0.171)	0.831
Both Parents	-0.333 (0.178)	0.716 [†]	-0.341 (0.179)	0.711 [†]	-0.341 (0.179)	0.711 [†]
SES	-0.008 (0.073)	0.992	-0.010 (0.073)	0.990	-0.010 (0.073)	0.990
Legal Cynicism	0.327 (0.109)	1.387**	0.297 (0.110)	1.346	0.297 (0.110)	1.346**
Rewards of Crime	0.138 (0.029)	1.148***	0.134 (0.029)	1.144	0.134 (0.029)	1.143***
Costs of Crime	-0.023 (0.012)	0.978 [†]	-0.022 (0.011)	0.978	-0.027 (0.012)	0.978 [†]
Certainty of Punishment	-0.090 (0.028)	0.914**	-0.083 (0.287)	0.920	-0.083 (0.029)	0.920**
Prior Arrests	0.007 (0.031)	1.007	0.007 (0.031)	1.008	0.008 (0.031)	1.008
Person	0.819 (0.341)	2.268*	0.801 (0.341)	2.229*	0.801 (0.341)	2.229*
Property	1.120 (0.349)	3.063**	1.119 (0.350)	3.062**	1.119 (0.350)	3.060**
Drug	1.801 (0.371)	6.055***	1.796 (0.371)	6.04***	1.795 (0.372)	6.022***
Weapon	1.375 (0.382)	3.955***	1.358 (0.383)	3.889***	1.357 (0.382)	3.888***
Sex	1.365 (0.451)	3.917***	1.365 (0.451)	3.917***	1.366 (0.451)	3.918**

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

community is negatively related to total offending, violent offending and income-generating offending. This negative relationship between the amount of time on the street and recidivism is counterintuitive given that one would expect more time on the street to be associated with an increased likelihood of offending. Perhaps this finding can be explained by those who are removed from the community for their originating offense were more inclined to recidivate and this fact was taken into account by sentencing judges. It is also possible that removal from the community may have strengthened the criminal careers these offenders through their institutionalization in “schools of crime”.

Other significant covariates are especially interesting given the competing assumptions of the instrumental perspective of compliant behavior and the normative perspective of compliant behavior. For instance, across each outcome, the assessment of the rewards associated with crime significantly predicts subsequent recidivism while the certainty of punishment decreases the likelihood of recidivism for total self-reported offending, income-generating crime and drug use. Consistent with previous research, these instrumental factors are associated with modest effects on subsequent behavior (Nagin, 1997). The only other covariate to exert a significant effect on self-reported recidivism is gender with males being significantly more likely to engage in each type of criminal activity with the exception of drug use.

Sensitivity Analyses

Time

As demonstrated in the beginning of this chapter, updating one’s evaluation of procedural justice by police and judges and changing perceptions of legitimacy are common within this sample of serious adolescent offenders. Therefore, to limit the effect

of subsequent experiences of procedural justice in contact with the police and judges on perceptions of legitimacy and recidivism, additional analyses are performed limiting the self-reported measures of recidivism to the six-months immediately following the baseline interview.⁵⁰ Tables 12-15 display the relationship between the experience of procedural justice, legitimacy and total self-reported offending behavior in the first six months after the baseline interview. Similar to the analyses with recidivism measured at one year, higher evaluated experiences of procedural justice are associated with a decreased likelihood in total self-reported crime ($\beta = -0.330$, $s.e.=0.163$, $OR = 0.719$; see model 1 in Table 12) and self-reported involvement in violent crime ($\beta = -0.391$, $s.e.=0.161$, $OR = 0.677$; see model 1 in Table 13). Specifically, a one standard-deviation increase in one's evaluation of his or her experience of procedural justice is associated with a 39% decrease in the odds of engaging in a subsequent crime and a 48% decrease in the odds of engaging in a violent crime. In addition, one's perception of legitimacy is also negatively related to both measures of recidivism (see model 2 in Table 12 and model 2 in Table 13). Once again, though, the effect of procedural justice on each outcome of recidivism, both overall involvement in crime and involvement in violent crime, is no longer significant when one's perception of legitimacy, which is also not significant, is included in the model. With regard to income-generating crime, neither one's experience of procedural justice nor one's perception of legitimacy is related to subsequent offending (see Table 14). Similar to previous analyses regarding drug use with a one year follow-up period, higher perceptions of legitimacy decrease the

⁵⁰ It is possible that given the "offender" status of these juveniles adjudicated as delinquent or found guilty in criminal court, these subjects are more likely than non-offenders to be more closely supervised by the police and/or arrested, especially if probation or parole is part of their disposition. Thus, the likelihood of arrest within the first 6 months may be more affected by disposition/sentence than procedural justice and legitimacy,

Table 12: Logistic regression models examining the relationship between procedural justice, legitimacy and total self-reported offending over 6 months (N = 1,229)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.330 (0.163)	0.719*	-	-	-0.172 (0.193)	0.842
Legitimacy	-	-	-0.277 (0.116)	0.758*	-0.212 (.0134)	0.809
Time on the Street	-0.315 (0.189)	0.730 [†]	-0.303 (0.189)	0.739	-0.312 (0.189)	0.738 [†]
Male	0.530 (0.186)	1.700**	0.541 (0.186)	1.718**	0.535 (0.187)	1.708**
Black	-0.230 (0.186)	0.795	-0.261 (0.187)	0.770	-0.256 (0.187)	0.775
Hispanic	-0.365 (0.173)	0.694*	-0.360 (0.173)	0.698*	-0.360 (0.173)	0.698*
Age	-0.128 (0.055)	0.880*	-0.129 (0.055)	0.879*	-0.133 (0.055)	0.876*
Philadelphia	-0.347 (0.167)	0.707*	-0.331 (0.166)	0.718*	-0.348 (0.167)	0.706*
Both Parents	0.013 (0.175)	1.013	0.008 (0.175)	1.008	0.009 (0.175)	1.009
SES	-0.029 (0.0711)	0.972	-0.036 (0.071)	0.964	-0.032 (0.071)	0.969
Legal Cynicism	0.208 (0.106)	1.232 [†]	0.181 (0.107)	1.198 [†]	0.185 (0.108)	1.203 [†]
Rewards of Crime	0.115 (0.028)	1.122***	0.110 (0.028)	1.117***	0.111 (0.028)	1.117***
Costs of Crime	-0.002 (0.012)	0.998	-0.001 (0.012)	0.999	-0.002 (0.012)	0.998
Certainty of Punishment	-0.079 (0.027)	0.924**	-0.074 (0.028)	0.929**	-0.073 (0.028)	0.929**
Prior Arrests	0.003 (0.031)	1.003	0.006 (0.031)	1.006	0.004 (0.031)	1.004
Person	-0.436 (0.295)	0.646	-0.452 (0.296)	0.636	-0.452 (0.296)	0.636
Property	-0.356 (0.306)	0.700	-0.364 (0.306)	0.695	-0.355 (0.306)	0.701
Drug	-0.115 (0.327)	0.892	-0.125 (0.328)	0.882	-0.120 (0.328)	0.887
Weapon	0.284 (0.346)	1.328	0.261 (0.347)	1.298	0.269 (0.347)	1.309
Sex	-0.328 (0.408)	0.721	-0.327 (0.408)	0.721	-0.331 (0.408)	0.718

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 13: Logistic regression models examining the relationship between procedural justice, legitimacy and self-reported violent offending over 6 months (N = 1,229)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.391 (0.161)	0.677*	-	-	-0.237 (0.190)	0.789
Legitimacy	-	-	-0.297 (0.115)	0.743**	-0.207 (0.136)	0.813
Time on the Street	-0.430 (0.186)	0.651*	-0.414 (0.186)	0.661*	-0.427 (0.187)	0.652*
Male	0.426 (0.187)	1.531*	0.439 (0.188)	1.551*	0.430 (0.188)	1.538*
Black	-0.153 (0.183)	0.858	-0.185 (0.184)	0.831	-0.178 (0.184)	0.837
Hispanic	-0.065 (0.169)	0.937	-0.058 (0.169)	0.943	-0.059 (0.170)	0.943
Age	-0.168 (0.055)	0.846**	-0.167 (0.055)	0.846**	-0.172 (0.055)	0.842**
Philadelphia	-0.249 (0.165)	0.779	-0.228 (0.164)	0.796	-0.250 (0.165)	0.779
Both Parents	-0.007 (0.172)	0.993	-0.013 (0.172)	0.987	-0.012 (0.171)	0.988
SES	-0.039 (0.070)	0.962	-0.048 (0.070)	0.953	-0.042 (0.070)	0.959
Legal Cynicism	0.120 (0.104)	1.128	0.092 (0.105)	1.096	0.097 (0.105)	1.102
Rewards of Crime	0.113 (0.028)	1.119***	0.108 (0.028)	1.114***	0.109 (0.028)	1.115***
Costs of Crime	0.002 (0.012)	1.002	0.004 (0.012)	1.004	0.002 (0.12)	1.002
Certainty of Punishment	-0.067 (0.027)	0.935*	-0.062 (0.027)	0.940*	-0.061 (0.027)	0.941*
Prior Arrests	0.017 (0.031)	1.017	0.020 (0.030)	1.020	0.017 (0.031)	1.017
Person	-0.644 (0.293)	0.525*	-0.660 (0.294)	0.517*	-0.660 (0.293)	0.517*
Property	-0.506 (0.302)	0.603 [†]	-0.518 (0.303)	0.596 [†]	-0.506 (-0.504)	0.603 [†]
Drug	-0.498 (0.323)	0.608	-0.510 (0.323)	0.600	-0.504 (0.323)	0.604
Weapon	0.081 (0.340)	1.085	0.055 (0.341)	1.057	0.067 (0.341)	1.069
Sex	-0.452 (0.405)	0.636	-0.449 (0.406)	0.638	-0.455 (0.406)	0.634

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 14: Logistic regression models examining relationship between procedural justice, legitimacy and self-reported income-generating offending over 6 months (N = 1,229)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.265 (0.179)	0.767	-	-	-0.262 (0.211)	0.769
Legitimacy	-	-	-0.105 (0.130)	0.901	-0.005 (0.152)	0.995
Time on the Street	0.120 (0.208)	1.127	0.132 (0.207)	1.141	0.120 (0.208)	1.127
Male	0.784 (0.235)	2.189***	0.792 (0.234)	2.207***	0.784 (0.235)	2.190***
Black	-0.460 (0.202)	0.631*	-0.470 (0.203)	0.625*	-0.460 (0.203)	0.631*
Hispanic	-0.252 (0.181)	0.777	-0.250 (0.181)	0.779	-0.252 (0.181)	0.777
Age	-0.039 (0.061)	0.962	-0.033 (0.061)	0.967	-0.039 (0.061)	0.962
Philadelphia	-0.311 (0.182)	0.733 [†]	-0.286 (0.180)	0.751	-0.311 (0.182)	0.733 [†]
Both Parents	0.021 (0.184)	1.021	0.017 (0.184)	1.017	0.021 (0.184)	1.021
SES	-0.134 (0.076)	0.875 [†]	-0.141 (0.076)	0.868	-0.134 (0.076)	0.875 [†]
Legal Cynicism	0.492 (0.114)	1.635***	0.485 (0.116)	1.624***	0.491 (0.116)	1.634***
Rewards of Crime	0.142 (0.029)	1.152***	0.141 (0.029)	1.151***	0.142 (0.029)	1.152***
Costs of Crime	-0.017 (0.013)	0.983	-0.015 (0.013)	0.985	-0.017 (0.013)	0.983
Certainty of Punishment	-0.111 (0.031)	0.895***	-0.112 (0.031)	0.894***	-0.111 (0.031)	0.895***
Prior Arrests	0.034 (0.033)	1.034	0.037 (0.032)	1.038	0.034 (0.033)	1.034
Person	0.240 (0.336)	1.271	0.241 (0.336)	1.272	0.239 (0.336)	1.270
Property	0.413 (.346)	1.512	0.401 (0.346)	1.493	0.413 (0.345)	1.512
Drug	0.611 (0.365)	1.842 [†]	0.605 (0.365)	1.832 [†]	0.611 (0.365)	1.842 [†]
Weapon	0.336 (0.386)	1.400	0.325 (0.388)	1.384	0.336 (0.387)	1.399
Sex	0.108 (0.477)	1.114	0.124 (0.477)	1.131	0.108 (0.477)	1.114

♦ OR = Odds Ratio
[†] p < .10 (two-tailed test)
* p < .05 (two-tailed test)
** p < .01 (two-tailed test)
***p < .001 (two-tailed test)

likelihood of drug use (see model 2 in Table 15), but this effect is only marginally significant when procedural justice is included as a covariate in the model ($\beta = -0.268$, $s.e.=0.151$, $OR = 0.765$; see model 3 in Table 15).

With respect to the control variables, they are once again in the anticipated direction. Worthy of note, though, is the finding that residing in Philadelphia significantly reduces one's likelihood of recidivating for 3 of the 4 outcomes: total self-reported offending; income-generating offending and drug use. This finding did not emerge when recidivism was measured at one year.

Frequency of Offending

A second set of sensitivity analyses breaks down each self-reported measure of recidivism by the level of frequency of involvement in criminal behavior. More specifically, each measure of recidivism was changed from a binary outcome indicating prevalence of recidivism in the year following the baseline interview to an ordinal variable differentiating those individuals who did not engage in any subsequent crime, those individuals who only engaged in one criminal act in the one year follow-up period, and those individuals who engaged in two or more criminal activities in the one year follow-up period. As a whole, the experience of procedural justice never differentiated those individuals who refrained from criminal activity and those individuals who committed only one act of crime in the year following the baseline interview (see models 1 and 3 in Tables 16-19). One's perception of legitimacy operated in a similar manner. Although negative, it never differentiated between those individuals who did not engage in crime and those who committed only one criminal act across each outcome, respectively (see models 2 and 3 in Tables 16-19).

Table 15: Logistic regression models examining relationship between procedural justice, legitimacy and self-reported drug use over 6 months (N = 1,229)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.118 (0.176)	0.889	-	-	0.081 (0.208)	1.084
Legitimacy	-	-	-0.237 (0.127)	0.789*	-0.268 (0.151)	0.765 [†]
Time on the Street	1.039 (0.207)	2.827***	1.043 (0.207)	2.838***	1.048 (0.208)	2.851***
Male	-0.007 (0.197)	0.993	-0.007 (0.197)	0.993	-0.004 (0.198)	0.996
Black	0.206 (0.204)	1.229	0.181 (0.205)	1.198	0.178 (0.205)	1.195
Hispanic	-0.167 (0.183)	0.846	-0.156 (0.184)	0.855	-0.156 (0.183)	0.855
Age	0.043 (0.060)	1.044	0.038 (0.060)	1.039	0.040 (0.060)	1.040
Philadelphia	-0.419 (0.183)	0.657*	-0.426 (0.182)	0.653*	-0.418 (0.184)	0.658*
Both Parents	-0.548 (0.193)	0.578**	-0.558 (0.195)	0.572**	-0.558 (0.195)	0.572**
SES	-0.054 (0.075)	0.948	-0.056 (0.075)	0.946	-0.058 (0.075)	0.944
Legal Cynicism	0.345 (0.113)	1.412**	0.315 (0.114)	1.370**	0.313 (0.114)	1.368**
Rewards of Crime	0.114 (0.029)	1.120***	0.110 (0.029)	1.116***	0.110 (0.029)	1.116***
Costs of Crime	-0.020 (0.013)	0.980	-0.020 (0.013)	0.980	-0.020 (0.013)	0.980
Certainty of Punishment	-0.095 (0.030)	0.909**	-0.087 (0.030)	0.917**	-0.088 (0.030)	0.916**
Prior Arrests	0.030 (0.033)	1.031	0.031 (0.033)	1.031	0.032 (0.033)	1.032
Person	0.323 (0.364)	1.382	0.302 (0.366)	1.353	0.302 (0.366)	1.353
Property	0.636 (0.373)	1.889 [†]	0.639 (0.373)	1.895 [†]	0.634 (0.374)	1.886 [†]
Drug	1.214 (0.387)	3.367**	1.208 (0.388)	3.348**	1.206 (0.388)	3.340**
Weapon	1.053 (0.402)	2.866**	1.035 (0.402)	2.816**	1.031 (0.403)	2.803**
Sex	0.858 (0.474)	2.359 [†]	0.859 (0.475)	2.362 [†]	0.861 (0.475)	2.366 [†]

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 16: Multinomial logistic regression models examining the relationship between procedural justice, legitimacy and total self-reported offending over 1 year (N = 1,229)

	No Offenses vs. 1 Offense			No Offenses vs. 2+ Offenses		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Procedural Justice	-0.033 (0.284)	-	0.078 (0.342)	-0.436* (0.188)	-	-0.339 (0.222)
Legitimacy	-	-0.110 (0.204)	-0.144 (0.246)	-	-0.259 [†] (0.135)	-0.129 (0.159)
Time on the Street	-0.444 (0.355)	-0.451 (0.353)	-0.436 (0.356)	-0.603** (0.231)	-0.578** (0.230)	-0.598** (0.231)
Male	0.765* (0.319)	0.760* (0.318)	0.767* (0.319)	0.896*** (0.206)	0.910*** (0.206)	0.898*** (0.206)
Black	0.286 (0.337)	0.243 (0.338)	0.240 (0.339)	-0.403 [†] (0.217)	-0.428* (0.208)	-0.417 [†] (0.218)
Hispanic	-0.029 (0.329)	-0.024 (0.329)	-0.024 (0.329)	-0.350 [†] (0.203)	-0.342 [†] (0.200)	-0.345 [†] (0.205)
Age	-0.053 (0.097)	-0.059 (0.097)	-0.057 (0.097)	-0.200** (0.064)	-0.195** (0.064)	-0.203** (0.064)
Philadelphia	-0.019 (0.300)	-0.027 (0.298)	-0.018 (0.300)	-0.186 (0.193)	-0.152 (0.192)	-0.185 (0.194)
Both Parents	-0.627 [†] (0.373)	-0.629 [†] (0.373)	-0.627 [†] (0.373)	-0.029 (0.198)	-0.031 (0.198)	-0.030 (0.199)
SES	-0.017 (0.128)	-0.017 (0.128)	-0.018 (0.128)	-0.105 (0.083)	-0.114 (0.082)	-0.106 (0.083)
Legal Cynicism	-0.512* (0.204)	-0.529* (0.206)	-0.529* (0.206)	0.250* (0.125)	0.224 [†] (0.127)	0.234 [†] (0.127)
Rewards of Crime	0.122* (0.054)	0.120* (0.054)	0.119* (0.055)	0.210*** (0.035)	0.206*** (0.036)	0.207*** (0.036)
Costs of Crime	-0.014 (0.021)	-0.015 (0.021)	-0.014 (0.021)	-0.005 (0.014)	-0.003 (0.014)	-0.005 (0.014)
Certainty of Punishment	0.002 (0.049)	0.004 (0.049)	0.006 (0.049)	-0.079* (0.032)	-0.077* (0.032)	-0.075* (0.032)
Prior Arrests	-0.091 (0.064)	-0.091 (0.064)	-0.090 (0.064)	0.031 (0.036)	0.036 (0.036)	0.032 (0.036)
Person	-0.227 (0.511)	-0.239 (0.511)	-0.237 (0.511)	-0.543 (0.356)	-0.551 (0.357)	-0.551 (0.357)
Property	-0.535 (0.539)	-0.532 (0.539)	-0.534 (0.540)	-0.367 (0.367)	-0.384 (0.367)	-0.366 (0.368)
Drug	-0.188 (0.586)	-0.193 (0.585)	-0.192 (0.586)	-0.022 (0.394)	-0.040 (0.394)	-0.023 (0.395)
Weapon	-0.159 (0.617)	-0.167 (0.616)	-0.166 (0.617)	0.235 (0.418)	0.214 (0.418)	0.229 (0.418)
Sex	-0.016 (0.698)	-0.018 (0.698)	-0.020 (0.698)	-0.196 (0.489)	-0.190 (0.489)	-0.197 (0.489)

[†] p < .10 (two-tailed test)
* p < .05 (two-tailed test)
** p < .01 (two-tailed test)
***p < .001 (two-tailed test)

Table 17: Multinomial logistic regression models examining the relationship between procedural justice, legitimacy and self-reported violent offending over 1 year (N = 1,229)

	No Offenses vs. 1 Offense			No Offenses vs. 2+ Offenses		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Procedural Justice	-0.330 (0.248)	-	0.236 (0.316)	-0.436* (0.188)	-	-0.262 (0.215)
Legitimacy	-	-0.164 (0.189)	-0.261 (0.227)	-	-0.293* (0.131)	-0.192 (0.155)
Time on the Street	-0.444 (0.353)	-0.536 (0.326)	-0.513 (0.327)	-0.603** (0.231)	-0.762*** (0.224)	-0.778*** (0.224)
Male	0.764* (0.319)	0.469 [†] (0.283)	0.482 [†] (0.284)	0.896*** (0.206)	0.932*** (0.211)	0.922*** (0.212)
Black	0.259 (0.337)	0.245 (0.308)	0.236 (0.308)	-0.403 [†] (0.217)	-0.252 (0.209)	-0.243 (0.209)
Hispanic	-0.030 (0.329)	0.083 (0.291)	0.084 (0.291)	-0.350 [†] (0.200)	0.005 (0.192)	0.004 (0.192)
Age	-0.053 (0.097)	-0.148 (0.090)	-0.143 (0.090)	-0.199** (0.064)	-0.211*** (0.062)	-0.217*** (0.063)
Philadelphia	-0.019 (0.300)	-0.217 (0.277)	-0.190 (0.279)	-0.185 (0.193)	-0.155 (0.187)	-0.180 (0.188)
Both Parents	-0.627 [†] (0.373)	-0.298 (0.309)	-0.296 (0.309)	-0.029 (0.198)	-0.027 (0.193)	-0.024 (0.193)
SES	-0.017 (0.128)	-0.101 (0.116)	-0.106 (0.116)	-0.105 (0.825)	-0.113 (0.080)	-0.106 (0.080)
Legal Cynicism	-0.512* (0.204)	-0.313 [†] (0.185)	-0.318 [†] (0.185)	0.250* (0.125)	0.220 [†] (0.121)	0.227 [†] (0.121)
Rewards of Crime	0.122* (0.054)	0.107* (0.049)	0.106* (0.049)	0.210*** (0.035)	0.191*** (0.033)	0.192*** (0.033)
Costs of Crime	-0.014 (0.021)	-0.016 (0.019)	-0.014 (0.019)	-0.005 (0.014)	-0.004 (0.013)	-0.005 (0.013)
Certainty of Punishment	0.002 (0.049)	0.004 (0.046)	0.004 (0.046)	-0.079* (0.032)	-0.061* (0.031)	-0.060 [†] (0.031)
Prior Arrests	-0.091 (0.064)	-0.068 (0.056)	-0.065 (0.057)	0.031 (0.036)	0.026 (0.034)	0.023 (0.035)
Person	-0.227 (0.511)	-0.150 (0.523)	-0.151 (0.522)	-0.543 (0.357)	-0.798* (0.349)	-0.798* (0.348)
Property	-0.534 (0.540)	-0.180 (0.542)	-0.193 (0.543)	-0.367 (0.367)	-0.481 (0.359)	-0.467 (0.359)
Drug	-0.188 (0.586)	-0.096 (0.575)	-0.103 (0.575)	-0.022 (0.394)	-0.587 (0.381)	-0.580 (0.382)
Weapon	-0.159 (0.617)	0.063 (0.602)	0.053 (0.602)	0.235 (0.418)	-0.172 (0.402)	-0.161 (0.402)
Sex	-0.016 (0.698)	0.080 (0.701)	0.076 (0.701)	-0.196 (0.489)	-0.289 (0.476)	-0.298 (0.476)

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 18: Multinomial logistic regression models examining relationship between procedural justice, legitimacy and self-reported income-generating offending over 1 year (N = 1,229)

	No Offenses vs. 1 Offense			No Offenses vs. 2+ Offenses		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Procedural Justice	-0.205 (0.326)	-	-0.315 (0.391)	-0.262 (0.181)	-	-0.188 (0.213)
Legitimacy	-	0.020 (0.243)	0.147 (0.291)	-	-0.172 (0.131)	-0.100 (0.154)
Time on the Street	-0.307 (0.401)	-0.293 (0.400)	-0.314 (0.402)	-0.150 (0.221)	-0.138 (0.220)	-0.148 (0.221)
Male	1.534** (0.546)	1.542** (0.541)	1.525** (0.542)	0.805*** (0.226)	0.814*** (0.226)	0.807*** (0.227)
Black	-0.252 (0.378)	-0.250 (0.379)	-0.234 (0.380)	-0.574** (0.204)	-0.589** (0.205)	-0.583** (0.205)
Hispanic	-0.250 (0.345)	-0.254 (0.345)	-0.256 (0.345)	-0.275 (0.186)	-0.270 (0.187)	-0.272 (0.187)
Age	0.083 (0.113)	0.094 (0.113)	0.087 (0.113)	-0.132* (0.062)	-0.129* (0.062)	-0.136* (0.062)
Philadelphia	-0.209 (0.343)	-0.176 (0.341)	-0.209 (0.344)	-0.105 (0.184)	-0.088 (0.183)	-0.106 (0.184)
Both Parents	-0.612 (0.403)	-0.612 (0.403)	-0.602 (0.403)	-0.079 (0.188)	-0.086 (0.189)	-0.083 (0.189)
SES	-0.041 (0.143)	-0.047 (0.143)	-0.038 (0.143)	-0.130 [†] (0.078)	-0.136 (0.079)	-0.131 [†] (0.079)
Legal Cynicism	0.109 (0.219)	0.117 (0.220)	0.125 (0.221)	0.382** (0.117)	0.365** (0.118)	0.370** (0.118)
Rewards of Crime	0.157** (0.054)	0.158** (0.054)	0.160** (0.054)	0.198*** (0.030)	0.196*** (0.030)	0.197*** (0.030)
Costs of Crime	-0.016 (0.024)	-0.014 (0.024)	-0.016 (0.024)	-0.005 (0.012)	-0.004 (0.013)	-0.005 (0.013)
Certainty of Punishment	0.025 (0.058)	0.019 (0.058)	0.020 (0.058)	-0.120*** (0.031)	-0.118*** (0.031)	-0.117*** (0.031)
Prior Arrests	-1.06 (0.071)	-0.102 (0.071)	-0.106 (0.071)	0.045 (0.033)	0.048 (0.033)	0.046 (0.033)
Person	1.872 [†] (1.038)	1.895 [†] (1.040)	1.895 [†] (1.039)	0.058 (0.319)	0.052 (0.319)	0.052 (0.319)
Property	1.891 [†] (1.052)	1.886 [†] (1.053)	1.903 [†] (1.053)	0.233 (0.330)	0.223 (0.330)	0.233 (0.330)
Drug	2.129* (1.084)	2.131* (1.085)	2.146* (1.085)	0.815* (0.353)	0.806* (0.353)	0.813* (0.353)
Weapon	1.036 (1.185)	1.047 (1.186)	1.058 (1.186)	0.569 (0.367)	0.556 (0.367)	0.562 (0.368)
Sex	1.259 (1.267)	1.275 (1.268)	1.268 (1.269)	-0.226 (0.471)	-0.211 (0.470)	-0.221 (0.471)

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 19: Multinomial logistic regression models examining relationship between procedural justice, legitimacy and self-reported drug use over 1 year (N = 1,229)

