

Abstract

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EXPLORING THE RELATIONSHIP
BETWEEN SELF-CONTROL AND
THOUGHTFULLY REFLECTIVE DECISION
MAKING

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The majority of empirical work on turning points has focused on if and how they facilitate desistance; comparatively little work has investigated the factors that facilitate or inhibit the likelihood of experiencing these turning points, however. This is disconcerting as extant literature has mostly found these life events to have a significant impact on steering individuals away from subsequent deviant behavior. Using data from the National Longitudinal Study of Adolescent Health, this study investigates the relationship between self-control and thoughtfully reflective decision making (Paternoster and Pogarsky, 2009; Paternoster, Pogarsky, and Zimmerman, 2010) in the likelihood of entering into marriage and gainful activity. This research finds that self-control significantly predicts gainful activity as well as thoughtfully reflective decision making. The results, however, do not find self-control to be influential for marriage. Implications for theory and future research are also discussed.

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By

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Dedication

To my family and friends: Thank you for all of your love and support these past few years. It is because of your undying faith in me that I was able to push forward.

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There are several people that have provided endless encouragement the past year as I navigated my way through this process. I feel so lucky to have such inspirational role models in my life. You know who you are....and from the bottom of my heart, thank you.

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Chapter 1: Introduction

In the early 1990s, Sampson and Laub (1993; see also Laub and Sampson, 2003) offered an explanation of how and why offenders desist from crime. Specifically, they argue that offending pathways can be altered in substantial ways as a result of experiencing certain life events, which they termed “turning points.” According to their theory, when offenders experience and invest in social events such as marriage, employment and military service, the consequent increase in social capital urges them to disengage from a criminal lifestyle. There now exists an extensive literature underscoring the relationships between these events and declining criminal activity across a host of methodological specifications (e.g., Beaver, 2001; King, Massoglia, and MacMillan, 2007; Laub, Nagin, and Sampson, 1998; Maume, Ousey, and Beaver, 2005; Savolainen, 2009; Tripodi, 2010) as well as literature expanding on the theoretical mechanisms (e.g., social capital, peers, and routine activities) responsible for the manner in which these turning points translate into desistance (e.g., Melde and Esbensen, 2011; Sampson and Laub, 2005, Warr, 1998; Wright and Cullen, 2004).

In comparison, there is a dearth of literature on the process whereby individuals enter into these turning points, though many acknowledge that it is not a random process (Gottfredson and Hirschi, 1990; Gottfredson, 2005). Drawing from Gottfredson and Hirschi’s (1990) *A General Theory of Crime*, which outlines the significant role a latent trait developed in the first decade of life has on forming social bonds later in life, low self-control is expected to be the driving force behind whether individuals experience pro-social life events. Gottfredson and Hirschi (1990) argue

that the characteristics of self-control naturally sort people “into a variety of circumstances that are as a result correlated with crime,” (p. 119) making it unlikely that these individuals will experience attachment to or involvement in any social institution. There has been much research depicting that self-control does in fact predict turning points (Arneklev, Elis, and Medlicott, 2006; Evans, Cullen, Burton, Dunaway, and Benson, 1997; Wright, Caspi, Moffitt, and Silva, 1999; Wright, Caspi, Moffitt, and Silva, 2001); however, more recent work has suggested that self-control may impact turning points through thoughtfully reflective decision making (TRDM). TRDM, a concept intrinsically related to both rational choice and human agency brought forth by Paternoster and Pogarsky (2009; see also Paternoster et al., 2010), has shown to be related to both self-control and turning points, suggesting that the relationship between self-control and turning points may not be as straightforward as Gottfredson and Hirschi (1990) originally proposed. Therefore, as would be expected given the paucity of research in this area, the interplay between these two specific constructs has yet to be examined in the context of pathways to turning points.¹

This void in the literature is problematic for both theory and policy, as it leaves several unanswered questions concerning a key part of the desistance process. A more in-depth examination of this stage in the process may provide insight on 1) whether selection into turning points is a random process as Sampson and Laub (1993) posit alluding to the importance of social bonds, 2) whether the general theory of crime needs to be revisited to account for additional factors regarding how individuals proceed into turning points, and ultimately 3) whether there are

¹ There are no studies known to this author that have looked directly at the relationship between self-control and TRDM in pathways to turning points.

identifiable ways to facilitate or influence the likelihood that individuals actually experience these turning points. In light of these significant implications, the current study will use data from the National Longitudinal Study of Adolescent Health (AddHealth) to address three questions. First, does high self-control directly increase the likelihood that individuals will select into marriage and gainful activity (i.e., education and employment); second, does high self-control directly result in more thoughtfully reflective decision making (TRDM); and third, does high self-control operate through TRDM to predict selection into marriage and gainful activity? In this way, the present inquiry shifts the focus to an earlier stage in the life course, providing insight into the underlying mechanisms fueling the selection into potentially life-changing events.

Chapter 2: Literature Review

What Do We Know about Turning Points?

Several theoretical frameworks (e.g., maturation and aging, developmental, life-course, rational choice, and social learning theories) have been illustrated in the desistance literature in an attempt to explain why individuals decide to cease their current and subsequent criminal activities. Prior to Sampson and Laub's (1993) work, scholars had certainly looked at the mechanisms at work in the desistance process across the life course (Glueck and Glueck, 1950; Hirschi, 1969); however, relatively little had been offered regarding a comprehensive view of this process across the entire lifespan (i.e., 70 years of data for the same individuals). Under the guidance of the life-course perspective, Sampson and Laub (1993) set out to examine several unanswered questions that remained in the field regarding the childhood-stability argument in the explanation of delinquency.

Sampson and Laub's Age-Graded Theory of Informal Social Control

According to Laub and Sampson (1993), the desire to know more about "individual change, salient life events, and turning points in adulthood" (p. 302) fueled their investigation of both continuity and change over the life course as it related to both crime and deviance in childhood, adolescence, and adulthood. After a thorough review of all relevant literature, including a focus on what longitudinal research had revealed in this area (Sampson and Laub, 1992), the authors "were eventually led to develop an age-graded theory of informal social control to explain crime and deviance over the life span" (Laub and Sampson, 1993: 302). Sampson

and Laub (1993) evaluated their novel theory using a comprehensive dataset to determine if their core tenets were actually supported by empirical evidence.

In essence, Sampson and Laub (1993) used longitudinal data reconstructed from Sheldon and Eleanor Glueck's (1950, 1968) three wave prospective study of two groups of boys followed to age thirty-two. In these data, the Gluecks had obtained a "wealth of information on social, psychological, and biological characteristics, family life, school performance, work experiences, and other life events" (Sampson and Laub, 1993: 28) from their sample of five hundred male delinquents along with a matched sample of five hundred non-delinquents. In their first book, *Crime in the Making*, Sampson and Laub (1993) presented not only their findings but delineated in great detail their age-graded theory of informal social control. The core of their theory, specifically regarding the transition to adulthood, lies in the notion that securing social bonds through certain life events is important for increasing the likelihood of desisting from criminal behavior (Laub and Sampson, 2003; Sampson and Laub, 1993). Here, the authors employ Coleman's (1988, 1990) notion of social capital or social investment to explain the importance behind adult social ties "as they create interdependent systems of obligation and restraint that impose significant costs for translating criminal propensities into action" (p. 141). Their theory goes further to state that when a life event evokes a substantial change in one's developmental pathway, this event may be coined a turning point for its ability to shift the lives of offenders toward conventional activities.

Sampson and Laub's (1993) examination of the life histories of the Gluecks' subjects revealed the significant role that events such as marriage, employment and

military service played in the lives of the men who desisted from crime in adulthood. In particular, there was a reoccurring theme of good marriages and stable employment, whereby one man in particular cited his wife and his ensuing family responsibilities as a reason for his steering away from delinquency when he was 25-32 years old. Another man mentioned how “his home responsibilities forced him to be a stable and regular worker” (1993: 219) which further provided support not only for how influential these turning points are, but also for how closely related they can be. Of course, the interrelatedness of these life events makes intuitive sense in that a man who is devoted to his wife (and children) would naturally work harder to support them, allowing little time to get into trouble. Similarly, a man who takes his job seriously and has some level of commitment to it is likely to hold and strive for certain goals for the future (e.g., to gain job security or simply to move forward in life). These events entail structure and a daily routine, making it somewhat difficult to separate aspects of the home from aspects of the work environment as they are intrinsically related. The underlying theme with these men was strong social bonds developed through certain turning points (i.e., marriage and employment), which ultimately resulted in positive adult outcomes.

While informative and comprehensive, *Crime in the Making* left many unanswered questions. So, ten years later, Laub and Sampson (2003) conducted a follow-up study to age seventy with fifty-two of the original Glueck delinquents, compiling seven decades of narrative life histories in conjunction with quantitative longitudinal data. In their second book, *Shared Beginnings, Divergent Lives*, Laub and Sampson’s first-hand narratives of these men in combination with official data

(i.e., criminal records and death records) allowed the authors to uncover rich information that otherwise would have gone unnoticed by traditional quantitative approaches in criminology. This ultimately resulted in an expansion of their theory of informal social control, as it had originally been laid out in *Crime in the Making* and other works, to include other concepts such as routine activities and human agency. According to the revised theory, social control, routine activities, and human agency, both indirectly and through interaction, shape trajectories of offending across the entire life span. Laub and Sampson's (2003) portrayal of human agency in their second book is significant for the purposes of the current study as it sheds some light on how individuals may select into turning points. Here, the implication is that people play a conscious role in desisting from crime; they actively pursue or follow certain goals that initiate the desistance process. The introduction of this concept does not fit well with the prominence given to "desistance by default" in the rest of their work, and because of this, the present study aims to shed light on whether selection into turning points is in fact random or whether there is more of a selection mechanism at work. Similarly, results from the current study should help add to Sampson and Laub's theory and ultimately, whether future work should account for human agency when testing the tenets of this theory.

Additionally, Laub and Sampson's (2003) work is of particular importance here because their findings in this follow-up study highlighted once again that marriage, employment, and education were all significant turning points in the lives of the men from the original study. Specifically, being married, serving in the military, being sent to the Lyman School for Boys, and residential relocation

contributed to the process of desistance. While Sampson and Laub (1993) originally suggested that the quality of marriage was important in terms of increasing the odds of desistance, later analyses found that simply being in a marital union made desistance more likely (Laub and Sampson, 2003; Sampson and Laub, 2005) as it naturally restructured routine activities and provided a form of direct social control. And, although the men did not identify employment as a turning point, their life-history narratives suggest that stable work is in fact influential in the process of desistance from crime. Moreover, some men who did not desist in adulthood identified lack of education as a missed turning point (Laub and Sampson, 2003), acknowledging that they could have made something of themselves had they finished their schooling.

As a result of the extensive work done by Sampson and Laub (1993; see also Laub and Sampson, 2003), there was a sharp increase in the amount of attention devoted to turning points.² Following Sampson and Laub's (1993) key finding concerning the significance behind certain life events in the desistance of criminal behavior, subsequent work found considerable support for these same life events: marriage (Barnes and Beaver, 2012; Beaver, Wright, Delisi, and Vaughn, 2008; Bersani, Laub, and Nieuwbeerta, 2009; Blokland and Nieuwbeerta, 2005; Horney, Osgood, and Marshall, 1995; King et al., 2007; Laub et al., 1998; Laub and Sampson, 2003; Maume et al., 2005); employment (Laub and Sampson, 2003; Savolainen, 2009; Stouthamer-Loeber, Wei, Loeber, and Masten, 2004; Tripodi, 2010; Uggen, 2000); and education (Beaver, 2001; Stouthamer-Loeber et al., 2004). Most of the

² So much attention in fact, that they were awarded the 2011 Stockholm Prize in Criminology for their impact on the field concerning how and why criminals stop offending.

attention that Sampson and Laub's work has received has taken one of two directions: 1) whether turning points truly impact desistance and 2) how these turning points translate into desistance. Predominantly, scholars have established whether turning points have a true "impact" on desistance across a variety of methodological specifications. Because of this existing relationship in the literature, the current study turns to work surrounding marriage and gainful activity (i.e. employment and education).

Marriage

With the exception of Giordano, Cernkovich, and Rudolph's (2002) study, which did not find a significant effect of marriage on desistance from crime among a serious offender sample, throughout the extant literature the effect of marriage on desistance has been found to be particularly robust (Beaver et al., 2008; Bersani et al., 2009; Blokland and Nieuwbeerta, 2005; Farrington and West, 1995; Horney et al., 1995; King et al., 2007; Maume et al., 2005; Warr, 1998). The most compelling evidence of the marriage-desistance link comes from a series of studies conducted by Sampson, Laub, and their colleagues utilizing the Gluecks' (1950, 1968) longitudinal data across a variety of statistical techniques. For example, Laub, Nagin and Sampson (1998) showed that the development of quality marital bonds facilitated desistance from offending by controlling for individual trajectories. Similarly, more recent research utilized a counterfactual approach to marriage and "found that being married is associated with a significant reduction in the probability of crime" (Sampson, Laub and Wimer, 2006: 498) consistent with the idea that marriage causally inhibits crime over the life course. Simons, Stewart, Gordon, Conger, and

Elder's (2002) study of young adults revealed that involvement with an antisocial romantic partner not only directly predicted an increase in criminal behavior but also predicted it indirectly through adult peer affiliations. This study is consistent with existing work that has suggested that it is not just being married that is important; it is being married to the right person that matters. Further, in Maume et al.'s (2005) study, the authors focused on the impact of marriage on marijuana desistance and found that marriage mostly had a direct effect with only a small portion of this effect mediated through the reduction in delinquent peers.

