

'PERSISTENT HETEROGENEITY'  
v. 'STATE DEPENDENCE':  
A CROSS-SECTIONAL TEST OF  
GOTTFREDSON AND HIRSCHI'S  
LOW SELF-CONTROL  
STABILITY HYPOTHESIS

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by

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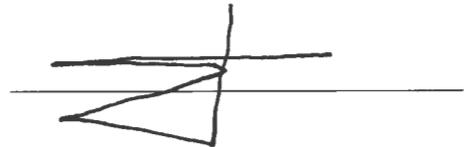
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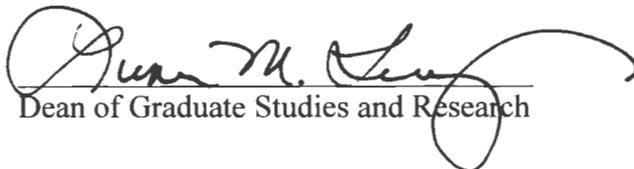
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## ABSTRACT

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**Title:** ‘Persistent Heterogeneity’ v. ‘State Dependence’: A Cross-Sectional Test of Gottfredson and Hirschi’s Low Self-Control Hypothesis

**Institution:** Florida Atlantic University

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In *A General Theory Of Crime* Gottfredson and Hirschi (1990) suggest that “low self-control” is an enduring individual characteristic that is the product of inadequate child-rearing. Sampson and Laub’s (1993) *Crime In the Making: Pathways and Turning Points Through Life* somewhat supports this contention. However, the latter authors also suggest that later life experiences might change the direction of the life path (and self-control). This thesis examines whether adequate child-rearing is the key causal determinant of low self-control in later life. It further tests whether later life-course transitions might alter and/or impact low self-control. The results suggest that the impact of early child-hood experiences continue to have an influence on self-control in later life. However, they also suggest that later life-course events (or transitions) can alter the proposed stability of such control. The implications of these findings are discussed.

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## CHAPTER 1: INTRODUCTION

When taking into account the many factors that have been identified in the literature as increasing an individual's propensity to engage in criminal behavior, two opposing theories stand out. One of the most highly cited and controversial works, *A General Theory of Crime*, by Gottfredson and Hirschi (1990) introduced the proposition that an individual's disposition to engage in criminal activity throughout the life cycle is determined by the quality of parenting received in early childhood. Sampson and Laub concur with Gottfredson and Hirschi that early life child-rearing experiences influence the probability of deviant behavior in *Crime in the Making: Pathways and Turning Points Through Life* (1993). Their theory, however, goes further because it proposes that later life experiences are more predictive of criminal involvement than the quality of parenting received by the individual in the early years.

Gottfredson and Hirschi (1990) argue that involvement in criminal behavior is dependent upon two factors: an individual's propensity to engage in crime, which the authors label "low self-control", and the opportunity for illegal activities. Specifically, people with low self-control are more likely to succumb to the immediate gratification of short term desires when the opportunity to do so arises, with little regard for the distal consequences of their actions. On the other hand, individuals with high self-control are more likely to defer immediate gratification in exchange for beneficial future rewards.

Their theory is parsimonious to the extent that the authors argue that it is simply low self-control and opportunity that cause involvement in crime. The more controversial aspect of the theory is that low self-control is the product of ineffective child-rearing and is established in the first six to eight years of life (Gottfredson and Hirschi 1990: 272). According to the authors, one's level of self-control remains consistent throughout life. Consequently, the method of parenting experienced by a child is the determining factor for later life engagement in criminal acts and risk seeking behavior. Later life-course events are proposed to have little influence on one's level of self-control once child-rearing experiences have had their effects.

Embracing the importance of the work by Gottfredson and Hirschi, Sampson and Laub expanded the theoretical framework to include the impact of later events in life. They argue that later-life course events can alter an individual's propensity toward crime. For example, they suggest that the strength of social bonds that are developed through work and family, as well as later life experiences, can alter the decisions one makes, thereby either mitigating or facilitating the effects of childhood experiences on the outcome of involvement in crime. Sampson and Laub (1993: 7) specifically argue that "informal social bonds in adulthood to family and employment explain changes in criminality over the life span despite early childhood propensities".