	No Offenses vs. 1 Offense			No Offenses vs. 2+ Offenses		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Procedural Justice	-0.202 (0.305)	-	-0.352 (0.364)	-0.166 (0.176)	-	0.097 (0.210)
Legitimacy	-	0.060 (0.218)	0.195 (0.258)	-	-0.318* (0.129)	-0.357* (0.153)
Time on the Street	0.111 (0.366)	0.128 (0.365)	0.110 (0.386)	0.731*** (0.217)	0.739*** (0.217)	0.744*** (0.218)
Male	0.148 (0.355)	0.149 (0.355)	0.129 (0.355)	0.239 (0.202)	0.241 (0.203)	0.244 (0.203)
Black	-0.508 (0.350)	-0.493 (0.352)	-0.478 (0.353)	-0.100 (0.202)	0.070 (0.203)	0.067 (0.203)
Hispanic	0.095 (0.299)	0.093 (0.299)	0.093 (0.299)	-0.222 (0.187)	-0.206 (0.188)	-0.205 (0.188)
Age	-0.055 (0.102)	-0.043 (0.102)	-0.052 (0.102)	0.004 (0.060)	-0.003 (0.060)	-0.001 (0.061)
Philadelphia	-0.120 (0.299)	-0.093 (0.298)	-0.127 (0.301)	-0.198 (0.183)	-0.206 (0.182)	-0.196 (0.183)
Both Parents	-0.217 (0.315)	-0.213 (0.315)	-0.211 (0.315)	-0.368 [†] (0.190)	-0.379 [†] (0.191)	-0.381* (0.191)
SES	-0.027 (0.129)	-0.031 (0.130)	-0.022 (0.130)	-0.005 (0.070)	-0.006 (0.077)	-0.008 (0.078)
Legal Cynicism	0.454* (0.197)	0.475* (0.200)	0.482* (0.200)	0.298** (0.115)	0.257** (0.116)	0.255* (0.116)
Rewards of Crime	0.071 (0.051)	0.073 (0.051)	0.074 (0.051)	0.155*** (0.030)	0.150*** (0.030)	0.150*** (0.030)
Costs of Crime	-0.000 (0.020)	0.002 (0.022)	-0.000 (0.022)	-0.028* (0.013)	-0.029* (0.013)	-0.028* (0.013)
Certainty of Punishment	-0.010 (0.052)	-0.017 (0.053)	-0.014 (0.053)	-0.108*** (0.030)	-0.098 (0.030)	-0.099** (0.030)
Prior Arrests	-0.099 (0.064)	-0.097 (0.063)	-0.100 (0.064)	0.030 (0.033)	0.030 (0.033)	0.031 (0.033)
Person	0.312 (0.515)	0.331 (0.515)	0.325 (0.516)	1.065** (0.410)	1.042* (0.411)	1.043* (0.412)
Property	0.302 (0.545)	0.289 (0.544)	0.300 (0.545)	1.440*** (0.417)	1.446*** (0.418)	1.442*** (0.419)
Drug	0.627 (0.599)	0.621 (0.600)	0.632 (0.600)	2.179*** (0.436)	2.117 (0.437)	2.175*** (0.438)
Weapon	0.758 (0.602)	0.767 (0.603)	0.770 (0.603)	1.651*** (0.448)	1.634 (0.449)	1.630*** (0.450)
Sex	0.948 (0.709)	0.952 (0.711)	0.942 (0.712)	1.606** (0.517)	1.606** (0.517)	1.610** (0.517)

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

On the other hand, one's evaluation of his or her experience of procedural justice did differentiate between those individuals who did not commit a subsequent act of crime and those who were involved in two or more criminal events. For instance, a one standard deviation increase in one's evaluation of procedural justice is associated with a 0.436 decrease in the log odds of committing 2 or more criminal offenses compared to not engaging in any crime (see model 4 in Table 16). However, the effect of procedural justice is no longer significant when one's perception of legitimacy is included as a covariate in the model (see model 6 in Table 16). A similar pattern of results emerges for frequency of violent offending. A one standard-deviation increase in one's evaluation of procedural justice is associated with a 0.436 decrease in the odds of committing 2 or more violent crimes compared to not engaging in any subsequent violent crime (see model 3, Table 17). One's perception of legitimacy is also related to subsequent violent offending ($\beta = -0.293$, $s.e.=0.131$; see model 5 in Table 15). When both procedural justice and legitimacy are included in the same model, though, this renders the relationship between procedural justice and legitimacy insignificant as predictors of the level of violent offending (see model 6 in Table 17).

Turning to income-generating crime, one's evaluation of procedural justice did not differentiate between those respondents who refrained from engaging in income-generating crime and those individuals who committed two or more acts of income-generating crime (see models 4, 5 and 6 in Table 18), nor did it differentiate between one's level of drug use (see models 3 and 4 in Table 19). However, in accordance with Procedural Justice Theory, one's perception of legitimacy does differentiate between those respondents who did not use drugs and those individuals who used drugs at least

twice during the one year follow-up period (see models 5 and 6 in Table 19). Specifically, higher perceptions of legitimacy decrease likelihood of using drugs multiple times compared to abstinence from drug use ($\beta = -0.357, s.e.=0.153$).⁵¹

Prior Record

A third set of sensitivity analyses is conducted in order to determine whether or not Procedural Justice Theory operates the same way across novice offenders (e.g. those respondents with no prior arrests) and more seasoned offenders (e.g. those respondents with one or more previous arrests). To complement this sensitivity analyses, tests of the difference in means were also conducted between novice offenders and seasoned offenders regarding overall experiences of procedural justice and perceptions of legitimacy. The mean evaluation of one's experience of procedural justice for novice offenders ($\bar{x} = 0.087, s.d. = 0.414, n = 350$) is significantly higher than the mean experience of procedural justice for seasoned offenders ($\bar{x} = -0.029, s.d. = 0.393, n = 1,003$). In addition, perceptions of legitimacy are significantly higher among novice offenders ($\bar{x} = 2.394, s.d. = 0.617, n = 350$) than repeat offenders ($\bar{x} = 2.262, s.d. = 0.554, n = 1,003$).⁵²

Table 20 presents the results analyzing the relationship between the experience of procedural justice and one's perception of legitimacy among first-time offenders (n=339) controlling for theoretically relevant covariates. Consistent with Procedural Justice Theory, one's experience of procedural justice is the strongest predictor of one's

⁵¹ A second sensitivity analysis was performed limiting the follow-up period for the each ordinal measure of recidivism to 6 months following the baseline interview. The pattern and significance of the results remained the same as those with a one-year follow-up period.

⁵² There are no statistically significant differences in evaluation of procedural justice and perceptions of legitimacy between the baseline interview, the period 1 interview and the period 2 interview for novice or seasoned offenders.

perception of legitimacy ($\beta = 0.855$, $s.e.=0.608$, $B=0.559$). More positive evaluations of the experience of procedural justice with police and judges are associated with higher perceptions of legitimacy.

The next set of results describes the relationship between procedural justice, legitimacy and the two official measures of recidivism. Among novice offenders, the experience of procedural justice is unrelated to the likelihood of being arrested (see model 1 and model 3 in Table 21). Legitimacy, on the other hand, is related to the likelihood of arrest; in fact, a one-unit increase in one's perception of legitimacy decreases the odds of being arrested by almost 95% ($\beta = -0.665$, $s.e.=0.294$, $OR = 0.514$; see model 3 in Table 21). Survival analyses analyzing the relationship between procedural justice, legitimacy and the number of days until one is arrested also fail to find a relationship between procedural justice and this measure of official recidivism (see model 1 and 2 in Table 22). However, a counterintuitive relationship emerges between one's perception of legitimacy and the number of days until one is arrested. More positive perceptions of legitimacy are negatively related time to arrest ($\beta = -0.518$, $s.e.=0.174$, see model 3 in Table 22). This is contrary to what one would expect according to Procedural Justice Theory and the normative perspective of compliant behavior.

I now turn to the relationship between procedural justice, legitimacy and self-reported offending among novice offenders. For total self-reported offending, one's experience of procedural justice is related to subsequent offending (see Table 23); in fact, a one standard deviation increase in procedural justice is associated with a 2.59 decrease in the likelihood of committing a crime ($\beta = -0.951$, $s.e.=0.344$, $OR = 0.386$). This

Table 20: Ordinary Least Squares regression model examining the relationship between the experience of procedural justice and perceptions of legitimacy among first-time offenders (N = 339)

	Estimate (S.E.)	B
Procedural Justice	0.855*** (0.608)	0.559
Male	0.063 (0.069)	0.040
Black	-0.081 (0.078)	0.061
Hispanic	0.028 (0.069)	0.021
Age	-0.054* (0.023)	0.102
Philadelphia	0.046 (0.072)	0.037
Both Parents	0.038 (0.064)	0.024
SES	-0.033 (0.029)	0.052
Legal Cynicism	-0.144** (0.047)	0.139
Rewards of Crime	-0.023 [†] (0.012)	0.086
Costs of Crime	-0.004 (0.004)	0.034
Certainty of Punishment	0.034** (0.012)	0.127
Person	-0.082 (0.098)	0.065
Property	0.054 (0.108)	0.036
Drug	-0.102 (0.128)	0.048
Weapon	0.020 (0.130)	0.009
Sex	0.063 (0.172)	0.018

B = |Standardized Beta Statistic|

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 21: Logistic regression models analyzing the relationship between procedural justice, legitimacy and subsequent arrest among first time offenders (N = 299)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.227 (0.342)	0.797	-	-	0.336 (0.424)	1.399
Legitimacy	-	-	-0.531 (0.240)	0.588*	-0.665 (0.294)	0.514*
Male	1.147 (0.325)	3.151***	1.203 (0.330)	3.332***	1.220 (0.330)	3.388**
Black	-0.176 (0.383)	0.839	-0.227 (0.391)	0.797	-0.227 (0.393)	0.797
Hispanic	0.107 (0.345)	1.113	0.101 (0.348)	1.106	0.108 (0.389)	1.114
Age	-0.049 (0.117)	0.952	-0.103 (0.120)	0.902	-0.098 (0.120)	0.907
Philadelphia	-0.274 (0.353)	0.760	-0.331 (0.354)	0.718	-0.286 (0.360)	0.751
Both Parents	-0.526 (0.324)	0.591	-0.530 (0.327)	0.589	-0.509 (0.328)	0.601
SES	0.010 (0.146)	1.010	-0.004 (0.151)	0.996	-0.009 (0.151)	0.991
Legal Cynicism	-0.019 (0.235)	0.981	-0.087 (0.238)	0.917	-0.094 (0.238)	0.910
Rewards of Crime	0.032 (0.061)	1.033	0.021 (0.061)	1.021	0.016 (0.061)	1.107
Costs of Crime	-0.014 (0.022)	0.986	-0.020 (0.023)	0.981	-0.018 (0.023)	0.982
Certainty of Punishment	-0.133 (0.059)	0.876*	-0.118 (0.059)	0.889*	-0.118 (0.060)	0.889*
Person	0.735 (0.453)	2.086	0.651 (0.460)	1.917	0.667 (0.462)	1.948
Property	1.056 (0.511)	2.874*	1.074 (0.518)	2.926*	1.097 (0.520)	2.996*
Drug	0.215 (0.601)	1.240	0.176 (0.606)	1.192	0.143 (0.608)	1.154
Weapon	1.018 (0.622)	2.766	1.043 (0.635)	2.838	1.058 (0.638)	2.880 [†]
Sex	-3.77 (0.814)	0.686	-0.424 (0.815)	0.655	-0.357 (0.818)	0.700

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 22: Survival analysis models examining the relationship between procedural justice, legitimacy and time to arrest among first time offenders (N = 337)

	Model 1	Model 2	Model 3
	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Procedural Justice	-0.115 (0.198)	-	0.306 (0.244)
Legitimacy	-	-0.392** (0.142)	-0.518** (0.174)
Male	0.701** (0.241)	0.716** (0.240)	0.737** (0.241)
Black	-0.021 (0.239)	-0.056 (0.237)	-0.052 (0.236)
Hispanic	0.205 (0.204)	0.204 (0.206)	0.211 (0.205)
Age	-0.007 (0.067)	-0.033 (0.067)	-0.030 (0.067)
Philadelphia	-0.081 (0.214)	-0.117 (0.212)	-0.100 (0.211)
Both Parents	-0.331 [†] (0.199)	-0.327 (0.199)	-0.323 (0.200)
SES	0.037 (0.086)	0.023 (0.085)	0.019 (0.085)
Legal Cynicism	-0.108 (0.147)	-0.164 (0.147)	-0.159 (0.147)
Rewards of Crime	0.048 (0.036)	0.036 (0.036)	0.032 (0.036)
Costs of Crime	-0.003 (0.013)	-0.005 (0.013)	-0.004 (0.013)
Certainty of Punishment	-0.076* (0.036)	-0.056 (0.037)	-0.055 (0.037)
Person	0.404 (0.317)	0.379 (0.316)	0.410 (0.317)
Property	0.596 [†] (0.338)	0.678* (0.340)	0.695* (0.340)
Drug	0.071 (0.422)	0.126 (0.423)	0.119 (0.423)
Weapon	0.477 (0.407)	0.541 (0.407)	0.547 (0.406)
Sex	-0.140 (0.593)	-0.112 (0.590)	-0.037 (0.593)

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

relationship remains even when one's perception of legitimacy, which is not a significant predictor of total offending, is included in the model ($\beta = -0.984$, $s.e.=0.419$, $OR = 0.374$; see model 3 in Table 24). The relationship between procedural justice, legitimacy and self-reported violent offending follows a similar pattern as total offending among novice offenders (see Table 24). Procedural justice is negatively related to subsequent violent offending, and this relationship holds when one's perception of legitimacy is included as a predictor of violent offending. In fact, a one standard deviation increase in one's experience of procedural justice is associated with a 2.6 decrease odds of committing a subsequent act of violent crime among novice offenders ($s.e.=0.413$, $OR = 0.385$). Legitimacy, on the other hand, is not related to self-reported violent offending. Therefore, among novice offenders, there seems to be partial support for Procedural Justice Theory with regard to total self-reported offending and violent offending – procedural justice is related to compliant behavior but this relationship is not mediated by one's perception of legitimacy.

Contrary to initial analyses with the entire sample of adolescent offenders, the experience of procedural justice is negatively related to income-generating offending among novice offenders (see Table 25). A one standard deviation increase in perceptions of legitimacy is associated with an individual being 2.07 times less likely to commit a subsequent income-generating crime among novice offenders ($s.e.=0.482$, $OR = 0.482$; see model 1 in Table 25). However, this relationship is only marginally significant when one's perception of legitimacy, which is not a significant predictor of recidivism, is included as a predictor of income-generating crime ($\beta = -0.785$, $s.e.=0.437$, $OR = 0.456$, $p<.10$). Table 26 presents the results of the relationship between procedural justice,

Table 23: Logistic regression models examining the relationship between procedural justice, legitimacy and total self-reported offending over 1 year for first time offenders (N =319)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]
Procedural Justice	-0.951 (0.344)	0.386**	-	-	-0.984 (0.419)	0.374*
Legitimacy	-	-	-0.345 (0.230)	0.709	0.040 (0.285)	1.040
Time on the Street	-1.176 (0.461)	0.308*	-1.064 (0.459)	0.345*	-1.183 (0.463)	0.306*
Male	0.594 (0.330)	1.811 [†]	0.648 (0.327)	1.912*	0.590 (0.331)	1.804 [†]
Black	-0.625 (0.380)	0.939	-0.056 (0.379)	0.946	-0.590 (0.331)	0.942
Hispanic	-0.219 (0.342)	0.803	-0.233 (0.340)	0.792	-0.220 (0.343)	0.803
Age	-0.185 (0.114)	0.831	-0.167 (0.114)	0.846	-0.183 (0.115)	0.833
Philadelphia	-0.382 (0.350)	0.683	-0.263 (0.346)	0.769	-0.381 (0.350)	0.683
Both Parents	-0.467 (0.313)	0.627	-0.429 (0.308)	0.651	-0.469 (0.313)	0.626
SES	-0.139 (0.150)	0.870	-0.141 (0.148)	0.868	-0.138 (0.150)	0.871
Legal Cynicism	-0.093 (0.235)	0.911	-0.109 (0.236)	0.896	-0.087 (0.239)	0.916
Rewards of Crime	0.131 (0.633)	1.140*	0.119 (0.063)	1.126 [†]	0.132 (0.064)	1.141*
Costs of Crime	-0.021 (0.027)	0.979	-0.015 (0.027)	0.985	-0.021 (0.027)	0.979
Certainty of Punishment	-0.061 (0.058)	0.941	-0.062 (0.058)	0.940	-0.062 (0.058)	0.940
Person	0.123 (0.495)	1.131	0.140 (0.496)	1.151	0.129 (0.496)	1.137
Property	0.613 (0.544)	1.846	0.596 (0.555)	1.814	0.613 (0.554)	1.846
Drug	0.328 (0.638)	1.388	0.162 (0.629)	1.175	0.334 (0.640)	1.397
Weapon	0.130 (0.620)	1.139	0.115 (0.619)	1.122	0.130 (0.620)	1.139
Sex	-0.540 (0.833)	0.583	-0.372 (0.819)	0.690	-0.540 (0.833)	0.583

[†] OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 24: Logistic regression models examining the relationship between procedural justice, legitimacy and self-reported violent offending over 1 year for first time offenders (N = 319)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]
Procedural Justice	-0.885 (0.337)	0.413**	-	-	-0.954 (0.413)	0.385*
Legitimacy	-	-	-0.292 (0.224)	0.747	0.082 (0.278)	1.085
Time on the Street	-1.070 (0.445)	0.343*	-0.953 (0.441)	0.386*	-1.085 (0.448)	0.388*
Male	0.658 (0.336)	1.931 [†]	0.714 (0.333)	2.041*	0.650 (0.337)	1.916 [†]
Black	0.337 (0.372)	1.400	0.345 (0.370)	1.413	0.343 (0.372)	1.410
Hispanic	0.029 (0.335)	1.029	0.018 (0.018)	1.019	0.028 (0.335)	1.028
Age	-0.179 (0.112)	0.836	-0.161 (0.112)	0.851	-0.174 (0.112)	0.840
Philadelphia	-0.315 (0.343)	0.730	-0.206 (0.339)	0.814	-0.315 (0.343)	0.730
Both Parents	-0.471 (0.311)	0.625	-0.431 (0.306)	0.650	-0.473 (0.311)	0.623
SES	-0.130 (0.147)	0.878	-0.131 (0.145)	0.877	-0.127 (0.147)	0.880
Legal Cynicism	-0.145 (0.232)	0.865	-0.149 (0.232)	0.862	-0.135 (0.234)	0.874
Rewards of Crime	0.135 (0.061)	1.144*	0.124 (0.061)	1.132*	0.137 (0.062)	1.147*
Costs of Crime	-0.011 (0.027)	0.989	-0.004 (0.026)	0.996	-0.011 (0.027)	0.989
Certainty of Punishment	-0.097 (0.057)	0.908 [†]	-0.098 (0.057)	0.907 [†]	-0.100 (0.057)	0.906 [†]
Person	-0.189 (0.489)	0.828	-0.162 (0.489)	0.850	-0.129 (0.490)	0.836
Property	0.616 (0.548)	1.851	0.598 (0.547)	1.818	0.617 (0.548)	1.853
Drug	-0.063 (0.636)	0.939	-0.191 (0.628)	0.827	-0.051 (0.637)	0.950
Weapon	0.187 (0.615)	1.206	0.179 (0.614)	1.197	0.188 (0.614)	1.206
Sex	-0.430 (0.838)	0.651	-0.271 (0.825)	0.763	-0.431 (0.839)	0.650

[†] OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 25: Logistic regression models examining relationship between procedural justice, legitimacy and self-reported income-generating offending over 1 year for first time offenders (N = 319)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.738 (0.356)	0.482*	-	-	-0.785 (0.437)	0.456 [†]
Legitimacy	-	-	-0.247 (0.241)	0.781	0.063 (0.296)	1.065
Time on the Street	-1.282 (0.475)	0.278**	-1.160 (0.468)	0.314**	-1.293 (0.478)	0.275**
Male	0.523 (0.391)	1.687	0.570 (0.391)	1.769	0.515 (0.392)	1.674
Black	-0.504 (0.398)	0.604	-0.473 (0.396)	0.623	-0.501 (0.398)	0.606
Hispanic	-0.056 (0.350)	0.946	-0.053 (0.349)	0.949	-0.057 (0.350)	0.945
Age	-0.512 (0.121)	1.053	0.062 (0.121)	1.064	0.056 (0.122)	1.057
Philadelphia	-0.119 (0.359)	0.888	-0.057 (0.358)	0.944	-0.115 (0.359)	0.891
Both Parents	-0.553 (0.357)	0.575	-0.533 (0.354)	0.587	-0.551 (0.357)	0.576
SES	-0.075 (0.154)	0.928	-0.081 (0.153)	0.923	-0.074 (0.154)	0.929
Legal Cynicism	0.189 (0.242)	1.207	0.182 (0.242)	1.199	0.195 (0.245)	1.215
Rewards of Crime	0.255 (0.062)	1.290***	0.245 (0.061)	1.277***	0.257 (0.062)	1.292***
Costs of Crime	-0.034 (0.029)	0.965	-0.028 (0.028)	0.972	-0.036 (0.029)	0.965
Certainty of Punishment	-0.080 (0.060)	0.923	-0.078 (0.060)	0.925	-0.083 (0.061)	0.921
Person	0.630 (0.539)	1.877	0.651 (0.539)	1.917	0.634 (0.539)	1.884
Property	0.882 (0.599)	2.416	0.864 (0.599)	2.373	0.879 (0.599)	2.408
Drug	1.392 (0.688)	4.021*	1.265 (0.680)	3.543*	1.398 (0.689)	4.046*
Weapon	0.237 (0.679)	1.268	0.235 (0.679)	1.265	0.237 (0.679)	1.268
Sex	-14.268 (652.2)	0.001	-14.092 (659.2)	0.001	-14.285 (651.0)	0.001

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

legitimacy and drug use among novice offenders. Although procedural justice is not related to subsequent drug use, one's perception of legitimacy does predict subsequent drug use. As one's perception of legitimacy increases, the likelihood of drug use decreases ($\beta = -0.616$, $s.e.=0.285$, $OR = 0.540$; see model 3 in Table 26).

While there is some evidence to suggest the validity of Procedural Justice Theory among novice offenders, the same cannot be said for more seasoned offenders. Although the experience of procedural justice is positively related to one's perception of legitimacy ($\beta = 0.718$, $s.e.=0.038$, $B=.501$; see Table 27), neither the experience of procedural justice nor one's perception of legitimacy is related to any of the measures of recidivism among repeat offenders (see Tables 28-33). With regard to control variables, the only consistent predictor of both official and self-reported recidivism among novice offenders and repeat offenders alike is rewards associated with crime. As the perceived rewards of crime increase, so does the likelihood of recidivism for both samples of offenders.

Sources of Procedural Justice

The next goal of this dissertation is to determine whether or not the source of the procedural justice affects perceptions of legitimacy and subsequent offending behavior. For brevity, only the relationship between each source of procedural justice, legitimacy and total self-reported offending will be discussed.^{53, 54} Table 34 presents the relationship between the experience of procedural justice with the police, the experience

⁵³ Recall that the experience of procedural justice was never a significant predictor of the two official measures of recidivism. Still, analyses were conducted to determine whether or not an analysis of the source of the experience of procedural justice was related to subsequent arrest and the time to arrest. The relationship between each source of procedural justice and both outcomes was never significant. Therefore, these models are not presented in this dissertation.

⁵⁴ Additional models were run examining the relationship between each source of procedural justice and the three other self-reported offending outcomes. Although not discussed in the text of this document, these results are available in Appendix H, Appendix I and Appendix J.