Gainful Activity

Sampson and Laub (1993; see also Laub and Sampson, 2003) are, in the end, arguing that being attached to any "good institution" is important in terms of steering individuals away from future delinquent behavior. Their primary focus was on employment as a turning point among the Glueck boys because of the age range of the Glueck boys and because few of the boys actually attended college. Nevertheless, a logical connection would be to look at attachment to a job or education (which has become a standard rite of passage in society today) as they serve the same purpose in keeping people engaged in something constructive. The present study takes this exact approach by not differentiating between education and employment and instead, combines full-time involvement in employment with full-time involvement in school to form a "gainfully active" outcome as previous research has used (Schubert, Mulvey, and Glasheen, 2011; see also Vander Stoep, Beresford, Weiss, McKnight, Cauce, and Cohen, 2000).

Employment

While there is some debate in the existing literature over which aspects of employment are the most beneficial (Uggen and Wakefield, 2008), there seems to be a general agreement that involvement in a full-time job is important for desistance (Laub and Sampson, 2003; Sampson and Laub, 1993; Uggen, 2000). In particular, Sampson and Laub (1993) argue that involvement in work deters deviant behavior through the pro-social bonds and connections that are made, which exert social control over potential offenders. Using the National Supported Work Demonstration Project, Uggen (2000) demonstrates that even a modest work experience for offenders 26 years and older has the potential to deter them from subsequent criminal behavior. Among a random sample of male offenders released from Texas prisons, Tripodi (2010) also found that employment upon release predicted longer crime-free periods than for those men who had not secured employment. Furthermore, Savolainen's (2009) study of Finnish recidivists revealed that the influence of adult social bonds such as employment on future criminal behavior is not limited to a specific historical context, such as that of the Glueck men who "grew to young adulthood in a context of expanding economic opportunities after World War II (1947-1965)" (Sampson and Laub, 1990). In fact, obtaining work proved to be the strongest predictor of desistance in this study of contemporary Finland; essentially, "all else equal, getting a job is associated with a forty percent reduction in the rate of recidivism as measured by new criminal convictions" (Savolainen, 2009: 301).

Education

Though Sampson and Laub (1993; see also Laub and Sampson, 2003) do not significantly address the role of education due to constraints in their sample, they do acknowledge the importance of an individual's commitment to occupation-related goals. Specifically, they identified individuals in the Glueck data as subjects with high commitment if they "expressed a strong desire for further schooling (academic, vocational, or professional), and were eager to better themselves and their families" (p. 144). As such, there is a logical connection between education and employment as individuals who are committed to conventional education ultimately open doors to more opportunities for future success. And some scholars have started to look at education, specifically in regard to college, in the context of desistance. Taking into account rural-urban differences in the desistance process, Beaver (2001) examines desistance in drug use using National Youth Survey data and his findings indicate that enrollment in college facilitates desistance from marijuana across both rural and non-rural populations. In Stouthamer-Loeber et al.'s (2004) study, the authors look at young males in the Pittsburgh Youth Study and find that a majority of the desisters had been employed or in school in early adulthood, compared to the persisters of serious delinquency.

Once the relationships between these turning points and declining criminal activity were established in the literature, subsequent research focused on why these life events are associated with desistance and what mechanisms (e.g., social capital, peers, and routine activities) underlie this process. In Sampson and Laub's (2005) piece, they provided four distinct mechanisms (i.e., knifing off, social capital, routine

activities, and identity transformation) through which turning points can change behavior and potentially reduce the likelihood of future criminal behavior. Further research addressed the applicability of these mechanisms in certain contexts concerning turning points. For example, Melde and Esbensen (2011) examined the four processes described by Sampson and Laub (2005) in relation to gang involvement. Specifically, the authors conclude that “gang joining is associated with a significant reduction in informal social controls” and that “factors associated with the turning point framework partially mediate the effect of the onset of gang membership on delinquency” (p. 538). Prior to Sampson and Laub’s (2005) study, peers along with routine activities had been recognized as mechanisms underlying this process (Warr 1998; Wright and Cullen, 2004). Specifically, unlike Maume et al.’s (2005) study which found that marriage had an independent effect on desistance, Warr (1998) explained away the effect of marriage on desistance through delinquent peer associations. Using data from the National Youth Survey, Wright and Cullen (2004) examined Sampson and Laub’s assumption that employment builds social capital which in turn, leads to desistance in criminal behavior. Wright and Cullen found support for this notion in that pro-social coworkers disrupted any previously held delinquent peer associations and were in fact associated with reductions in offending.

What Do We Know About Selection into Turning Points?

As a result of these two focuses in the literature concerning the relationships between these events and declining criminal activity as well as the theoretical mechanisms responsible for the manner in which these turning points translate into

desistance, there has been relatively little empirical work (O'Neill, 2007) and discussion (Gottfredson, 2005) concerning the earlier part of the desistance process. Specifically, scholars have overlooked what factors may facilitate or inhibit the likelihood of experiencing these turning points. This aspect of the desistance process is deserving of separate attention because of the implications that the findings have for both theory and policy. In terms of theory, if we can predict engagement in turning points, we can inform the debate on the role of self-control, human agency, or the social bond itself in the desistance process. In particular, this could significantly alter the meaning of these turning points and whether it is selection due to traits (Gottfredson and Hirschi, 1990; Gottfredson, 2005) or possibly due to something less direct. While Sampson and Laub (1993; see also Laub and Sampson, 2003) would argue that selection into these life events is random, the introduction of human agency in their second book is less than consistent with the prominence given to “desistance by default” in the rest of their work. Because human agency is not truly fleshed out in Sampson and Laub’s work, the idea that human nature is malleable across the life course is given further attention within the context of turning points in the present study.

In terms of policy, specifically in regard to intervention, it is safe to assume that the general consensus in the field would be to facilitate individuals getting into these turning points in order to increase the odds that these individuals disengage from future involvement in deviant behavior. As previously discussed, most research has found that experiencing turning points has a significant impact on the desistance process. And, although these transitions may be short-lived, research has suggested

that these life events produce changes in one's circumstances that can translate into short-term changes in deviant behavior (Blokland and Nieuwbeerta, 2005; Horney et al., 1995; Nagin and Land, 1993; Piquero, MacDonald, and Parker, 2002), ultimately initiating the desistance process. As such, because of the limited research on the process behind how individuals enter into turning points and whether it is in fact a random process as Sampson and Laub (1993; see also Laub and Sampson, 2003) suggest, attention is turned to Gottfredson and Hirschi's (1990) theory and the role that self-control plays in predicting the likelihood that individuals get into turning points.

Gottfredson and Hirschi's General Theory of Crime

Up until this point, the only theoretical discussion of how individuals get into turning points had relied on this notion of an underlying propensity for such life events (Gottfredson, 2005). While this is consistent with the population heterogeneity framework, it is nevertheless, a deterministic view. Here, stability in offending over time is attributed to individual differences across persons that are established early in life and that remain relatively stable thereafter (Nagin and Paternoster, 1991; Wilson and Herrnstein, 1985). Gottfredson and Hirschi's (1990) *A General Theory of Crime* follows this framework, in that, low self-control is expected to be the primary reason why individuals either do or do not experience pro-social life events. Specifically, they take a stance that is quite different from Sampson and Laub (1993; see also Laub and Sampson, 2003), claiming that turning points do not have much causal significance—as they are mere by-products of a process in which “people with low self-control sort themselves and are sorted into a variety of

circumstances that are *as a result* correlated with crime” (p. 119). Self-control, which is developed in the first decade of life, is then crucial for the development of later social bonds because those with low self-control are less able or willing to maintain attachments to pro-social others and commitments to conventional means for success. As Gottfredson and Hirschi (1990) point out, “the traits composing low self-control are not conducive to the achievement of long-term individual goals” (p. 96) and as such, only those with high self-control will self-select into circumstances of strong social bonding. As a result, “because of the tendency of people with low self-control to avoid attachment to or involvement in all social institutions” (1990, p. 168), these individuals are not likely to select into these potentially life-changing events (Arneklev et al., 2006; Evans et al., 1997; Wright et al., 1999; Wright et al., 2001).

Considering the amount of attention that the general theory of crime has received since its emergence over twenty years ago, this particular aspect of the theory, however, has largely been neglected in the empirical literature. Evans et al. (1997) was one of the first studies to examine the idea that low self-control has effects not only on crime but also on life chances, life quality, and other social consequences. The results of their study reveal a fairly robust relationship between self-control and certain social consequence variables (e.g., educational attainment, occupational status). In fact, the authors find that “low self-control is related to diminished quality of interpersonal relationships with family and friends, reduced involvement in church, low levels of educational and occupational attainment, and possibly poor marriage prospects” (p. 493). Now, if Gottfredson and Hirschi’s (1990) assertion that a person’s level of self-control is established early in life and remains

relatively stable over the life course is in fact accurate, Evans et al.'s results would provide support for their core tenet that individuals low in self-control naturally self-select into situations conducive to negative social consequences. However, because Evans et al. utilized cross-sectional data drawn from an adult sample, it is not certain whether Gottfredson and Hirschi's (1990) proposed causal ordering is substantiated. Furthermore, the authors utilize data from an urban, Midwestern area, making the findings somewhat limited in generalizability. Using data from a sample of individuals in New Zealand, subsequent work addressed this causal ordering issue and found that low self-control in childhood significantly predicted a reduction in the likelihood of social outcomes such as educational attainment, employment, and the prospect of romantic partnerships (Wright et al., 1999; Wright et al., 2001). Arneklev et al. (2006) further addressed the causal ordering issue between low self-control and turning points and found results comparable to Evans et al. (1997). Specifically, Arneklev et al. found that both behavioral and attitudinal measures of self-control were predictive of marital status, educational attainment, and income. While their findings support the role of self-control in shaping life circumstances, their sample is pulled from a large southwestern city, so similar to previous work, it is not certain whether their findings are generalizable to the larger population. Also, their income measure does not seem appropriate as it is not clear as to whether self-control was predictive of stable employment (as suggested by the theory) or simply predictive of an individual's likelihood of attaining a higher salary.

In sum, though the existing literature suggests that self-control predicts the pathway to turning points, these studies were based on non-generalizable samples.

While Wright et al. (1999) allude to cross-national comparisons that have been made before between their sample (i.e., individuals residing in New Zealand) and other industrialized countries such as the United States, it is still important to test the relationship between self-control and various life outcomes within the context of the U.S. general population, as these processes may differ. As a result, Wright et al. (1999; 2001)'s findings follow the same limitation as previous work (Arneklev et al., 2006; Evans et al., 1997) in that their generalizability to the U.S. population at the national level remains in question. Even more, this exclusive focus on self-control does not rule out the possibility that other factors may also be influencing the likelihood that individuals encounter or experience said turning points. To date and to the present author's knowledge, O'Neill's (2007) study is the only existing criminological work to really shift the focus to understanding what influences whether individuals encounter or experience these turning points by looking at pro-social life events as outcomes of interest. Specifically, O'Neill (2007) looked at the role of adolescent peer networks and found that peers were modestly influential for shaping the pathways to marriage, job stability, and obtaining a college degree. But, background characteristics (e.g., IQ, self-control, SES) were influential as well, suggesting that individual-level traits are relevant in the pathway to turning points, along with dynamic factors (i.e., peer networks). As O'Neill (2007) pointed out, these findings go against the purely static criminological perspective such as the one put forth by Gottfredson and Hirschi (1990) which proposes that "one's propensity leads to a selection process in which certain individuals self-select into a deviant peer group and naturally shy away from other positive domains" (O'Neill, 2007: 138).

O'Neill went on to say that "while individual differences such as demographics, IQ, and self-control lay the foundation for a certain trajectory, one's pathway through life is not written in stone" (p. 138). As such, other processes (e.g., social control, social learning) are likely at work regarding how people ultimately select into turning points. O'Neill's findings provide support for this idea, that although self-control may predict turning points, this relationship may not be as simple as the general theory of crime puts forward. Because of this complexity, the current study turns to the potential role that human agency may play in shaping the likelihood that individuals experience turning points.

The Role of Human Agency

In McCarthy's (2002) article, which was featured in *The Annual Review of Sociology*, he explicitly states that criminologists should abandon the strictly deterministic view of people that is emphasized in most of their theories, and should instead recognize "an individual's agency in making decisions" (p. 438). While the importance of human agency is prominent in more recent criminological theories, such as the life course (Laub and Sampson, 2003; Sampson and Laub, 2005), a working definition of this concept can be hard to come by in the existing criminological literature as this concept is largely underdeveloped in the field. Sampson and Laub (2005) even acknowledge that their books *Crime in the Making* and *Shared Beginnings* do not adequately capture the role of human agency but that future work in life course criminology "should make clear that agency is a crucial ingredient in causation" (p. 39). They do mention how the role of human agency emerged from the narratives they collected, in that, the men in their study appeared to

be “active participants in the process of going straight” (p. 37) and active participants in deciding to persist in offending over the life course.