#### **A. Statement of the Problem**

The philosophical differences between these two competing theories have been discussed in the literature. They are known as the "persistent (population) heterogeneity" and the "state dependence" perspectives. The persistent heterogeneity perspective

suggests people *are not* capable of change. State dependence, on the other hand, proposes that individuals *are* capable of change.

Although Gottfredson and Hirschi's theory stops short of a biological explanation for involvement in crime (Grasmick et al., 1993), their theory clearly is consistent with the idea of persistent heterogeneity; i.e. that people do not change and that the causes of involvement in crime are established early in life. Gottfredson and Hirschi argue that one's level of educational attainment, career stability and success, quality of friendships, as well as marital status are dependent upon the level of self-control an individual attained in the first eight years of their life. They do not increase or decrease self-control; these outcomes are the product of self-control.

Sampson and Laub's (1993) theory, on the other hand, seems to follow more closely along the lines of "state dependence" since they contend that individuals are capable of change. In fact, their theory strongly challenges Gottfredson and Hirschi's assertions since they focus on the potential effects that such later life-course events and/or circumstances can have on individual's path and direction in life.

In this thesis I will attempt to empirically test the opposing views of these two competing theories. Since very little research has directly focused on the specific child-rearing practices that Gottfredson and Hirschi discuss and how stable these influences remain on self-control, this thesis will add to the academic literature currently available. First, I will test Gottfredson and Hirschi's proposition as to whether adequate child-rearing significantly predicts self-control. Secondly, I will test whether adequate child-rearing continues to significantly predict self-control, controlling for the effects of later life-course events. Thirdly, I hypothesis that later life-course events (taken together) will

not significantly add to the variance explained in self-control (beyond the effects of adequate child-rearing). And finally, a hypothesis from the Sampson and Laub's point of view, that would go opposite to the previous hypothesis, some of the individual later life-course events will significantly alter present day self-reports of self-control. Sampson and Laub (1993) would argue such experiences (e.g. getting married) will effect decision making in later life.

## CHAPTER 2: LITERATURE REVIEW

### A. A General Theory of Crime

In *A General Theory of Crime*, Gottfredson and Hirschi (1990) argue that involvement in criminal behavior is dependent on two factors: low self-control and the opportunity to commit a crime. Their theory proposes that “people who lack self-control are impulsive, insensitive, physical, risk-taking, short-sighted and nonverbal” (Gottfredson and Hirschi 1990: 90). According to the theory, these traits coalesce to form the individual characteristic of low self-control. Furthermore, individuals with low self-control will not only be prone to engage in criminal activity when the opportunity arises, they will also be more inclined to engage in behaviors that provide similar ‘benefits’ as those attained from involvement in crime. These behaviors are labeled as “analogous acts”; i.e. they provide immediate benefits and have distal consequences. Such acts include drinking, smoking, gambling, etc. To summarize, Gottfredson and Hirschi (1990: 90) suggest that low self-control is attained prior to the age of onset of crime, remains stable across the life-course, and is the key theoretical cause of criminal and analogous behavior.

Gottfredson and Hirschi stipulate that the level of self-control an individual attains is the outcome of the quality of parenting a child receives during first eight years of life. Specifically, low self-control is the outcome of inadequate child-rearing (Gottfredson and Hirschi 1990: 97). Because of effective child-rearing, the child is able to defer immediate gratification for future benefit and avert impulsive behavior. This is achieved when a parent or caretaker is able to dissuade a child from engaging in impulsive behavior, thereby facilitating their ability to be able to focus on the more distal benefits of their actions.