Table 26: Logistic regression models examining relationship between procedural justice, legitimacy and self-reported drug use over 1 year for first time offenders (N = 319)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]
Procedural Justice	-0.311 (0.326)	0.733	-	-	0.216 (0.408)	1.241
Legitimacy	-	-	-0.527 (0.229)	0.590*	-0.616 (0.285)	0.540*
Time on the Street	0.246 (0.441)	1.279	0.322 (0.443)	1.379	0.351 (0.446)	1.421
Male	0.129 (0.330)	1.137	0.172 (0.335)	1.187	0.185 (0.336)	1.203
Black	-0.434 (0.368)	0.648	-0.482 (0.374)	0.618	-0.481 (0.374)	0.618
Hispanic	-0.593 (0.337)	0.554 [†]	-0.583 (0.341)	0.558 [†]	-0.585 (0.341)	0.557 [†]
Age	0.095 (0.113)	1.099	0.059 (0.114)	1.060	0.061 (0.115)	1.063
Philadelphia	0.000 (0.342)	1.000	-0.027 (0.343)	0.974	-0.006 (0.346)	0.994
Both Parents	-0.803 (0.330)	0.448*	-0.828 (0.336)	0.437*	-0.826 (0.336)	0.438*
SES	0.009 (0.143)	1.009	-0.004 (0.145)	0.996	-0.006 (0.145)	0.994
Legal Cynicism	0.367 (0.228)	1.446	0.300 (0.230)	1.350	0.296 (0.230)	1.345
Rewards of Crime	0.124 (0.059)	1.132*	0.110 (0.060)	1.117 [†]	0.108 (0.060)	1.114 [†]
Costs of Crime	-0.040 (0.027)	0.961	-0.040 (0.027)	0.961	-0.039 (0.027)	0.962
Certainty of Punishment	-0.054 (0.057)	0.947	-0.039 (0.057)	0.962	-0.039 (0.057)	0.962
Person	1.676 (0.671)	5.346*	1.632 (0.675)	5.116*	1.636 (0.676)	5.134*
Property	2.058 (0.707)	7.832**	2.101 (0.714)	8.173**	2.099 (0.714)	8.157**
Drug	2.511 (0.777)	12.317**	2.477 (0.778)	11.910**	2.441 (0.781)	11.479**
Weapon	2.085 (0.760)	8.043**	2.119 (0.768)	8.322**	2.119 (0.769)	8.323**
Sex	0.399 (1.063)	1.490	0.419 (1.060)	1.522	0.458 (1.062)	1.581

* OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 27: Ordinary Least Squares regression model examining the relationship between the experience of procedural justice and perceptions of legitimacy among repeat offenders (N = 981)

	Estimate (S.E.)	B
Procedural Justice	0.718*** (0.038)	0.501
Male	-0.037 (0.046)*	0.021
Black	-0.103 (0.043)	0.093
Hispanic	0.026 (0.041)	0.033
Age	-0.001 (0.013)	0.004
Philadelphia	-0.041 (0.039)	0.037
Both Parents	-0.038 (0.043)	0.023
SES	0.018 (0.016)	0.030
Legal Cynicism	-0.109*** (0.024)**	0.121
Rewards of Crime	-0.017 (0.006)	0.073
Costs of Crime	0.001 (0.002)	0.017
Certainty of Punishment	0.027*** (0.006)	0.115
Priors	-0.000 (0.007)	0.000
Person	-0.077 (0.076)	0.068
Property	-0.018 (0.078)	0.015
Drug	-0.024 (0.081)	0.017
Weapon	-0.118 (0.085)	0.066
Sex	-0.030 (0.100)	0.011

B = |Standardized Beta Statistic|

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 28: Logistic regression models examining the relationship between procedural justice, legitimacy and subsequent arrest for repeat offenders (N =798)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]	Estimate (S.E.)	OR [†]
Procedural Justice	-0.150 (0.251)	0.861	-	-	-0.163 (0.292)	0.850
Legitimacy	-	-	-0.043 (0.182)	0.958	0.018 (0.211)	1.018
Male	1.185 (0.255)	3.272***	1.186 (0.255)	3.273***	1.186 (0.245)	3.273***
Black	0.212 (0.284)	1.237	0.1210 (0.285)	1.234	0.215 (0.285)	1.239
Hispanic	0.381 (0.264)	1.463	0.378 (0.264)	1.459	0.380 (0.264)	1.463**
Age	-0.282 (0.088)	0.754***	-0.277 (0.088)	0.758***	-0.282 (0.088)	0.754
Philadelphia	-0.047 (0.257)	0.954	0.039 (0.257)	0.961	-0.047 (0.257)	0.954
Both Parents	0.276 (0.307)	1.318	0.277 (0.307)	1.319	0.276 (0.307)	1.318
SES	-0.028 (0.109)	0.972	-0.032 (0.109)	0.969	-0.029 (0.109)	0.972
Legal Cynicism	0.108 (0.164)	1.114	0.109 (0.166)	1.115	0.109 (0.166)	1.116
Rewards of Crime	0.095 (0.045)	1.099*	0.094 (0.045)	1.099*	0.095 (0.045)	1.100*
Costs of Crime	-0.016 (0.016)	0.984	-0.016 (0.016)	0.985	-0.016 (0.016)	0.984
Certainty of Punishment	0.015 (0.043)	1.015	0.013 (0.043)	1.013	0.014 (0.043)	1.015
Priors	0.124 (0.053)	1.132*	0.124 (0.053)	1.132*	0.124 (0.053)	1.132*
Person	-0.095 (0.461)	0.909	-0.093 (0.462)	0.912	-0.094 (0.461)	0.910
Property	0.697 (0.491)	2.007	0.687 (0.490)	1.988	0.697 (0.491)	2.008
Drug	0.531 (0.512)	1.700	0.533 (0.512)	1.704	0.531 (0.512)	1.700
Weapon	0.129 (0.524)	1.138	0.121 (0.534)	1.129	0.132 (0.534)	1.141
Sex	0.444 (0.659)	1.559	0.440 (0.658)	1.553	0.445 (0.659)	1.561

[†] OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 29: Survival analysis models examining the relationship between procedural justice, legitimacy and time to arrest among repeat offenders (N = 967)

	Model 1	Model 2	Model 3
	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Procedural Justice	0.063 (0.107)	-	0.021 (0.127)
Legitimacy	-	0.064 (0.077)	0.056 (0.091)
Male	0.408*** (0.143)	0.411** (0.143)	0.413** (0.143)
Black	-0.039 (0.127)	-0.031 (0.127)	-0.034 (0.127)
Hispanic	0.100 (0.114)	0.099 (0.114)	0.098 (0.114)
Age	-0.090* (0.037)	-0.090* (0.037)	-0.090* (0.037)
Philadelphia	-0.099 (0.112)	-0.099 (0.112)	-0.096 (0.112)
Both Parents	0.193 [†] (0.116)	0.195 [†] (0.116)	0.196 [†] (0.116)
SES	-0.019 (0.048)	-0.020 (0.047)	-0.200 (0.048)
Legal Cynicism	0.074 (0.070)	0.081 (0.069)	0.078 (0.070)
Rewards of Crime	0.031 [†] (0.018)	0.032 [†] (0.018)	0.032 [†] (0.018)
Costs of Crime	-0.008 (0.006)	-0.008 (0.007)	-0.007 (0.007)
Certainty of Punishment	0.031 [†] (0.018)	0.031 [†] (0.018)	0.031 [†] (0.018)
Priors	0.034 [†] (0.020)	0.034 (0.020)	0.034 [†] (0.020)
Person	-0.323 (0.210)	-0.310 (0.211)	-0.312 (0.211)
Property	0.105 (0.213)	0.114 (0.213)	0.112 (0.213)
Drug	-0.125 (0.225)	-0.115 (0.226)	-0.116 (0.226)
Weapon	-0.173 (0.237)	-0.159 (0.238)	-0.161 (0.238)
Sex	-0.263 (0.284)	-0.254 (0.284)	-0.258 (0.284)

[†] p < .10 (two-tailed test)
* p < .05 (two-tailed test)
** p < .01 (two-tailed test)
***p < .001 (two-tailed test)

Table 30: Logistic regression models examining the relationship between procedural justice, legitimacy and total self-reported offending over 1 year for repeat offenders (N = 868)

	Model 1		Model 2		Model 2	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.123 (0.218)	0.884	-	-	0.015 (0.258)	1.015
Legitimacy	-	-	-0.184 (0.160)	0.832	-0.190 (0.189)	0.827
Time on the Street	-0.400 (0.269)	0.670	-0.403 (0.268)	0.668	-0.403 (0.269)	0.668
Male	1.043 (0.251)	2.838***	1.035 (0.250)	2.815***	1.036 (0.251)	2.817***
Black	-0.403 (0.260)	0.668	-0.426 (0.261)	0.653	-0.427 (0.261)	0.653
Hispanic	-0.384 (0.244)	0.681	-0.376 (0.244)	0.687	-0.36 (0.244)	0.687
Age	-0.125 (0.077)	0.882	-0.126 (0.076)	0.882	-0.123 (0.077)	0.882
Philadelphia	-0.018 (0.232)	0.982	-0.019 (0.231)	0.981	-0.018 (0.232)	0.982
Both Parents	0.222 (0.266)	1.248	0.218 (0.266)	1.244	0.218 (0.266)	1.243
SES	-0.054 (0.098)	0.947	-0.052 (0.098)	0.949	-0.052 (0.098)	0.949
Legal Cynicism	0.235 (0.144)	1.265	0.216 (0.146)	1.241	0.215 (0.146)	1.240
Rewards of Crime	0.233 (0.044)	1.262***	0.229 (0.044)	1.258***	0.229 (0.045)	1.258***
Costs of Crime	-0.007 (0.015)	0.992	-0.008 (0.015)	0.992	-0.008 (0.016)	0.992
Certainty of Punishment	-0.065 (0.037)	0.937 [†]	-0.060 (0.037)	0.942	-0.060 (0.037)	0.942
Prior Arrests	-0.023 (0.042)	0.977	-0.022 (0.042)	0.978	-0.022 (0.042)	0.979
Person	-1.324 (0.635)	0.266*	-1.325 (0.634)	0.266*	-1.325 (0.634)	0.266*
Property	-1.342 (0.640)	0.261*	-1.333 (0.640)	0.264*	-1.336 (0.640)	0.264*
Drug	-0.807 (0.660)	0.446	-0.798 (0.660)	0.450	-0.798 (0.660)	0.450
Weapon	-0.439 (0.688)	0.645	-0.443 (0.687)	0.642	-0.444 (0.687)	0.641
Sex	-0.667 (0.746)	0.514	-0.659 (0.745)	0.517	-0.660 (0.747)	0.517

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 31: Logistic regression models examining relationship between procedural justice, legitimacy and self-reported violent offending over 1 year for repeat offenders (N = 868)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.142 (0.197)	0.868	-	-	0.158 (0.244)	1.171
Legitimacy	-	-	-0.258 (0.152)	0.773 [†]	-0.319 (0.178)	0.727
Time on the Street	0.677 (0.237)	1.967**	-0.674 (0.256)	0.510**	-0.670 (0.260)	0.512**
Male	0.283 (0.242)	1.328	0.940 (0.243)	2.561***	0.945 (0.243)	2.573***
Black	0.818 (0.227)	1.199	-0.327 (0.243)	0.721	-0.334 (0.243)	0.716
Hispanic	0.045 (0.211)	1.046	-0.014 (0.228)	0.986	-0.013 (0.228)	0.987
Age	-0.021 (0.068)	0.979	-0.164 (0.073)	0.849*	-0.159 (0.073)	0.853*
Philadelphia	-0.277 (0.204)	0.758	-0.125 (0.218)	0.882	-0.112 (0.219)	0.894
Both Parents	-0.096 (0.222)	0.908	0.219 (0.247)	1.245	0.215 (0.248)	1.239
SES	-0.040 (0.126)	0.961	-0.070 (0.093)	0.933	-0.074 (0.093)	0.929
Legal Cynicism	0.362 (0.130)	1.437**	0.225 (0.137)	1.253	0.221 (0.137)	1.247
Rewards of Crime	0.134 (0.033)	1.144***	0.191 (0.039)	1.211***	0.191 (0.039)	1.211***
Costs of Crime	-0.023 (0.014)	0.977 [†]	-0.011 (0.015)	0.989	-0.010 (0.015)	0.990
Certainty of Punishment	-0.107 (0.033)	0.898**	-0.022 (0.035)	0.979	-0.023 (0.035)	0.978
Prior Arrests	-0.029 (0.037)	0.972	-0.032 (0.039)	0.969	-0.030 (0.039)	0.970
Person	0.431 (0.417)	1.539	-1.570 (0.631)	0.208*	-1.573 (0.632)	0.207*
Property	0.732 (0.424)	2.078 [†]	-1.471 (0.636)	0.230	-1.483 (0.638)	0.227*
Drug	1.454 (0.446)	4.279**	-1.402 (0.651)	0.246*	-1.405 (0.651)	0.245*
Weapon	1.002 (0.460)	2.724*	-1.027 (0.670)	0.358	-1.036 (0.670)	0.355
Sex	1.463 (0.537)	4.317**	-0.942 (0.731)	0.390	-0.946 (0.731)	0.388

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 32: Logistic regression models examining relationship between procedural justice, legitimacy and self-reported income-generating crime over 1 year for repeat offenders (N = 868)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.154 (0.199)	0.858	-	-	-0.164 (0.234)	0.849
Legitimacy	-	-	-0.050 (0.148)	0.951	0.014 (0.174)	1.014
Time on the Street	0.157 (0.242)	1.170	0.160 (0.242)	1.174	0.157 (0.242)	1.170
Male	1.119 (0.269)	3.602***	1.122 (0.269)	3.071***	1.119 (0.269)	3.063***
Black	-0.568 (0.229)	0.566*	-0.574 (0.230)	0.563	-0.567 (0.230)	0.567*
Hispanic	-0.388 (0.213)	0.679 [†]	-0.387 (0.213)	0.679 [†]	-0.388 (0.213)	0.678 [†]
Age	-0.140 (0.069)	0.869*	-0.136 (0.069)	0.873*	-0.141 (0.069)	0.869*
Philadelphia	-0.080 (0.207)	0.924	-0.066 (0.206)	0.936	-0.079 (0.207)	0.924
Both Parents	0.036 (0.221)	1.036	0.030 (0.221)	1.031	0.036 (0.221)	1.037
SES	-0.157 (0.089)	0.855 [†]	-0.161 (0.089)	0.851 [†]	-0.157 (0.089)	0.855 [†]
Legal Cynicism	0.410 (0.128)	1.506**	0.407 (0.130)	1.502	0.411 (0.130)	1.509**
Rewards of Crime	0.170 (0.033)	1.186***	0.171 (0.033)	1.186***	0.171 (0.033)	1.186***
Costs of Crime	-0.005 (0.014)	0.995	-0.005 (0.014)	0.995	-0.005 (0.014)	0.995
Certainty of Punishment	-0.106 (0.034)	0.899**	-0.108 (0.034)	0.898**	-0.106 (0.034)	0.899**
Prior Arrests	0.004 (0.037)	1.004	0.005 (0.037)	1.005	0.004 (0.037)	1.004
Person	0.257 (0.403)	1.293	0.255 (0.403)	1.291	0.258 (0.404)	1.295
Property	0.395 (0.411)	1.484	0.255 (0.405)	1.468	0.396 (0.411)	1.485
Drug	0.907 (0.433)	2.478*	0.904 (0.432)	2.47*1	0.908 (0.433)	2.479*
Weapon	0.713 (0.450)	2.039	0.704 (0.450)	2.023	0.714 (0.451)	2.042
Sex	0.277 (0.534)	1.319	0.275 (0.534)	1.317	0.277 (0.534)	1.320

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 33: Logistic regression models examining relationship between procedural justice, legitimacy and self-reported drug use over 1 year for repeat offenders (N = 868)

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]	Estimate (S.E.)	OR [♦]
Procedural Justice	-0.142 (0.197)	0.868	-	-	-0.078 (0.231)	0.925
Legitimacy	-	-	-0.120 (0.146)	0.887	-0.089 (0.171)	0.915
Time on the Street	0.677 (0.237)	1.967**	0.677 (0.237)	1.969**	0.675 (0.237)	1.965**
Male	0.283 (0.242)	1.328	0.283 (0.242)	1.327	0.281 (0.242)	1.324
Black	0.181 (0.227)	1.199	0.169 (0.228)	1.184	0.172 (0.228)	1.187
Hispanic	0.045 (0.210)	1.046	0.052 (0.211)	1.053	0.051 (0.211)	1.052
Age	-0.021 (0.068)	0.979	-0.018 (0.067)	0.982	-0.021 (0.067)	0.979
Philadelphia	-0.277 (0.204)	0.758	-0.271 (0.204)	0.763	-0.277 (0.204)	0.758
Both Parents	-0.096 (0.222)	0.908	-0.102 (0.222)	0.903	-0.100 (0.223)	0.905
SES	-0.040 (0.087)	0.961	-0.041 (0.087)	0.959	-0.039 (0.087)	0.962
Legal Cynicism	0.362 (0.126)	1.437**	0.350 (0.127)	1.419**	0.352 (0.127)	1.422**
Rewards of Crime	0.134 (0.033)	1.144***	0.133 (0.033)	1.142***	0.133 (0.033)	1.142***
Costs of Crime	-0.023 (0.014)	0.977 [†]	-0.023 (0.014)	0.977 [†]	-0.023 (0.014)	0.977 [†]
Certainty of Punishment	-0.107 (0.033)	0.898**	-0.105 (0.034)	0.900**	-0.105 (0.034)	0.901**
Prior Arrests	-0.029 (0.037)	0.972	-0.028 (0.037)	0.973	-0.029 (0.037)	0.972
Person	0.431 (0.417)	1.539	0.422 (0.417)	1.525	0.423 (0.417)	1.527
Property	0.732 (0.424)	2.078 [†]	0.723 (0.423)	2.060 [†]	0.728 (0.424)	2.071 [†]
Drug	1.454 (0.446)	4.279**	1.450 (0.445)	4.263**	1.452 (0.446)	4.270**
Weapon	1.002 (0.460)	2.724*	0.988 (0.460)	2.686*	0.993 (0.460)	2.698*
Sex	1.463 (0.537)	4.317**	1.458 (0.537)	4.299**	1.459 (0.537)	4.303**

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

of procedural justice with judges, one's perception of legitimacy and total self-reported offending.⁵⁵ According to model 1, both one's experience of procedural justice with the police ($\beta = 0.347$, s.e.=0.029, SB=0.311) and one's experience of procedural justice with the judge ($\beta = 0.320$, s.e.=0.028, SB=0.292) are related to perceptions of legitimacy. Looking at the standardized beta estimates and the t-scores associated with each covariate, the experience of procedural justice with the police is a stronger predictor of one's perception of legitimacy than the experience of procedural justice with the judge. Although the experience of procedural justice with the police is a marginally significant predictor of subsequent offending, neither the procedural justice with the police nor procedural justice with the judge measure is related to subsequent offending when legitimacy is included in the model.^{56,57}

One's experience of procedural justice can also be broken down into personal and vicarious experiences with police and judges. Model 1 in Table 35 displays the relationship between these four different measures of procedural justice and one's perception of legitimacy. Overall, the personal experience of procedural justice with the police has the strongest effect on perceptions of legitimacy among this sample of serious adolescent offenders ($\beta = 0.296$, s.e.=0.027, SB=.291), followed by vicarious experiences

⁵⁵ All of the covariates were dropped from the tables in this section given that they operated the same way as previously discussed models for total self-reported offending and were not affected by the inclusion of the two different measures of procedural justice.

⁵⁶ Tests for multicollinearity between personal and vicarious experiences of procedural justice with the police, personal and vicarious experiences of procedural justice with the judge and legitimacy were conducted using the Variance Inflation Factor (VIF) for multivariate ordinary least squares regression models and the VIF adjusted by the weight matrix for multivariate logistic regression models with the lowest standard VIF level of 2 as an indicator of multicollinearity (Allison, 2012; Davis et al., 1986). None of the VIF factors were above 2 indicating that multicollinearity is not an issue.

⁵⁷ This finding was replicated when limiting the measure of recidivism to 6 months instead of 1 year (results not shown).

Table 34: Relationships between sources of procedural justice, legitimacy and total self-reported offending over 1 year.*

	Model 1: Legitimacy (N=1,320)			Model 2: Self-reported Offending (N=1,187)		Model 3: Self-reported Offending (N = 1,187)	
	Estimate (S.E.)	SB [†]	T- value	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police	0.347*** (0.029)	0.311	11.97	-0.292 [†] (0.159)	0.747	-0.238 (0.168)	0.788
Procedural Justice Judge	0.320*** (0.028)	0.292	11.24	-0.015 (0.161)	0.985	0.029 (0.167)	1.030
Legitimacy	-	-	-	-	-	-0.146 (0.154)	0.864

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[†] SB = |Standardized Beta Coefficient|

♦ OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 35: Relationships between different sources of procedural justice, legitimacy and total self-reported offending over 1 year (N = 1,187).*

	Model 1: Legitimacy (N=1,320)			Model 2: Self-reported Offending (N=1,187)		Model 3: Self-reported Offending (N = 1,187)	
	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police: Personal Experience	0.296*** (0.027)	0.291	11.12	-0.244 (0.148)	0.784	-0.185 (0.156)	0.831
Procedural Justice Police: Vicarious Experience	0.041 [†] (0.021)	0.049	1.92	-0.097 (0.116)	0.908	-0.089 (0.117)	0.915
Procedural Justice Judge: Personal Experience	0.126*** (0.028)	0.132	4.44	0.098 (0.162)	1.103	0.121 (0.148)	1.128
Procedural Justice Judge: Vicarious Experience	0.181*** (0.026)	0.211	7.06	-0.046 (0.145)	0.955	-0.013 (0.145)	0.987
Legitimacy	-	-	-	-	-	-0.190 (0.157)	0.827

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[†] SB = |Standardized Beta Coefficient|

♦ OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

of procedural justice with the judge ($\beta = 0.181$, s.e.=0.026, SB=0.211) and personal experiences of procedural justice with the judge ($\beta = 0.126$, s.e.=0.028, SB=0.132). Vicarious experiences of procedural justice with the police ($\beta = 0.041$, s.e.=0.021, SB=0.049) have the weakest effect and are only marginally related to one's perception of legitimacy ($p < .10$). This seems to indicate that stories of police misconduct are less important to offending youth compared to actual treatment. Models 2 and 3 in Table 35 depict the relationship between each source of procedural justice and subsequent offending. Contrary to expectations, none of the sources of procedural justice are related to recidivism in this sample of serious adolescent offenders.

Elements of Procedural Justice

This next section examines how each element of procedural justice, as outlined by Leventhal (1980) and Tyler (1990), are related to perceptions of legitimacy and recidivism among serious juvenile offenders. Model 1 in Table 36 demonstrates the relationship between each element of procedural justice and legitimacy. Recall that Tyler (1990) argued that all 6 of the elements of procedural justice should be related to one's perception of legitimacy. This analysis finds that 5 of the 6 elements are significantly related to legitimacy: representation; impartiality; consistency; accuracy; and ethical treatment.⁵⁸ Correctability, or the ability of a person to appeal to a higher authority to review decisions made by agents of the justice system, is not related to one's perception of legitimacy. Using the standardized beta estimates and t-scores, the relative importance of each element of procedural justice as a predictor of legitimacy can be determined.

⁵⁸ Tests for multicollinearity between personal and vicarious experiences of procedural justice with the police, personal and vicarious experiences of procedural justice with the judge and legitimacy were conducted using the Variance Inflation Factor (VIF) for multivariate ordinary least squares regression models and the VIF adjusted by the weight matrix for multivariate logistic regression models with the lowest standard VIF level of 2 as an indicator of multicollinearity (Allison, 2012; Davis et al., 1986). None of the VIF factors were above 2 indicating that multicollinearity is not an issue.

Ethical treatment is the strongest predictor of one's perception of legitimacy (SB = 0.268, $t = 9.57$), followed by consistency (SB = 0.157, $t = 6.53$), impartiality (SB = 0.157, $t=5.62$), representation (SB = 0.070, $t=2.87$), and accuracy (SB=0.066, $t=2.26$). Looking at the relationship between each element of procedural justice and total self-reported offending, only consistency predicts this measure of recidivism (see model 2). A one standard deviation increase in one's experience of consistency is associated with a 36% decrease in the likelihood of offending ($\beta = -0.310$, $s.e.=0.149$). However, this relationship weakens and is only marginally significant when legitimacy is included in the model ($\beta = -0.284$, $s.e.=0.151$, OR = 0.753; see model 3).

Sensitivity Analyses

Given that the experience of procedural justice was more relevant to recidivism among novice offenders compared to seasoned offenders, an additional sensitivity analysis was performed in order to determine how the source of the experience of procedural justice and each element of procedural justice operates across first-time offenders and repeat offenders. Using the experience of procedural justice with the police and the experience of procedural justice with judges as the two measures of procedural justice, Table 37 shows the relationship between the sources of procedural justice, legitimacy and total self-reported offending among novice offenders. Similar to previous results, both the experience of procedural justice with the police and the experience of procedural justice with judges are related to perceptions of legitimacy among novice offenders (see model 1). In addition, the effect of procedural justice with the police on perceptions of legitimacy is stronger than the effect of procedural justice

Table 36: Relationships between different elements of procedural justice, legitimacy and total self-reported offending over 1 year (N = 1,187). *

	Model 1: Legitimacy (N = 1,320)			Model 2: Self-reported Offending (N=1,187)		Model 3: Self-reported Offending (N = 1,187)	
	Estimate (S.E.)	SB [*]	T- value	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice: Representation	0.050** (0.018)	0.070	2.87	0.038 (0.097)	1.040	0.047 (0.098)	1.048
Procedural Justice: Impartiality	0.144*** (0.026)	0.157	5.62	-0.106 (0.143)	0.899	-0.082 (0.150)	0.921
Procedural Justice: Consistency	0.176*** (0.027)	0.157	6.53	-0.310* (0.149)	0.733	-0.284 [†] (0.151)	0.753
Procedural Justice: Accuracy	0.058* (0.025)	0.066	2.26	-0.086 (0.140)	0.917	-0.080 (0.140)	0.923
Procedural Justice: Correctability	0.021 (0.020)	0.022	1.02	-0.001 (0.116)	0.999	0.001 (0.116)	1.001
Procedural Justice: Ethical Treatment	0.257*** (0.027)	0.268	9.57	0.081 (0.150)	1.084	0.121 (0.155)	1.129
Legitimacy	-	-	-	-	-	-0.153 (0.155)	0.858

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

* SB = |Standardized Beta Coefficient|

* OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

with judges on legitimacy. With regard to recidivism (see model 2 and model 3), the experience of procedural justice with the police is a significant predictor of subsequent involvement in criminal activity, and this effect remains significant when legitimacy is included in the model ($\beta = -0.826$, $s.e.=0.344$, $OR=0.438$). More positive evaluations of procedural justice with the police decrease the likelihood of recidivism among novice offenders. The experience of procedural justice with the judge is not a significant predictor of recidivism for first-time offenders.

Interesting results emerge when looking at the relationship between personal and vicarious experiences of procedural justice with the police and personal and vicarious experiences of procedural justice with the judge (see Table 38). Only personal experiences of procedural justice with the police ($\beta = 0.346$, $s.e.=0.054$, $SB = 0.325$) and vicarious experiences of procedural justice with the judge ($\beta = 0.243$, $s.e.=0.055$, $SB = 0.265$) are related to perceptions of legitimacy with personal experiences of procedural justice with police exerting the stronger effect on perceptions of legitimacy. Among the sample of novice offenders, only personal experiences of procedural justice with the police significantly predict recidivism, and this relationship holds when legitimacy is included in the model ($\beta = -0.685$, $s.e.=0.299$, $OR = .504$). Once again, more positive experiences of procedural justice with the police, in the form of direct, personal experiences, decrease the likelihood of recidivism among novice offenders.

Table 39 depicts the relationship between each of the elements of procedural justice, legitimacy and recidivism among novice offenders. Among this subgroup of serious offenders, impartiality, consistency, accuracy and ethical treatment are related to perceptions of legitimacy. Furthermore, ethical treatment ($SB = 0.229$) is

Table 37: Relationships between sources of procedural justice, legitimacy and total self-reported offending among first time offenders. ^{*}

	Model 1: Legitimacy (N=339)			Model 2: Self-reported Offending (N=319)		Model 3: Self-reported Offending (N = 319)	
	Estimate (S.E.)	SB [*]	T- value	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police	0.422*** (0.063)	0.354	6.65	-0.806* (0.322)	0.447	-0.826* (0.344)	0.438
Procedural Justice Judge	0.324*** (0.062)	0.271	5.20	-0.030 (0.311)	0.970	-0.045 (0.323)	0.956
Legitimacy	-	-	-	-	-	0.048 (0.285)	1.049

^{*}All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

^{*} SB = |Standardized Beta Coefficient|

^{*} OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 38: Relationships between different sources of procedural justice, legitimacy and total self-reported offending among first time offenders. ^{*}

	Model 1: Legitimacy (N=339)			Model 2: Self-reported Offending (N=319)		Model 3: Self-reported Offending (N = 319)	
	Estimate (S.E.)	SB [*]	T- value	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police: Personal Experience	0.346*** (0.054)	0.325	6.40	-0.721* (0.280)	0.486	-0.685* (0.299)	0.504
Procedural Justice Police: Vicarious Experience	0.025 (0.045)	0.028	0.56	-0.281 (0.226)	0.755	-0.279 (0.226)	0.757
Procedural Justice Judge: Personal Experience	0.083 (0.058)	0.081	1.42	-0.018 (0.292)	0.983	-0.009 (0.292)	0.991
Procedural Justice Judge: Vicarious Experience	0.243*** (0.055)	0.265	4.43	0.178 (0.276)	1.195	0.200 (0.283)	1.221
Legitimacy	-	-	-	-	-	-0.101 (0.294)	0.904

^{*}All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

^{*} SB = Standardized Beta Coefficient

^{*} OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 39: Relationships between different elements of procedural justice, legitimacy and total self-reported offending among first time offenders. *

	Model 1: Legitimacy (N=339)			Model 2: Self-reported Offending (N=319)		Model 3: Self-reported Offending (N = 319)	
	Estimate (S.E.)	SB*	T- value	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice: Representation	0.047 (0.036)	0.060	1.30	-0.243 (0.179)	0.784	-0.243 (0.179)	0.785
Procedural Justice: Impartiality	0.176** (0.058)	0.181	3.06	0.341 (0.293)	1.406	0.342 (0.300)	1.408
Procedural Justice: Consistency	0.179** (0.057)	0.149	3.14	-0.149 (0.288)	0.862	-0.148 (0.293)	0.863
Procedural Justice: Accuracy	0.119* (0.055)	0.125	2.18	-0.377 (0.272)	0.686	-0.376 (0.274)	0.687
Procedural Justice: Correctability	0.072 (0.047)	0.064	1.53	0.083 (0.234)	1.087	0.084 (0.236)	1.087
Procedural Justice: Ethical Treatment	0.224*** (0.059)	0.229	3.82	-0.432 (0.300)	0.650	-0.430 (0.304)	0.650
Legitimacy	-	-	-	-	-	-0.007 (0.289)	0.992

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

* SB = Standardized Beta Coefficient

* OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

the strongest predictor of legitimacy followed by impartiality (SB=0.181), consistency (SB = 0.149) and accuracy (0.125). Contrary to expectations, though, none of the elements of procedural justice are related to subsequent offending behavior among these first-time offenders.