Though Sampson and Laub (2005) conclude that human agency plays an important role as a mediator in the relationship between turning points and desistance, it is not entirely clear what human agency is or how it works. Of particular interest here, this same conceptual model could arguably be used to explain an earlier stage of the desistance process in that human agency may mediate the relationship between self-control and turning points. The idea is that individuals go through a similar process of decision making when selecting into turning points; they are essentially active participants in how their lives unfold, implying that the likelihood that individuals will select into these turning points is not simply a matter of random chance as the authors have suggested in most of their work (Sampson and Laub, 1993; Laub and Sampson, 2003). In order to look at whether there is in fact a selection mechanism at work in this process, it will be useful to define human agency for the purposes of operationalizing it in the current study.

What is Human Agency?

McCarthy (2002) lays the groundwork for a rational choice approach to deviant behavior and suggests that its importance has been overlooked within the criminological realm. He specifically states how it is much more compelling to “view people as actively involved in transforming their relationships into social capital and their experiences into human capital” than to assume that “people simply respond to associations and events” (p. 438). As such, a working definition of human agency for the purposes of the current study is as follows: “persons acting with human agency

make choices and enforce these choices on the world. They do not, therefore simply respond to the roles and institutions they are involved in, but create those roles and institutions, thereby enforcing their will” (Paternoster and Pogarsky, 2009: 105). This suggests that to some extent, individuals play an active role in how their lives unfold and do not simply sit back and enjoy the ride.

Furthermore, previous work has suggested that whether or not a particular life event becomes a turning point depends on the response of the individual, in that, the same event can have positive outcomes, negative outcomes, or no effect depending on how the individual adapts to the event. Possible reasons that have been cited in the existing literature for the different responses to these life events include gender and social circumstances (Rutter, 1996), pre-existing differences in neuropsychological deficits (Moffitt, 1993), the co-occurrence of *purposeful human agency* (Laub and Sampson, 2003), or other pre-existing individual differences. That being said, the literature seems to suggest that human agency is certainly an important factor in pathways to turning points as it has the potential to shape whether these life events ultimately translate into “turning points” in an individual’s life. Taking into account this concept of human agency, in conjunction with O’Neill’s (2007) preliminary findings, there is support for the current study which includes both static (i.e., self-control) and dynamic (i.e., thoughtfully reflective decision making) factors to investigate pathways to turning points. To elucidate the potentially dynamic, agentic aspect of the relationship between self-control and turning points, the present study turns to recent work (Paternoster and Pogarsky, 2009; Paternoster et al., 2010) which points to a potential mediating variable in this relationship. Specifically, this work

introduces the idea of thoughtfully reflective decision making (TRDM), a concept that links rational choice and human agency.

What is Thoughtfully Reflective Decision Making (TRDM)?

Paternoster and Pogarsky (2009) define TRDM as “the tendency of persons to collect information relevant to a problem or decision they must make, to think deliberately, carefully, and thoughtfully about possible solutions to the problem, apply reason to the examination of alternative solutions, and reflect back upon both the process and the outcome of the choice in order to assess what went right and what went wrong” (p. 105). In simple terms, TRDM is considered an important part of human agency because it is the process by which “good decisions” are made and correspondingly, it is part of what it means to be a rational person.

Of particular interest here, is the notion that this process “should be manifested in more successful life outcomes, the accumulation of social, personal, and cultural capital, and a reduced risk of anti-social and self-destructive behavior” (p. 106) suggesting a direct relationship between TRDM and turning points. And based on the few studies that have been conducted (Paternoster and Pogarsky, 2009; Paternoster et al., 2010), it appears that TRDM is capable of predicting favorable life outcomes (civic participation and graduation from college) both in the short and long-term. However, it is worth noting here that educational attainment is the only life event the authors’ focused on that is also in accordance with key turning points in Sampson and Laub’s (1993; see also Laub and Sampson, 2003) work. More recent work further supports Paternoster and colleagues’ work and the importance of youth cognitive functioning by showing that low TRDM is a risk factor for adolescent

violence (Maimon, Antonacchio, and French, 2012). These studies leave room for the present investigation of whether TRDM can predict other significant turning points such as marriage and gainful activity.

Paternoster and Pogarsky (2009) go to great efforts to separate TRDM from self-control and claim that they are not part of the same theoretical construct. Conceptually, the authors emphasize that TRDM describes the process through which individuals make choices wherein low self-control involves the inability of persons to consider the full temporal range of the consequences of their actions, not implicating anything behind the process of decision-making, which is at the heart of TRDM. Similarly, Paternoster and Pogarsky (2009) go on to argue that self-control is not “a way in which choices over alternative courses of action are made, as one low in self-control may be completely unaware that alternatives exist” (p. 110). Here, the authors give way to a possible mechanism at work in the relationship between self-control and turning points. Specifically, there is not an expectation across the board that all offenders are so present-oriented that future consequences are irrelevant; here, it is implied that offenders engage in some type of decision-making process. And this leads to another important aspect of TRDM which is implied in the literature regarding selection into turning points. In particular, those individuals with higher levels of TRDM are expected to be more effective decision-makers and as such, it also expected that they would have more of a positive experience with these life events as they are well-versed in making choices consistent with their preferences and goals.

In addition, TRDM is described as much more dynamic and essentially more alterable than self-control, which is relatively fixed by approximately age 10 (Gottfredson and Hirschi, 1990). Paternoster and Pogarsky (2009) clearly state that while all persons are capable of TRDM, there is likely to be variation across persons (as well as over time and across situations) in how carefully, thoroughly, or thoughtfully choices and decisions are made. They further contend that TRDM has the potential to “improve over the life course both in response to deliberate teaching of how to make better decisions and through the developmental maturity of executive functioning in the brain” (p. 110). The authors also mentioned that they do not have any reason to expect that the development of TRDM occurs as a normal part of the socialization process, in contrast to what is laid out by Gottfredson and Hirschi (1990) regarding self-control. Thus, TRDM comes across as much more dynamic than self-control, allowing for intervention over time.

The Relationship between Self-Control and TRDM in Pathways to Turning Points

However, Paternoster and Pogarsky’s (2009; see also Paternoster et al., 2010) results (and discussion for that matter) leave the reader with several unanswered questions regarding the relationship between TRDM and self-control. In particular, Paternoster and Pogarsky (2009) suggest that “TRDM can be affected by individual traits such as impulsivity or emotional states, and these individual level factors may impact different components of TRDM differently” (p. 122). As an example, the authors mention how impulsivity “may lead one to forego the difficult search for alternatives and jump at the first option considered” (p. 122). Of course, these statements seem familiar in that they basically underline what seems like a propensity

explanation, specifically that of self-control. Interestingly, they go on to say that future work should look at the processes that produce TRDM, arguing that they have “no a priori reason to expect that the development of good decision making occurs as a normal part of the socialization process” (p. 122) like the establishment of self-control, leaving room for the current investigation of whether self-control predicts TRDM.

All in all, the authors’ statements suggest that TRDM is related to self-control in that it may be impacted by it, along with other factors such as emotion. However, TRDM is much more malleable in nature having the potential to increase over time. In fact, Paternoster and Pogarsky’s (2009) distinction between the two constructs drives the current study which aims to examine the relationship between self-control and TRDM in pathways to turning points. Using one of Gottfredson and Hirschi’s (1990) core tenets as the foundation for this inquiry, the main hypothesis is that self-control will predict selection into these turning points, but that TRDM will also partially mediate this relationship. The idea here is that once TRDM is included in the model, the measured effect of self-control on these turning points may change and yet remain significant (as the general theory of crime would suggest). This perspective fits quite well with existing work that suggests that individual-level traits may be influential in the pathway to turning points, along with dynamic factors (O’Neill, 2007). Similarly, if TRDM is in fact more dynamic in nature, having the potential to increase with age, it is possible for the current inquiry to shed light on the actual process behind how individuals get into certain desistance-promoting events.

As such, the justification for focusing on the relationship between self-control and TRDM in explaining selection into these turning points is two-fold. First, most of existing work has shown a significant relationship between self-control and pro-social life events, providing support for the general theory of crime. However, these studies were limited in generalizability as they focused on specific populations, so a goal of the present study is to see whether this relationship holds weight within the general U.S. population. If in fact this relationship does have merit, this would provide more weight to the significance of traits developed in early childhood that could potentially manifest in negative or positive life outcomes. Second, little empirical work up until this point has incorporated “choice” into the criminological field, so the main purpose of bringing TRDM into this discussion falls within this notion that though these traits (i.e., self-control) do exist, the story does not necessarily end there. Similarly, bringing TRDM into this picture allows for more of a focus on the possibility for intervention, specifically within adolescence—a time when individuals are still malleable and can change their way of thinking. Ultimately, the hope is that by empirically capturing this decision making process, it would afford researchers the ability to target certain components of adolescents’ cognitive functioning which would increase the chances that better life decisions are made. Therefore, while enduring individual differences developed in childhood are important, so is choice, forming the foundation for the inclusion of both self-control and TRDM as key independent variables of interest in the present study.

Overall, this study takes a more agentic approach to the desistance process, an approach that is quite different from the extant literature that has looked mostly at

exogenous processes, in an attempt to clarify what is actually happening within individuals driving the earlier stages of desistance. While exogenous processes are certainly important, this focus leads to an incomplete picture of the desistance process. As a result, the role of human agency has been underdeveloped in the criminology field and not surprisingly, has yet to be addressed quantitatively regarding how individuals select into turning points. While there has certainly been a decent amount of conceptual attention regarding the role of human agency, the current study contributes to the literature by empirically testing the extent to which human agency matters within the context of turning points. As Giordano et al. (2002) state, it is important to take into account the “‘upfront’ work accomplished by actors themselves—as they make initial moves toward, help to craft, and work to sustain a different way of life” (p. 992). Therefore, if this were in fact the case here, it would suggest that selection into turning points is not entirely random as Sampson and Laub (1993) put forth. Because of this gap in the literature, the relationship between self-control and TRDM in pathways to turning points is unpacked in the present inquiry.

Chapter 3: Current Study

In light of the above discussion, the goal of the present research is to examine the relationship between self-control and TRDM in how individuals “select” into turning points. With recent work that has been put forth concerning TRDM (Paternoster and Pogarsky, 2009; Paternoster et al., 2010), there is reason to hypothesize that the empirical link between self-control and turning points, and ultimately, the process behind how individuals get into these turning points may be more complex and less direct than the general theory of crime proposes. Specifically, this research tests the following hypotheses:

1. Higher self-control directly increases the likelihood that individuals will select into marriage and gainful activity (i.e., education and employment).
2. Higher self-control results in more thoughtfully reflective decision making (TRDM).
3. Higher self-control increases the likelihood that individuals will select into marriage and gainful activity (i.e., education and employment) partially through its impact on thoughtfully reflective decision making (TRDM).

With the understanding that all these processes are likely at work here, this study takes an approach that is quite different from much of the literature, since most have focused primarily on exogenous processes in an attempt to shed light on what is actually happening within individuals during the earlier stages of desistance. In doing this, the current study tests the core tenets of two prominent theories (Gottfredson and Hirschi, 1990; Sampson and Laub, 1993; see also Laub and Sampson, 2003) in the

criminological field in addition to a third theory which is receiving more attention as time goes on (Paternoster and Pogarsky, 2009; Paternoster et al., 2010).

Chapter 4: Data and Methods

Data

The present study utilizes multiple waves of the Add Health (public) survey data obtained through ICPSR. The original Add Health data reflect a nationally-representative sample of adolescents who were in grades 7-12 in the United States at Wave I (1994-95).³ Out of the participating schools, 90,118 students completed an in-school questionnaire. All students who completed the in-school questionnaire, plus those who did not complete a questionnaire but were listed on a school roster, were eligible for selection into the core in-home sample in Wave I. The public-use dataset consists of one-half of the core sample, chosen at random, and one-half of the oversample of African American adolescents with a parent who has a college degree. The total number of Wave I respondents (grades 7-12) in this dataset is approximately 6,500. Wave II consists of follow up interviews with the adolescents (grades 8-12) and school administrators which were conducted in 1996. The Wave III public-use data are comprised of in-home interviews conducted in 2001 and 2002 with 4,882 of the original Wave I respondents (now young adults between the ages of 18 and 26) and their partners in order to assess the impact of adolescent factors on young adulthood. Using data from Waves I and II, the current study can tap into several relevant background characteristics as well as questions pertaining to the respondent's personality traits, while Wave III includes information about marriage, education, and key labor force events.

³ For more information about the AddHealth data, see Harris, K.M., Halpern, C.T., Whitsel, E., Hussey, J., Tabor, J., Entzel, P., & Udry, J.R. (2009). The National Longitudinal Study of Adolescent Health: Research Design <http://www.cpc.unc.edu/projects/addhealth>.

Because this project is reliant on the idea of turning points and their ability to steer individuals away from subsequent deviant behavior, it is necessary to discuss the appropriateness of the AddHealth data in the context of investigating this relationship. While a good portion of youth in the AddHealth data have not been involved in a life of serious offending, this sample is still appropriate for the purposes of the current study for two main reasons. First, the majority of the general adolescent population do not commit serious offenses nor are they considered high-risk so it is important to study the common person and how in general, selection into these life events occurs. Even for low-risk individuals, it keeps them on this consistent trajectory of healthy community adjustment as they transition to adulthood. That being said, while potentially “low-risk” individuals are not expected to succumb to maladjusted behaviors such as drug and alcohol abuse or crime due to advantage (e.g., they come from families of privilege, exhibit low-risk traits), they can still fail to meet these expectations (e.g., see Regnerus and Elder, 2003) and fall into a criminal lifestyle. While the current study is not testing desistance per se, it is possible using the AddHealth data to examine whether marriage and engagement in gainful activity keeps the average person on a crime-free path into young adulthood. According to Sampson and Laub’s (1993; see also Laub and Sampson, 2003) theory, individuals who are bonded to anything positive should be less likely to engage in deviant behavior, an assumption which should hold weight among a general population of adolescents even if they are mostly non-delinquent.