To inhibit a child's impulsive behavior and facilitate the development of self-control a parent must utilize adequate child-rearing skills. Gottfredson and Hirschi (1990) argue that the minimal conditions for such child-rearing to occur, a parent must monitor the child's conduct, recognize deviant behavior when it occurs, and punish the child for their inappropriate behavior (Gottfredson and Hirschi 1990: 97). Their child-rearing model rests on the requirement that a parent be attached to their child and has concern for their welfare and well-being. It is argued that when a child's behavior is corrected, they will develop into a person that is capable of postponement of short-term gratification for long-term benefit. Therefore, the child will be less prone to use force or fraud to satiate their immediate desires and avoid involvement in criminal behavior (Gottfredson and Hirschi 1990: 97). Obviously, this theoretical perspective places a great deal of importance on early childhood experiences, particularly the quality of parenting a child receives.

### **B. Empirical Tests of Gottfredson and Hirschi's A General Theory of Crime**

While there has been a lot of criticism aimed at Gottfredson and Hirschi's theory (e.g. Akers, 1991; Tittle, 1991; Miller and Burack, 1993; Sellers, 1999; Geis, 2000; Tittle et al., 2003), the vast majority of the empirical tests of the theory to date have been supportive (see Pratt and Cullen, 2000). In one of the earliest tests of one of the main propositions found in the theory, Grasmick et al. (1993) found that low self-control interacts with the opportunity to commit crime (and see Longshore et al., 1996; Longshore and Turner, 1998; LaGrange and Silverman, 1999) as the theory initially suggested. However, recent research has pointed out that opportunities to commit crimes are rather "ubiquitous" and probably not as important for actual tests of the theory (Tittle et al., 2003: 342; and see Hirschi and Gottfredson, 1995). Therefore, recent tests have examined the direct effect of low-self control on crime (Baron, 2003; Smith, 2004; Ribeaud and Eisner, 2006). In regard to this later line of research, which compares the efficacy of one theory or another predicting crime, Gottfredson and Hirschi's theory has

been noted to do quite well relative to other theories (see Pratt and Cullen's 2000 meta-analysis for a relatively recent review of the literature testing the theory).

Other research has found empirical support for other propositions in Gottfredson and Hirschi's theory. In an early study, Arneklev et al. (1993) found that low self-control predicted involvement in various "imprudent behaviors", activities that Gottfredson and Hirschi refer to as "analogous" to crime (Gottfredson and Hirschi, 1990). Other scholars have looked at the affects of low self-control on analogous behaviors, some of which have included illegal conduct (see Evans et al., 1977). These later studies tend to find support for the theory as well (Paternoster and Brame, 1998; Cochran, et al., 1998).

However, the differences between the types of independent measures for low self-control mentioned above have led to some debate in the literature. Clearly, Gottfredson and Hirschi prefer behavioral indicators of low self-control instead of attitudinal measures (see Hirschi and Gottfredson, 1993; and see Paternoster and Brame, 1998; Pratt and Cullen, 2000; Marcus, 2004). Some researchers in line with this thinking have included illegal conduct in their behavioral measures to predict involvement in crime (e.g. Evans et al., 1997; Longshore et al., 1996; Paternoster and Brame, 1998). Such inclusion seems to reaffirm one of the earliest criticisms of the theory: that the theory is tautological (Akers, 1991; Tittle, 1991). Because of this, some have argued that attitudinal (or cognitive) indicators of low self-control are better for tests of the theory (Tittle et al., 2003; but see Marcus, 2004). The use of attitudinal indicators of low self-control helps to circumvent the criticism of tautology and allows the theory to survive as an explanation for crime.

### **C. The Present Study**

While Gottfredson and Hirschi's (1990) theory has been tested rather extensively (Pratt and Cullen, 2000), there are remaining questions. How strong are the effects of adequate child-rearing on self-control and do later life-course events alter these effects? Gottfredson and Hirschi argue that later life-course events will not reduce the effects of

child-rearing experiences on low self-control (both related to Gottfredson and Hirschi's "persistent heterogeneity" argument); whereas Sampson and Laub argue that such trajectories might alter one's self-control (their "state dependence" hypothesis).