Limiting the sample to only seasoned offenders, both the experience of procedural justice with the police and the experience of procedural justice with the judge are related to perceptions of legitimacy (see model 1 in Table 40). Similar to the novice offenders, the effect of the experience of procedural justice with the police on perceptions of legitimacy (SB = 0.300) is stronger than the experience of procedural justice with the judge (SB=0.298). Unlike the novice offenders, though, neither the experience of procedural justice with the judge nor the experience of procedural justice with the police is related to subsequent offending (see model 2 and model 3 in Table 30).

Each of the four measures of personal and vicarious experiences with the police and judges are related to perceptions of legitimacy among repeat offenders (see model 1 in Table 41). Unlike the novice offenders, both vicarious experiences of procedural justice with the police and personal experiences of procedural justice with the judge are significantly related to perceptions of legitimacy. Personal experiences of procedural justice with the police (SB = 0.277) exert the strongest effect on perceptions of legitimacy followed by vicarious experiences of procedural justice with the judge (SB = 0.191), personal experiences of procedural justice with the judge (SB=0.151) and then vicarious experiences of procedural justice with the police (SB=0.064). However, none of the sources of procedural justice are related to recidivism (see model 2 and model 3 in Table 41).

Table 40: Relationships between sources of procedural justice, legitimacy and total self-reported offending among repeat offenders. *

	Model 1: Legitimacy (N=981)			Model 2: Self-reported Offending (N=868)		Model 3: Self-reported Offending (N = 868)	
	Estimate (S.E.)	SB [†]	T- value	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police	0.329*** (0.033)	0.298	9.97	-0.052 (0.192)	0.949	0.019 (0.202)	1.019
Procedural Justice Judge	0.316*** (0.032)	0.300	9.87	-0.035 (0.192)	0.966	0.028 (0.201)	1.028
Legitimacy	-	-	-	-	-	-0.205 (0.190)	0.815

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[†] SB = |Standardized Beta Coefficient|

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 41: Relationships between different sources of procedural justice, legitimacy and total self-reported offending among repeat offenders. *

	Model 1: Legitimacy (N=981)			Model 2: Self-reported Offending (N=868)		Model 3: Self-reported Offending (N = 868)	
	Estimate (S.E.)	SB [†]	T- value	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police: Personal Experience	0.280*** (0.031)	0.277	9.05	-0.076 (0.181)	0.925	-0.014 (0.190)	0.986
Procedural Justice Police: Vicarious Experience	0.051* (0.024)	0.064	2.10	0.016 (0.143)	1.016	0.027 (0.144)	1.028
Procedural Justice Judge: Personal Experience	0.140*** (0.033)	0.151	4.26	0.118 (0.201)	1.125	0.147 (0.203)	1.158
Procedural Justice Judge: Vicarious Experience	0.158*** (0.029)	0.191	5.40	-0.126 (0.177)	0.882	-0.092 (0.180)	0.912
Legitimacy	-	-	-	-	-	-0.212 (0.191)	0.809

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[†] SB = Standardized Beta Coefficient

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Among repeat offenders, only ethical treatment (SB = 0.265), consistency (SB = 0.170), impartiality (SB = 0.149) and representation (SB = 0.083) are associated with perceptions of legitimacy (see model 1 in Table 42). Unlike novice offenders, accuracy is not related to perceptions of legitimacy. Similar to novice offenders, ethical treatment has the strongest relationship with perceptions of legitimacy, and none of the elements of fair treatment predict subsequent offending in this sample.⁵⁹

Conclusion

Due to the vast amount of results and tables presented in this chapter, tables 43-49 provide a summary of the results within this chapter as they relate to the overarching research questions driving this dissertation.⁶⁰ Table 43 summarizes the relationship between procedural justice, legitimacy and each outcome of recidivism with a one-year follow-up period. Table 44 reviews the results examining the validity of Procedural Justice Theory with a 6-month follow-up period. Table 45 condenses the results examining the relationship between procedural justice, legitimacy and the frequency of offending. Table 46 summarizes the results examining the validity of Procedural Justice Theory among novice offenders while Table 47 condenses the results determining the validity of Procedural Justice Theory among repeat offenders. While Table 48 reviews the significance of each operationalization of procedural justice in relation to recidivism, Table 49 repeats these results among the sample of novice offenders.

⁵⁹ All models in this chapter were rerun with the inclusion of the treatment variable – an indicator of whether or not the respondent received some form of substance use treatment during the time period in question (see Chapter 3 for more details). Although the treatment variable was a significant predictor of recidivism with a robust, negative relationship, it did not alter any of the relationships between the other variables of interest and each outcome.

⁶⁰ Given the vast number of regression models and significance tests run in this chapter, it is not surprising that a few of the findings may be anomalous.

Table 42: Relationships between different elements of procedural justice, legitimacy and total self-reported offending among repeat offenders. *

	Model 1: Legitimacy (N=981)			Model 2: Self-reported Offending (N=868)		Model 3: Self-reported Offending (N = 868)	
	Estimate (S.E.)	SB*	T- value	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice: Representation	0.057** (0.020)	0.083	2.83	0.129 (0.121)	1.138	0.143 (0.122)	1.154
Procedural Justice: Impartiality	0.133*** (0.029)	0.149	4.61	-0.254 (0.171)	0.775	-0.225 (0.174)	0.799
Procedural Justice: Consistency	0.186*** (0.031)	0.170	6.00	-0.314 [†] (0.180)	0.731	-0.276 (0.183)	0.758
Procedural Justice: Accuracy	0.045 (0.029)	0.053	1.55	0.080 (0.170)	1.083	0.086 (0.170)	1.089
Procedural Justice: Correctability	0.011 (0.023)	0.013	0.49	-0.040 (0.138)	0.961	-0.039 (0.138)	0.961
Procedural Justice: Ethical Treatment	0.252*** (0.031)	0.265	8.18	0.187 (0.181)	1.206	0.242 (0.188)	1.273
Legitimacy	-	-	-	-	-	-0.207 (0.192)	0.813

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

* SB = Standardized Beta Coefficient

* OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 43: Summary of results testing Procedural Justice Theory with a 1 year follow-up for full sample of serious adolescent offenders

	Arrest	Days to Arrest	Total Offending	Violent Offending	Income-generating Offending	Drug Use
Procedural Justice			-			
Legitimacy				-		-
Procedural Justice controlling for Legitimacy						
Legitimacy controlling for Procedural Justice						

+ Positive, significant relationship between two variables for $p < .05$.
 - Negative, significant relationship between two variables for $p < .05$.

Table 44: Summary of results testing Procedural Justice Theory with a 6 month follow-up for full sample of serious adolescent offenders

	Total Offending	Violent Offending	Income-generating Offending	Drug Use
Procedural Justice	-	-		
Legitimacy	-	-		-
Procedural Justice controlling for Legitimacy				
Legitimacy controlling for Procedural Justice				

+ Positive, significant relationship between two variables for $p < .05$.
 - Negative, significant relationship between two variables for $p < .05$.

Table 45: Summary of results testing Procedural Justice Theory using Multinomial Regression: Comparing offenders who never recidivate to those who recidivate once and offenders who never recidivate to those who recidivate two or more times

	No Offenses vs. 1 Offense				No Offenses vs. 2+ Offenses			
	Total Offending	Violent Offending	Income-generating Offending	Drug Use	Total Offending	Violent Offending	Income-generating Offending	Drug Use
Procedural Justice					-	-		
Legitimacy						-		-
Procedural Justice controlling for Legitimacy								
Legitimacy controlling for Procedural Justice								-

+ Positive, significant relationship between two variables for $p < .05$.
 - Negative, significant relationship between two variables for $p < .05$.

Table 46: Summary of results testing Procedural Justice Theory among novice offenders

	Arrest	Days to Arrest	Total Offending	Violent Offending	Income-generating Offending	Drug Use
Procedural Justice			-	-	-	
Legitimacy	-	-				-
Procedural Justice controlling for Legitimacy			-	-		
Legitimacy controlling for Procedural Justice	-	-				-

+ Positive, significant relationship between two variables for $p < .05$.

- Negative, significant relationship between two variables for $p < .05$.

Table 47: Summary of results testing Procedural Justice Theory among repeat offenders

	Arrest	Days to Arrest	Total Offending	Violent Offending	Income-generating Offending	Drug Use
Procedural Justice						
Legitimacy						
Procedural Justice controlling for Legitimacy						
Legitimacy controlling for Procedural Justice						

+ Positive, significant relationship between two variables for $p < .05$.

- Negative, significant relationship between two variables for $p < .05$.

Table 48: Summary of results examining the relationship between different measures of procedural justice and total self-reported recidivism, controlling for perceptions of legitimacy⁶¹

Total Offending	
Procedural Justice Police	-
Procedural Justice Judge	
Procedural Justice Police: Personal Experience	
Procedural Justice Police: Vicarious Experience	
Procedural Justice Judge: Personal Experience	
Procedural Justice Judge: Vicarious Experience	
Representation	
Impartiality	
Consistency	-
Accuracy	
Correctability	
Ethical Treatment	

+ Positive, significant relationship between two variables for $p < .10$.
 - Negative, significant relationship between two variables for $p < .10$.

⁶¹ It should be noted that none of these different operationalizations of procedural justice are significant predictors of recidivism when perceptions of legitimacy are included as a covariate in the model.

Table 49: Summary of results examining the relationship between different measures of procedural justice and total self-reported recidivism among novice offenders⁶²

Total Offending	
Procedural Justice Police	-
Procedural Justice Judge	
Procedural Justice Police: Personal Experience	-
Procedural Justice Police: Vicarious Experience	
Procedural Justice Judge: Personal Experience	
Procedural Justice Judge: Vicarious Experience	
Representation	
Impartiality	
Consistency	
Accuracy	
Correctability	
Ethical Treatment	

+ Positive, significant relationship between two variables for $p < .05$.
 - Negative, significant relationship between two variables for $p < .05$.

⁶² None of the operationalizations of procedural justice are significant predictors of recidivism for repeat offenders.

Chapter 6: An Racialized Approach to Procedural Justice: Results

Due to diminished sample sizes, this analysis is limited to males across race/ethnicity.⁶³ Before assessing the validity of Procedural Justice Theory across males of different race/ethnicities, it is worthwhile to determine whether or not significant differences in evaluations of procedural justice, perceptions of legitimacy and recidivism exist among adolescent, male offenders of different race/ethnicities. Regarding procedural justice, white males, on average, evaluate their experience of procedural justice as significantly higher ($\bar{x} = 0.077, s.d. = 0.413, n = 225$) than black males ($\bar{x} = -0.090, s.d. = 0.394, n = 498$). Hispanic males also have a significantly higher rating of their experience of procedural justice ($\bar{x} = 0.054, s.d. = 0.379, n = 398$) compared to black males. There is no significant difference in overall evaluations of procedural justice between white males and Hispanic males. Perceptions of legitimacy follow a similar pattern across race/ethnicity in this sample of serious adolescent offenders. Both white males ($\bar{x} = 2.393, s.d. = 0.586, n = 225$) and Hispanic males ($\bar{x} = 2.378, s.d. = 0.551, n = 398$) have significantly higher perceptions of legitimacy, on average, compared to black males ($\bar{x} = 2.144, s.d. = 0.543, n = 498$), but perceptions of legitimacy are not significantly different between white male offenders and Hispanic male offenders. In sum, this sample of black adolescent offenders has lower perceptions of legitimacy and rate their experience of procedural justice lower compared to their white and Hispanic counterparts.

Analyses also indicate that recidivism rates vary across race/ethnicity among male offenders. For subsequent arrest, Hispanic adolescents are significantly more likely to be

⁶³ The total number of females available for analysis is 184. When the females are grouped by race/ethnicity, the sample sizes diminish even further: 49 white females; 68 black females; and 56 Hispanic females.

subsequently arrested ($\bar{x} = 0.836, n = 342$) than white males ($\bar{x} = 0.746, n = 197$) and black males ($\bar{x} = 0.776, n = 371$) at an alpha level of .05. There are no significant differences in arrest between white males and black males, though. Looking at the number of days until first arrest, Hispanics have a significantly shorter average number of days until their next arrest ($\bar{x} = 1,429.4, s. d. = 1,257.0, n = 397$) compared to whites ($\bar{x} = 1,657.9, s. d. = 1,336.4, n = 225$) and blacks ($\bar{x} = 1,676.4, s. d. = 1,310.6, n = 481$), but there is no significant difference in the number of days until arrest between white and black adolescent offenders. For total self-reported offending, the only significant difference in recidivism occurs between white adolescents and black adolescents; white adolescents are more likely to self-report committing a subsequent criminal act ($\bar{x} = 0.796, n = 211$) compared to black adolescents ($\bar{x} = 0.694, n = 432$). White, male adolescents are also significantly more likely to report committing a subsequent violent crime ($\bar{x} = 0.723, n = 211$) compared to black males ($\bar{x} = 0.623, n = 432$) and Hispanic males ($\bar{x} = 0.697$) as well as involvement in income-generating crime ($\bar{x} = 0.536, n = 211$) and drug use ($\bar{x} = 0.536, n = 211$) compared to black and Hispanic males. In addition, Hispanic males are significantly more likely to commit income-generating crime ($\bar{x} = 0.476, n = 357$) and use drugs ($\bar{x} = 0.483, n = 432$) compared to blacks ($\bar{x} = 0.372$ for income-generating crime, $\bar{x} = 0.432$ for drug use, $n=432$).

It is also possible to determine whether or not experiences of procedural justice and perceptions of legitimacy vary over time across white males, black males and Hispanic males. For white males, there are no significant differences over time in evaluations of the experience of procedural justice (baseline: $\bar{x}=0.077, s.d.=0.413, n=225$;

period 1: \bar{x} =0.055, s.d.=0.494, n=214; period 2: \bar{x} =-0.003, s.d.=0.474, n=217) or perceptions of legitimacy (baseline: \bar{x} =2.393, s.d.=0.586, n=225; period 1: \bar{x} =2.397, s.d.=0.555, n=214; period 2: \bar{x} =2.434, s.d.=0.533, n=217). Among black males, there is a significant difference in evaluations of the experience of procedural justice between the baseline interview and the period 2 interview. Among black males, evaluations of procedural justice at the baseline interview are significantly lower than evaluations of procedural justice one year later (baseline: \bar{x} =-0.090, s.d.=0.394, n=492; period 2: \bar{x} =-0.064, s.d.=0.447, n=253), but there is not a significant difference in mean evaluations of procedural justice between the baseline interview and the period 1 interview.⁶⁴ There are no significant changes in perceptions of legitimacy among these black male offenders between the three interviews (baseline: \bar{x} =2.144, s.d.=0.543, n=492; period 1: \bar{x} =2.143, s.d.=0.573, n=453; period 2: \bar{x} =2.207, s.d.=0.599, n=451). Similar to white males, there are no significant changes over time in evaluations of procedural justice (baseline: \bar{x} =0.054, s.d.=0.379, n=398; period 1: \bar{x} =0.059, s.d.=0.419, n=373; period 2: \bar{x} =0.024, s.d.=0.465, n=370) and perceptions of legitimacy (baseline: \bar{x} =2.378, s.d.=0.551, n=398; period 1: \bar{x} =2.334, s.d.=0.561, n=373; period 2: \bar{x} =2.354, s.d.=0.550, n=370) among Hispanic males.

Validity of Procedural Justice Theory across white, black and Hispanic male adolescent offenders

Procedural Justice Theory states that the experience of procedural justice is the key antecedent of perceptions of legitimacy. Table 50 depicts the relationship between

⁶⁴ There is no significant difference between the mean evaluation of procedural justice at the baseline interview and the mean evaluation of procedural justice at the first interview (\bar{x} =-0.064, s.d.=0.447, n=453) among the black, male respondents.

the experience of procedural justice and perceptions of legitimacy among first the male sample as a whole, and then white males, black males and Hispanic males. For the males in this sample and among each subgroup of male offenders, procedural justice is positively associated with perceptions of legitimacy, and a comparison of the standardized beta coefficients reveals that procedural justice is also the strongest predictor of legitimacy among each group of serious adolescent offenders. Subsequent analyses also reveal that the strength of the relationship between procedural justice and perceptions of legitimacy does not vary across race/ethnicity. Using Paternoster and colleagues' formula to test the equality of coefficients,⁶⁵ there are no significant differences in the effect of procedural justice on legitimacy between white males ($\beta=0.822$, s.e. =0.08), black males ($\beta=0.697$, s.e. =0.054), and Hispanic males ($\beta=0.757$, s.e. = 0.064).

Procedural Justice Theory also states that the experience of procedural justice is a universal predictor of compliant behavior, and this relationship is mediated by perceptions of legitimacy. Therefore, it is expected that the experience of procedural justice would be negatively related to recidivism among not just male adolescent offenders as a whole but also white males, black males and Hispanic males. The results presented in Table 51 and Table 52 do not coincide with the assertions made by Tyler

⁶⁵ See Chapter 4 for exact formula.

Table 50: Ordinary Least Squares regression models examining the relationship between the experience of procedural justice and perceptions of legitimacy among males across race/ethnicity.⁶⁶

	Model 1 Males (N=1,142)		Model 2 White Males (N = 222)		Model 3: Black Males (N = 482)		Model 4: Hispanic Males (N = 386)	
	Estimate (S.E.)	SB	Estimate (S.E.)	SB	Estimate (S.E.)	SB	Estimate (S.E.)	SB
Procedural Justice	0.736 (0.035)	0.517***	0.822 (0.080)	0.567***	0.697 (0.054)	0.504***	0.757 (0.064)	0.520***
Black	-0.109 (0.040)	0.095**	-	-	-	-	-	-
Hispanic	0.026 (0.038)	0.022	-	-	-	-	-	-
Age	-0.190 (0.012)	0.039	-0.031 (0.029)	0.057	-0.024 (0.018)	0.056	-0.007 (0.021)	0.014
Philadelphia	-0.020 (0.036)	0.018	-0.071 (0.080)	0.054	-0.020 (0.069)	0.012	-0.011 (0.058)	0.008
Both Parents	-0.028 (0.037)	0.018	-0.073 (0.073)	0.054	0.006 (0.077)	0.003	-0.005 (0.057)	0.003
SES	-0.002 (0.015)	0.003	-0.007 (0.036)	0.012	0.035 (0.026)	0.050	-0.017 (0.024)	0.029
Legal Cynicism	-0.112 (0.023)	0.121***	-0.086 (0.051)	0.094 [†]	-0.106 (0.033)	0.122**	-0.138 (0.041)	0.144**
Rewards of Crime	-0.017 (0.006)	0.074	-0.014 (0.014)	0.061	-0.009 (0.010)	0.035	-0.027 (0.009)	0.127**
Costs of Crime	0.001 (0.002)	0.111	0.005 (0.006)	0.052	-0.004 (0.003)	0.043	-0.005 (0.004)	0.056
Certainty of Punishment	0.030 (0.006)	0.124	0.025 (0.016)	0.090	0.032 (0.009)	0.138**	0.027 (0.010)	0.113**
Priors	-0.002 (0.006)	0.008	-0.011 (0.015)	0.045	0.004 (0.010)	0.015	0.000 (0.011)	0.001

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

B = |Standardized Beta Statistic|

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

⁶⁶ For all analyses across race/ethnicity, the covariates for the original offense were dropped from the tables given that each covariate operates the same way across race/ethnicity among the male sample.

(1990, 2006; see also Tyler & Huo, 2002) and Procedural Justice Theory. Neither procedural justice nor perceptions of legitimacy are related to subsequent arrest. However, it should be noted that in the previous chapter, the experience of procedural justice and perceptions of legitimacy were never related to subsequent arrest, so it is not completely unexpected that the experience of procedural justice is unrelated to this official measure of recidivism across males of different race/ethnicities.

Survival analyses were conducted to examine the relationship between procedural justice, legitimacy and time to arrest among the entire sample of males and then more specifically white males, black males and Hispanic males. It was expected that a positive relationship would exist between the experience of procedural justice and this second official measure of recidivism, and one's perception of legitimacy would mediate this relationship. For white males and black males, one's evaluation of the experience of procedural justice is unrelated to the time until one's next arrest (see Table 53). However, among Hispanic males, this relationship is marginally significant ($\beta=0.343$, s.e. = 0.204, $p<.10$). A one standard deviation increase in one's experience of procedural justice is associated with a 0.343 increase in the number of days until one's next arrest among Hispanic, male adolescents. One's perception of legitimacy does not mediate this relationship. Also worthy of note is the relationship between perceptions of legitimacy and the number of days until one is arrested among white males. As one's perception of legitimacy increases, the number of days until one's next arrest decreases ($\beta=-0.310$,

Table 51: Logistic regression models analyzing the relationship between procedural justice, legitimacy and subsequent arrest among males (N=931).*

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	0.000 (0.224)	1.000	-	-	0.169 (0.266)	1.183
Legitimacy	-	-	-0.158 (0.160)	0.854	-0.222 (0.190)	0.800
Black	0.336 (0.249)	1.400	0.311 (0.251)	1.364	0.308 (0.251)	1.360
Hispanic	0.652 (0.237)	1.920**	0.651 (0.238)	1.917**	0.654 (0.238)	1.924**
Age	-0.237 (0.075)	0.789**	-0.247 (0.075)	0.781**	-0.234 (0.075)	0.784**
Philadelphia	0.072 (0.227)	1.074	0.054 (0.226)	1.055	0.068 (0.227)	1.071
Both Parents	-0.118 (0.232)	0.889	-0.121 (0.233)	0.886	-0.121 (0.232)	0.886
SES	-0.050 (0.100)	0.951	-0.045 (0.099)	0.956	-0.050 (0.100)	0.952
Legal Cynicism	-0.027 (0.144)	0.973	-0.045 (0.146)	0.956	-0.048 (0.146)	0.953
Rewards of Crime	0.072 (0.039)	1.075 [†]	0.069 (0.039)	1.071 [†]	0.068 (0.038)	1.070 [†]
Costs of Crime	-0.01 (0.014)	0.990	-0.011 (0.014)	0.989	-0.010 (0.014)	0.990
Certainty of Punishment	-0.046 (0.039)	0.955	-0.040 (0.039)	0.961	-0.040 (0.039)	0.960
Priors	0.170 (0.046)	1.185***	0.171 (0.046)	1.186***	0.172 (0.046)	1.187***

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 52: Logistic regression models analyzing the relationship between procedural justice, legitimacy and subsequent arrest among males across race/ethnicity.*

	White Males (N = 194)						Black Males (N = 361)						Hispanic Males (N = 334)					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8		Model 9	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	0.243 (0.465)	1.275	-	-	0.530 (0.578)	1.700	-0.165 (0.360)	0.848	-	-	0.156 (0.424)	1.169	0.607 (0.443)	1.835	-	-	0.836 (0.531)	2.308
Legitimacy	-	-	-0.118 (0.311)	0.888	-0.327 (0.386)	0.721	-	-	-0.406 (0.282)	0.667	-0.471 (0.282)	0.625	-	-	0.029 (0.305)	1.029	-0.289 (0.366)	0.749
Age	-0.034 (0.164)	0.966	-0.065 (0.163)	0.937	-0.046 (0.165)	0.955	-0.334** (0.121)	0.716**	-0.351** (0.122)	0.704**	-0.350 (0.122)	0.704**	-0.377* (0.151)	0.686*	-0.392* (0.150)	0.676*	-0.379 (0.151)	0.685*
Philadelphia	-0.061 (0.453)	0.941	-0.139 (0.449)	0.871	-0.075 (0.455)	0.928	0.264 (0.435)	1.303	0.248 (0.435)	1.282	0.260 (0.437)	1.297	0.299 (0.423)	1.349	0.247 (0.421)	1.280	0.287 (0.423)	1.333
Both Parents	-0.116 (0.408)	0.891	-0.104 (0.407)	0.901	-0.130 (0.408)	0.878	-0.830 [†] (0.498)	0.436	-0.861 (0.501)	0.423	-0.855 [†] (0.502)	0.425	0.330 (0.415)	1.391	0.300 (0.414)	1.350	0.348 (0.417)	1.416
SES	0.104 (0.214)	1.110	0.118 (0.214)	1.125	0.100 (0.215)	1.105	0.005 (0.169)	1.005	0.025 (0.169)	1.025	0.019 (0.170)	1.019	-0.117 (0.174)	0.890	-0.108 (0.174)	0.897	-0.122 (0.176)	0.886
Legal Cynicism	0.190 (0.290)	1.209	0.152 (0.291)	1.164	0.169 (0.293)	1.184	-0.284 (0.229)	0.753	-0.304 (0.230)	0.738	-0.307 (0.230)	0.736	0.100 (0.300)	1.101	0.087 (0.299)	1.090	0.059 (0.303)	1.061
Rewards of Crime	0.086 (0.079)	1.090	0.081 (0.079)	1.084	0.079 (0.079)	1.082	0.072 (0.070)	1.074	0.065 (0.069)	1.067	0.064 (0.069)	1.066	0.038 (0.066)	1.039	0.034 (0.066)	1.035	0.031 (0.067)	1.032
Costs of Crime	0.003 (0.032)	1.003	0.003 (0.031)	1.003	0.006 (0.032)	1.006	-0.028 (0.023)	0.972	-0.031 (0.024)	0.969	-0.031 (0.024)	0.970	0.009 (0.025)	1.009	0.002 (0.024)	1.002	0.010 (0.025)	1.010
Certainty of Punishment	-0.024 (0.091)	0.976	-0.011 (0.092)	0.990	-0.015 (0.092)	0.985	-0.039 (0.060)	0.962	-0.021 (0.062)	0.979	-0.020 (0.062)	0.980	-0.110 (0.074)	0.896	-0.093 (0.073)	0.911	-0.105 (0.074)	0.900
Priors	0.133 (0.010)	1.142	0.133 (0.099)	1.142	0.130 (0.010)	1.139	0.220 (0.077)	1.245**	0.225 (0.078)	1.252**	0.227 (0.078)	1.254**	0.148 (0.081)	1.160 [†]	0.143 (0.081)	1.154 [†]	0.151 (0.081)	1.163 [†]

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

*** p < .001 (two-tailed test)

Table 53: Survival analysis models examining the relationship between procedural justice, legitimacy and time to arrest among males across race/ethnicity.*

	Males (N=1,128)			White Males (N = 222)			Black Males (N = 470)			Hispanic (N=386)		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Procedural Justice	0.079 (0.098)	-	0.140 (0.118)	0.051 (0.227)	-	0.320 (0.281)	-0.015 (0.158)	-	0.045 (0.192)	0.276 (0.173)	-	0.343 [†] (0.204)
Legitimacy	-	-0.023 (0.071)	-0.079 (0.085)	-	-0.184 (0.153)	-0.310 [†] (0.188)	-	-0.060 (0.118)	-0.079 (0.144)	-	0.041 (0.118)	-0.086 (0.140)
Black	0.050 (0.119)	0.046 (0.119)	0.041 (0.119)	-	-	-	-	-	-	-	-	-
Hispanic	0.278** (0.107)	0.276** (0.107)	0.279** (0.108)	-	-	-	-	-	-	-	-	-
Age	-0.080* (0.033)	-0.084 (0.033)	-0.082* (0.033)	0.008 (0.079)	-0.008 (0.080)	-0.004 (0.080)	-0.085 (0.052)	-0.087 (0.052)	-0.086 [†] (0.052)	-0.157** (0.058)	-0.162** (0.052)	-0.158** (0.059)
Philadelphia	0.001 (0.104)	-0.137 (0.104)	-0.002 (0.104)	0.047 (0.220)	0.014 (0.218)	0.033 (0.219)	-0.137 (0.202)	-0.145 (0.202)	-0.141 (0.202)	0.104 (0.162)	0.076 (0.162)	0.101 (0.162)
Both Parents	0.006 (0.106)	0.005 (0.106)	0.004 (0.106)	0.011 (0.201)	0.004 (0.201)	-0.023 (0.202)	-0.186 (0.255)	-0.181 (0.255)	-0.174 (0.256)	0.233 (0.157)	0.233 (0.157)	0.230 (0.157)
SES	-0.017 (0.043)	-0.015 (0.043)	-0.017 (0.043)	-0.002 (0.103)	-0.002 (0.102)	-0.000 (0.103)	0.037 (0.083)	0.039 (0.083)	0.037 (0.083)	-0.088 (0.063)	-0.081 (0.063)	-0.088 (0.063)
Legal Cynicism	0.003 (0.066)	-0.002 (0.066)	-0.004 (0.066)	0.126 (0.153)	0.101 (0.152)	0.124 (0.153)	-0.045 (0.101)	-0.051 (0.102)	-0.052 (0.101)	-0.053 (0.115)	-0.053 (0.116)	-0.062 (0.116)
Rewards of Crime	0.039* (0.017)	0.037* (0.017)	0.037* (0.017)	0.032 (0.038)	0.028 (0.038)	0.029 (0.038)	0.030 (0.028)	0.023 (0.028)	0.028 (0.028)	0.038 (0.026)	0.036 (0.027)	0.036 (0.026)
Costs of Crime	-0.006 (0.007)	-0.007 (0.006)	-0.006 (0.006)	0.013 (0.015)	0.013 (0.015)	0.013 (0.015)	-0.016 (0.010)	-0.016 (0.010)	-0.016 (0.010)	-0.008 (0.010)	-0.011 (0.010)	-0.007 (0.009)
Certainty of Punishment	0.010 (0.017)	0.013 (0.017)	0.012 (0.017)	0.017 (0.045)	0.024 (0.045)	0.022 (0.045)	0.021 (0.027)	0.023 (0.028)	0.024 (0.027)	-0.026 (0.029)	-0.019 (0.029)	-0.024 (0.029)
Priors	0.055** (0.017)	0.054** (0.017)	0.054** (0.017)	0.039 (0.039)	0.034 (0.039)	0.034 (0.038)	0.051 [†] (0.028)	0.050 [†] (0.028)	0.050 [†] (0.027)	0.066* (0.029)	0.066* (0.029)	0.066* (0.029)

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

s.e.=0.188). Even though this relationship is marginally significant ($p < .10$), it is contrary to the hypothesis derived from Procedural Justice Theory.⁶⁷

I now turn to the relationship between procedural justice, perceptions of legitimacy and self-reported offending. Among all males, both procedural justice and perceptions of legitimacy are significant predictors of total self-reported offending (see Table 54). A one standard deviation increase in one's evaluation of procedural justice is associated with an individual being 1.57 times less likely to commit a subsequent act of crime. Each one unit increase in one's perception of legitimacy is associated with a 1.44 decrease in the likelihood of committing a subsequent crime. As model 3 in Table 54 depicts, though, these relationships become insignificant when both procedural justice and legitimacy are included as predictors of recidivism. Turning to each subsample of males, there is evidence of varying relationships between procedural justice, legitimacy and recidivism (see Table 55). Among Hispanic males, the experience of procedural justice and perceptions of legitimacy are never related to subsequent offending. For white males, only legitimacy is related to subsequent offending ($\beta = -0.610$, s.e. = 0.344, OR=0.544; see model 2) but this relationship becomes insignificant when procedural justice is included as a predictor of recidivism. For black males, on the other hand, the experience of procedural justice is negatively related to subsequent involvement in crime ($\beta = -0.663$, s.e.=0.302). In fact, a one standard deviation increase in one's experience of procedural justice is associated with a 94% decrease in the likelihood of committing a subsequent crime. When one's perception of legitimacy is included in the model, though, this relationship is only marginally significant. Similar results are seen for self-reported

⁶⁷ It is possible the two previous findings discussed may be anomalous given that procedural justice on its own was not a significant predictor of the time to arrest among Hispanic males and perceptions of legitimacy on their own were not related to the time to arrest among white males.