Second, while it is likely that there are many influential factors that shape the opportunities for and pathways to conventional activities, this empirical question has

not been extensively addressed in the criminological literature. Though it is acknowledged by the criminology field that most young offenders eventually 'mature' out of deviant behavior, what is less well known is what exactly is involved in this process of change. Because this earlier stage in the desistance process has been under-researched, the present inquiry is able to contribute to the existing literature by looking at whether individuals select into marriage and/or gainful activity given that they possess low-risk traits (i.e., high level of self-control, high level of TRDM). Ultimately, this general sample of adolescents allows the present study to take a closer look at the validity of three popular criminological theories in their explanation of how individuals reach these life events. Assuming Gottfredson and Hirschi (1990) are correct, individuals with higher levels of self-control should naturally select into these institutions in the community which in turn, promote healthy adjustment and turn individuals away from deviant behavior. If Sampson and Laub (1993; see also Laub and Sampson, 2003) are correct, the level of self-control or level of TRDM should not really matter and instead, the mere chance that these individuals get into these life events should be based on random luck. In essence, because the interplay between self-control and TRDM has not been empirically tested before, it makes methodological sense to start out with a more general sample before moving on to specific populations or subgroups.

Sample Reduction

In order to achieve the core sample for this analysis, the Add Health data underwent a few layers of sample reduction. Because the current study utilizes Add Health (public) data obtained through ICPSR, the sample is initially reduced to

approximately 6,500 individuals (32% of the entire sample in the restricted dataset). There are three additional layers of sample reduction in the current research: attrition, limiting to relevant subjects, and listwise deletion. Due to the very nature of longitudinal research, attrition between data collection points is likely to occur. The first step of data loss reduced the sample to 5,485 respondents who also had a parent participate in data collection during the Wave I in-home interview. The sample is further reduced to 3,343 individuals, representing those who were successfully followed up at Waves II and III and had all necessary information for creating sampling weights.⁴ In an attempt to address attrition in the current study, grand sample weights are applied.

Similarly, due to the complexity of the AddHealth survey design, it is necessary to correct for design effects and unequal probability of selection into the sample, in order to minimize biased parameter estimates and incorrect variance estimates (Chantala and Tabor, 2010). Because the public-use data is a subsample of the restricted-use data which also needs to be weighted, it is necessary to weight the public-use data for the purposes of the current study. Essentially, the grand sample weights were created by the AddHealth research team in an attempt to make the sample more representative of the original sample interviewed at Wave I. By using these sampling weights and a variable to identify clustering of adolescents within schools, unbiased estimates of population parameters and standard errors can be obtained from the analysis. Specifically, these weights are adjusted at each wave of

⁴ For a detailed description on the creation of the grand sample weights, see “Grand Sample Weight” by Roger Tourangeau and Hee-Choon Shin available at: <http://www.cpc.unc.edu/projects/addhealth/data/guides/weights.pdf>.

data collection to account for oversampling of certain groups⁵ and those individuals who could not be followed up at Waves II and III. Using these adjusted weights is vital for the purposes of the current investigation because they move the data closer to being nationally representative; and, it is critical that the findings in the current study can be generalized to the larger population since a major contribution of this study involves unpacking how certain processes work in the general population.

The second step of data reduction was conducted by limiting the sample to individuals who met certain criteria for the current study. First, individuals who were either 11, 20, or 21 years old at Wave I were excluded from the study sample because these respondents were not considered age-normative for grades 7-12 (see Paternoster and Pogarsky, 2009; Paternoster et al., 2010).⁶ Second, individuals currently in high school at Wave III were also excluded from the thesis sample in order to focus on those who had reached young adulthood and were experiencing age-normative life events for that age period.⁷ Third, individuals who had experienced marriage prior to Wave II were removed and this was partly because some of these individuals were younger than 18 years old at the time, suggesting that this life event may not be considered a positive one for this particular group.⁸ Beyond the fact that including these individuals could change the meaning of the findings in the current study, it also seemed appropriate to remove these few individuals in order to get at temporal

⁵ For example, black adolescents whose parents were college graduates are one of the many over-sampled groups in this dataset.

⁶ This criterion excludes 4 individuals.

⁷ This criterion excludes 19 individuals, 10 of whom were between the ages of 20-23. While these individuals are certainly old enough to be experiencing this life event (high school) and their inclusion in the current sample does not significantly alter the findings, it could change the meaning of the findings to have these individuals lumped in with those who have experienced this life event during an age-normative period.

⁸ This criterion removes 8 individuals, 6 of whom were between the ages of 16 and 17 in Wave I.

ordering in the dataset. These specifications removed a total of 31 individuals from the sample, leaving 3,312 individuals. The sample is then reduced to remove those who are missing any data on the outcomes of interest (marriage and gainful activity), since it would be impossible to make any conclusions concerning these individuals, which removed an additional 216 individuals from the sample, leaving 3,096 individuals.

Due to the fact that the sample goes from 6,500 to approximately 3,100 respondents before listwise deletion, it is important to consider how this drop in sample size could potentially impact the generalizability of the findings in this study. Thus, to ensure that those individuals who were excluded from the final sample do not differ in any significant way from those who were included, analyses were conducted to evaluate the differences between these two groups. As a result of this attrition analysis, which involved computing t-statistics to see if the covariate was essentially out of balance between the two groups, the results indicate statistically significant differences among the variables in the final sample when compared to those at baseline (see Appendix 1). The deleted individuals differ from the final sample in a few ways other than age. Subjects in the final sample are more likely to be white, report higher aspirations for attending college, feel attached to school, have parents who have graduated from high school, and finally, these respondents were a little less likely to have been married when compared to the respondents who were removed from the sample.⁹ Because this study seeks to generalize the relationship

⁹ According to national statistics, adolescents in the U.S. population are mostly white <http://nahic.ucsf.edu/downloads/Demographics08.pdf>, so it's important that the results in the current study can be generalized to that population. Further, the AddHealth sample is mostly white at baseline in this study.

between self-control and TRDM to the larger population, the results from the attrition analysis will need to be considered when qualifying the findings in the current investigation.

Measures

Dependent Variables

As discussed above, and as highlighted in Sampson and Laub’s (1993; see also Laub and Sampson, 2003) theory, marriage, employment, and education represent key life events in the desistance process. Because of the growing empirical support for these turning points, and their potentially significant role in altering an individual’s trajectory, these specific turning points are outcomes of interest in the current study. All measures will be taken from Wave III information, since these turning points serve as outcomes for the regression models.

Table 1: Descriptive Statistics of Study Variables

Variable	Valid N	Mean	SD	Range
Marriage	3,096	.15	.36	0-1
Gainful Activity	3,096	.76	.43	0-1
Self-Control	3,082	3.03	1.12	1-5
TRDM (Wave I)	3,065	15.16	2.50	4-20
TRDM (Wave II)	3,090	8.00	1.26	2-10
Parent Education	3,076	.87	.34	0-1
Parent Expectations	3,076	2.28	.70	1-3
Child’s Perception	3,080	4.00	1.23	1-5
College Aspirations	3,089	4.55	.94	1-5
School Attachment	3,067	7.60	1.82	2-10
Parent Attachment	3,085	4.50	.78	1-5
Male	3,096	.47	.50	0-1
White	3,090	.71	.46	0-1
Age	3,095	15.01	1.57	12-19
SES	3,078	.08	.27	0-1

Marriage: To measure marriage, one question is used pertaining to whether the respondent ever experienced marriage, specifically “how many times have you been married?” While Sampson and Laub (1992) suggest that attachment to one’s spouse and close emotional ties to one’s spouse are important in forming a bond that will ultimately lead to reductions in criminal behavior, there are no questions within the AddHealth data that tap into the ‘quality of marriage.’ Nonetheless, the question being used in the current study still captures whether the respondent has experienced the institution of marriage which the literature has suggested facilitates the desistance process (Barnes and Beaver, 2012; Beaver et al., 2008; Bersani et al., 2009; Blokland and Nieuwebeerta, 2005; King et al., 2007; Laub et al., 1998; Laub and Sampson, 2003; Maume et al., 2005; Sampson and Laub, 1993). Since very few respondents had been married more than once,¹⁰ this dependent variable will be a dichotomous measure whereby “1” represents individuals who have married and “0” represents those individuals who have not experienced marriage. In the current sample, 15% of the respondents got married.¹¹

Gainful Activity: Though this construct has not been fully developed in the criminology literature, it has been used successfully in previous work as a positive outcome to capture engagement in employment and education (Schubert et al., 2011; see also Vander Stoep et al., 2000) in the transition from adolescence to adulthood.¹²

Both studies look at the relationship between mental health and gainful activity

¹⁰ In the current sample, 11 individuals had been married more than once.

¹¹ Of the 470 individuals who had experienced marriage in this sample, 93% of the individuals in the current sample were still married at Wave III (31 individuals had divorced by then). The findings would have a different meaning if self-control and TRDM were predicting divorce/separation, but since the majority was still married, this should not be the case.

¹² Chung, Schubert, and Mulvey (2007) find that court supervision and intensity predict a positive adjustment measure of “engagement”—a combined outcome of whether youth attended school or were employed during the aftercare period.

among a sample of adolescent offenders. Specifically, Vander Stoep et al. (2000) find that adolescents with a history of psychiatric disorder are less likely to be gainfully active. Since this study is not directed at differentiating between education and employment, the gainful activity measure is an appropriate way to combine these two life outcomes while also keeping in line with Sampson and Laub's (1993; see also Laub and Sampson, 2003) theory in regard to "good" use of time.

To measure the employment component, one question is used that taps into job stability. While there is some debate over the specific characteristics of employment that are significant to the desistance process, there seems to be some consensus on full-time employment as important (Laub and Sampson, 2003; Sampson and Laub, 1993; Uggen, 2000).¹³ This variable is constructed using respondents' answers to how many hours they work at their current job in Wave III.¹⁴ For those who responded that they had multiple jobs in a previous question, they were asked to give the number of hours per week for their main job—that is, the job where they work the most hours. Full-time employment is defined in the survey as 35 hours a week or more for one employer.

To measure the education component, respondents were first asked whether they were currently attending regular school and then they were asked if it was a high school, a two-year college, a four-year college, or a graduate school. They were also

¹³ There is one question which taps into how satisfied respondents are with their jobs in general, but this measure is vague and doesn't get at the actual bond to the job/coworkers and is captured in Wave III, so it would be difficult to get at temporal ordering. Further, inclusion of this measure removes close to 1,000 individuals in the analyses.

¹⁴ Because of the potentially detrimental impact of full-time employment on desistance among younger individuals (Uggen, 2000; see also Wright et al. 2002), this outcome consists of individuals characteristic of the transition from adolescence to young adulthood (i.e. ages 18-25).

asked if they were attending school part-time or full-time.¹⁵ As such, the *gainful activity outcome* is a composite measure. Persons were classified as gainfully active if they were either engaged in full-time employment or were attending school full-time (excluding those in high school) in Wave III, while persons were classified as inactive if they were neither employed full-time nor in school full-time. In the current sample, 76% of the respondents were gainfully active.

Independent Variables

Self-Control and Thoughtfully Reflective Decision-Making

Gottfredson and Hirschi (1990) argue that low self-control is the primary reason why individuals either do or do not experience pro-social life events. If this is so, self-control theory would predict that TRDM does not play a role (or at least not a significant one) in the likelihood of individuals experiencing marriage or gainful activity. It is possible, however, that self-control operates through TRDM in the pathway to these life events, which is why it is important to include these key independent variables in the current study.

Self-Control: Self-control has been defined in two different, but somewhat similar ways (Gottfredson and Hirschi, 1990; Hirschi, 2004). To capture the relationship between self-control and TRDM in the pathways to marriage and gainful activity, the current study operationalizes self-control as the tendency to consider the full range of consequences from one's acts, based on Hirschi's (2004) redefinition of

¹⁵ Respondents who had received their bachelor's degrees by Wave III were not given separate attention in the education component as 83% (249/302) of these individuals were either already working full-time or going to school full-time in Wave III. It was unclear what the remaining 53 individuals were doing since they had all recently graduated from college in Wave III (2000-2001).

self-control.¹⁶ As such, self-control is measured by the level of agreement on a five-point Likert scale from “strongly agree” to “strongly disagree” with the following statement: “When making decisions, you usually go with your ‘gut feeling’ without thinking too much about the consequences of each alternative.” This measure has been used successfully in prior work (Paternoster and Pogarsky, 2009; Paternoster et al., 2010; Piquero and Bouffard, 2007). Higher values indicate higher levels of self-control. The mean for this measure is 3.03 (SD=1.12).