Additionally, there has not been an abundance of research as to whether adequate child-rearing predicts low self-control in later life, at least as depicted along the theoretical guidelines discussed by the authors. An exception to this is a study by Gibbs and Giever (1995), whose research is somewhat supportive of the theory (and see Hay, 2001; Brannigan et al., 2002). Given that Gottfredson and Hirschi's (1990) theory has been in publication in excess of ten years, it is somewhat surprising as that this aspect of the theory has received relatively little attention. The theory specifies a direct relationship between adequate child-rearing and the outcome of low self control. This thesis, therefore, will attempt to add to the body of literature by testing a major proposition in Gottfredson and Hirschi's theory. Does adequate child-rearing, as depicted by the authors, significantly predict self-control in later life? Furthermore, does the impact of early child-rearing experiences on self-control diminish in later life because of later life-course events?

While there has been much research testing the stability of involvement in crime and/or criminal potential across time (e.g. Caspi et al., 1994; Nagin and Farrington, 1992; Nagin and Land, 1993; Nagin and Paternoster, 1993; Wilson and Herrnstein, 1985), there has not been much that has examined whether "low self-control", as conceptualized by Gottfredson and Hirschi, remains stable across the life-course. Arneklev et al., (1998) tested this proposition over a very brief period of time (six months) with attitudinal indicators and found that it was stable with one exception related to variance in the "risk seeking" dimension. Turner and Piquero (2002) also tested this proposition using both behavioral and attitudinal measures with both a criminal and non-criminal sample. This study was conducted over a span of twelve years and the results offered mixed support for Gottfredson and Hirschi's stability hypothesis.

Finally, very little research has been done to test whether later life-course events alter the persistence of low self-control. As mentioned above, there is a theory that strongly counters Gottfredson and Hirschi's persistent heterogeneity argument. While it does not specifically focus on the concept of "low self-control", it does seem to be a direct challenge to Gottfredson and Hirschi's position since it asserts that life-course events affect "criminality" which Gottfredson and Hirschi refer to as low self-control. The challenge came about largely because of Sampson and Laub's (1994) publication of *Crime in the Making: Pathways and Turning Points Through Life*. Sampson and Laub agree with Gottfredson and Hirschi's position that the parenting experienced by an individual in the early years affects that person's ability to be successful later on. However, they diverge from the Gottfredson and Hirschi argument as it relates to later life-course outcomes. Specifically, Sampson and Laub (1993) argue that later life experiences, e.g. education, friendships, employment, and marriage alter the direction of the life path.

#### **D. The Gottfredson/Hirschi v. Sampson/Laub Debate: The Persistence of Self-Control?**

In *Crime In The Making: Pathways and Turing Points Through Life* (1993), Sampson and Laub propose a "sociogenic" model of crime and deviance (Sampson and Laub: 1993: 7). Similar to Gottfredson and Hirschi, they also place importance on early childhood experiences and the effect that they might have on the level of self-control attained by an individual. However, Sampson and Laub's position deviates from Gottfredson and Hirschi's contention that early childhood experiences are the sole deterministic factor for later life involvement in crime. For them later life-course events affect engagement in criminal activity beyond the impact of self-control. The change in behavior observed is the outcome of the strength of the social bonds individuals establish with their social world later in the life-course and is not the direct and absolute result of early childhood social controls. Sampson and Laub's theory (1993: 7) suggests, that

“informal social bonds in adulthood to family and employment explain changes in criminality over the life span despite early childhood propensities”.

Sampson and Laub conceptualize the life-course as being an imperfect line of development over the life span. The line of development that occurs is defined as a trajectory. Trajectories are marked by a sequence of events (i.e. entering school, graduation, first job, marriage, etc.). These events are called transitions as it is these life events that have the power to change the life path or an individual's trajectory. Trajectories and transitions come together and create turning points that in turn change the life-course trajectory (Sampson and Laub, 1993: 8).

The changes that occur in the life-course trajectory are dependent on social capital, which is embodied in relationships among individuals (Sampson and Laub 1993: 140). Social capital is the bond or social ties an individual has to work, family, or spouse. Sampson and Laub contend that these bonds, that are formed later in the life-course, rather than the level of self-control an individual develops, are the determining factors for a person to engage in criminal activity during their adult years.