Table 54: Logistic regression models examining the relationship between procedural justice, legitimacy and total self-reported offending over 1 year among males (N=1,025). *

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	-0.450 (0.200)	0.638*	-	-	-0.260 (0.236)	0.771
Legitimacy	-	-	-0.362 (0.146)	0.696*	-0.261 (0.173)	0.770
Time on the Street	-0.526 (0.242)	0.591*	-0.495 (0.242)	0.609*	-0.513 (0.243)	0.599*
Black	-0.552 (0.237)	0.576*	-0.600 (0.238)	0.549*	-0.589 (0.238)	0.555*
Hispanic	-0.402 (0.224)	0.669 [†]	-0.384 (0.224)	0.681	-0.390 (0.224)	0.677 [†]
Age	-0.219 (0.068)	0.803***	-0.219 (0.068)	0.804***	-0.224 (0.068)	0.799***
Philadelphia	-0.040 (0.209)	0.958	-0.013 (0.207)	0.987	-0.041 (0.209)	0.959
Both Parents	-0.207 (0.209)	0.813	-0.216 (0.210)	0.806	-0.214 (0.209)	0.808
SES	-0.080 (0.089)	0.923	-0.090 (0.089)	0.914	-0.083 (0.090)	0.920
Legal Cynicism	0.060 (0.131)	1.061	0.022 (0.133)	1.022	0.032 (0.133)	1.032
Rewards of Crime	0.222 (0.039)	1.249***	0.215 (0.039)	1.240***	0.216 (0.039)	1.241***
Costs of Crime	-0.007 (0.014)	0.992	-0.005 (0.015)	0.995	-0.007 (0.015)	0.993
Certainty of Punishment	-0.067 (0.034)	0.936 [†]	-0.060 (0.034)	0.942 [†]	-0.058 (0.034)	0.943 [†]
Priors	0.024 (0.038)	1.024	0.025 (0.038)	1.026	0.023 (0.038)	1.023

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 55: Logistic regression models examining the relationship between procedural justice, legitimacy and total self-reported offending over 1 year among males across race/ethnicity. *

	White Males (N = 208)						Black Males (N = 470)						Hispanic Males (N=347)					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8		Model 9	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	-0.436 (0.482)	0.647	-	-	0.196 (0.629)	1.216	-0.663 (0.302)	0.516*	-	-	-0.651 (0.353)	0.522 [†]	-0.264 (0.382)	0.768	-	-	0.050 (0.453)	1.051
Legitimacy	-	-	-0.610 (0.344)	0.544 [†]	-0.697 (0.445)	0.498	-	-	-0.269 (0.221)	0.764	-0.017 (0.260)	0.983	-	-	-0.402 (0.274)	0.669	-0.421 (0.323)	0.656
Time on the Street	-0.817 (0.633)	0.442	-0.870 (0.640)	0.419	-0.885 (0.642)	0.413	-0.340 (0.364)	0.712	-0.243 (0.359)	0.784	-0.339 (0.363)	0.712	-0.863 (0.452)	0.422 [†]	-0.833 (0.451)	0.435 [†]	-0.833 (0.451)	0.435 [†]
Age	-0.172 (0.177)	0.842	-0.194 (0.177)	0.824	-0.188 (0.177)	0.828	-0.163 (0.097)	0.850 [†]	-0.153 (0.097)	0.858	-0.163 (0.097)	0.849 [†]	-0.272 (0.128)	0.762*	-0.271 (0.127)	0.763*	-0.270 (0.128)	0.764*
Philadelphia	-0.359 (0.476)	0.698	-0.408 (0.484)	0.665	-0.399 (0.484)	0.671	-0.688 (0.440)	0.502	-0.598 (0.434)	0.550	-0.687 (0.440)	0.503	0.381 (0.355)	1.464	0.365 (0.353)	1.440	0.370 (0.360)	1.447
Both Parents	-0.219 (0.424)	0.804	-0.277 (0.425)	0.758	-0.297 (0.430)	0.742	-0.409 (0.412)	0.665	-0.350 (0.411)	0.705	-0.408 (0.412)	0.665	-0.100 (0.332)	0.905	-0.118 (0.333)	0.888	-0.119 (0.333)	0.888
SES	0.082 (0.223)	1.085	0.075 (0.226)	1.078	0.074 (0.225)	1.076	0.012 (0.155)	1.012	-0.015 (0.153)	0.985	0.012 (0.155)	1.012	-0.221 (0.145)	0.802	-0.229 (0.146)	0.796	-0.230 (0.147)	0.795
Legal Cynicism	0.464 (0.336)	1.591	0.421 (0.343)	1.523	0.431 (0.346)	1.539	0.051 (0.184)	1.052	0.025 (0.184)	1.026	0.050 (0.185)	1.051	-0.219 (0.255)	0.804	-0.303 (0.263)	0.738	-0.307 (0.265)	0.736
Rewards of Crime	0.156 (0.089)	1.168 [†]	0.147 (0.090)	1.159 [†]	0.146 (0.089)	1.158 [†]	0.173 (0.061)	1.189**	0.175 (0.061)	1.191**	0.173 (0.061)	1.189**	0.314 (0.067)	1.369***	0.302 (0.067)	1.352**	0.302 (0.067)	1.352**
Costs of Crime	-0.008 (0.038)	0.992	-0.008 (0.029)	0.992	-0.007 (0.038)	0.992	-0.017 (0.022)	0.983	-0.011 (0.022)	0.990	-0.017 (0.022)	0.983	-0.007 (0.026)	0.993	-0.004 (0.025)	0.996	-0.004 (0.026)	0.996
Certainty of Punishment	-0.104 (0.099)	0.901	-0.085 (0.101)	0.919	-0.084 (0.102)	0.919	-0.098 (0.048)	0.907*	-0.093 (0.049)	0.911 [†]	-0.097 (0.048)	0.908*	0.010 (0.060)	1.010	0.021 (0.061)	1.021	0.020 (0.061)	1.020
Priors	0.018 (0.097)	1.018	0.008 (0.097)	1.008	0.007 (0.096)	1.007	0.001 (0.055)	1.001	0.010 (0.055)	1.010	0.001 (0.055)	1.001	0.067 (0.070)	1.070	0.066 (0.070)	1.068	0.066 (0.070)	1.068

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

*** p < .001 (two-tailed test)

violent offending (see Tables 56 and 57). Among males in the sample, perceptions of legitimacy are negatively related to violent offending, but this effect is only marginally significant when procedural justice is included a predictor of violent recidivism. Among males of different race/ethnicities, the experience of procedural justice and perceptions of legitimacy are unrelated to violent offending among white and Hispanic males. However, among black males the experience of procedural justice is negatively related to subsequent violent offending ($\beta=-0.711$, $s.e.=0.289$). Black males are a little over two times less likely to commit a subsequent act of violent crime for each standard deviation increase in one's experience of procedural justice. This relationship is only marginally significant, though, when one's perception of legitimacy is included as a predictor of violent recidivism, which is consistent with Procedural Justice Theory.

Previous models did not find any relationship between procedural justice, perceptions of legitimacy and involvement in income-generating crime among the total sample of serious adolescent offenders (see Chapter 5). In a similar vein, the experience of procedural justice is unrelated to subsequent involvement in income-generating crime among the full male sample, white males, black males and Hispanic males (see Tables 58 and 59). However, perceptions of legitimacy are related to income-generating offending among white males. In line with predictors of Procedural Justice Theory, higher perceptions of legitimacy decrease the likelihood of subsequent involvement in income-generating crime among white males, even when controlling for perceptions of legitimacy ($\beta=-0.982$, $s.e.=0.371$, $OR=0.375$).

Table 56: Logistic regression models examining the relationship between procedural justice, legitimacy and self-reported violent offending over 1 year among males (N=1,025).^{*}

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	-0.402 (0.188)	0.669*	-	-	-0.197 (0.222)	0.821
Legitimacy	-	-	-0.360 (0.138)	0.698**	-0.283 (0.163)	0.753 [†]
Time on the Street	-0.687 (0.230)	0.503**	-0.660 (0.230)	0.517**	-0.674 (0.230)	0.510**
Black	-0.371 (0.218)	0.690 [†]	-0.417 (0.219)	0.659 [†]	-0.409 (0.219)	0.664 [†]
Hispanic	-0.111 (0.207)	0.895	-0.094 (0.208)	0.910	-0.098 (0.208)	0.906
Age	-0.213 (0.064)	0.808***	-0.213 (0.064)	0.808***	-0.217 (0.064)	0.804***
Philadelphia	-0.161 (0.195)	0.851	-0.140 (0.195)	0.869	-0.162 (0.196)	0.851
Both Parents	-0.054 (0.200)	0.947	-0.067 (0.200)	0.936	-0.063 (0.200)	0.939
SES	-0.086 (0.084)	0.917	-0.095 (0.085)	0.909	-0.090 (0.085)	0.914
Legal Cynicism	0.086 (0.123)	1.090	0.048 (0.124)	1.049	0.055 (0.125)	1.057
Rewards of Crime	0.191 (0.035)	1.211	0.185 (0.035)	1.203***	0.185 (0.035)	1.203***
Costs of Crime	-0.005 (0.014)	0.995	-0.003 (0.014)	0.997	-0.005 (0.014)	0.995
Certainty of Punishment	-0.061 (0.032)	0.941	-0.054 (0.032)	0.948 [†]	-0.053 (0.032)	0.948
Priors	0.007 (0.035)	1.007	0.008 (0.035)	1.008	0.006 (0.035)	1.006

^{*}All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 57: Logistic regression models examining the relationship between procedural justice, legitimacy and self-reported violent offending over 1 year among males across race/ethnicity. *

	White Males (N = 208)						Black Males (N = 470)						Hispanic Males (N=347)					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8		Model 9	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	-0.433 (0.435)	0.648	-	-	0.247 (0.572)	1.280	-0.711 (0.289)	0.491*	-	-	-0.658 (0.336)	0.518 [†]	-0.064 (0.365)	0.938	-	-	0.085 (0.433)	1.088
Legitimacy	-	-	-0.648 (0.319)	0.523*	-0.762 (0.415)	0.467	-	-	-0.331 (0.213)	0.718	-0.077 (0.250)	0.926	-	-	-0.167 (0.261)	0.846	-0.199 (0.308)	0.820
Time on the Street	-0.687 (0.575)	0.503	-0.725 (0.512)	0.484	-0.737 (0.583)	0.479	-0.699 (0.350)	0.497*	-0.596 (0.345)	0.551 [†]	-0.694 (0.351)	0.499 [†]	-1.137 (0.440)	0.321* *	-1.123 (0.439)	0.325* *	-1.123 (0.439)	0.325* *
Age	-0.208 (0.164)	0.813	-0.236 (0.166)	0.790	-0.230 (0.166)	0.795	-0.182 (0.094)	0.384	-0.171 (0.094)	0.843	-0.183 (0.094)	0.833 [†]	-0.215 (0.122)	0.807 [†]	-0.216 [†]	0.806	-0.214 [†]	0.808
Philadelphia	-0.114 (0.452)	0.892	-0.160 (0.458)	0.852	-0.146 (0.459)	0.864	-0.753 (0.409)	0.471 [†]	-0.658 (0.404)	0.518	-0.750 (0.409)	0.473 [†]	-0.008 (0.330)	0.992	-0.021 (0.329)	0.979	-0.014 (0.331)	0.986
Both Parents	0.173 (0.406)	1.189	0.118 (0.407)	1.126	0.095 (0.411)	1.100	-0.321 (0.401)	0.725	-0.264 (0.400)	0.768	-0.319 (0.401)	0.727	-0.087 (0.321)	0.916	-0.094 (0.322)	0.910	-0.095 (0.322)	0.910
SES	-0.220 (0.206)	0.803	-0.241 (0.209)	0.786	-0.248 (0.209)	0.781	-0.074 (0.149)	0.928	-0.099 (0.147)	0.906	-0.074 (0.149)	0.928	-0.126 (0.138)	0.882	-0.127 (0.138)	0.881	-0.129 (0.139)	0.879
Legal Cynicism	0.675 (0.319)	1.963*	0.649 (0.319)	1.194*	0.665 (0.322)	1.945*	-0.008 (0.176)	0.992	-0.038 (0.176)	0.962	-0.014 (0.177)	0.986	-0.139 (0.255)	0.870	-0.173 (0.251)	0.841	-0.179 (0.253)	0.836
Rewards of Crime	0.116 (0.080)	1.123	0.105 (0.081)	1.110	0.104 (0.081)	1.110	0.156 (0.056)	1.169**	0.157 (0.056)	1.170	0.155 (0.056)	1.168* *	0.289 (0.063)	1.335* **	0.283 (0.063)	1.327** *	0.283 (0.063)	1.327* **
Costs of Crime	0.021 (0.035)	1.021	0.023 (0.036)	1.023	0.023 (0.036)	1.023	-0.019 (0.021)	0.980	-0.014 (0.021)	0.986	-0.020 (0.021)	0.980	-0.014 (0.025)	0.987	-0.013 (0.025)	0.987	-0.012 (0.025)	0.988
Certainty of Punishment	-0.089 (0.092)	0.915	-0.062 (0.095)	0.940	-0.061 (0.095)	0.941	-0.064 (0.046)	0.937	-0.059 (0.046)	0.943	-0.062 (0.046)	0.940	-0.022 (0.058)	0.978	-0.016 (0.058)	0.984	-0.017 (0.059)	0.983
Priors	0.041 (0.093)	1.042	0.035 (0.093)	1.035	0.035 (0.093)	1.035	-0.033 (0.052)	0.967	-0.022 (0.052)	0.977	-0.033 (0.052)	0.967	0.070 (0.067)	1.073	0.069 (0.066)	1.071	0.069 (0.067)	1.072

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 58: Logistic regression models examining the relationship between procedural justice, legitimacy and self-reported income-generating offending over 1 year among males (N=1,025) *

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	-0.240 (0.181)	0.788	-	-	-0.120 (0.214)	0.887
Legitimacy	-	-	-0.209 (0.133)	0.811	-0.163 (0.157)	0.850
Time on the Street	-0.061 (0.219)	0.941	-0.048 (0.219)	0.953	-0.054 (0.219)	0.947
Black	-0.594 (0.205)	0.552**	-0.619 (0.206)	0.539**	-0.614 (0.206)	0.541**
Hispanic	-0.271 (0.192)	0.762	-0.264 (0.193)	0.768	-0.266 (0.193)	0.766
Age	-0.108 (0.061)	0.898 [†]	-0.107 (0.061)	0.899 [†]	-0.109 [†] (0.061)	0.896 [†]
Philadelphia	-0.057 (0.185)	0.945	-0.046 (0.184)	0.955	-0.058 (0.185)	0.943
Both Parents	-0.226 (0.192)	0.798	-0.239 (0.192)	0.788	-0.235 (0.192)	0.791
SES	-0.128 (0.080)	0.880	-0.132 (0.080)	0.876	-0.129 (0.080)	0.879
Legal Cynicism	0.303 (0.117)	1.354**	0.282 (0.118)	1.325*	0.285* (0.118)	1.330*
Rewards of Crime	0.205 (0.031)	1.227***	0.202 (0.031)	1.224***	0.202 (0.031)	1.224
Costs of Crime	-0.003 (0.013)	0.997	-0.002 (0.013)	0.998	-0.003 (0.013)	0.997
Certainty of Punishment	-0.085 (0.031)	0.919**	-0.080 (0.031)	0.923*	-0.080* (0.031)	0.923*
Priors	0.035 (0.033)	1.036	0.036 (0.033)	1.036	0.035 (0.033)	1.035

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 59: Logistic regression models examining the relationship between procedural justice, legitimacy and self-reported income-generating offending over 1 year among males across race/ethnicity. *

	White Males (N = 208)						Black Males (N = 470)						Hispanic Males (N=347)					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8		Model 9	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	-0.546 (0.416)	0.579	-	-	0.269 (0.522)	1.308	-0.078 (0.286)	0.925	-	-	-0.163 (0.333)	0.850	0.093 (0.341)	1.098	-	-	0.489 (0.409)	1.631
Legitimacy	-	-	-0.871 (0.301)	0.418**	-0.982 (0.371)	0.375**	-	-	0.062 (0.216)	1.064	0.125 (0.251)	1.133	-	-	-0.339 (0.248)	0.713	-0.530 (0.296)	0.589 [†]
Time on the Street	-0.689 (0.521)	0.502	-0.752 (0.531)	0.471	-0.747 (0.532)	0.474	0.420 (0.348)	1.522	0.431 (0.347)	1.538	0.411 (0.349)	1.509	-0.507 (0.399)	0.602	-0.503 (0.399)	0.605	-0.506 (0.401)	0.603
Age	0.235 (0.153)	1.265	0.200 (0.154)	1.221	0.206 (0.154)	1.228	-0.192 (0.095)	0.825*	-0.186 (0.095)	0.830*	-0.190 (0.095)	0.827*	-0.089 (0.111)	0.915	-0.099 (0.111)	0.905	-0.087 (0.111)	0.917
Philadelphia	-0.179 (0.408)	0.836	-0.248 (0.416)	0.781	-0.232 (0.418)	0.793	-0.379 (0.359)	0.684	-0.361 (0.357)	0.697	-0.383 (0.359)	0.682	0.109 (0.317)	1.116	0.063 (0.316)	1.064	0.100 (0.319)	1.103
Both Parents	-0.957 (0.387)	0.384*	-1.030 (0.393)	0.357**	-1.059 (0.398)	0.347**	0.058 (0.405)	1.059	0.069 (0.404)	1.071	0.058 (0.404)	1.059	0.305 (0.307)	1.357	0.292 (0.308)	1.339	0.286 (0.308)	1.331
SES	0.123 (0.189)	1.131	0.125 (0.193)	1.133	0.122 (0.193)	1.130	-0.197 (0.144)	0.821	-0.204 (0.144)	0.815	-0.197 (0.144)	0.821	-0.195 (0.128)	0.823	-0.191 (0.129)	0.826	-0.201 (0.129)	0.818
Legal Cynicism	0.996 (0.284)	2.707***	0.940 (0.289)	2.560**	0.941 (0.289)	0.562**	0.156 (0.174)	1.169	0.163 (0.175)	1.177	0.168 (0.176)	1.183	0.027 (0.228)	1.028	-0.033 (0.232)	0.967	-0.058 (0.233)	0.943
Rewards of Crime	0.175 (0.071)	1.191*	0.164 (0.072)	1.178*	0.164 (0.072)	1.178*	0.173 (0.049)	1.188***	0.174 (0.050)	1.190***	0.174 (0.050)	1.189***	0.283 (0.053)	1.327***	0.273 (0.054)	1.314***	0.273 (0.053)	1.313***
Costs of Crime	-0.006 (0.033)	0.994	-0.003 (0.033)	0.997	-0.002 (0.033)	0.998	0.005 (0.021)	1.005	0.006 (0.021)	1.006	0.005 (0.021)	1.005	-0.003 (0.023)	0.997	-0.005 (0.022)	0.995	-0.001 (0.023)	0.999
Certainty of Punishment	0.010 (0.085)	1.010	0.039 (0.087)	1.040	0.037 (0.087)	1.038	-0.113 (0.046)	0.893*	-0.117 (0.047)	0.890	-0.118 (0.047)	0.889*	-0.110* (0.056)	0.896	-0.090 (0.056)	0.914	-0.096 [†] (0.057)	0.908
Priors	0.046 (0.078)	1.047	0.034 (0.079)	1.035	0.034 (0.079)	1.034	0.080 (0.051)	1.083	0.082 (0.051)	1.086	0.080 (0.051)	1.083	-0.032 (0.059)	0.969	-0.038 (0.059)	0.963	-0.033 (0.060)	0.968

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Regarding drug use, experiences of procedural justice are unrelated to subsequent drug use among the entire sample of males and each subgroup of male offenders (see Tables 60 and 61), even though Procedural Justice Theory predicts that more positive experiences of procedural justice should predict all forms of compliant behavior, including drug use. Looking at perceptions of legitimacy, they are negatively related to subsequent drug use among male offenders, but this effect is rendered insignificant when procedural justice is included as a predictor of subsequent drug use (see models 2 and 3 in Table 60). Among white males, though, more positive perceptions of legitimacy are negatively related to drug use ($\beta=-0.639$, $s.e.=0.352$). For white male offenders, a one unit increase in one's perception of legitimacy is associated with a 1.9 decrease in the likelihood of drug use, although this relationship is only marginally significant ($p<.10$). On the other hand, perceptions of legitimacy are unrelated to subsequent drug use among black and Hispanic males who are serious adolescent offenders.

The control variables also exert some interesting relationships with recidivism across adolescent male offenders of different race/ethnicities. For each self-reported outcome, a significant and positive relationship exists between the rewards associated with crime and recidivism for black and Hispanic males. For white males, however, the rewards associated with crime are only related to subsequent involvement in income-generating crime. These results suggest the need to evaluate theory across race/ethnicity as well as adopting an intersectional approach given varying relevance of theoretical concepts among males of different race/ethnicities.