Thoughtfully Reflective Decision Making (TRDM): In accordance with Paternoster and Pogarsky’s (2009; see also Paternoster et al., 2010) measurement of TRDM, questions from both the Wave I and Wave II in-home surveys will be used to construct this concept. To capture TRDM in the cross-sectional model whereby self-control and TRDM will be examined contemporaneously, Wave I items will be used to reflect the same TRDM measure used in previous work. Specifically, subjects were asked how much they agreed with the following statements: (1) when you have a problem to solve one of the first things you do is get as many facts about the problem as possible; (2) when you are attempting to find a solution to a problem you usually try to think of as many different ways to approach the problem as possible; (3) when making decisions you generally use a systematic method for judging and comparing alternatives; (4) after carrying out a solution to a problem, you usually try to analyze what went right and what went wrong. An index was generated from the

¹⁶ There has been a lot of debate in the literature concerning how to measure self-control (i.e. attitudinally or behaviorally). Previous work has suggested that the attitudinal measure has comparable effects to the behavioral measure in testing social consequences (Arneklev et al., 2006; Evans et al., 1997), but the attitudinal measure allows the researcher to circumvent the tautological criticism. Further, regressing this redefinition of self-control on Wave III delinquency with demographic controls produces a significant, negative association ($b=-.086, p<.10$) as theory would predict.

responses to these four statements by the level of agreement on a five-point Likert scale from “strongly disagree” to “strongly agree”. In contrast to the original study, reverse coding is used so that higher values indicate higher levels of TRDM.¹⁷ The index ranges from 4-20. The mean for this measure is 15.16 (SD=2.50).

To derive TRDM in the longitudinal model whereby causal ordering between self-control and TRDM can be addressed, questions will be used from Wave II, in a similar fashion to the original TRDM measure constructed by Paternoster and colleagues, as the exact same scale was not available in later waves of the AddHealth data. Specifically, two items are combined to form TRDM. The first item captures thinking ahead to reach a goal: “When you get what you want, it’s usually because you worked hard for it” and the second item is the fourth component of the original TRDM measure: “After carrying out a solution to a problem, you usually try to analyze what went right and what went wrong.” An index was generated from the responses to these two statements by the level of agreement on a five-point Likert scale from “strongly disagree” to “strongly agree”. Again, reverse coding is used to reflect that higher values indicate higher levels of TRDM.¹⁸ The index ranges from 2-10. The mean for this measure is 8.00 (SD=1.26).

It is worth noting here that the corresponding measure of this TRDM proxy constructed in Wave I is highly correlated ($r=0.64$) with Paternoster and colleagues’ original measure in Wave I. The reliability coefficient is 0.70 with the “When you

¹⁷ The reliability of this measure is .74.

¹⁸ The correlation between these two items is 0.16 ($p<.01$). Though factor analysis does not typically involve two measures, the proxy items used to capture TRDM at Wave II load high enough (.493 and .478). When looking at whether there are any strong moderating influences by particular groups among the two TRDM proxy items, no differences are revealed between demographic characteristics (i.e. gender, race, age, socioeconomic status) for the first proxy in the sensitivity analyses and only a few differences (not strong) emerge concerning gender and race for the second proxy.

get what you want, it's usually because you worked hard for it" item included along with the original TRDM items and 0.74 without this one item included, suggesting that the proxy being used in the current study is consistent with Paternoster and colleagues' original measure of TRDM. Similarly, this proxy of TRDM at Wave II is not highly correlated ($r=0.29$) with Paternoster and colleagues' original measure speaking to the possible "time-variant" nature of TRDM as outlined in previous TRDM work. This proxy at Wave II is also not highly correlated ($r=0.38$) with the corresponding proxy at Wave I which could mean a few things: 1) previous levels of TRDM may not necessarily predict subsequent levels of TRDM as TRDM has the potential to change over time or 2) the low correlation is not due to the time lag but is instead due to measurement error whereby the proxy is tapping into something different than the original TRDM measure. Nevertheless, though this proxy of TRDM may not be able to rule out the possibility that TRDM is time-invariant,¹⁹ it certainly contributes to our understanding of how TRDM operates over time. Collectively, these findings suggest that this proxy is in the same spirit as the original measure of TRDM, making it an appropriate measure in the current study.

Control Variables for Marriage and Gainful Activity

Parent Education: A measure of parental education was derived using information from the parent who participated in the parental survey during the Wave I in-home interview. The parent was asked to mark the highest level of school completed. This was more likely to be the mother or other female head-of-household as this was the primary target by AddHealth researchers in the Wave I in-home

¹⁹A brief comparison of the item "After carrying out a solution to a problem, you usually analyze what went right and what went wrong" (which is used in both TRDM measures) between Waves I and II shows that 67% of respondents do not change in TRDM.

interview. Because of existing work that has revealed a relationship between parents' years of schooling and a child's academic achievement (Davis-Kean, 2005; see also Klebanov, Brooks-Gunn, and Duncan, 1994), a binary measure of parental education is included to identify respondents whose primary caretaker graduated from high school (1=primary caretaker graduated from high school and 0=otherwise). Specifically, the amount of schooling that parents receive may influence how they structure their home environment as well as how they interact with their children in promoting academic achievement, so the inclusion of this measure is important in terms of college participation. In the current sample, 87% of the respondents had a primary caretaker who graduated from high school.

Parent Expectations: Similar to parents' education, the status attainment literature supports the notion that parents' beliefs and behaviors shape the likelihood that a child will participate in a certain activity (e.g., college). In fact, a recent report by the National Center for Education Statistics indicates that, out of a sample of 6,800, "roughly 9 out of every 10 students (91 percent) in grades 6 through 12 had parents who expected them to continue their education past high school." Furthermore, out of these same students, "roughly two-thirds (65 percent) had parents who expected them to finish college" (Lippman, Guzman, Dombrowski, Kinukawa, Schwalb, and Tice, 2008: 25). This is right in line with Sandefur, Meier, and Campbell's (2006) study which found that the probability of individuals attending a four-year college was nearly six times greater among those whose parents expected them to earn a bachelor's degree. And these statistics also fit nicely with existing work that has shown that the educational expectations parents have for their children

are associated with the educational expectations children have for themselves (Trusty and Pirtle, 1998; see also Hossler and Stage, 1992). As such, two measures that tap into parental expectations are included; one is reported by the parent who participated in the parental survey during the Wave I in-home interview and the other was reported by the respondent in the same wave. Specifically, the parent reported his/her level of disappointment on a three-point Likert scale from “not disappointed” to “very disappointed” should the respondent not graduate from college. If the mother’s data was missing, father’s level of disappointment was used. The mean for this measure is 2.28 (SD=.70). A measure of the respondent’s perception of his/her primary caretaker’s level of disappointment on a five-point Likert scale should the respondent not graduate from college was also included. The mean for this measure is 4.00 (SD=1.23). Both measures are being included to control for any possible discrepancy between the child’s perception and the parent’s actual expectation concerning graduation from college.

College Aspirations: Similar to parental expectations, it seems appropriate to also include the respondent’s expectations in the analyses because one’s aspirations tend to guide the path to reaching a specific goal and ultimately shape the likelihood of a specific outcome. Similarly, it is supported in the status attainment literature that one is more likely to participate in an activity (e.g., college) if he/she is confident in actually achieving that goal. It is also anticipated that those individuals who expect to attend college would prolong entrance into other life outcomes such as marriage. As such, a measure is included in which the respondent, in Wave I, reported whether he/she has a desire to attend college. The respondent’s desire to attend college was

reported on a five-point Likert scale from “low desire” to “high desire”. The mean for this measure is 4.55 (SD=.94).

School Attachment: Sampson and Laub (1993; Laub and Sampson; 2003) argue that social bonds can attenuate or ameliorate the impact of propensity; as such, it is necessary to account for certain bonds in the transition from adolescence to young adulthood as these may impact the relationship between self-control and the likelihood of experiencing later life events in the present study. For the school attachment measure, respondents reported the extent to which they 1) felt close to people at their school, and 2) felt part of the school on a five-point Likert scale from “strongly disagree” to “strongly agree.” The responses were summed to create a single scale whereby higher values reflect more attachment to school.²⁰ The mean for this measure is 7.60 (SD=1.82).

Parent Attachment: Relatedly, the bond between a parent and a child has frequently been a correlate of various life outcomes in the existing literature and a significant amount of research in attachment theory has focused on how parental attachment impacts a child’s academic achievement (e.g., see Bal and Barušs, 2011; Cutrona, Cole, Colangelo, Assouline, and Russell, 1994; Duchesne and Larose, 2007). In particular, previous work has suggested that individuals who are more attached to their parents are able to adjust better to college (Bernier, Larose, Boivin, and Soucy, 2004; Larose and Boivin, 1998) and ultimately more likely to pursue this life outcome in the first place. More broadly, it is addressed in the existing literature that individuals who perceive their parents as supportive and feel close to them are

²⁰ Respondents who were suspended, expelled, or had dropped out of school were assigned a minimum value of 2 for this measure.

hypothesized to have acquired the skills and self-confidence necessary to cope effectively with any challenges that come their way as they progress into adulthood (Sarason, Pierce, and Sarason, 1990). Because an individual's level of attachment to his/her primary caretaker may potentially impact selection into marriage or gainful activity, a continuous measure is included of how close the respondent feels to his/her primary caretaker. The respondent was asked to report closeness to parent on a five-point Likert scale from "not at all" to "very much". Again, if the mother did not have data, the respondent's closeness to his/her father was used. The mean for this measure is 4.50 (SD=.78).

Demographic Controls: And finally, various demographic variables measured at Wave I that have been shown to influence one's underlying tendency as well as opportunities to engage in certain pro-social life outcomes are also being included in the current analyses. Specifically, *male* is a binary measure (1=male and 0=female), *white*²¹ is a binary measure (1=White and 0=non-White), and *age* is a continuous measure. Because socioeconomic status is a known correlate of problematic life outcomes in the extant literature, a binary measure for *socioeconomic status (SES)* is included which was reported by the parent who participated in the parental survey during the Wave I in-home interview (1=receives public assistance, 0=does not receive public assistance). Table 1 illustrates that the sample at Wave I has an average age of 15, is 47% male, and 71% white. Further, 8% of the sample was receiving public assistance.

²¹ The non-white race category includes respondents who are African American, Asian or Pacific Islander, American Indian or Native American, or other.

Analytic Plan

The outcome variables, marriage and gainful activity, are binary therefore logistic regression is the appropriate statistical method to be used in the analyses regarding self-control and TRDM on these life events. However, part of the analysis involves whether self-control can predict TRDM in which case ordinary least square regressions are estimated. In order to address each of the hypotheses presented, the analysis proceeds in stages. First, logistic regression models determine the effect of self-control on the outcomes of interest (i.e. marriage and gainful activity). Second, ordinary least squares regression models determine the effect of self-control on TRDM at Waves I and II. The final step of the analysis is to determine whether or not the effect of self-control on the outcomes of interest operates through TRDM. If relevant, this part of the analysis will estimate the percentage change in the beta coefficient for self-control once TRDM (mediator) is added as an explanatory variable to each model (i.e. marriage and gainful activity). Essentially, this mediation analysis will reveal the portion of the relationship between self-control and these life events that is explained by TRDM in the transition from adolescence to young adulthood.

It is also important to note that the models account for AddHealth's complex survey design by using appropriate commands in STATA. Since regular regression commands assume simple random sampling, and because the AddHealth data consist of individuals clustered within schools, failing to account for this clustering can produce biased standard errors (which could lead to incorrect inferences) because of a violation of the assumption of independence among the units of analysis. To account

for this, a survey command in STATA is available. By using this command²² which accounts for clustering and sampling weights, the current study addresses both the oversampling of certain groups (e.g., certain ethnicities, disabled individuals, and a genetic sample) and the unequal probability of selection of schools and students within those schools. Similarly, another consequence of individuals being clustered within schools in AddHealth is that there are likely unobserved fixed effects at the school-level which could potentially impact the outcomes of interest in the current project. Of course, an important assumption here is that the schools represented in the current sample were not selected randomly, as mentioned previously, and as such, certain “fixed” characteristics of these schools (e.g., proximity to job opportunities, ecological factors) may be playing an important role in whether individuals in this sample select into marriage and/or gainful activity. To account for this, a constant for each school is included in the model, thereby providing more precise slope estimates.

²² A strata variable is not available in the public dataset; however, not using this variable only minimally affects the standard errors (Harris et al., 2009).

Chapter 5: Results

Before reporting the results examining the relationship between self-control and TRDM on marriage and gainful activity, a discussion of the correlations between the main variables of interest is warranted. Table 2 presents the correlation matrix containing each of the variables used in the subsequent analyses. First, in regard to the outcomes of interest, Table 2 demonstrates that self-control has a negative and non-significant relationship with marriage at $p < .05$ which is contrary to the general theory of crime and the first hypothesis in the current study. It is worth noting, however, that TRDM at Wave I and II has a positive relationship with marriage which is in line with prediction, though these relationships do not reach statistical significance.

In regard to the second outcome of interest, gainful activity, Table 2 illustrates that self-control has a positive, significant relationship ($r = .049$) with this dependent variable. This relationship supports the first hypothesis in the current study which assumes that higher self-control increases the likelihood that an individual selects into gainful activity. Similar to the marriage outcome, TRDM at Wave I and II has a positive relationship with gainful activity which is expected and in line with previous work, though these relationships do not reach statistical significance.

Table 2 also presents the correlation between self-control and TRDM, showing that self-control has a positive, significant relationship with TRDM at Wave I ($r = .091$) and II ($r = .050$). This is consistent with the second hypothesis in the current study which assumes that higher self-control levels predict higher TRDM levels.