### **E. Parenting**

The development of self-control, according to Gottfredson and Hirschi, is dependent upon adequate child-rearing. They minimally define the conditions for adequate child rearing to occur as having an attached or invested caregiver to *monitor* the behavior of the child, *recognize* deviant behavior when it occurs, and to *punish* the deviant behavior (Gottfredson and Hirschi, 1990: 97). According to Gottfredson and Hirschi, parents that fail to utilize adequate child-rearing practices will fail to produce a child that is properly socialized. The child will lack self-control and will be predisposed to being impulsive and more prone to engage in criminal behavior (Gottfredson and Hirschi, 1990: 91). Their theory places a great deal of importance on parenting style and the effects of it on the involvement in crime. They specifically argue that “the origins of criminality or low self-control are to be found in the first six or eight years of life, during

which time the child remains under the control and supervision of the family or familial institution” (Gottfredson and Hirschi, 1990: 272).

The importance of early childhood experiences and criminal involvement over the life-course has been the topic of many criminological studies. In their re-analysis of the Glueck and Glueck (1950) data, Sampson and Laub (1993) find support for the importance of adequate child-rearing as it pertains to an explanation of delinquency but fail to find a significant relationship with crime in later life (Sampson and Laub 1993: 196). They contend that later life events will either propel an individual into or deter an individual away from involvement in crime during their adult years irrespective of the parenting they received as a child (Sampson and Laub 1993: 144).

Sampson and Laub’s analysis suggests that Gottfredson and Hirschi’s discussion of “child-rearing” might be underdeveloped and that child-rearing is a more complex phenomenon. Although there is a great deal of literature that examines various forms of deviance and how family experience and/or parenting relates to the outcome of crime, few researchers have looked specifically at parenting style and the outcome of low self-control as conceptualized by Gottfredson and Hirschi. However, Hay (2001) looked directly at parenting and the outcome of self-control as well as the effect of parental monitoring and discipline on delinquency. Based on this study, overwhelming support for the theory was not found. Although this study did find that parental monitoring and punishment is significantly and negatively related to low self-control, the strength of the relationship was “moderate at best” (Hay, 2001: 725). Hay (2001) expanded Gottfredson and Hirschi’s model of adequate child-rearing and included psychological autonomy of the child, and the use of fair non-physical discipline in their empirical test. When added to the analysis the predictability of low self-control more than tripled (Hay, 2001: 725). On the other hand, studies such as Gibbs et al. (1998) find support for Gottfredson and Hirschi’s main proposition that parental management influences self-control.

Gottfredson and Hirschi maintain that the first component of adequate parenting is that the child be monitored. Seyditz (1993) found that the concept of monitoring alone will not assure a child that does not engage in deviant behavior. A parent must not only monitor the child but must also be attached to the child. When there is the combination of low parental attachment and high direct parental control, delinquency increased (Seyditz, 1993: 264). McCord (1991) found paternal interaction with the family had more of an influence on adult criminal behavior while maternal behavior appears to influence delinquency. Further, Lazelere and Patterson (1990) found that social status and/or income affects the outcome of delinquency as families with lower income and social status experience more stress and have fewer resources thus mitigating parental management skills.

Monitoring of a child is important so that the second component of the adequate child-rearing will be able to happen; a parent needs to recognize deviant behavior. This seems simple enough, however, in order for a parent to recognize deviant behavior they themselves must know what actions are not acceptable. This requires that the parent have an understanding of right and wrong.

Gottfredson and Hirschi assert that effective parenting requires punishment of deviant behavior for adequate parenting to occur. Punishment and monitoring, however, seem to be a more complex phenomenon than specified by Gottfredson and Hirschi. Punishment is most effective when no physical force is used (Hay 2001). Additionally, Heck and Walsh (2000) found that child maltreatment was, in fact, a very strong predictor of violent delinquency. The authors did go on, however, to question the causal order between these two factors. They question if the maltreatment was the outcome of a misbehaved child or was the maltreatment the cause of the bad behavior.