Table 60: Logistic regression models examining the relationship between procedural justice, legitimacy and self-reported drug use over 1 year among males (N=1,025). *

	Model 1		Model 2		Model 3	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	-0.196 (0.179)	0.822	-	-	-0.021 (0.212)	0.979
Legitimacy	-	-	-0.248 (0.131)	0.780*	-0.240 (0.155)	0.786
Time on the Street	0.611 (0.216)	1.843**	0.623 (0.216)	1.864**	0.621 (0.216)	1.862**
Black	-0.105 (0.203)	0.901	-0.134 (0.204)	0.875	-0.133 (0.205)	0.875
Hispanic	-0.255 (0.192)	0.775	-0.246 (0.193)	0.784	-0.244 (0.193)	0.784
Age	-0.004 (0.060)	0.996	-0.007 (0.060)	0.993	-0.007 (0.060)	0.993
Philadelphia	-0.172 (0.184)	0.842	-0.169 (0.183)	0.844	-0.171 (0.185)	0.842
Both Parents	-0.298 (0.189)	0.742	-0.309 (0.190)	0.734	-0.309 (0.190)	0.734
SES	0.035 (0.079)	1.035	0.032 (0.079)	1.032	0.032 (0.079)	1.033
Legal Cynicism	0.322 (0.006)	1.380**	0.296 (0.117)	1.344**	0.296 (0.117)	1.345**
Rewards of Crime	0.143 (0.030)	1.153***	0.139 (0.030)	1.149***	0.139 (0.030)	1.149***
Costs of Crime	-0.016 (0.013)	0.984	-0.016 (0.013)	0.984	-0.016 (0.013)	0.984
Certainty of Punishment	-0.075* (0.031)	0.928*	-0.067 (0.031)	0.935	-0.067 (0.031)	0.935*
Priors	0.006 (0.032)	1.006	0.006 (0.032)	1.006	0.006 (0.033)	1.006

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 61: Logistic regression models examining the relationship between procedural justice, legitimacy and self-reported drug use over 1 year among males across race/ethnicity. *

	White Males (N = 208)						Black Males (N = 470)						Hispanic Males (N=347)					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8		Model 9	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice	-0.208 (0.400)	0.812	-	-	0.329 (0.501)	1.390	-0.050 (0.283)	0.951	-	-	-0.045 (0.330)	0.956	-0.113 (0.344)	0.893	-	-	-0.013 (0.408)	0.987
Legitimacy	-	-	-0.503 (0.283)	0.605 [†]	-0.639 (0.352)	0.528 [†]	-	-	-0.024 (0.213)	0.977	-0.006 (0.248)	0.994	-	-	-0.141 (0.249)	0.868	-0.136 (0.295)	0.872
Time on the Street	0.176 (0.493)	1.192	0.166 (0.496)	1.180	0.168 (0.496)	1.182	0.784 (0.347)	2.191*	0.790 (0.345)	2.203*	0.785 (0.347)	2.192*	0.736 (0.400)	2.089 [†]	0.737 (0.400)	2.089 [†]	0.737 (0.400)	2.089 [†]
Age	0.217 (0.149)	1.242	0.187 (0.149)	1.205	0.195 (0.149)	1.215	0.024 (0.094)	1.024	0.025 (0.094)	1.025	0.024 (0.094)	1.024	-0.051 (0.111)	0.950	-0.051 (0.110)	0.951	-0.051 (0.111)	0.950
Philadelphia	-0.265 (0.386)	0.767	-0.317 (0.388)	0.729	-0.296 (0.390)	0.743	-0.374 (0.360)	0.688	-0.368 (0.357)	0.692	-0.374 (0.359)	0.688	0.109 (0.320)	1.115	0.109 (0.318)	1.115	0.108 (0.320)	1.114
Both Parents	-0.640 (0.365)	0.527 [†]	-0.658 (0.368)	0.518 [†]	-0.687 (0.371)	0.503 [†]	0.157 (0.399)	1.170	0.160 (0.398)	1.173	0.157 (0.399)	1.170	-0.283 (0.302)	0.754	-0.288 (0.302)	0.750	-0.288 (0.303)	0.750
SES	0.024 (0.185)	1.024	0.021 (0.186)	1.021	0.018 (0.186)	1.018	-0.026 (0.143)	0.974	-0.028 (0.142)	0.972	-0.026 (0.143)	0.974	0.115 (0.129)	1.121	0.113 (0.128)	1.120	0.113 (0.129)	1.120
Legal Cynicism	0.570 (0.257)	1.768*	0.510 (0.260)	1.665*	0.518 (0.260)	1.679*	0.216 (0.173)	1.241	0.214 (0.174)	1.238	0.215 (0.174)	1.240	0.358 (0.228)	1.430	0.336 (0.232)	1.399	0.337 (0.232)	1.400
Rewards of Crime	0.109 (0.068)	1.116	0.102 (0.069)	1.107	0.101 (0.069)	1.106	0.159 (0.050)	1.172**	0.159 (0.050)	1.172**	0.159 (0.050)	1.172**	0.179*** (0.053)	1.196	0.175 (0.053)	1.192***	0.175 (0.053)	1.192***
Costs of Crime	-0.056 (0.031)	0.945 [†]	-0.055 (0.031)	0.946 [†]	-0.055 (0.031)	0.947 [†]	0.012 (0.021)	1.012	0.012 (0.021)	1.013	0.012 (0.021)	1.012	-0.026 (0.023)	0.975	-0.025 (0.022)	0.975	-0.025 (0.023)	0.975
Certainty of Punishment	-0.009 (0.079)	0.99	0.009 (0.080)	1.009	0.007 (0.081)	1.007	-0.101 (0.046)	0.904*	-0.101 (0.047)	0.904*	-0.101 (0.146)	0.904*	-0.078 (0.056)	0.925	-0.076 (0.056)	0.927	-0.076 (0.056)	0.927
Priors	0.023 (0.075)	1.023	0.017 (0.076)	1.017	0.017 (0.076)	1.017	-0.049 (0.052)	0.958	-0.049 (0.052)	0.953	-0.049 (0.052)	0.952	0.101 [†] (0.060)	1.106	0.101 [†] (0.060)	1.106	0.101 [†] (0.060)	1.106

*All models include the covariates for original offense: person based offense, property based offense, drug based offense, weapons offense, and sex offense.

OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

*** p < .001 (two-tailed test)

Defining Procedural Justice across Race/Ethnicity

Recall that the second goal of this dissertation was to determine whether or not the source of procedural justice matters with respect to recidivism. This next section discusses the relevance of the difference sources of procedural justice across serious male offenders of different race/ethnicities.^{68,69} Regarding the overall source of procedural justice, both experiences of procedural justice with the police and judges are positively related to perceptions of legitimacy among the full sample of male offenders as well as white males, black males and Hispanic males (see Table 62). For the full sample of males, white males and Hispanic males, the experience of procedural justice with the police is a stronger predictor of one's perception of legitimacy compared to the experience of procedural justice with the judge.⁷⁰ An opposite relationship emerges for black males; the experience of procedural justice with the judge is a stronger predictor of perceptions of legitimacy compared to experiences with the police among this group of serious adolescent offenders. Table 63 shows the relationship between both sources of procedural justice, legitimacy and recidivism among the entire sample of males as well as serious

⁶⁸ Given that the relationship between each of the each of the control variables and recidivism have already been established among white males, black males and Hispanic males, the remaining tables in this chapter will not depict these relationships. It should be noted, though, that none of the relationships between the control variables and recidivism changed with the inclusion of the different measures of procedural justice.

⁶⁹ A power analysis was conducted to verify that adequate statistical power existed to detect a relationship between the sources of procedural justice, legitimacy and recidivism. Using G*Power 3.0, a-priori analysis for multivariate logistic regression with the following parameters – effect size of 0.10, power level of 0.8, 18 predictors, and an alpha level of 0.05 – it was determined that the minimum sample size needed is 216. Using a lower alpha level (.10), it was determined that the minimum sample size needed is 180. Given that only 208 white males are available for analysis, statistical power to detect significant relationships among the white males is a potential issue. However, given the comparable magnitude of the estimates compared to Black males and Hispanic males as well as the large standard errors, a lack of statistical power is unlikely to be the reason for the failure to find a relationship between the sources of procedural justice and recidivism.

⁷⁰ All assessments of the strength of coefficients are based on comparisons of the standardized beta statistics and t-values.

Table 62: Relationships between sources of procedural justice and legitimacy among males across race/ethnicity.*

	Males (N = 1,142)			White Males (N = 222)			Black Males (N = 482)			Hispanic Males (N = 386)		
	Model 1			Model 2			Model 3			Model 4		
	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	SB [†]	T-value
Procedural Justice Police	0.338*** (0.031)	0.304	10.95	0.383*** (0.069)	0.355	5.57	0.318*** (0.049)	0.286	6.51	0.362*** (0.053)	0.329	6.78
Procedural Justice Judge	0.321*** (0.030)	0.297	10.66	0.368*** (0.071)	0.320	5.16	0.298*** (0.045)	0.292	6.64	0.312*** (0.053)	0.280	5.84
Black	-0.111** (0.040)	0.097	-2.78	-	-	-	-	-	-	-	-	-
Hispanic	0.030 (0.038)	0.025	0.790	-	-	-	-	-	-	-	-	-

*All models include the covariates time on the street, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[†] SB = |Standardized Beta Coefficient|

[‡] OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

male offenders of different race/ethnicities. While the experience of procedural justice with the police is negatively related to subsequent offending among the entire male sample, this effect becomes insignificant when controlling for perceptions of legitimacy (see model 1 and model 2 in Table 63). Neither the experience of procedural justice with the police nor the experience of procedural justice with the judge is related to subsequent offending among white male offenders and Hispanic male offenders. Among black males who are serious adolescent offenders, though, the experience of procedural justice with the police is negatively related to subsequent involvement in crime ($\beta=-0.500$, $s.e.=0.271$, $OR=0.607$) while the experience of procedural justice with the judge is not related to subsequent criminal activity. When one's perception of legitimacy is included in the model, though, this relationship is only marginally significant ($p<.10$).

The experience of procedural justice can also be broken down into personal and vicarious experiences of procedural justice with the police and judges. Although personal experiences of procedural justice with the police, vicarious experiences of procedural justice with the police, personal experiences of procedural justice with the judge and vicarious experiences of procedural justice with the judge are predictors of legitimacy among male serious adolescent offenders, the significance of these experiences and the importance of these experiences vary across race/ethnicity (see Table 64). Among the entire sample of males, each aspect of procedural justice is related to perceptions of legitimacy. Table 64 indicates the strength of these covariates. Personal experiences of procedural justice with the police exert the strongest influence on perceptions of legitimacy followed by vicarious experiences of procedural justice with

Table 63: Relationships between sources of procedural justice, legitimacy and total self-reported offending over 1 year among males across race/ethnicity. ♦

	Males (N = 1,025)				White Males (N =208)				Black Males (N = 470)				Hispanic Males (N = 347)			
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police	-0.352 (0.176)	0.703*	-0.257 (0.189)	0.773	-0.485 (0.424)	0.616	-0.177 (0.477)	0.837	-0.500 (0.271)	0.607 †	-0.486 (0.281)	0.615 †	0.002 (0.320)	1.002	0.219 (0.353)	1.244
Procedural Justice Judge	-0.013 (0.176)	0.987	0.072 (0.184)	1.075	0.073 (0.466)	1.076	0.271 (0.493)	1.312	-0.052 (0.259)	0.949	-0.035 (0.272)	0.965	-0.164 (0.324)	0.849	-0.052 (0.333)	0.949
Legitimacy	-	-	-0.277 (0.173)	0.758	-	-	-0.626 (0.453)	0.535	-	-	-0.051 (0.261)	0.951	-	-	-0.491 (0.330)	0.612
Black	-0.538 (0.237)	0.584*	-0.578 (0.239)	0.561*	-	-	-	-	-	-	-	-	-	-	-	-
Hispanic	-0.406 (0.224)	0.667 †	-0.392 (0.225)	0.675 †	-	-	-	-	-	-	-	-	-	-	-	-

♦All models include the covariates time on the street, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 64: Relationships between different sources of procedural justice, both personal and vicarious, and legitimacy among males across race/ethnicity.*

	Males (N = 1,142)			White Males (N = 222)			Black Males (N = 482)			Hispanic Males (N = 386)		
	Model 1			Model 2			Model 3			Model 4		
	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	SB [†]	T-value
Procedural Justice Police: Personal Experience	0.277*** (0.028)	0.275	9.75	0.293*** (0.061)	0.305	4.77	0.268*** (0.047)	0.259	5.73	0.295*** (0.047)	0.299	6.30
Procedural Justice Police: Vicarious Experience	0.055* (0.023)	0.066	2.41	0.103 [†] (0.053)	0.123	1.96	0.040 (0.035)	0.051	1.12	0.061 (0.039)	0.074	1.56
Procedural Justice Judge: Personal Experience	0.123*** (0.030)	0.130	4.10	0.195** (0.073)	0.194	2.67	0.147** (0.045)	0.164	3.20	0.055 (0.052)	0.056	1.05
Procedural Justice Judge: Vicarious Experience	0.183*** (0.027)	0.214	6.71	0.149* (0.065)	0.161	2.29	0.143*** (0.043)	0.177	3.34	0.235*** (0.045)	0.282	5.21
Black	-0.109** (0.040)	0.095	-2.74	-	-	-	-	-	-	-	-	-
Hispanic	0.035 (0.038)	0.029	0.093	-	-	-	-	-	-	-	-	-

*All models include the covariates time on the street, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[†] SB = |Standardized Beta Coefficient|

♦ OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

the judge, personal experiences of procedural justice with the judge, and, finally, vicarious experiences of procedural justice with the police among the entire sample of males (see model 1). For white males, the personal experience of procedural justice with the police has the strongest relationship with perceptions of legitimacy followed by personal experiences of procedural justice with the judge and vicarious experiences of procedural justice with the judge (see model 2). The measure of vicarious experiences of procedural justice with the police is only marginally significant ($p < 0.10$). Among black males and Hispanic males (see models 3 and 4), the direct experience of procedural justice with the police is also the strongest predictor of one's perception of legitimacy, followed by vicarious experiences of procedural justice with the judge and personal experiences of procedural justice with the judge. For both groups, vicarious experiences of procedural justice are unrelated to perceptions of legitimacy. In sum, it appears as though personal experiences with the police are more important than all other aspects of procedural justice when determining perceptions of legitimacy among serious adolescent offenders who are male.

Looking at the relationship between each of these four measures of procedural justice and recidivism (see Table 65), results suggest that there is no relationship between personal and vicarious experiences of procedural justice with the police and personal and vicarious experiences of procedural justice with the judge and recidivism among the full sample of males, white males or Hispanic males. However, one's personal experience of procedural justice with the police is a marginally significant predictor of self-reported recidivism among black males ($\beta = -0.461$, $s.e. = 0.265$, $OR = 0.631$), controlling for

Table 65: Relationships between different sources of procedural justice, both personal and vicarious, legitimacy and total self-reported offending over 1 year among males across race/ethnicity. *

	Males (N = 1,025)				White Males (N =208)				Black Males (N = 470)				Hispanic Males (N = 347)			
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police: Personal Experience	-0.272 (0.166)	0.762	-0.180 (0.173)	0.835	-0.285 (0.370)	0.751	-0.040 (0.404)	0.961	-0.472 (0.257)	0.624 [†]	-0.461 (0.265)	0.631 [†]	-0.025 (0.301)	0.976	0.193 (0.328)	1.213
Procedural Justice Police: Vicarious Experience	-0.144 (0.130)	0.866	-0.126 (0.131)	0.882	-0.290 (0.327)	0.748	-0.190 (0.340)	0.827	-0.029 (0.194)	0.972	-0.027 (0.194)	0.973	-0.140 (0.245)	0.861	-0.123 (0.247)	0.884
Procedural Justice Judge: Personal Experience	0.090 (0.176)	1.094	0.130 (0.177)	1.139	-0.075 (0.417)	0.928	0.058 (0.427)	1.059	-0.022 (0.265)	0.978	-0.015 (0.268)	0.985	0.316 (0.324)	1.372	0.326 (0.325)	1.386
Procedural Justice Judge: Vicarious Experience	-0.018 (0.160)	0.982	0.039 (0.163)	1.040	0.255 (0.395)	1.290	0.332 (0.406)	1.394	-0.009 (0.249)	0.991	-0.009 (0.254)	0.999	-0.259 (0.285)	0.772	-0.133 (0.295)	0.875
Legitimacy	-	-	-0.331 (0.176)	0.718 [†]	-	-	-0.691 (0.461)	0.501	-	-	-0.046 (0.263)	0.995	-	-	-0.587 (0.344)	0.556
Black	-0.530 (0.238)	0.588*	-0.579** (0.241)	0.560*	-	-	-	-	-	-	-	-	-	-	-	-
Hispanic	-0.396 (0.225)	0.673 [†]	-0.379 (0.225)	0.685 [†]	-	-	-	-	-	-	-	-	-	-	-	-

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

† OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

perceptions of legitimacy. This finding seems to suggest that police behavior toward youth is especially relevant for black males, and should be investigated further.

The Elements of Procedural Justice across Race/Ethnicity

*The Elements of Procedural Justice*⁷¹

The final goal of this dissertation is to determine the relevance of each of the elements of procedural justice among male adolescent offenders of different race/ethnicities. Results seem to suggest that male offenders tend to evaluate fair procedures based on somewhat different criteria and rank the importance of these criteria differently across different race/ethnicities (see Table 66). Among serious male offenders, 4 of the 6 elements of procedural justice are related to perceptions of legitimacy. Ethical treatment exerts the strongest effect on perceptions of legitimacy followed by consistency in treatment, impartiality on the part of agents of the justice system, and representation. Among serious male offenders who are white, ethical treatment also exerts the strongest relationship on perceptions of legitimacy, followed by consistency in treatment over time and across persons and the ability to appeal to a higher authority (see model 2). Representation, impartiality and accuracy are unrelated to perceptions of legitimacy among white males. Different relationships emerge between

⁷¹ An additional power analysis was conducted to verify that adequate statistical power existed to detect a relationship between the 6 different elements of procedural justice, legitimacy and recidivism among each subsample of male respondents. Using G*Power 3.0, a-priori analysis for multivariate logistic regression with the following parameters – effect size of 0.10, power level of 0.8, 22 predictors, and an alpha level of 0.05 – it was determined that the minimum sample size needed is 235. Using a lower alpha level (.10), it was determined that the minimum sample size needed is 197. Since only 208 white males are available for analysis with regard to recidivism, statistical power to detect significant relationships among white males is a potential issue. However, given the lack of any significant relationships between the individual elements of procedural justice and recidivism among the full sample, the male sample, black males and Hispanic males, it is likely that the elements of procedural justice are not related to recidivism among the white males as well.

Table 66: Relationships between the elements of procedural justice and legitimacy among males across race/ethnicity.*

	Males (N = 1,142)			White Males (N = 222)			Black Males (N = 482)			Hispanic Males (N = 386)		
	Model 1			Model 2			Model 3			Model 4		
	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	SB [†]	T-value	Estimate (S.E.)	SB [†]	T-value
Procedural Justice: Representation	0.055** (0.019)	0.077	2.93	-0.010 (0.046)	0.014	-0.22	0.063* (0.029)	0.091	2.18	0.075* (0.032)	0.108	2.35
Procedural Justice: Impartiality	0.146*** (0.027)	0.162	5.44	0.053 (0.065)	0.062	0.81	0.184*** (0.040)	0.213	4.66	0.152** (0.050)	0.157	3.04
Procedural Justice: Consistency	0.183*** (0.029)	0.164	6.33	0.223** (0.072)	0.188	3.09	0.178*** (0.043)	0.170	4.12	0.176*** (0.050)	0.161	3.50
Procedural Justice: Accuracy	0.049 [†] (0.027)	0.056	1.82	0.110 (0.071)	0.125	1.53	0.014 (0.040)	0.017	0.36	0.046 (0.049)	0.051	0.96
Procedural Justice: Correctability	0.018 (0.022)	0.019	0.83	0.111* (0.050)	0.121	2.22	0.008 (0.031)	0.010	0.25	-0.041 (0.042)	0.040	-0.98
Procedural Justice: Ethical Treatment	0.244*** (0.029)	0.258	8.54	0.317*** (0.069)	0.320	4.59	0.216*** (0.042)	0.238	5.10	0.268*** (0.051)	0.282	5.27
Black	-0.098* (0.040)	0.086	2.46	-	-	-	-	-	-	-	-	-
Hispanic	0.038 (0.038)	0.032	1.01	-	-	-	-	-	-	-	-	-

*All models include the covariates time on the street, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[†] SB = |Standardized Beta Coefficient|

[♦] OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

elements of procedural justice and perceptions of legitimacy among black and Hispanic male offenders compared to white male offenders. Ethical treatment exerts the strongest effect on perceptions of legitimacy followed by impartiality on the part of agents of the justice system, consistency in treatment and representation for black males (see model 3). The same four elements of procedural justice that were significant predictors of legitimacy for black males are also significant predictors of legitimacy for Hispanic males (see model 4). However, the strength of the relationships varies. While ethical treatment still exerts the strongest relationship with perceptions of legitimacy, consistency in treatment is more important among Hispanic males than impartiality on the part of agents of the justice system. Contrary to the work of Leventhal (1980) accuracy in information collected and used in determining outcomes and the ability to appeal to higher authorities are not relevant to perceptions of legitimacy among black and Hispanic adolescent male offenders.

Finally, I examine the relationship between each of the elements of procedural justice, perceptions of legitimacy and recidivism across males of different race/ethnicities. In models 1 through 8 in Table 67, it appears as though none of the elements of procedural justice are significant predictors of self-reported involvement in crime. However, if one were to look at males as a whole, consistent treatment appears to be a significant predictor of recidivism. Specifically, a one standard deviation increase in one's evaluation of consistent treatment across time and place by justice agents is associated with 37% decrease in the likelihood of involvement in crime ($\beta=-0.313$, $s.e.=0.168$). However, this relationship is only marginally significant at an alpha level of 0.10 when controlling for perceptions of legitimacy.

Table 67: Relationships between the elements of procedural justice, legitimacy and total self-reported offending over 1 year among males across race/ethnicity. *

	Males (N = 1,025)				White Males (N = 208)				Black Males (N = 470)				Hispanic Males (N = 347)			
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice: Representation	0.076 (0.106)	1.079	0.092 (0.107)	1.096	0.081 (0.291)	1.084	0.091 (0.291)	1.095	0.246 (0.166)	1.279	0.244 (0.167)	1.277	-0.062 (0.191)	0.940	-0.015 (0.196)	0.986
Procedural Justice: Impartiality	-0.265 (0.155)	0.767 [†]	-0.226 (0.157)	0.798	0.163 (0.409)	1.177	0.198 (0.413)	1.219	-0.348 (0.229)	0.706	-0.355 (0.235)	0.701	-0.193 (0.309)	0.825	-0.118 (0.313)	0.889
Procedural Justice: Consistency	-0.360 (0.165)	0.698*	-0.313 (0.168)	0.731 [†]	-0.219 (0.446)	0.803	-0.064 (0.463)	0.938	-0.308 (0.243)	0.735	-0.314 (0.248)	0.730	-0.482 (0.316)	0.618	-0.408 (0.322)	0.665
Procedural Justice: Accuracy	-0.001 (0.155)	0.998	0.007 (0.155)	1.007	0.087 (0.420)	1.091	0.146 (0.429)	1.157	-0.078 (0.230)	0.925	-0.079 (0.230)	0.924	-0.097 (0.296)	0.908	-0.091 (0.297)	0.913
Procedural Justice: Correctability	-0.014 (0.127)	0.986	-0.013 (0.127)	0.987	-0.197 (0.306)	0.822	-0.150 (0.311)	0.860	-0.146 (0.180)	0.864	-0.146 (0.180)	0.864	0.112 (0.277)	1.119	0.104 (0.278)	1.110
Procedural Justice: Ethical Treatment	0.087 (0.165)	1.091	0.152 (0.171)	1.164	-0.449 (0.418)	0.638	-0.209 (0.449)	0.812	-0.129 (0.240)	0.879	-0.137 (0.248)	0.872	0.475 (0.323)	1.608	0.615 (0.339)	1.850
Legitimacy	-	-	-0.263 (0.175)	0.769	-	-	-0.635 (0.456)	0.530	-	-	0.036 (0.267)	1.036	-	-	-0.496 (0.334)	0.609
Black	-0.569 (0.239)	0.566*	-0.601 (0.240)	0.548*	-	-	-	-	-	-	-	-	-	-	-	-
Hispanic	-0.406 (0.226)	0.667 [†]	-0.390 (0.227)	0.677 [†]	-	-	-	-	-	-	-	-	-	-	-	-

*All models include the covariates time on the street, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

* OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Conclusion

Given the ample number of regression models and significance tests run in this chapter, two summary tables (Tables 68 and 69) are provided to synthesize the results related to the research questions driving this dissertation.⁷² Table 68 summarizes the relationship between procedural justice, legitimacy and each outcome of recidivism across each subgroup of interest: males, white males, black males and Hispanic males. Table 69 condenses the results regarding the relationship between each operationalization of procedural justice and total self-reported recidivism.

⁷² It should be noted that due to vast number of regression models and significance tests run in this chapter, it is not surprising that a few of the findings may be anomalous.

Table 68: Summary of results testing the validity of Procedural Justice Theory across males of different races/ethnicities.

		Arrest	Days to Arrest	Total Offending	Violent Offending	Income-generating Offending	Drug Use
Males	Procedural Justice			-	-		
	Legitimacy			-	-		-
	Procedural Justice controlling for Legitimacy						
	Legitimacy controlling for Procedural Justice						
White Males	Procedural Justice						
	Legitimacy				-	-	
	Procedural Justice controlling for Legitimacy						
	Legitimacy controlling for Procedural Justice					-	
Black Males	Procedural Justice			-	-		
	Legitimacy						
	Procedural Justice controlling for Legitimacy						
	Legitimacy controlling for Procedural Justice						
Hispanic Males	Procedural Justice						
	Legitimacy						
	Procedural Justice controlling for Legitimacy						
	Legitimacy controlling for Procedural Justice						

+ Positive, significant relationship between two variables for $p < .05$.
 - Negative, significant relationship between two variables for $p < .05$.

Table 69: Summary of results examining the relationship between different measures of procedural justice and total self-reported offending, controlling for perceptions of legitimacy.

	Males	White Males	Black Males	Hispanic Males
Procedural Justice Police			-	
Procedural Justice Judge				
Procedural Justice Police: Personal Experience			-	
Procedural Justice Police: Vicarious Experience				
Procedural Justice Judge: Personal Experience				
Procedural Justice Judge: Vicarious Experience				
Representation				
Impartiality				
Consistency	-			
Accuracy				
Correctability				
Ethical Treatment				

+ Positive, significant relationship between two variables for $p < .10$.

- Negative, significant relationship between two variables for $p < .10$.

Chapter 7: Discussion and Conclusion

Summary of Results

Tyler (1990, 2006) posits that his Procedural Justice Theory is a general theory of compliant behavior that should apply to all persons and all crime types. The overarching goal of this dissertation was to determine whether or not Procedural Justice Theory can be applied to all persons, especially serious adolescent offenders. From a policy perspective, this would mean that normative perspective of compliance could be utilized to reduce recidivism rates among this criminogenic population. According to Tyler compliant and criminal behavior even among the most serious adolescent offenders can be explained by Procedural Justice Theory because all individuals want to feel as though they are valued members of society. Therefore, evaluations of procedural fairness and its derivative legitimacy are used to determine one's feeling of belonging and moral obligation to a group and its laws. In addition, this dissertation sought to add to a growing body of literature regarding procedural justice by investigating whether or not Procedural Justice Theory can really explain all forms of crime – not just crimes where there is a large consensus in society that it is wrong, but also crimes where there is far less consensus regarding its wrongness, such as marijuana use. With regard to these first two goals of this dissertation, there is very little evidence to substantiate Tyler's claims regarding the generalizeability of his theory to serious adolescent offenders and all crime types.

Procedural Justice Theory claims that experiences of procedural justice should be related to both perceptions of legitimacy and subsequent criminal behavior, and the relationship between procedural justice and crime should be mediated by perceptions of

legitimacy. Using the Pathways to Desistance Study sample of serious adolescent offenders, this dissertation did not find much empirical support validating Tyler's proposed theoretical pathway to crime. Although there is evidence to suggest that evaluations of procedural justice and perceptions of legitimacy are malleable over time, both of these elements of legal socialization are not robust predictors of recidivism among serious adolescent offenders. In fact, these youthful offenders' evaluations of procedural justice and legitimacy were never related to either of the official measures of recidivism or self-reported income-generating crime. Furthermore, the experience of procedural justice and perceptions of legitimacy were only sporadically related to total self-reported offending, violent offending and drug use, but none of these relationships held when both the experience of procedural justice and legitimacy were included as covariates in the model. The results regarding the relationship between procedural justice, legitimacy and self-reported criminal behavior were the same for both a one year follow-up period and a 6 month follow-up period. Therefore, at first glance, these results further undermine the generalizeability of Tyler's theory, but more nuance is warranted.

Two different sensitivity analyses were performed to further examine the relevance of Procedural Justice Theory among these youthful offenders. Looking at the relative levels of frequency of offending, it was found that experiences of procedural justice do not differentiate between those youth who do not recidivate and those who only commit one subsequent criminal act; however, procedural justice does distinguish between those offenders who do not recidivate and those who commit multiple acts of crime. Also noteworthy is the finding that perceptions of legitimacy distinguish between those individuals who do not use drugs after their arrest and those individuals who use

drugs multiple times after their arrest. Therefore, it seems as though Procedural Justice Theory may hold some promise in the explanation of relative levels of offending among serious adolescent offenders. The second set of sensitivity analyses separated the sample into novice offenders and repeat offenders and evaluated the merits of Procedural Justice Theory across these subsamples. While the elements of Procedural Justice Theory were unrelated to recidivism for the seasoned offenders, among first-time offenders, Procedural Justice Theory can explain some involvement in subsequent criminal activity. Not only did perceptions of legitimacy among this group of offenders predict subsequent arrest and drug use, but the experience of procedural justice was related to total self-reported offending and violent offending.