Table 2. Correlation Matrix

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1.	--														
2.	-0.126*	--													
3.	-0.003	0.049*	--												
4.	0.018	0.014	0.091*	--											
5.	0.030	0.033	0.050*	0.287*	--										
6.	-0.071*	0.080*	0.067*	-0.002	-0.029	--									
7.	-0.097*	0.058*	0.032	0.071*	0.014	-0.010	--								
8.	-0.090*	0.021	0.035	0.080*	0.047*	0.076*	0.250*	--							
9.	-0.095*	0.139*	0.133*	0.111*	0.050*	0.116*	0.255*	0.286*	--						
10.	-0.048*	0.107*	0.041*	0.159*	0.101*	0.034	0.085*	0.114*	0.192*	--					
11.	-0.061*	0.040*	0.036*	0.144*	0.092*	-0.002	0.017	0.050*	0.129*	0.169*	--				
12.	-0.113*	0.067*	-0.111*	0.020	-0.010	-0.007	-0.026	-0.025	-0.090*	0.015	0.116*	--			
13.	0.092*	0.084*	0.009	-0.091*	-0.037*	0.125*	-0.151*	-0.053*	0.000	0.032	-0.015	0.030	--		
14.	0.197*	-0.017	0.061*	0.083*	0.047*	-0.040*	-0.055*	-0.028	-0.114*	-0.115*	-0.108*	0.071*	-0.022	--	
15.	0.035	-0.108*	-0.051*	0.015	0.016	-0.218*	-0.020	-0.080*	-0.102*	-0.058*	-0.002	-0.008	-0.131*	-0.015	--

$p < .05$ (two-tailed test)

1. Marriage
2. Gainful Activity
3. Self-Control
4. TRDM (Wave I)
5. TRDM (Wave II)
6. Parent Education
7. Parent Expectations
8. Child's Perception
9. College Aspirations
10. School Attachment
11. Parent Attachment
12. Male
13. White
14. Age
15. SES

The following pages detail the results of the present study in the order in which the hypotheses were originally presented.²³ First, this study examines whether higher self-control levels at Wave I increase the likelihood that individuals will select into positive life outcomes at Wave III (i.e. marriage and gainful activity). Table 3 presents one logistic regression for each of the two outcomes taken from Wave III, roughly 5-7 years after Wave I. Models (1) and (2) are regressions of marriage and gainful activity, respectively. Model 1 demonstrates that while self-control has a positive relationship with marriage, it fails to reach statistical significance. This is contrary to previous literature which has found a significant relationship between self-control and marital status (Arneklev et al., 2006).²⁴ However, unlike previous work which has focused on low self-control (Arneklev et al., 2006; Evans et al., 1997), this study depicts that higher levels of self-control are positively associated with people getting married. Model 1 also illustrates that gender, race, and age are statistically significant predictors of marriage. In particular, male respondents are less likely to get married while white respondents are 2.4 times more likely to marry than non-whites. In line with popular thought, the likelihood of individuals experiencing marriage increases as they get older.

²³It is worth noting that these Wave III life events were regressed on Wave III delinquency with demographic controls and found the expected negative relationships. Specifically, both marriage and gainful activity had a statistically significant ($p < .01$), negative relationship with Wave III delinquency.

²⁴Similarly, Wright and colleagues (1999; 2001) show that low levels of self-control significantly reduce the prospect of romantic partnerships.

Table 3: Fixed Effects Regression Models for Results of Self-Control on Marriage, Gainful Activity, and TRDM (Wave I and II)

	Model 1 N = 2,978		Model 2 N = 2,978		Model 3 N = 2,958	Model 4 N = 2,974
Variable	β (SE)	OR	β (SE)	OR	β (SE)	β (SE)
Self-Control	.031 (.069)	1.031	.089* (.050)	1.093	.144** (.059)	.050* (.026)
Parent Education	-.339 (.206)	.712	.239 (.199)	1.270	.245 (.169)	-.184* (.099)
Parent Expectations	-.171* (.099)	.843	.109 (.084)	1.116	.028 (.107)	-.021 (.037)
Child's Perception	-.112** (.055)	.894	.068 (.047)	.934	.106** (.047)	.038 (.024)
College Aspirations	-.121 (.077)	.886	.228*** (.057)	1.256	.167** (.075)	.014 (.038)
School Attachment	-.033 (.033)	.967	.095*** (.034)	1.100	.224*** (.040)	.054*** (.016)
Parent Attachment	-.089 (.092)	.915	.068 (.067)	1.069	.276*** (.066)	.126*** (.037)
Male	-1.037*** (.152)	.354	.347*** (.123)	1.414	.228** (.109)	-.066 (.053)
White	.877*** (.205)	2.403	.380** (.182)	1.463	-.203 (.208)	.111 (.095)
Age	.423*** (.059)	1.526	.009 (.055)	1.009	.205*** (.054)	.096*** (.021)
SES	.123 (.271)	1.131	-.248 (.185)	.780	.299 (.189)	.077 (.106)

Note: Each model controls for school-level fixed effects using dummy variables.

* = $p < .10$ (two-tailed test)

** = $p < .05$ (two-tailed test)

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

Model 1: Marriage

Model 2: Gainful Activity

Model 3: TRDM (Wave I)

Model 4: TRDM (Wave II)

Interestingly, children who perceive higher levels of disappointment from their parents should they not graduate from college are significantly ($b=-.112, p<.05$) less likely to get married, suggesting that individuals delay marriage in hopes of pursuing their education to appease their parents to some degree. This finding coupled with the significant ($b=-.171, p<.10$) finding for the parental expectations measure suggests that there is some level of pressure on the individual to pursue college instead of marriage. It is worth noting that the desire to attend college was marginally significant.

Model 2 demonstrates that self-control is a significant predictor of gainful activity ($b=.089, p<.10$) in the expected positive direction. This provides support for the first hypothesis in the present study which states that higher levels of self-control increase the likelihood that an individual engages in gainful activity. Similarly, this finding supports previous work that has found a significant relationship between self-control and life outcomes pertaining to educational and occupational attainment (Evans et al., 1997, Arneklev et al., 2006; Wright et al., 1999, Wright et al., 2001). Model 2 also shows that college aspirations, school attachment, and gender are significant predictors of gainful activity, along with race. In particular, both male and white respondents are approximately 1.4 times more likely than their counterparts to experience gainful activity.

Next, this study examines whether higher self-control levels result in more thoughtfully reflective decision making (TRDM). This relationship is examined contemporaneously with the original TRDM measure at Wave I and then longitudinally with the TRDM proxy measure at Wave II. Table 3 presents an

ordinary least square regression of TRDM for Waves I and II, respectively (Model 3 and Model 4). Model 3 demonstrates that self-control is a significant predictor ($b=.144, p<.05$) of the original TRDM measure at Wave I in the expected positive direction. This provides support for the second hypothesis in this study which states that higher levels of self-control result in higher levels of TRDM. Model 3 also illustrates that several other variables are significant predictors of TRDM in addition to self-control. Specifically, levels of attachment to school and parents are significant predictors of TRDM. Not surprisingly, age is also significant suggesting that as individuals get older, their levels of TRDM increase possibly as a result of maturity and experience. Similarly, respondents who plan to attend college as well as respondents who perceive higher levels of parental disappointment should they not graduate from college have significantly higher levels of TRDM. Male respondents are also significantly more likely to have higher levels of TRDM.

Model 4 demonstrates that self-control is a significant predictor of the TRDM proxy measure at Wave II ($b=.050, p<.10$) in the expected positive direction. This, coupled with the finding in Model 3, provides further support to the second hypothesis. This is of particular interest to the present study as previous work has not tested the longitudinal relationship between self-control and TRDM. Similar to Model 3, Model 4 also shows that levels of attachment to both school and parents are significant predictors of TRDM at Wave II, along with age. In particular, individuals who are more attached to their parents are more likely to have higher levels of TRDM suggesting that individuals learn how to carefully process decisions by example from those they trust and likely spend the most time with. Along those same lines,

individuals who are more attached to school are likely more engaged in the learning process and as a result, are accumulating important decision making skills through their academic experience. Contrary to what was expected, parent education has significant, negative effects in this model.

Taking all of the significant findings thus far into account, a closer look at the relationship between self-control and TRDM seems appropriate. As such, the present study now focuses on whether higher levels of self-control increase the likelihood that individuals select into marriage and gainful activity partially through its impact on thoughtfully reflective decision making (TRDM). Table 4 illustrates four logistic regressions which highlight these relationships. Model 5 demonstrates that self-control's relationship with marriage remains positive ($b=.039$) and insignificant once TRDM (Wave I) is controlled for in the model. Notably, several variables in the model, including TRDM, are negatively associated with marriage. The idea that higher levels of TRDM at Wave I result in a lack of marital status at Wave III makes sense considering this sample has higher levels of TRDM on average and a strong desire to attend college, suggesting that marriage is more likely to take place later on.

Table 4: Fixed Effects Regression Models for Results of Self-Control on Marriage and Gainful Activity with TRDM in the Model

Variable	Model 5 N = 2,958		Model 6 N = 2,974		Model 7 N = 2,958		Model 8 N = 2,974	
	β (SE)	OR						
Self-Control	.039 (.070)	1.040	.027 (.069)	1.027	.094* (.050)	1.098	.083(.051)	1.086
TRDM (Wave I)	-.001 (.031)	.999	-	-	.002 (.022)	.998	-	-
TRDM (Wave II)	-	-	.071 (.053)	1.073	-	-	.097** (.048)	1.102
Parent Education	-.363* (.204)	.695	-.328 (.207)	.720	.229 (.199)	1.257	.259 (.194)	1.295
Parent Expectations	-.191* (.100)	.826	-.173* (.099)	.841	.118 (.084)	1.125	.111 (.084)	1.118
Child's Perception	-.120** (.055)	.887	-.114* (.056)	.892	-.078* (.047)	.925	-.072 (.047)	.930
College Aspirations	-.115 (.076)	.892	-.121* (.077)	.886	.239*** (.059)	1.270	.228*** (.056)	1.256
School Attachment	-.039 (.033)	.962	-.036 (.032)	.964	.094*** (.034)	1.099	.092** (.035)	1.096
Parent Attachment	-.087 (.094)	.916	-.095 (.093)	.909	.069 (.068)	1.072	.056 (.069)	1.057
Male	-1.072*** (.153)	.342	-1.035*** (.152)	.355	.348*** (.121)	1.416	.350*** (.121)	1.419
White	.868*** (.211)	2.382	.870*** (.202)	2.387	.389** (.183)	1.476	.369** (.178)	1.446
Age	.430*** (.060)	1.537	.413*** (.059)	1.512	.010 (.054)	1.010	.000 (.055)	1.000
SES	.079 (.275)	1.083	.116 (.269)	1.122	-.222 (.186)	.801	-.268 (.184)	.765

Note: Each model controls for school-level fixed effects using dummy variables.

* = $p < .10$ (two-tailed test), ** = $p < .05$ (two-tailed test), *** = $p < .01$ (two-tailed test)

Model 5 and 6: Marriage

Model 7 and 8: Gainful Activity

Consistent with the overall theme of TRDM, individuals who are more “thoughtful and reflective” should make better decisions concerning their life choices--decisions that parallel their preferences--which ultimately result in positive outcomes. This suggests that after weighing the costs and benefits of getting married, individuals decided that this particular life event could essentially wait until other career-driven goals are met. This finding compliments the significant, negative relationships between marriage and parent education, parent expectations, as well as child’s perception of parent expectations. Here, it is further suggested that pursuing education ultimately postpones the likelihood of marriage. Age, race and gender are also significant predictors of marriage (Table 4).

Model 6, also presented in Table 4, illustrates that no significant relationships emerge between self-control and TRDM (Wave II) in predicting marriage, which does not support the third hypothesis in the present study. Specifically, the relationship between TRDM and marriage is now positive in contradiction to Model 5, suggesting that higher levels of TRDM are positively associated with more marriages at Wave III. Again, significant negative relationships are revealed for parent education, parent expectations and child’s perception of parent expectations suggesting that marriage is prolonged until educational interests are met. Age, race and gender are significant predictors of marriage as was shown in previous models. In particular, white respondents are 2.4 times more likely to be married.

Model 7 demonstrates that high self-control significantly ($b=.094, p<.10$) predicts gainful activity, even when TRDM (Wave I) is controlled for. Though not significant, TRDM is positively associated with gainful activity providing support to

previous work which has shown this relationship between TRDM and educational attainment (Paternoster and Pogarsky, 2009; Paternoster et al., 2010). College aspirations as well as school attachment are both significant predictors of gainful activity as well as gender. A child's perception of parent expectations regarding college is also a significant predictor in addition to race. In particular, male and white respondents are 1.4 times more likely to be gainfully active (Table 4).

Model 8 demonstrates that while high self-control is positively associated with gainful activity, this relationship does not reach statistical significance once TRDM at Wave II is controlled for. In fact, TRDM is a positive, significant ($b=.097, p<.05$) predictor of gainful activity which supports previous work. Of particular importance here, the relationship between self-control and gainful activity goes from significant at the $p<.10$ level (Model 2, Table 3) to only marginally significant once TRDM at Wave II is included in the model. This provides support for the third hypothesis in the current study which states that TRDM partially mediates the relationship between self-control and gainful activity. College aspirations and gender are also significant predictors of gainful activity as well as school attachment and race. Again, male and white respondents are 1.4 times more likely to be gainfully active.