Gottfredson and Hirschi propose a model of parenting that is said to be effective for developing self control. As previously indicated, their model, although valid, seems to fall short of a complete conceptualization of adequate child-rearing. This might

suggest that an adequate parenting model is more complex than proposed by Gottfredson and Hirschi. These possibilities might lead us to question whether there are other factors that may impact the development of self-control as well as the engagement in criminal behavior during the later life-course.

#### **F. Life Course Events / Social Bonds**

Sampson and Laub (1993) argue that the strength of informal social bonds formed later in the life-course will determine the degree that an individual will engage in criminal behavior. These bonds are formed after the deterministic age of the development of self-control as described by Gottfredson and Hirschi. Social bonds are ties that an individual has to school, work, church, and friends. They argue that if individuals are 'invested' in their social world they will be more able to resist temptations to engage in criminal behavior. For example, if a person has a child, it should increase the probability that they will look at the long term consequences of their actions since someone else is dependant upon them.

Arum and Beattie (1999) concluded that an individual's high school educational experience has a lasting effect on an individual's risk of incarceration. The more positive the high school experience, the less likely an individual will be incarcerated as an adult. Sampson and Laub identify high school as a turning point that can propel an individual on a different life path than traveled in the early school years. (See Cerkovich and Giordano, 1992 and Cochran et al., 2002). Additionally, Nagin and Paternoster (1994) conclude that individuals that are invested in personal capital, conventional attachments, and commitments are deterred from criminal involvement by the perceived risk of damage to their capital.

If life events and social bonding propel an individual into or away from crime then stressful life experiences occurring during the adolescent years should have the effect of escalating delinquent behavior. Hoffmann and Cerbone (1999) examined the rate of increase of delinquency and how it was affected by life experiences in early

adolescence. They found that the effects of stressful life events experienced in adolescence had a positive effect on the escalation of delinquency (Hoffmann and Cerbone 1999: 365). However, while others find support for Sampson and Laub's theory, perhaps there is need for a more "integrated" approach. Maybe early child-hood is important, but later life-course events are significant to explaining the outcome of crime and/or self-control (see Wright et al., 1999; and Katz, 2005).

### **G. Hypotheses**

Gottfredson and Hirschi assert adequate child-rearing is essential for the development of self-control. The three dimensions of adequate child-rearing are monitoring a child's behavior, recognizing deviant behavior when it occurs, and punishing the child's deviant behavior when it occurs. Individuals that are the recipients of adequate child rearing will develop levels of self-control that allows them to refrain from temptations and defer immediate gratification for future benefit.

*Hypothesis #1:* The child-rearing techniques deemed important by Gottfredson and Hirschi (monitoring the child, recognizing deviant behavior, and punishing deviant behavior) will significantly predict respondents' level of self-control. For Gottfredson and Hirschi (1990: 272), the origins of self-control are found in the first six to eight years of life and remain relatively stable across the life-course. Control variables will be well known correlates of crime (gender, age, and race). "Retrospective" questions will be used to measure the respondents' early child-rearing experiences. Respondents will be asked about the present day level of self-control.

Furthermore, Gottfredson and Hirschi argue that later life-course events will not significantly reduce the impact of adequate child-rearing on low self-control. Therefore,

*Hypothesis #2:* Adequate Child-Rearing will remain significant in predicting Self-Control, beyond the effects of later Life-Course events.

Furthermore,

*Hypothesis #3:* Later life-course events (e.g. marital status, educational attainment, religious attendance, quality of friendships, and life satisfaction) will not explain more of the variance of self-control, beyond that explained by adequate child-rearing. There could be a question of causal order here between some social consequences and self-control. While some of the measures are retrospective, others are not.