Although the evidence to support Procedural Justice Theory as a predictor of compliant behavior among serious adolescent offenders is not robust, youth evaluations of their experiences of procedural justice are consistently related to perceptions of legitimacy. By and large, personal experiences of procedural justice with the police were the most important predictors of perceptions of legitimacy and recidivism among this sample of serious adolescent offenders. In fact, experiences of procedural justice with this “gateway to the justice system” were the only significant predictor of recidivism. Although it was found that personal and vicarious experiences of procedural justice with the judge are important correlates of perceptions legitimacy, they did not predict subsequent criminal behavior. Furthermore, of Leventhal’s (1980) 6 elements of fair procedure, which Tyler (1990) argues are the key antecedents to perceptions of legitimacy, 5 are related to perceptions of legitimacy. However, only consistent treatment across time and persons was related to subsequent recidivism.

Reaffirming the generalizeability of Procedural Justice Theory, Tyler and Huo (2002) make the argument that Procedural Justice Theory operates the same way for males and females as well as whites, blacks and Hispanics. To truly test this premise, this dissertation conducted an evaluated Procedural Justice Theory across males of different race/ethnicities. Consistent with the arguments of Tyler and Huo (2002), procedural justice is the key antecedent to perceptions of legitimacy for males across race/ethnicity. However, this is where the uniformity of theory across gender and race/ethnicity ends. While procedural justice is related to total self-reported offending and self-reported violent offending among black males, it is not related to these same criminal behaviors among white or Hispanic male, adolescent offenders. In addition, perceptions of legitimacy are only related to involvement income-generating crime and drug use among white males. There is no relationship between perceptions of legitimacy and recidivism among black or Hispanic males, which is in direct opposition to the propositions within Procedural Justice Theory. Finally, when looking at the various sources of procedural justice among males of different race/ethnicities, the experience of procedural justice with the police and, more specifically, the personal experience of procedural justice with the police are related to recidivism among black males. No significant relationships between the different operationalizations of procedural justice and recidivism emerge for white or Hispanic male, adolescent offenders. As a result, this dissertation fails to support Tyler and Huo's arguments for the generalizeability of the theory across gender and race/ethnicity while further substantiating arguments that an intersectional approach should be used to test the true generality of criminological theories.

Implications

Given these results, six main points deserve additional attention and guide subsequent discussion. First, these findings do not provide overwhelming support for the validity of Procedural Justice Theory as a general theory of crime and compliant behavior among serious adolescent offenders. It appears as though there is little support for this theory among serious adolescent offenders, but one potential explanation is that youths, by and large, tend not to be as reflective regarding their behavior as their adult counterparts. Rather, they tend to act more on impulse. This means that an adolescent, in general, is less inclined than his or her adult counterparts to consider legitimacy and the morality of behavior. Two common themes in the literature help to explain the link between impulsivity and adolescent crime: brain development and adolescent egocentrism. Given that the brain is still undergoing a process of development that extends beyond adolescence, it is not uncommon for those who wish to explain the delinquent and criminal behavior of adolescents to look to the brain as a potential explanation for adolescent misbehavior. In fact, many have linked the continued development of the prefrontal cortex in adolescence to sensation seeking and a lack of thoughtful, reflective behavior, which leads to involvement in crime (Aronson, 2009; Beckman, 2004; Steinburg, 2007; for an alternative argument see Wikstrom & Treiber, 2007). This is important to Procedural Justice Theory in so much that an adolescent's ability to reason and draw upon one's sense of morality is not fully developed. As the adolescent brain develops, levels of self-control and maturity increase, which may lead to more thoughtful and reflective behavior. This may lead an adolescent to draw upon his or her morality and sense of obligation to obey the law when they are deciding whether or

not to commit crime. More so, psychologists often link this lack of brain development with adolescent egocentrism – the tendency of adolescents only to think of themselves in situations and not others (Elkind, 1967). As a result, adolescents may not think about their status as a member of society or focus on legitimacy and the larger social order. Only as youths mature do they begin to link their self-identity with the larger society. Therefore, the realization that one wants to be a valued member of conventional society and the feeling of a moral obligation to obey the law may come later in the life course. Therefore, adolescent brain development and egocentrism may partially explain why Paternoster and colleagues (1997) and Tyler et al. (1988) found that the experience of procedural justice reduced the likelihood of subsequent offending among adult offenders while this work only demonstrated weak support for the Procedural Justice Theory.⁷³

The lack of importance of morality during adolescence may also help to explain the limited utility of Procedural Justice Theory with respect to involvement in crime. Ayala (1987) argued that morality is linked to the ability of an individual to anticipate consequences of one's own actions. Without this ability to think ahead, the individual is limited in their ability to make value judgments and in their reasoning when choosing between different courses of action. Thus, the lack of importance of perceptions of legitimacy in the criminal behavior of adolescent offenders may be more of an indication of their limited intellectual abilities stemming from the under-development of the prefrontal cortex. Similarly, the work of Wilson (1998) and stages of moral development can be used to deduce that these young offenders have not progressed far enough in moral development for perceptions of legitimacy to affect subsequent involvement in

⁷³ Recall that Paternoster and colleagues (1997) found that the experience of procedural justice with the police deterred subsequent instances of domestic violence among male offenders and Tyler et al. (1988) found that the experience of procedural justice deterred crime among a sample of offenders convicted of committing felonies.

criminal behavior. Consequently, it appears as though these serious adolescent offenders are driven more by whether it feels right and may lead to trouble (i.e. maybe we ought not) instead of crime causing “feelings of guilt” (i.e. we probably ought not) and the belief that crime “isn’t just disapproved of; it’s against the law” (i.e. we most certainly ought not; Wilson, 1998 p. 58).

Another potential explanation for the lack of support for Procedural Justice Theory among serious adolescent offenders is that there is not much variation in evaluations of procedural justice among this sample. Looking at the range of evaluations of procedural justice, the entire sample falls within plus or minus 1.3 standard deviations of the standardized mean for procedural justice.⁷⁴ Therefore, this lack of variation in perceptions of procedural justice may account for null findings. This is similar to the finding of Taylor et al. (2001) who found that juveniles are relatively indifferent in their attitudes towards the police. The question, then, becomes how we explain a lack of variation in experiences of procedural justice. It is possible that police and judges treat serious adolescent offenders rather consistently, whether engaging in the different elements of fair treatment or not; therefore overall evaluations of procedural justice and perceptions of legitimacy will only vary slightly. This similar process of legal socialization among these serious adolescent offenders may explain the why other research has found general negative attitudes of youth, especially offenders, towards the police and the court (Carr, Napolitano & Keating, 2007; Hurst & Frank, 2000), or it may be the result of efforts to improve police and citizen relationships through community policing and the growth of outreach programs and diversity efforts among police officers in the past 10-15 years.

⁷⁴ See Appendix J for a histogram of the distribution of the standardized measure of procedural justice.

Given the general weakness of Procedural Justice Theory to explain recidivism among the entire sample of serious adolescents, it is important to note that both the experience of procedural justice and perceptions of legitimacy were relevant to subsequent involvement in criminal activities among first-time offenders. It may be that these offenders have had so few, if any, experiences with agents of the justice system that they are more influenced by their most recent interactions with police and judges. It is also possible that the first-time offenders may have undergone greater brain development in the prefrontal cortex compared to repeat offenders and, therefore, are more reflective about their behavior. In other words, their lack of criminal history may be symptomatic as well as an indicator of advanced brain development. Consequently, their behavior is affected by experiences of procedural justice and perceptions of legitimacy. It is also possible that first-time offenders may exhibit lower levels of egocentrism compared to more seasoned offenders. Novice offenders may be less self-absorbed compared to repeat offenders. Perhaps, one's perception of identity among first-time offenders is not linked just to one's own personal opinion and sensitivities to adolescent norms but also the opinions and moral standards of society. Therefore, their behavior is affected more by fair and respectful treatment of different agents of the justice system. That being said, this dissertation suggests that some serious adolescent offenders are "too far gone." These offenders are the same individuals for whom other elements of rehabilitation and treatment provided by the juvenile justice system have failed, as evidenced by their repeat offender status. Their sense of morality is not linked to "the greater good for society"; rather, they act based on what one believes he or she thinks feels right at the time. They are so embedded in the criminal lifestyle that their sense of legitimacy is no longer

related conventional social order and the “law” (Hagan, 1993). It is possible that their previous legal socialization may have soured their opinion of the “law” and its agents so much that their sense of morality is no longer intertwined with conventional social order. The inability of Procedural Justice Theory to explain complaint behavior among this specific group of serious adolescent offenders is worthy of future attention and will be discussed as an avenue for future research later in this chapter.

A third interesting finding to emerge from this dissertation is the inability of the experience of procedural justice and perceptions of legitimacy to explain subsequent arrest among serious adolescent offenders. Although involvement in crime is necessary for a subsequent arrest for a new offense, it is probable that factors out of the individual’s control such as differential patterns of police monitoring or supervision based on both legal and extralegal characteristics are more important predictors of official measures of recidivism than individual experiences of procedural justice and perceptions of legitimacy. For instance, additional supervision related to disposition or sentence may also have more of an effect on subsequent arrest than procedural justice and perceptions of legitimacy. Unfortunately, no information was available regarding the disposition or criminal sentence given to these offenders so this work was not able to verify this potential explanation. To buttress the argument that other legal and extra-legal factors matter more, this dissertation found that gender, age and the number of prior arrests were the only consistent predictors of rearrest. This is consistent with prior literature that has found that police are more likely to monitor/investigate the behavior of males and those with longer criminal histories due to preconceived notions of recidivism rates (Klein, 1974). It is also possible that juvenile demeanor towards the police is a better predictor

of subsequent arrest among these offenders than actual juvenile offending. This would be consistent with extant literature on police decisions to arrest adolescents (Lundman et al., 1978; Piliavin & Briar, 1964; Sealock & Simpson, 1998; Smith et al., 1984). Unfortunately, no information regarding juvenile behavior towards the police in individual encounters is available in the Pathways to Desistance Study. Although one would expect that the experience of procedural justice and perceptions of legitimacy to be potential proxies for subsequent police and offender interactions, it is possible that situational circumstances may be more relevant to juvenile/police interactions than notions of procedural justice and legitimacy.

Another finding that seriously undermines the generalizeability of Procedural Justice Theory is the inability of procedural justice and perceptions of legitimacy to explain income-generating crime among serious adolescent offenders. Perhaps morality may not be as relevant for involvement in income-generating crime because it has to compete with personal wants and needs. Income-generating crime is a largely goal-oriented behavior with a tangible outcome. Therefore, the decision to engage in this type of crime is likely to be more instrumental rather than normative. In fact, the most consistent predictors of income-generating crime in this dissertation are elements of Rational Choice Theory – the rewards associated with crime and the certainty of punishment. Involvement in income-generating crime seems to be a rational choice and likely due to the desire for material gain outweighing morality and one's sense of obligation to obey the law.

Very little research has examined how individuals define procedural justice much less the relevance of the sources of procedural justice. Similarly, not much attention has

been paid to how perceptions of legitimacy are formed, especially among adolescent offenders. Tyler (1990) argued that experiences of procedural justice by both the police and judges are important in the explanation of perceptions of legitimacy and compliant behavior, but he looked at conventional samples that may not have had an experience with both agents of the justice system (Tyler, 1990; Tyler & Huo, 2002). Other work has grouped different agents of the justice system together in order to determine the relevance of Procedural Justice Theory (Boxx, 2008; Greene et al., 2010; Harvell, 2008; Kaasa, Cauffman & Malloy, 2008; Sprott & Greene, 2010). This dissertation attempted to fill this void in literature, and in doing so, it became clear that experiences of fair treatment with the police and more specifically personal experiences of fair treatment with the police are especially relevant to the formation of perceptions of legitimacy and in the explanation of compliant behavior. The finding that the police are the most important source of procedural justice is logical given that they are the most visible entity of the justice system. Furthermore, the police are the gateway to the justice system. They are the first line of the justice system and the first contact that offenders have when they enter the system. This is not to say that subsequent experiences of procedural justice in interactions with judges or other agents of the justice system are not important. Rather, police who take youthful offenders into custody set the tone for how a youthful offender may view his subsequent journey through either the juvenile or criminal justice system, and these interactions are the most formative with regard to perceptions of legitimacy. In a similar vein, personal experiences with the police are more relevant to perceptions of legitimacy and subsequent offending behavior than vicarious experiences with the police and personal and vicarious experiences with the judge. The focus of youth on personal

experiences is interesting given that talk and gossip are common among the adolescent population. That being said, it benefits the justice system as a whole that youth do not rely upon the “experiences” of their family members, friends or neighbors when making their own judgments about the legitimacy of the justice system. This is especially true with regard to the police. Peer and family influence is not dominating adolescent opinion toward authority. Offending youth are forming their own perceptions of legitimacy independently of others, and these opinions are based on personal experiences.⁷⁵

The final point worthy of further discussion relates to the importance of using of examining Procedural Justice Theory across race/ethnicity to better understand how it operates among males across race/ethnicity. Unlike the arguments of Tyler and Huo (2002), Procedural Justice Theory does not operate consistently across race/ethnicity. In fact, none of the concepts of Procedural Justice Theory were related to recidivism among young, Hispanic male offenders. Perhaps there is some element within the culture of Hispanics, such as a strong adherence to religion and devotion to the family, that renders the experience of procedural justice and perceptions of legitimacy irrelevant to compliant behavior. These null results are interesting in their own right and worthy of subsequent investigation. That being said, I would like to focus more specifically on the relevance of procedural justice for black, male offenders and the importance of perceptions of legitimacy for white male offenders.

This dissertation revealed that among serious adolescent offenders, the criminal behavior of black males was influenced by the experience of procedural justice, especially the experience of procedural justice with the police. Given the history of racist

⁷⁵ Hurst et al. (2007) found that youth largely based their attitudes towards the police on vicarious experiences of police misconduct. However, the authors used a conventional sample of high school students.

practices and the aura of animosity and distrust between blacks and the police (Brunson & Weitzer, 2009; Hurst et al., 2007), it is possible that black youths are more perceptive to fair treatment by the police. In addition, young, black males with a history of offending may hold police to a higher standard of behavior compared to their age mates of different race/ethnicities, and if police meet this expected standard, compliant behavior is more likely. On the other hand, white youth, even those who commit acts of delinquency, are far enough removed from bias police practices as a result of racial/ethnic heritage and are not traditionally the outlet of discriminatory practices and poor treatment by agents of the justice system. Therefore, evaluations of fair treatment may not be as relevant to white adolescent offenders because they may assume that everyone is treated the same way or are aware that they are receiving better treatment than others because of their skin color. Consequently, the experience of procedural justice is irrelevant for young white males with a history of offending. Instead, perceptions of legitimacy are relevant to compliant behavior. The moral obligation to obey the law, which is in part influenced by fair treatment, affects the criminal behavior of young, male offenders who are white.

Limitations and Future Research

As with all research, this study is not without its limitations. Due to the use of an existing data set, I was limited in the measures available to conduct this analysis. As a result, I was not able to investigate the role of probation officers in the explanation of recidivism among this sample of serious adolescent offenders. This agent of the justice system is especially relevant in cases that are handled by the juvenile justice system. The inability to evaluate the experiences of procedural justice with the probation officer and

the effect of these experiences of procedural justice on perceptions of legitimacy is potentially troublesome given that in many cases the probation officer spends the most amount of time with the youth. The police may only interact with the youth for a short period of time during an investigation and during the process of taking a youth into custody. After a commissioner or prosecutor decides whether or not to file a petition or seek an indictment and the interaction between the police and the youth is naught. In addition, many judges rely upon interactions between the probation officer and the youth as well as predispositional reports written by probation officers to guide their interactions with the youth and make decisions regarding the disposition. Even still, this work still speaks to the overall importance of the experience of procedural justice and perceptions of legitimacy as predictors of recidivism among serious adolescent offenders. Future research should attempt to determine what role probation officers play in the formation of perceptions of legitimacy and if they have their own independent effect on subsequent criminal behavior independent of police and judicial interactions among serious adolescent offenders.

A second limitation of this research is the inability to control for the disposition or criminal sentence given to each offender. This has the potential to affect the results in two ways. First, there is the possibility that one's disposition or criminal sentence may negatively affect one's opinion of fair treatment and perception of legitimacy. This, in turn, may affect subsequent involvement in crime. However, this is unlikely given that prior research has demonstrated that perceptions of fair treatment and perceptions of legitimacy are often independent of outcome (i.e. distributive justice) among adult samples (for a review, see Tyler, 2003). However, it remains to be seen if this

relationship will hold among adolescent offender samples. Secondly, one's disposition or criminal sentence may be related to opportunities to commit crime. Although this research has included a measure indicating the number of days that a youth is in the community and has the opportunity to commit crime, it does not account for more detailed aspects of one's disposition such as curfew, conditions of probation, or time spent in court-ordered activities.

Another potential weakness of this study is the inability to control for levels of self-control. Although it is likely that the overall level of self-control among this sample is relatively low, the variation within this sample may help account for differential receptivity to the experience of procedural justice and perceptions of legitimacy when deciding whether or not one reoffends. Subsequent research would benefit from the inclusion of a measure of self-control that is independent of one's prior involvement in crime in order to determine if this theoretical concept in tandem with the elements of Procedural Justice Theory can better explain recidivism among serious adolescent offenders. Furthermore, future research on Procedural Justice Theory may also benefit from research that seeks to determine whether or not individual levels of self-control moderate the effects of procedural justice and legitimacy on subsequent offending behavior.

This research is also limited in the strength of the racial/ethnic analyses due to the small sample sizes of males across race/ethnicity as well as the inability to test Procedural Justice Theory among female offenders across race/ethnicity. Even still, the research conducted is informative and suggests the need to continue to evaluate Procedural Justice Theory across different social identities. Given that the promise of Procedural Justice

Theory lies in its ability to appeal to one's morality as a valued member of society, it is important to incorporate how social identities may moderate the relationships between the main concepts of interest. Likewise, future research would benefit from subsequent analyses of the relevance of Procedural Justice Theory among larger samples of males of different race/ethnicities in order to verify the results demonstrated in this work.

This dissertation relied upon existing quantitative data to examine the importance of Procedural Justice Theory among serious adolescent offenders. As with all tests of theory, it is important to not only verify but also enhance the findings of quantitative data with qualitative data. Not only would this type of research on procedural justice and perceptions of legitimacy among youthful offenders provide more insight as to why or why not young offenders consider these theoretical concepts when choosing to engage in crime, but it may also help to better explain the weak effects of the normative perspective of compliance among serious adolescent offenders and the null effects of Procedural Justice Theory among repeat offenders. While survey research is an important tool for criminological research, qualitative data has the potential to provide a better understanding of nuance in the causes of criminal behavior among youth.

In order to better understand the applicability of Procedural Justice Theory among serious adolescent offenders, future research should test the validity of Procedural Justice Theory using longitudinal data among a sample of conventional youth. Currently, Tyler's theory has only been evaluated among a sample of conventional adolescents using cross-sectional data. This presents the problem of temporal ordering regarding the concepts of interest and does not adequately test the validity of Procedural Justice Theory as an explanation of compliant behavior among the adolescent population. While this

dissertation is an adequate test of the applicability of Procedural Justice Theory among this subsample of adolescents, it is limited in its implications given that we still do not know if Procedural Justice Theory in and of itself is applicable in the lives of adolescents, in general. Given the significance of procedural justice and legitimacy in the explanation of compliant behavior among novice offenders and the prior cross-sectional work of Fagan and Tyler (2005), it is likely that Procedural Justice Theory will be a valid predictor of complaint behavior among more conventional adolescents. At this point, theorists can really begin to examine if serious adolescent offenders are “too far gone” and too enmeshed in the justice system to be influenced by fair and just treatment.

Similarly, it is worthwhile to investigate when the processes of legal socialization begin among youth. How early do youth evaluate their treatment in terms of fairness and link fair treatment to perceptions of legitimacy and compliant behavior? Do police interactions with youth at an early age have cumulative effects on compliant and criminal behavior? And, finally, if some youth are “too far gone” by the time they are within the justice system, can we prevent some forms of juvenile delinquency from occurring by increasing perceptions of legitimacy among youth before they even have contact with the juvenile justice system as an offender? It may be too late to use police and judge behavior to induce complaint behavior among serious adolescent offenders but there may be a potential way to prevent the onset of delinquency before some youth become entrenched in the justice system such as increasing youth contact with police and judges in neutral settings such as school classrooms and community events.

Policy Implications

This work not only has important implications for criminological theory but it has relevant implications for policy among different agents of the justice system. In the introduction of this dissertation, the argument was made that adhering to the normative perspective of compliant behavior is appealing because fair treatment is non-controversial. In other words, the experience of procedural justice is an important end in and of itself in a society that desires “liberty and justice for all.” Therefore, even though there is only weak support for Procedural Justice Theory among serious adolescent offenders, the ability of police and judges to engage in procedural justice is necessary for two reasons. First, evidence has demonstrated that experiences of procedural justice with police and judges increase perceptions of legitimacy among these agents of the justice system. Therefore, even if the experience of procedural justice and one’s perception of legitimacy are not related to recidivism, the positive legal socialization of youth in and of itself is still important. Relatedly, there is evidence to suggest that the experience of procedural justice and perceptions of legitimacy are related to subsequent criminal involvement among first time offenders. Thus, police and judicial treatment of potential offenders does matter! However, police often lack situational clarity when they encounter juvenile offenders, and one of the elements of ambiguity is related to the prior offending record of the offender. Therefore, it is worthwhile for police to consistently engage in fair and equitable treatment given the potential it may have for reducing subsequent involvement in crime.

This work also speaks to the importance of training police officers and judges in the elements of procedural justice. Not only should these agents of the justice system be aware of the different elements of fair treatment (e.g. representation, impartiality,

consistency, accuracy, correctability and ethical treatment) and the importance of these elements to juvenile and adult offenders alike, but they should also strive to adhere to these principles of treatment in all interactions with citizens. This could include written policies in handbooks reminding different agents of the justice system to refrain from biased police practices, allowing suspects to fully state their case and informing citizens of their rights to an appeals process. The knowledge of these elements of fair treatment and its relationship with criminal behavior can also buttress training on issues such as prejudice, discrimination and profiling. Moreover, if police are aware that their behavior may lower their caseload, they may be more inclined to take the time to ensure the experience of procedural justice in encounters with offenders.

Specialized attention should also be given to police officers since they are the gateway to the justice system. Their contact, no matter how long or short, is important to citizens and offenders alike. Police should be cognizant that their behavior can and does impact subsequent criminal activity in more ways than their power to arrest and initiate the journey through the justice system. Their actions not only serve as a deterrent but they can increase one's overall sense of legitimacy of the law which in some cases reduces the likelihood of offending.

Another implication of this research is the need to educate the public regarding the importance of the experience of procedural justice so that they will hold the police and judges accountable for their behavior. Crime and victimization bring fear to citizens and are undesirable. Therefore, if the public is aware of the potential for police and judges to reduce crime, especially among juveniles who engage in a disproportionate amount of crime, they will be more inclined to hold police accountable for their behavior

in order to live in a safer environment. In tandem with informing the public of the promise of procedural justice in crime prevention, more accessible methods for citizens to comment on police and judicial misbehavior and unjust treatment should be made available. The education of the public is conceivable given the popularity of the community policing movement and recent funding of community policing initiatives by the COPS program from the Department of Justice. In addition, to reaffirm the importance of procedural justice in interactions with citizens, police-citizen evaluations should be taken into consideration for accommodations, raises and promotions.

In the end, this work speaks to the importance of studying justice agent-citizen interactions. Although police-citizen interactions are important in the formation of perceptions of legitimacy and have the potential to reduce recidivism rates, this work also suggests that the burden of crime reduction also lies with other agents of the justice system, especially judges. While there is still much to be learned regarding how police and judicial interactions with serious adolescent offenders affect subsequent criminal behavior, this dissertation has begun to fill the void regarding some gaps in literature and theory. It also demonstrates the need to continue to understand how and why serious adolescent offenders desist from crime. As evidenced by this dissertation, the factors related to desistance for novice offenders vary from the factors related to desistance from repeat offenders. Consequently, it is imperative to continue to investigate the desistance process among offending youth in order to reduce overall levels of crime but also reduce the costs associated with reformation in this time of fiscal restraint.

Appendix A: Self-reported offending measures

Total Offending:

In the past N months, have you ...

1. Purposely destroyed or damaged property that did not belong to you?
 - 1a. How many times have you done this in the past N months?
2. Purposely set fire to a house, building, car, or vacant lot?
 - 2a. How many times have you done this in the past N months?
3. Entered or broken into a building to steal something?
 - 3a. How many times have you done this in the past N months?
4. Stolen something from a store?
 - 4a. How many times have you done this in the past N months?
5. Bought, received, or sold something that you knew was stolen?
 - 5a. How many times have you done this in the past N months?
6. Used checks or credit cards illegally?
 - 6a. How many times have you done this in the past N months?
7. Stolen a car or motorcycle to keep or sell?
 - 7a. How many times have you done this in the past N months?
8. Sold marijuana?
 - 8a. How many times have you done this in the past N months?
9. Sold other illegal drugs (cocaine, crack, and heroin)?
 - 9a. How many times have you done this in the past N months?
10. Carjacked someone?
 - 10a. How many times have you done this in the past N months?
11. Forced someone to have sex with you?
 - 11a. How many times have you done this in the past N months?
12. Killed someone?
 - 12a. How many times have you done this in the past N months?
13. Shot someone (where bullet hit)?
 - 13a. How many times have you done this in the past N months?
14. Shot AT someone where you were the one who pulled the trigger?
 - 14a. How many times have you done this in the past N months?
15. Taken something from another person by force, using a weapon?
 - 15a. How many times have you done this in the past N months?
16. Taken something from another person by force, without a weapon?

- 16a. How many times have you done this in the past N months?
17. Beaten up or physically attacked someone so badly that they probably needed a doctor?

- 17a. How many times have you done this in the past N months?
18. Been in a fight?

- 18a. How many times have you done this in the past N months?
19. Beaten up, threatened, or physically attacked someone as part of a gang?

- 19a. How many times have you done this in the past N months?
20. Carried a gun?

- 20a. How many times have you done this in the past N months?
21. Broke into car to steal something?

- 21a. How many times have you done this in the past N months?
22. Gone joy-riding (stole car to ride around)?

22a. How many times have you done this in the past N months?

Violent Offending:

In the past N months, have you ...

1. Purposely destroyed or damaged property that did not belong to you?

1a. How many times have you done this in the past N months?

2. Purposely set fire to a house, building, car, or vacant lot?

2a. How many times have you done this in the past N months?

3. Forced someone to have sex with you?

3a. How many times have you done this in the past N months?

4. Killed someone?

4a. How many times have you done this in the past N months?

5. Shot someone (where bullet hit)?

5a. How many times have you done this in the past N months?

6. Shot AT someone where you were the one who pulled the trigger?

6a. How many times have you done this in the past N months?

7. Taken something from another person by force, using a weapon?

7a. How many times have you done this in the past N months?

8. Taken something from another person by force, without a weapon?

8a. How many times have you done this in the past N months?

9. Beaten up or physically attacked someone so badly that they probably needed a doctor?

9a. How many times have you done this in the past N months?

10. Been in a fight?

10a. How many times have you done this in the past N months?

11. Beaten up, threatened, or physically attacked someone as part of a gang?

11a. How many times have you done this in the past N months?

Income-generating Offending:

In the past N months, have you ...