Following the results regarding gainful activity in Model 8, the final stage of the current study estimates the proportion of the association between self-control and gainful activity that is explained by the proxy measure of TRDM at Wave II. To compute this effect, the percentage change in the beta coefficient on self-control between Model 2 ($b=.089$) and Model 8 ($b=.083$) is calculated. Upon doing so, it appears that self-control's effect on gainful activity reduces by 6.7% once TRDM is

included in the model. While these findings seem to support the third hypothesis in the current study which states that self-control predicts gainful activity partly through TRDM, the conclusiveness of these findings will need to be qualified in regard to additional specifications.²⁵

Additional Specifications

While the current study was focused on the interplay between self-control and TRDM in predicting involvement in “good” use of time, additional regressions were run to capture the pathways to education and employment separately²⁶ (see Appendices 4-5). Appendix 4 demonstrates that self-control significantly ($b=.208$, $p<.01$) and positively predicts education but is negatively associated with employment. This finding provides partial support for the general theory of crime but also suggests that individuals in the current sample are high enough in self-control to prolong entering the workforce, acknowledging the importance of furthering their education. This makes sense considering the fact that individuals in this sample had a strong desire to attend college and were strongly attached to school. Further, while self-control is negatively associated with employment, this relationship is not strong suggesting that this predominantly education-focused sample is driving some of the negative results for employment.²⁷

Appendix 5 illustrates that self-control is significantly and positively predictive of education even after TRDM is controlled for in the model. However,

²⁵ The relationship between self-control and TRDM (Wave I and II) in predicting marriage and gainful activity was also examined among the delinquent sample (those who reported delinquent behavior in the 12 months prior to Wave I). While the same positive associations were revealed in these analyses (see Appendices 2-3), none of these relationships reach statistical significance with the exception of self-control predicting TRDM at Wave I ($b=.357$; $p<.01$).

²⁶ As expected, education and employment are negatively associated in the current sample.

²⁷ It is also possible that these respondents are in jobs that do not require a lot of self-control, so the negative association would support the general theory of crime.

the relationship between TRDM and education, with self-control in the model, is not consistent. Specifically, TRDM (Wave I) has a negative, non-significant relationship with education²⁸ while TRDM (Wave II) has a positive, significant ($b=.102, p<.05$) relationship with education. It is worth noting that the magnitude of the relationship between self-control and education decreases ($b=.208 \rightarrow b=.201$) once TRDM (Wave II) is included in the model, similar to previous results concerning gainful activity. However, while TRDM (Wave II) emerges as significant at the $p<.05$ level when included in the education model, self-control remains significant at the $p<.01$ in both education models. This finding coupled with previous results in the present study suggests that TRDM does not mediate the relationship between self-control and gainful activity. Appendix 5 also demonstrates that neither self-control nor TRDM are significant predictors of employment when both measures are controlled for in the model. However, self-control is negatively associated with employment while TRDM is positively associated with this particular life event.

²⁸ It is worth noting that TRDM (Wave I) is positive but still insignificant once respondents with college degrees are included in the education measure which is likely a result of the age range at Wave I.

Chapter 6: Discussion and Conclusion

Since their debut in the 1990s, Gottfredson and Hirschi's *A General Theory of Crime* and Sampson and Laub's Age-Graded Theory of Informal Social Control have received significant empirical attention. Yet, although these are amongst our most popular theories in the criminology field, it appears that researchers have overlooked some of the core tenets within these theories. In particular, both theories have underlying assumptions about how individuals select into pro-social life events such as marriage, education, and employment. From Gottfredson and Hirschi's (1990) perspective, self-control can not only predict crime and analogous behaviors, but also a wide range of social outcomes. Sampson and Laub (1993; see also Laub and Sampson, 2003), on the other hand, argue that despite pre-existing traits, individuals can still "happen upon" certain desistance-promoting life events almost as a matter of random chance. However, up until now, these assumptions and ultimately the process whereby individuals enter into these turning points have been under-researched and the studies that do exist are limited due to their non-generalizable samples (e.g., Evans et al., 1997; Arneklev et al., 2006). Thus, the present inquiry is aimed at filling this evident void by investigating the interplay between self-control and TRDM concerning the selection into marriage and gainful activity among a nationally representative sample of adolescents.

In this study, it was first hypothesized that high self-control would directly increase the likelihood that individuals select into marriage and gainful activity. The findings provide partial support for this hypothesis in that self-control is a significant predictor of gainful activity. Though self-control was positively associated with

marriage in accordance with theory, this relationship was not significant. It was also hypothesized that higher levels of self-control would result in higher levels of thoughtfully reflective decision making (TRDM). The findings support this hypothesis in that self-control is a significant predictor of TRDM when measured contemporaneously at Wave I and when measured temporally at Wave II. Since a contribution of this work involves the investigation of temporal ordering between self-control and TRDM, the latter relationship is more important for the purposes of this study. Finally, it was hypothesized that self-control would predict the likelihood that individuals select into marriage and gainful activity partially through its impact on thoughtfully reflective decision making (TRDM). The findings, however, are not conclusive in regard to this hypothesis. Though TRDM mediates the relationship between self-control and the composite measure of gainful activity, it does not mediate the relationship between self-control and education in subsequent analyses.

Based on the findings of the present inquiry, two main conclusions can be drawn. First, in general, it appears that high self-control is positively associated with pro-social life outcomes such as marriage and gainful activity which provides support for Gottfredson and Hirschi's (1990) theory. This is also supported in the existing literature except the inverse is true as most studies operationalize self-control on the lower end whereby low self-control is negatively associated with these pro-social life outcomes (Arneklev et al., 2006; Evans et al., 1997, Wright et al., 1999; Wright et al., 2001). Though it would be fair to say that *A General Theory of Crime* does garner empirical support based solely on the tendency for self-control to predict various social consequences, the absolute statement about self-control predicting these life

events is not supported in the present study. In fact, demographic controls emerged as the most consistent predictors of marriage and gainful activity. Even further, self-control's ability to predict gainful activity virtually disappeared once TRDM was included in the model which is inconsistent with Gottfredson and Hirschi's theoretical assumptions.

With respect to marriage, the null findings may be related to the sampling frame used in this study as this was a primarily school-focused sample with most individuals aspiring to attend college and reporting higher levels of school attachment. This coupled with the fact that only a small portion of the sample (15%) was married by Wave III suggests that there may not have been enough statistical power to detect any effect. On the other hand, it may be possible that self-control does not have any significant impact on marriage, as only one study to date has found this relationship (Arneklev et al., 2006). Even still, Arneklev et al. (2006) find that "being married was associated with a significantly lower involvement in crime" even after self-control was controlled for in the model, which suggests that marriage may have its own crime-reducing effects separate from self-control. This challenges the persistent heterogeneity argument found in Gottfredson and Hirschi's (1990) theory and instead suggests that later life course events might inhibit crime which, in the end provides support to Sampson and Laub (1993; see also Laub and Sampson, 2003). Because of the inability of existing work to find this significant relationship between self-control and marriage (Evans et al., 1997; O'Neill, 2007; Wright et al., 1999; Wright et al., 2001), it seems plausible that any effects of marriage could be the result of the social bond that is produced between married individuals and as such,

predicting this particular life event may not be entirely straightforward as the general theory of crime would contend.²⁹ With regard to gainful activity, while it is certainly possible that TRDM mediates the relationship between self-control and gainful activity, it is also a possibility that the proxy of TRDM in the current study is not perfectly capturing the real “spirit” of human agency³⁰ and as such, additional work would need to be done to really disentangle this relationship.

Second, Paternoster and Pogarsky (2009; see also Paternoster et al., 2010) admit that the origins of good decision making are not yet fully understood. In the present study, self-control level is predictive of TRDM level, suggesting that TRDM may be another manifestation of self-control as Gottfredson and Hirschi (1990) would posit. However, TRDM is significantly predictive of gainful activity and education, even with self-control included in the model. And while this study could not make any conclusive remarks concerning TRDM as a mediator, the findings certainly warrant further investigation in this regard. These results, collectively, suggest that TRDM has its own independent effects on life outcomes, separate from self-control, which contradicts Gottfredson and Hirschi’s tenet regarding spuriousness. These findings also have policy implications for delinquency prevention programs. In particular, the different components of TRDM have the potential to provide useful information on how to improve adolescents’ cognitive skills in the hopes of increasing the likelihood that adolescents make better life choices. This “breakdown”

²⁹ An additional regression was run to see what relationships emerged between self-control and marriage in predicting delinquency at Wave III and the results indicated that marriage was still significantly ($b=-.976, p<.01$) predictive of delinquency even after self-control was included in the model. This supports Sampson and Laub’s theory and suggests that individuals may “randomly” select into marriage at which point they are changed for the better (see Forrest and Hay, 2011).

³⁰ Paternoster and colleagues find that TRDM is a significant ($p<.01$) predictor of college attendance/graduation even with self-control included in the model.

of the decision making process adds to existing work on delinquency prevention programs (e.g., see Cook, Gottfredson, and Na, 2010; Lösel and Beelmann, 2003) by affording researchers the ability to target certain aspects that contribute to successful cognitive functioning of youth.

Limitations and Future Research

Like any study, this inquiry has limitations that can guide future research. Specifically, in regard to measurement, the proxy of TRDM used in the present study was not ideal; the items used to capture the original TRDM measure were not available in subsequent waves of the AddHealth data. While the proxy in the current study seemed to be appropriate to both the needs and goals of this thesis, future work should replicate these efforts by measuring TRDM or “human agency” using a different dataset. Paternoster et al. (2010) also state that they would have preferred more direct measures of respondents’ decision making processes, suggesting that they too believe their own measure should be refined. Similarly, with multiple collection points, future work could focus more attention on the dynamic nature of TRDM and exactly how good decision making skills are developed over time. While the proxy used in the current study seemed to suggest that there may be within-person variability concerning TRDM, the AddHealth dataset did not allow for a comprehensive test of this relationship.

In addition, instead of just focusing on marital status, future work should also include a measure incorporating cohabitation between significant others as this may also facilitate the desistance process. Recently, cohabitation has replaced the role of marriage, and has been shown to account for declines in first marriages and

remarriages (Bumpass, Sweet, and Cherlin, 1991) as well as desistance (Savolainen, 2009). Cohabitation is increasingly becoming the first co-residential union formed among young adults (Goodwin, Mosher, and Chandra, 2010), so it would be interesting to see what role self-control plays in predicting this particular phenomenon as it has become very common in mainstream society. Of course, it would also be important to take into consideration the quality of the bond between people in these particular types of unions as Sampson and Laub believe this is an important factor in the desistance process. Similarly, while it was not the main objective of the current study, future studies could focus more attention on disentangling the relationship between education and employment and self-control's ability to predict the two separately. Because of the age range in Wave I of the AddHealth data, different selection mechanisms were revealed for education and employment but this is likely due to the fact that these outcomes are intrinsically related within the current sample (e.g., degree seeking individuals wishing to perpetuate their socioeconomic standing by obtaining a higher education). As such, individuals higher in self-control were likely to prolong employment to pursue their education. This does not necessarily provide negative support to Sampson and Laub's (1993; see also Laub and Sampson, 2003) theory but instead reveals that among this particular sample, most individuals were specifically involved in education as a means of being gainfully active. Even so, this study was reliant on Sampson and Laub's assumption that involvement with either of these institutions was deemed to have the same desistance-promoting effects, so future work could

build upon these efforts by examining the relationship between self-control and TRDM among an older sample.

Finally, the main goal of the present study was to examine the interplay between self-control and TRDM as it has not yet been empirically tested. As such, it made sense to start out with a more general population in order to get a better hold of how all of these processes work. Because of this, little can be concluded on how these processes unfold in the context of specific populations or subgroups. Similarly, the sample used for the present study was mostly white and while this is reflected in the AddHealth data at baseline as well as in the general U.S. population, it would be worthwhile for future work to build upon the current efforts by focusing on different ethnicities. The interplay between self-control and TRDM should also be evaluated within the context of a more delinquent sample to see whether these processes differ there as well.

Despite the limitations, the present inquiry provides a more general idea of self-control's predictive capacity concerning life outcomes using a nationally representative and generalizable sample. The current study also contributes to the literature by empirically testing the extent to which human agency matters within the context of turning points. Sampson and Laub (2005) acknowledge the importance of human agency as a central element in understanding crime and deviance over the life course but also recognize that its inclusion in future work will certainly be a challenge in life course criminology. Since their article, there has certainly been some conceptual attention dedicated to the role of human agency; however, its empirical use within the criminological field has been under-utilized. Though this was not a

critical test of the relationship between self-control and TRDM in pathways to turning points, it was an attempt to make sense of how these processes work in the general population, ultimately shedding light on whether individuals experiencing these events is due to selection or something less direct. The results presented here suggest that selection does matter to some extent which is consistent with the general theory of crime, but highlight the need for future work on human agency and its relationship with social bonds in predicting pro-social life outcomes. As such, this thesis adds to a growing body of literature that self-control is related to a range of behavioral outcomes; however, the extent to which this latent trait can predict these outcomes warrants further investigation especially as it relates to human agency.