Gottfredson and Hirschi would argue that adequate Child-Rearing explains a significant amount of variance in Self-Control. Sampson and Laub would argue that child-rearing experiences are important, but that later life-course events (e.g. increase in social capital) will significantly affect self-control in later life. Therefore,

*Hypothesis #4:* Not only will later life-course events significantly explain more of the variance in self-control, at least some of the individual life-course event measures will also significantly effect self-control.

[See Figures 1-3 About Here]

## CHAPTER 3: METHODS

### A. Sample

The data to be used in the analysis were obtained from the 1991 Oklahoma City Survey conducted by the Sociology Department of the University of Oklahoma. A simple random sample was drawn from the city's adult (age 18 and older) population of 400,000 with use of the *R. L. Polk Directory*. Potential respondents were first contacted with a letter describing the survey, which informed the respondent that a researcher would contact them to make an appointment for a face-to-face interview. Those that did not wish to participate were replaced by random selection. Interviews were conducted by trained interviewers.

The target sample size of 394 was reached and was demographically compared to the 1990 Census. There are no significant differences between the sample and the population in terms of gender, race, or age. Eighty-two percent of the sample was white compared to eighty-four percent of the general population. Forty-six percent of the sample was male compared to forty-seven percent of the general population. Gottfredson and Hirschi assert cross sectional data is sufficient for testing their theory as levels of self-control are set in early childhood and remain stable across the life-course (Gottfredson and Hirschi (1990:235).

### B. Measures Low Self-Control

"Low Self-Control" is measured using Grasmick et al.'s (1993) Low Self-Control scale. There are six elements that make up Self-Control, and they are impulsivity, simple

risk seeking, physical activity, self-centeredness, and temper. These dimensions are measured by use of 24 items, four for each of the six components. Respondents were asked to respond using the categories (4) strongly agree, (3) agree somewhat, (2) disagree, and (1) strongly disagree. These components come together to form the single scale overall component, Low Self-Control. The means and standard deviations for the scale and each item are listed in table 1. Chronbach's alpha for the linear composite of z-scores could be improved with the elimination of the fourth item of the Physical Activities component. The alpha reliability for Low Self-Control scale is .814. See Grasmick et al., (1993: 117) for a discussion of the development of this scale and these procedures.

[See Table 1 About Here]

### **Adequate Child-Rearing**

"Adequate Child-Rearing" is comprised of three questions measured on a four point scale. Responses were coded (4) strongly agree, (3) agree somewhat, (2) disagree somewhat, and (1) strongly disagree. Respondents that scored high on the items had Adequate Child-Rearing. The questions are as follows:

Generally, when I was growing up my parent or guardians kept a pretty close eye on me.

Generally, when I was growing up my parents or guardians recognized when I had done something wrong.

Generally, when I was growing up my parents or guardians punished me when they knew I had done something wrong.

Cronbach's alpha for the linear composite of z-scores is .732 and does not increase with the deletion of any of the items. Means and standard deviations for the items are listed in Table 2.

[Table 2 About Here]

### **Life Course Transitions**

Life-Course transitions are changes that direct a person's life and influence their level of self-control. Such measure (e.g. level of education) should have occurred prior to the respondents' answers to questions regarding self-reports of their present level of Self-Control. Five types of Life-Course Transitions are measured (some of which, to a certain extent, violate the initial assumption that they occur much earlier than present day self-reports of self-control). Although limited by the data available, these measures are similar to a number of measures that have been used in test of Gottfredson and Hirschi's theory (e.g. Evans et. al., 1997).

The first life-course transition is a measure of Marital Status which is a dichotomous variable. The responses were coded 1 for married and 0 indicating widowed, divorced, separated, never married, and not ascertained (see Sampson and Laub, 1993: 140-143). The second transition variable is Educational Attainment. This variable was measured by used of the question, "What is the highest level or grade of education you have ever completed in school?" The response is measured at the ratio level. The final single item variable is Religious Attendance measured by the responses to the single question, "Do you ever attend church, watch church services on television, or listen to church services on the radio? Means and standard deviations for these three variables are listed in Table 3.