1. Entered or broken into a building to steal something?
 - 1a. How many times have you done this in the past N months?
2. Stolen something from a store?
 - 2a. How many times have you done this in the past N months?
3. Bought, received, or sold something that you knew was stolen?
 - 3a. How many times have you done this in the past N months?
4. Used checks or credit cards illegally?
 - 4a. How many times have you done this in the past N months?
5. Stolen a car or motorcycle to keep or sell?
 - 5a. How many times have you done this in the past N months?
6. Sold marijuana?
 - 6a. How many times have you done this in the past N months?
7. Sold other illegal drugs (cocaine, crack, and heroin)?
 - 7a. How many times have you done this in the past N months?
8. Broke into car to steal something?
 - 8a. How many times have you done this in the past N months?

Appendix B: Legitimacy measures

- (1) Strongly disagree
- (2) Somewhat disagree
- (3) Somewhat agree
- (4) Strongly agree

1. I have a great deal of respect for the police.
2. Overall, the police are honest.
3. I feel proud of the police.
4. I feel people should support the police.
5. The police should be allowed to hold a person suspected of a serious crime until they get enough evidence to charge them.
6. The police should be allowed to stop people on the street and require them to identify themselves.
7. The courts generally guarantee everyone a fair hearing (trial).
8. The basic rights of citizens are protected in the courts.
9. Many people convicted of crimes in the courts are actually innocent. [Reverse coded]
10. Overall, judges in the courts here are honest.
11. Court decisions here are almost always fair.

Appendix C: Pre-created Procedural Justice measures available within Pathways to Desistance Data

Procedural Justice- Police

1. During your last contact with the police when you were accused of a crime, how much of your story did the police let you tell? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

2. Of the people you know who have had a contact with the police (in terms of crime accusation), how much of their story did the police let them tell? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

3. The police treat me the same way they treat most people my age.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

4. Over the last couple of years, the police have been treating me the same way they always treated me in the past.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

5. During my last encounter with the police, they treated me in the way that I expected they would treat me.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

6. During my last encounter with the police, they treated me in the way I thought I should be treated.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

7. Even after the police make a decision about arresting me, there is nothing I can do to appeal it. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

8. Even after the police make a decision about arresting me, someone in higher authority can listen to my case, and even in some cases, change the decision.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

9. Police considered the evidence/viewpoints in this incident fairly.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

10. Police overlooked evidence/viewpoints in this incident. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

11. Police were honest in the way they handled their case.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

12. Police used evidence that was fair and neutral.

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

13. Police made up their mind prior to receiving any information about the case.[Reverse coded]

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

14. Police treat males and females differently. [Reverse coded]

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

15. Police treat people differently depending how old they are. [Reverse coded]

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

16. Police treat people differently depending on their race/ethnic group. [Reverse coded]

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

17. Police treat people differently depending on the neighborhoods they are from. [Reverse coded]

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

18. Think back to the last time the police accused you of doing something wrong. Did the police treat you with respect and dignity or did they disrespect you? [Reverse coded] [Converted to 5 pt. Likert scale]
- (1) Respect/Dignity
 - (2) Neutral Treatment
 - (3) Disrespect
19. Think back to the last time the police accused you of doing something wrong. Did the police show concern for your rights? [Reverse coded] [Converted to 5 pt. Likert scale]
- (1) Showed a lot of concern
 - (2) Showed some concern
 - (3) Showed little concern
 - (4) Showed no concern

Procedural Justice Police: Personal Experience

1. During your last contact with the police when you were accused of a crime, how much of your story did the police let you tell? [Reverse coded] [Converted to 5 pt. Likert scale]
- (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it
2. The police treat me the same way they treat most people my age.
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
3. Over the last couple of years, the police have been treating me the same way they always treated me in the past.
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
4. During my last encounter with the police, they treated me in the way that I expected they would treat me.
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

5. During my last encounter with the police, they treated me in the way that I expected they would treat me.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

6. Even after the police make a decision about arresting me, there is nothing I can do to appeal it. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

7. Even after the police make a decision about arresting me, someone in higher authority can listen to my case, and even in some cases, change the decision.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

8. Police considered the evidence/viewpoints in this incident fairly.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

9. Police overlooked evidence/viewpoints in this incident. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

10. Police were honest in the way they handled their case.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

11. Police used evidence that was fair and neutral.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

12. Police made up their mind prior to receiving any information about the case.[Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

13. Think back to the last time the police accused you of doing something wrong. Did the police treat you with respect and dignity or did they disrespect you? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) Respect/Dignity
 - (2) Neutral Treatment
 - (3) Disrespect

14. Think back to the last time the police accused you of doing something wrong. Did the police show concern for your rights? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) Showed a lot of concern
 - (2) Showed some concern
 - (3) Showed little concern
 - (4) Showed no concern

Procedural Justice Police: Vicarious Experience

1. Of the people you know who have had a contact with the police (in terms of crime accusation), how much of their story did the police let them tell? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

2. Police treat males and females differently. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

3. Police treat people differently depending how old they are. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

4. Police treat people differently depending on their race/ethnic group. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

5. Police treat people differently depending on the neighborhoods they are from. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

Procedural Justice- Judge

1. During your last contact with the court system when you were accused of a crime, how much did the judge let you tell your side of the story? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

2. Of the people you know who have had contact with the courts (in terms of crime accusation), how much did the judge let them tell their side of the story? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

3. During my last encounter with the court, the judge treated me the same way s/he treated most people my age.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

4. Over the last couple of years, judges have been treating me the same way they have always treated me in the past.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

5. During my last encounter with the judge, s/he treated me the way that I expected s/he would treat me.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

6. During my last encounter with the judge, s/he treated me in the way that I thought I should be treated.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

7. Even after the judge makes a decision about sentencing me, there is nothing I can do to appeal it. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

8. Even after the judge makes a decision about sentencing me, someone in higher authority can listen to my case, and even in some cases, change the decision.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

9. The court considered the evidence/viewpoints in this incident fairly.
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
10. The court overlooked important evidence/viewpoints in this incident. [Reverse coded]
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
11. The court was honest in the way they handled their case.
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
12. The court used evidence that was fair and neutral.
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
13. The judge made up his/her mind prior to receiving any information about the case.
[Reverse coded]
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
14. Judges treat males and females differently. [Reverse coded]
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

15. Judges treat people differently depending on how old they are. [Reverse coded]
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
16. Judges treat people differently depending on their race/ethnic group. [Reverse coded]
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
17. Judges treat people differently depending on the neighborhoods they are from. [Reverse coded]
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
18. Think back to the last time you were before a judge because of something you were accused of doing. Did the judge treat you with respect and dignity or did he/she disrespect you? [Reverse coded] [Converted to 5 pt. Likert scale]
- (1) Respect/Dignity
 - (2) Neutral Treatment
 - (3) Disrespect
19. Think back to the last time you were before a judge because of something you were accused of doing. Did the judge show concern for your rights? [Reverse coded] [Converted to 5 pt. Likert scale]
- (1) Showed a lot of concern
 - (2) Showed some concern
 - (3) Showed little concern
 - (4) Showed no concern

Procedural Justice Judge: Personal Experience

1. During your last contact with the court system when you were accused of a crime, how much did the judge let you tell your side of the story? [Reverse coded] [Converted to 5 pt. Likert scale]
- (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

2. During my last encounter with the court, the judge treated me the same way s/he treated most people my age.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

3. Over the last couple of years, judges have been treating me the same way they have always treated me in the past.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

4. During my last encounter with the judge, s/he treated me the way that I expected s/he would treat me.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

5. During my last encounter with the judge, s/he treated me in the way that I thought I should be treated.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

6. Even after the judge makes a decision about sentencing me, there is nothing I can do to appeal it. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

7. Even after the judge makes a decision about sentencing me, someone in higher authority can listen to my case, and even in some cases, change the decision.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

8. The court considered the evidence/viewpoints in this incident fairly.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

9. The court overlooked important evidence/viewpoints in this incident. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

10. The court was honest in the way they handled their case.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

11. The court used evidence that was fair and neutral.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

12. The judge made up his/her mind prior to receiving any information about the case. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

13. Think back to the last time you were before a judge because of something you were accused of doing. Did the judge treat you with respect and dignity or did he/she disrespect you? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) Respect/Dignity
 - (2) Neutral Treatment
 - (3) Disrespect

14. Think back to the last time you were before a judge because of something you were accused of doing. Did the judge show concern for your rights? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) Showed a lot of concern
 - (2) Showed some concern
 - (3) Showed little concern
 - (4) Showed no concern

Procedural Justice Judge: Vicarious Experience

1. Of the people you know who have had contact with the courts (in terms of crime accusation), how much did the judge let them tell their side of the story? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

2. Judges treat males and females differently. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

3. Judges treat people differently depending on how old they are. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

4. Judges treat people differently depending on their race/ethnic group. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

5. Judges treat people differently depending on the neighborhoods they are from. [Reverse coded]
- (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

Appendix D: Procedural Justice individual component measures

Procedural Justice: Representation

1. During your last contact with the police when you were accused of a crime, how much of your story did the police let you tell? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

2. Of the people you know who have had a contact with the police (in terms of crime accusation), how much of their story did the police let them tell? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

3. During your last contact with the court system when you were accused of a crime, how much did the judge let you tell your side of the story? [Reverse coded] [Converted to 5 pt. Likert scale]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

4. Of the people you know who have had contact with the courts (in terms of crime accusation), how much did the judge let them tell their side of the story? [Reverse coded]
 - (1) All of it
 - (2) Most of it
 - (3) Some of it
 - (4) None of it

Procedural Justice: Impartiality

1. Police were honest in the way they handled their case.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

2. Police made up their mind prior to receiving any information about the case.[Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

3. The court was honest in the way they handled their case.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

4. The judge made up his/her mind prior to receiving any information about the case. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

Procedural Justice: Consistency

1. The police treat me the same way they treat most people my age.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

2. Over the last couple of years, the police have been treating me the same way they always treated me in the past.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

3. Police treat males and females differently. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

4. Police treat people differently depending how old they are. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

5. Police treat people differently depending on their race/ethnic group. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

6. Police treat people differently depending on the neighborhoods they are from. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

7. During my last encounter with the court, the judge treated me the same way s/he treated most people my age.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

8. Over the last couple of years, judges have been treating me the same way they have always treated me in the past.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

9. Judges treat males and females differently. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

10. Judges treat people differently depending on how old they are. [Reverse coded]

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

11. Judges treat people differently depending on their race/ethnic group. [Reverse coded]

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

12. Judges treat people differently depending on the neighborhoods they are from. [Reverse coded]

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

Procedural Justice: Accuracy

1. Police considered the evidence/viewpoints in this incident fairly.

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

2. Police overlooked evidence/viewpoints in this incident. [Reverse coded]

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

3. Police used evidence that was fair and neutral.

- (1) Strongly disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly agree

4. The court considered the evidence/viewpoints in this incident fairly.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

5. The court overlooked important evidence/viewpoints in this incident. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

6. The court used evidence that was fair and neutral.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

Procedural Justice: Correctability

1. Even after the police make a decision about arresting me, there is nothing I can do to appeal it. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

2. Even after the police make a decision about arresting me, someone in higher authority can listen to my case, and even in some cases, change the decision.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

3. Even after the judge makes a decision about sentencing me, there is nothing I can do to appeal it. [Reverse coded]
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

4. Even after the judge makes a decision about sentencing me, someone in higher authority can listen to my case, and even in some cases, change the decision.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

Procedural Justice: Ethical Treatment

1. During my last encounter with the police, they treated me in the way that I expected they would treat me.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
2. During my last encounter with the police, they treated me in the way that I thought I should be treated.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree
3. Think back to the last time the police accused you of doing something wrong. Did the police treat you with respect and dignity or did they disrespect you? [Reverse coded]
 - (1) Respect/Dignity
 - (2) Neutral Treatment
 - (3) Disrespect
4. Think back to the last time the police accused you of doing something wrong. Did the police show concern for your rights? [Reverse coded]
 - (1) Showed a lot of concern
 - (2) Showed some concern
 - (3) Showed little concern
 - (4) Showed no concern
5. During my last encounter with the judge, s/he treated me the way that I expected s/he would treat me.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

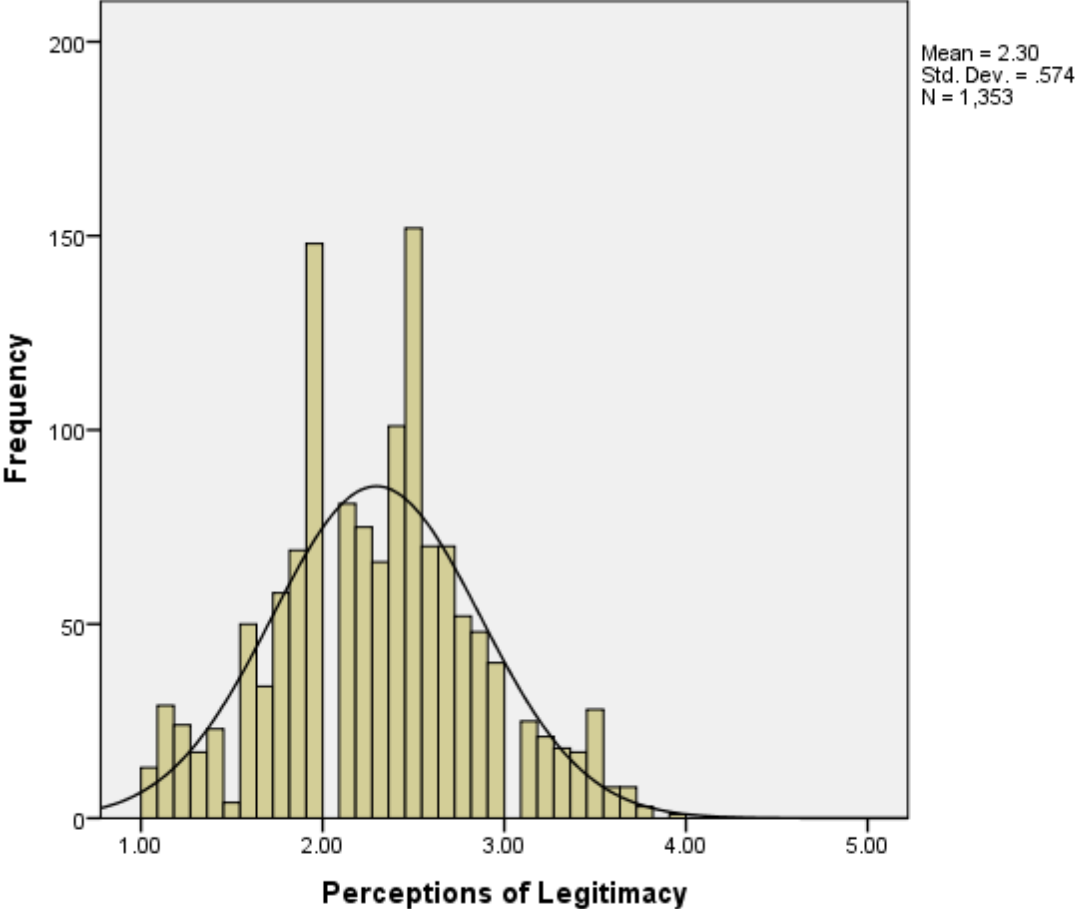
6. During my last encounter with the judge, s/he treated me in the way that I thought I should be treated.
 - (1) Strongly disagree
 - (2) Disagree
 - (3) Neither agree nor disagree
 - (4) Agree
 - (5) Strongly agree

7. Think back to the last time you were before a judge because of something you were accused of doing. Did the judge treat you with respect and dignity or did he/she disrespect you? [Reverse coded]
 - (1) Respect/Dignity
 - (2) Neutral Treatment
 - (3) Disrespect

8. Think back to the last time you were before a judge because of something you were accused of doing. Did the judge show concern for your rights? [Reverse coded]
 - (1) Showed a lot of concern
 - (2) Showed some concern
 - (3) Showed little concern
 - (4) Showed no concern

Appendix E: Distribution of outcome variable legitimacy

Figure 1: Distribution of Perceptions of Legitimacy Measured at Baseline



Appendix F: Correlation matrices of procedural justice measures

Table 70: Correlation matrix of procedural justice measures by source of experience (police vs. judge) and type of experience (personal vs. vicarious)

	1.	2.	3.	4.	5.	6.
1. Procedural Justice: Police	1					
2. Procedural Justice Police: Self	0.974**	1				
3. Procedural Justice Police: Other	0.652**	0.376**	1			
4. Procedural Justice: Judge	0.524**	0.494**	0.351**	1		
5. Procedural Justice Judge: Self	0.452**	0.471**	0.197**	0.918**	1	
6. Procedural Justice Judge: Other	0.459**	0.372**	0.449**	0.834**	0.610**	1

** Pearson Correlation Coefficient Significant (2-tailed) at alpha = .01

Table 71: Correlation matrix of individual components of procedural justice

	1.	2.	3.	4.	5.	6.
Representation	1					
Impartiality	0.294**	1				
Consistency	0.169**	0.309**	1			
Accuracy	0.322**	0.607**	0.316**	1		
Correctability	0.078**	0.096**	0.045	0.091**	1	
Ethical Treatment	0.393**	0.477**	0.388**	0.531**	0.154**	1

** Pearson Correlation Coefficient Significant (2-tailed) at alpha = .01

Appendix G: Additional results tables: Violent offending

Table 72: Relationships between sources of procedural justice, legitimacy and self-reported violent offending over 1 year (N = 1,187).^{*}

	Model 1		Model 2	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police	-0.229 (0.152)	0.796	-0.152 (0.160)	0.859
Procedural Justice Judge	-0.034 (0.152)	0.967	0.031 (0.158)	1.031
Legitimacy	-	-	-0.213 (0.145)	0.808

^{*}All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[♦] OR = Odds Ratio

[†] p < .10 (two-tailed test)

^{*} p < .05 (two-tailed test)

^{**} p < .01 (two-tailed test)

^{***} p < .001 (two-tailed test)

Table 73: Relationships between different sources of procedural justice, legitimacy and self-reported violent offending over 1 year (N = 1,187).^{*}

	Model 1		Model 2	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police: Personal Experience	-0.216 (0.145)	0.800	-0.141 (0.149)	0.868
Procedural Justice Police: Vicarious Experience	-0.044 (0.111)	0.957	-0.033 (0.112)	0.967
Procedural Justice Judge: Personal Experience	0.152 (0.154)	1.164	0.181 (0.155)	1.199
Procedural Justice Judge: Vicarious Experience	-0.153 (0.138)	0.858	-0.110 (0.141)	0.896
Legitimacy	-	-	-0.248 (0.150)	0.780

^{*}All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[♦] OR = Odds Ratio

[†] p < .10 (two-tailed test)

^{*} p < .05 (two-tailed test)

^{**} p < .01 (two-tailed test)

^{***} p < .001 (two-tailed test)

Table 74: Relationships between elements of procedural justice, legitimacy and self-reported violent offending over 1 year (N = 1,187). *

	Model 1:		Model 2:	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice: Representation	0.074 (0.093)	1.077	0.086 (0.093)	1.090
Procedural Justice: Impartiality	0.105 (0.136)	1.111	0.140 (0.138)	1.150
Procedural Justice: Consistency	-0.204 (0.142)	0.815	-0.165 (0.144)	0.848
Procedural Justice: Accuracy	-0.240 (0.133)	0.787 [†]	-0.229 (0.134)	0.795 [†]
Procedural Justice: Correctability	0.057 (0.109)	1.059	0.061 (0.110)	1.063
Procedural Justice: Ethical Treatment	-0.030 (0.143)	0.970	0.028 (0.148)	1.029
Legitimacy	-	-	-0.228 (0.149)	0.796

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Appendix H: Additional results tables: Income-generating offending

Table 75: Relationships between sources of procedural justice, legitimacy and self-reported income-generating offending over 1 year (N = 1,187).^{*}

	Model 1		Model 2	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police	-0.242 (0.152)	0.785	-0.222 (0.160)	0.801
Procedural Justice Judge	0.004 (0.149)	1.004	0.021 (0.155)	1.022
Legitimacy	-	-	-0.056 (0.147)	0.946

^{*}All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[♦] OR = Odds Ratio

[†] p < .10 (two-tailed test)

^{*} p < .05 (two-tailed test)

^{**} p < .01 (two-tailed test)

^{***} p < .001 (two-tailed test)

Table 76: Relationships between different sources of procedural justice, legitimacy and self-reported income-generating offending over 1 year (N = 1,187).^{*}

	Model 1		Model 2	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police: Personal Experience	-0.168 (0.140)	0.845	-0.146 (0.147)	0.864
Procedural Justice Police: Vicarious Experience	-0.085 (0.111)	0.919	-0.081 (0.111)	0.922
Procedural Justice Judge: Personal Experience	0.104 (0.151)	1.109	0.112 (0.152)	1.119
Procedural Justice Judge: Vicarious Experience	-0.078 (0.135)	0.925	-0.064 (0.137)	0.938
Legitimacy	-	-	-0.075 (0.149)	0.928

^{*}All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[♦] OR = Odds Ratio

[†] p < .10 (two-tailed test)

^{*} p < .05 (two-tailed test)

^{**} p < .01 (two-tailed test)

^{***} p < .001 (two-tailed test)

Table 77: Relationships between elements of procedural justice, legitimacy and self-reported income-generating offending over 1 year (N = 1,187).[♦]

	Model 1:		Model 2:	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice: Representation	0.024 (0.092)	1.025	0.027 (0.092)	1.027
Procedural Justice: Impartiality	-0.224 (0.133)	0.799	-0.217 (0.135)	0.805
Procedural Justice: Consistency	-0.283 (0.141)	0.754*	-0.272 (0.143)	0.762 [†]
Procedural Justice: Accuracy	0.116 (0.132)	1.123	0.121 (0.132)	1.128
Procedural Justice: Correctability	0.045 (0.108)	1.046	0.046 (0.108)	1.047
Procedural Justice: Ethical Treatment	0.052 (0.141)	1.053	0.066 (0.145)	1.068
Legitimacy	-	-	-0.059 (0.148)	0.943

[♦]All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

[♦] OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Appendix I: Additional results tables: Drug use

Table 78: Relationships between sources of procedural justice, legitimacy and self-reported drug use over 1 year (N = 1,187). *

	Model 1		Model 2	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police	-0.297 (0.147)	0.743*	-0.208 (0.156)	0.812
Procedural Justice Judge	0.159 (0.146)	1.173	0.241 (0.153)	1.272
Legitimacy	-	-	-0.256 (0.144)	0.774 [†]

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

♦ OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 79: Relationships between different sources of procedural justice, legitimacy and self-reported drug use over 1 year (N = 1,187). *

	Model 1		Model 2	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice Police:	-0.211	0.809	-0.126	0.882
Personal Experience	(0.137)		(0.144)	
Procedural Justice Police:	-0.125	0.882	-0.111	0.894
Vicarious Experience	(0.109)		(0.110)	
Procedural Justice Judge:	0.001	1.001	0.037	1.038
Personal Experience	(0.147)		(0.149)	
Procedural Justice Judge:	0.202	1.224	0.256	1.292 [†]
Vicarious Experience	(0.133)		(0.136)	
Legitimacy	-	-	-0.296 (0.146)	0.744*

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

♦ OR = Odds Ratio

[†] p < .10 (two-tailed test)

* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Table 80: Relationships between elements of procedural justice, legitimacy and self-reported drug use over 1 year (N = 1,187). *

	Model 1		Model 2	
	Estimate (S.E.)	OR	Estimate (S.E.)	OR
Procedural Justice: Representation	0.082 (0.090)	1.086	0.095 (0.091)	1.100
Procedural Justice: Impartiality	-0.010 (0.130)	0.990	0.030 (0.132)	1.030
Procedural Justice: Consistency	-0.236 (0.137)	0.790 [†]	-0.186 (0.140)	0.830
Procedural Justice: Accuracy	0.017 (0.129)	1.017	0.033 (0.129)	1.033
Procedural Justice: Correctability	-0.205 (0.105)	0.815 [†]	-0.199 (0.105)	0.820 [†]
Procedural Justice: Ethical Treatment	0.032 (0.137)	1.032	0.098 (0.141)	1.103
Legitimacy	-	-	-0.271 (0.145)	0.763 [†]

*All models include the covariates time on the street, male, black, Hispanic, age, Philadelphia, both parents, socioeconomic status, legal cynicism, rewards of crime, costs of crime, certainty of punishment, prior arrests, person based offense, property based offense, drug based offense, weapons offense, and sex offense.

♦ OR = Odds Ratio

† p < .10 (two-tailed test)

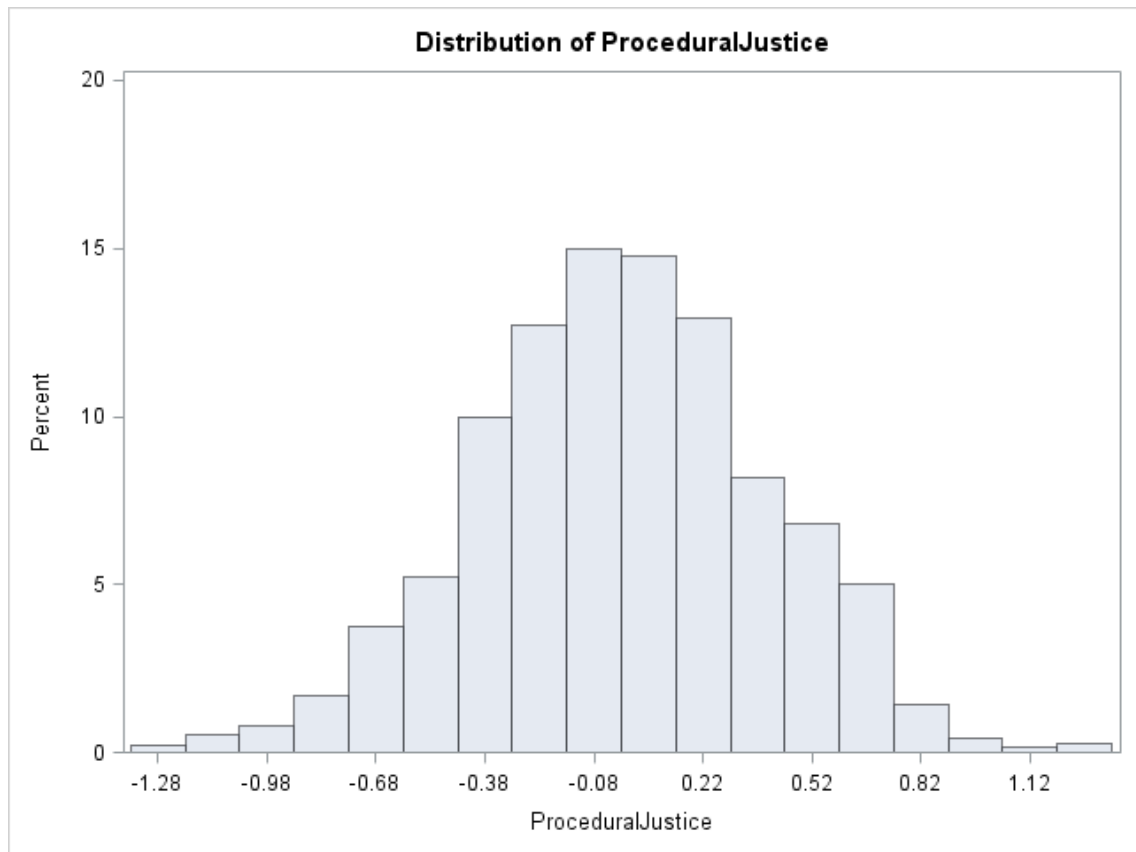
* p < .05 (two-tailed test)

** p < .01 (two-tailed test)

***p < .001 (two-tailed test)

Appendix J: Distribution of Procedural Justice

Figure 2: Distribution of the standardized measure of procedural justice



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