Appendices

Appendix 1: Comparing Final Sample to Baseline

Variable	Baseline Sample		Final Sample	
	N	Mean S.D.	N	Mean S.D.
Marriage	4,875	x=.18 s.d.=.39	3,096	x=.15* s.d.=.36
Gainful Activity	4,574	x=.77 s.d.=.42	3,096	x=.76 s.d.=.43
Self-Control	6,442	x=3.02 s.d.=1.13	3,082	x=3.03 s.d.=1.12
TRDM (Wave I)	6,386	x=15.23 s.d.=2.50	3,065	x=15.16 s.d.=2.50
TRDM (Wave II)	4,808	x=7.99 s.d.=1.28	3,090	x=8.00 s.d.=1.26
Parent Education	5,613	x=.85 s.d.=.36	3,076	x=.87* s.d.=.34
Parent Expectations	5,683	x=2.27 s.d.=.72	3,076	x=2.28 s.d.=.70
Child's Perception	6,332	x=3.96 s.d.=1.27	3,080	x=4.00 s.d.=1.23
College Aspirations	6,451	x=4.44 s.d.=1.02	3,089	x=4.55* s.d.=.94
School Attachment	6,417	x=7.51 s.d.=1.87	3,067	x=7.60* s.d.=1.82
Parent Attachment	6,370	x=4.54 s.d.=.79	3,085	x=4.50 s.d.=.78
Male	6,503	x=.48 s.d.=.50	3,096	x=.47 s.d.=.50
White	6,485	x=.64 s.d.=.48	3,090	x=.71* s.d.=.46
Age	6,501	x=15.53 s.d.=1.78	3,095	x=15.01* s.d.=1.57
SES	5,613	x=.09 s.d.=.29	3,078	x=.08 s.d.=.27

*Statistically different from Baseline Sample ($p < .05$)

Appendix 2: Fixed Effects Regression Models for Results of Self-Control on Marriage, Gainful Activity, and TRDM (Wave I and II) for Delinquent Sample

	Model 1 N = 832		Model 2 N = 832		Model 3 N = 944	Model 4 N = 949
Variable	β (SE)	OR	β (SE)	OR	β (SE)	β (SE)
Self-Control	.208 (.150)	1.232	.165 (.110)	1.179	.357***	.040 (.048)
Parent Education	-1.058** (.465)	.347	.010 (.415)	1.010	.037 (.315)	-.352* (.187)
Parent Expectations	-.138 (.298)	.871	-.001 (.168)	.999	.078 (.146)	-.107 (.074)
Child's Perception	-.181 (.160)	.835	-.136 (.113)	.873	.135 (.125)	-.058 (.046)
College Aspirations	-.090 (.155)	.913	.312*** (.116)	1.367	.158 (.139)	.060 (.061)
School Attachment	-.047 (.102)	.954	.081 (.068)	1.085	.194*** (.071)	.057** (.027)
Parent Attachment	-.144 (.188)	.866	.001 (.129)	1.001	.225* (.130)	.124* (.066)
Male	-1.012*** (.318)	.364	.656*** (.232)	1.928	.296 (.257)	.062 (.092)
White	.072 (.415)	1.075	.687** (.329)	1.989	-.401 (.269)	.261 (.158)
Age	.398*** (.121)	1.488	.090 (.107)	1.095	.169* (.093)	.009 (.042)
SES	.636 (.636)	1.888	-.219 (.358)	.803	-.410 (.352)	.204 (.205)

Note: Each model controls for school-level fixed effects using dummy variables.

* = $p < .10$ (two-tailed test)

** = $p < .05$ (two-tailed test)

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

Model 1: Marriage

Model 2: Gainful Activity

Model 3: TRDM (Wave I)

Model 4: TRDM (Wave II)

Appendix 3: Fixed Effects Regression Models for Results of Self-Control on Marriage and Gainful Activity with TRDM in the Model for Delinquent Sample

	Model 1 N = 534		Model 2 N = 535		Model 3 N = 822		Model 4 N = 831	
Variable	β (SE)	OR						
Self-Control	.196 (.147)	1.217	.215 (.152)	1.240	.174 (.105)	1.190	.159 (.111)	1.173
TRDM (Wave I)	.042 (.058)	1.043	-	-	-.030 (.050)	.970	-	-
TRDM (Wave II)	-	-	.130 (.138)	1.139	-	-	.080 (.095)	1.083
Parent Education	-1.081** (.463)	.339	-1.002** (.476)	.367	.051 (.415)	1.052	.037 (.406)	1.038
Parent Expectations	-.142 (.292)	.868	-.136 (.298)	.873	.031 (.167)	1.031	.011 (.169)	1.011
Child's Perception	-.184 (.154)	.832	-.172 (.160)	.842	-.151 (.116)	.859	-.132 (.110)	.876
College Aspirations	-.105 (.158)	.901	-.097 (.153)	.908	.327*** (.116)	1.387	.307*** (.115)	1.359
School Attachment	-.053 (.101)	.949	-.046 (.101)	.955	.077 (.069)	1.080	.080 (.070)	1.084
Parent Attachment	-.144 (.192)	.866	-.160 (.187)	.852	.011 (.129)	1.011	-.002 (.130)	.998
Male	-1.064*** (.327)	.345	-1.020*** (.325)	.360	.717*** (.233)	2.049	.634*** (.233)	1.885
White	.113 (.408)	1.119	.019 (.427)	1.019	.644* (.334)	1.904	.651** (.319)	1.918
Age	.378*** (.119)	1.460	.391*** (.121)	1.479	.093 (.107)	1.097	.094 (.107)	1.099
SES	.690 (.654)	1.994	.646 (.630)	1.909	-.110 (.350)	.896	-.246 (.367)	.782

Note: Each model controls for school-level fixed effects using dummy variables.

* = $p < .10$ (two-tailed test), ** = $p < .05$ (two-tailed test), *** = $p < .01$ (two-tailed test)

Model 1 and 2: Marriage

Model 3 and 4: Gainful Activity

Appendix 4: Fixed Effects Regression Models for Results of Self-Control on Education and Employment

Variable	Model 1 N = 2,978		Model 2 N = 2,978	
	β (SE)	OR	β (SE)	OR
Self-Control	.208*** (.048)	1.232	-.056 (.049)	.945
Parent Education	1.109*** (.216)	3.031	-.345* (.183)	.708
Parent Expectations	.213*** (.080)	1.237	-.066 (.069)	.937
Child's Perception	.066 (.056)	1.069	-.101** (.041)	.904
College Aspirations	.366*** (.094)	1.441	.037 (.050)	1.037
School Attachment	.027 (.031)	1.028	.064** (.030)	1.066
Parent Attachment	-.013 (.097)	.987	.046 (.059)	1.047
Male	-.221** (.104)	.802	.498*** (.102)	1.646
White	-.056 (.181)	.945	.205 (.156)	1.228
Age	-.557*** (.057)	.573	.351*** (.043)	1.420
SES	-.924*** (.283)	.397	.177 (.180)	1.193

Note: Each model controls for school-level fixed effects using dummy variables.

* = $p < .10$ (two-tailed test)

** = $p < .05$ (two-tailed test)

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

Model 1: Education

Model 2: Employment

Appendix 5: Fixed Effects Regression Models for Results of Self-Control on Education and Employment with TRDM in the Model

Variable	Model 1 N = 2,958		Model 2 N = 2,974		Model 3 N = 2,958		Model 4 N = 2,974	
	β (SE)	OR						
Self-Control	.214*** (.049)	1.238	.201*** (.049)	1.223	-.056 (.049)	.945	-.059 (.049)	.943
TRDM (Wave I)	-.019 (.022)	.981	--	--	.000 (.020)	1.000	--	--
TRDM (Wave II)	--	--	.102** (.047)	1.107	--	--	.032 (.042)	1.033
Parent Education	1.103*** (.215)	3.014	1.128*** (.217)	3.089	-.354* (.184)	.702	-.337* (.180)	.714
Parent Expectations	.214** (.082)	1.239	.221*** (.080)	1.247	-.059 (.069)	.942	-.065 (.069)	.937
Child's Perception	.065 (.055)	1.067	.062 (.055)	1.063	-.106** (.041)	.899	-.101** (.042)	.904
College Aspirations	.382*** (.097)	1.465	.365*** (.093)	1.441	.042 (.050)	1.043	.037 (.050)	1.038
School Attachment	.028 (.032)	1.029	.020 (.031)	1.020	.064** (.029)	1.066	.063** (.030)	1.065
Parent Attachment	-.008 (.098)	.992	-.025 (.096)	.975	.046 (.059)	1.048	.042 (.061)	1.043
Male	-.217** (.102)	.805	-.224** (.105)	.799	.504*** (.101)	1.655	.496*** (.101)	1.643
White	-.066 (.182)	.936	-.055 (.183)	.947	.217 (.157)	1.243	.200 (.154)	1.221
Age	-.547*** (.057)	.579	-.568*** (.057)	.567	.349*** (.042)	1.418	.349*** (.044)	1.417
SES	-.895*** (.287)	.408	-.936*** (.282)	.392	.194 (.177)	1.214	.167 (.180)	1.182

Note: Each model controls for school-level fixed effects using dummy variables.

* = $p < .10$ (two-tailed test), ** = $p < .05$ (two-tailed test), *** = $p < .01$ (two-tailed test)

Model 1 and 2: Education

Model 3 and 4: Employment

Appendix 6: Fixed Effects Regression Models for Results of TRDM (Wave I) on Marriage, Education, Employment, and Gainful Activity

	Model 1		Model 2		Model 3		Model 4	
Variable	β (SE)	OR	β (SE)	OR	β (SE)	OR	β (SE)	OR
TRDM (Wave I)	.000 (.031)	1.000	-.012 (.022)	.988	-.001 (.020)	.999	.001 (.023)	1.001
Parent Education	-.361* (.201)	.697	1.113*** (.213)	3.042	-.379** (.183)	.684	.226 (.197)	1.253
Parent Expectations	-.190* (.100)	.827	.226*** (.082)	1.254	-.058 (.069)	.944	.121 (.084)	1.128
Child's Perception	-.118** (.056)	.889	.061 (.055)	1.063	-.103** (.042)	.902	-.074 (.047)	.929
College Aspirations	-.112 (.075)	.894	.405*** (.098)	1.500	.038 (.050)	1.039	.249*** (.058)	1.282
School Attachment	-.039 (.033)	.962	.028 (.031)	1.028	.061** (.029)	1.063	.093*** (.034)	1.097
Parent Attachment	-.087 (.094)	.916	.009 (.099)	1.009	.041 (.058)	1.041	.072 (.068)	1.075
Male	-1.083*** (.151)	.339	-.281*** (.101)	.755	.520*** (.098)	1.683	.321*** (.122)	1.379
White	.869*** (.211)	2.385	-.061 (.182)	.940	.202 (.157)	1.223	.374** (.181)	1.453
Age	.428*** (.060)	1.534	-.539*** (.058)	.583	.341*** (.043)	1.406	.007 (.055)	1.007
SES	.070 (.273)	1.072	-.945*** (.285)	.389	.196 (.175)	1.216	-.242 (.187)	.785

N = 2,961

Note: Each model controls for school-level fixed effects using dummy variables.

* = $p < .10$ (two-tailed test), ** = $p < .05$ (two-tailed test), *** = $p < .01$ (two-tailed test)

Model 1: Marriage

Model 2: Education

Model 3: Employment

Model 4: Gainful Activity

Appendix 7: Fixed Effects Regression Models for Results of TRDM (Wave II) on Marriage, Education, Employment, and Gainful Activity

	Model 1		Model 2		Model 3		Model 4	
Variable	β (SE)	OR	β (SE)	OR	β (SE)	OR	β (SE)	OR
TRDM (Wave II)	.073 (.053)	1.076	.113** (.047)	1.119	.031 (.042)	1.032	.102** (.048)	1.107
Parent Education	-.323 (.205)	.724	1.137*** (.216)	3.117	-.363** (.178)	.696	.252 (.191)	1.287
Parent Expectations	-.170* (.099)	.844	.233*** (.080)	1.262	-.063 (.068)	.939	.115 (.084)	1.121
Child's Perception	-.115** (.056)	.892	.059 (.056)	1.061	-.098** (.042)	.907	-.067 (.048)	.935
College Aspirations	-.116 (.077)	.891	.389*** (.093)	1.476	.032 (.049)	1.033	.236*** (.054)	1.266
School Attachment	-.035 (.032)	.965	.020 (.031)	1.021	.059** (.030)	1.061	.091** (.035)	1.096
Parent Attachment	-.095 (.092)	.909	-.009 (.097)	.992	.038 (.060)	1.039	.062 (.070)	1.064
Male	-1.039*** (.150)	.354	-.283*** (.104)	.753	.508*** (.098)	1.661	.319*** (.120)	1.376
White	.877*** (.203)	2.404	-.045 (.182)	.956	.176 (.151)	1.193	.343** (.172)	1.409
Age	.411*** (.059)	1.509	-.562*** (.058)	.570	.343*** (.045)	1.409	.000 (.057)	1.000
SES	.096 (.266)	1.101	-.990*** (.281)	.372	.146 (.177)	1.157	-.316* (.184)	.729

N= 2,983

Note: Each model controls for school-level fixed effects using dummy variables.

* = $p < .10$ (two-tailed test), ** = $p < .05$ (two-tailed test), *** = $p < .01$ (two-tailed test)

Model 1: Marriage

Model 2: Education

Model 3: Employment

Model 4: Gainful Activity

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