[Table 3 About Here]

Finally, two other life-course transition events are measured with scales. These variables are "Quality of Friendships" and "Life Satisfaction". Quality of Friendships is measured by respondents' answers to three items that address the respondents' perceived relationships with persons not living with them. The responses to the three questions are answered on a 4-point scale of (4) strongly agree, (3) agree somewhat, (2) disagree

somewhat, and (1) strongly disagree. Life Satisfaction is measured using the same scale as above. The three questions used to measure “Quality of Friendships” are:

On average, my relationships with these people are very close.

Thinking of these same people, I often share my innermost thoughts and feelings with them.  
When I need help, I can turn to these people.

Chronbach’s alpha for the linear composite of z-scores is .717. The alpha does not increase with deletion of any item. Means and standard deviations for the items are listed in Table 4.

[Table 4 About Here]

Life Satisfaction is measured by the following four questions. This measure might be related to some of the other life transition variables such as marital status.

In most ways my life is close to my ideal.

The conditions of my life are excellent.

I am satisfied with my life.

So far I have gotten the important things I want in life.

Chronbach’s alpha for the linear composite of z-scores is .823. The alpha does not increase with the deletion of any item. Means and standard deviations for the items are listed in table 4.

To control for potential sources of spuriousness, Gender (Male=1, Female=0), Race/ethnicity (White=1, Other=0), and Age are used as control variables. Each of these variables have been suggested to be correlates of crime. They have also been used as controls in most of the research testing the theory of self-control. For Gottfredson and

Hirschi, gender differences in self-control are due to differences in child-rearing. Girls, for example, are most likely monitored more closely than boys. Therefore, if corrected for their misbehavior, they should focus more readily on the distal consequences of their actions. However, if Gottfredson and Hirschi's model is under-developed (e.g. that it takes more than simply monitoring, recognizing, and punishing deviant behavior), then gender should be a control variable. While Sampson and Laub do not specifically argue that transitions in life might be gender specific, some events might be more "transitional" for males relative to females (and vice-versa). As such, both theories appear to suggest that gender should be included as a control variable.

In addition, Gottfredson and Hirschi (1990: 149-153) argue the same in regards to race/ethnicity. Differential involvement in crime is due to differences in self-control, which is the product of differential child-rearing experiences. Sampson and Laub (1993: 255) specifically go out of their way to state that differences in crime are not due to race, but due to income. Many of the transitions they discuss (e.g. education) are impacted by income. Therefore, race/ethnicity is also used as a control variable.

Finally, Gottfredson and Hirschi (1990: 124-144) suggest rather strongly that age is not related to self-control across life. Sampson and Laub's (1993) theory, on the other hand, is an "age-graded" theory stating that transitions across the life-course might alter self-control. Therefore, as individuals age it might also alter self-control. Means and standard deviations for these and the other items are listed in Table 3.

## CHAPTER 4: ANALYSIS

### A. Analysis Procedures

The analysis proceeds in the following steps. First, bivariate correlations will be analyzed to determine whether Adequate Child-Rearing in early life is significantly related to present levels of Low Self-Control, and to ascertain whether such control is also associated with later life-course transitions. Secondly, multivariate analyses will be utilized to determine whether Adequate Child-Rearing significantly predicts Low Self-Control controlling for the influences of later life-course transitions. Gottfredson and Hirschi would argue that child-rearing experiences are the key determinant factor of such control and later life experiences will play an insignificant role in altering one's self-control. In this regard, a test for significant change in  $R^2$  will be used to see if later life-course transitions increase the amount of variance explained in Low Self-Control (beyond the effects of adequate child-rearing). Finally, the different individual effects of each of the later life-course events will be looked at to see, which, if any, significantly alter Low Self-Control.

### B. Analysis Results

Table 5 reports the results of the bivariate correlations between Low Self-Control, Adequate Child-Rearing, later life-course transitions, and the control variables. As can be seen in the first column, Adequate Child-Rearing is significantly associated with Low Self-Control in the theoretically predicted direction ( $r = -.145$ ,  $p = .004$ ). The results are

in line with hypothesis #1 and Gottfredson and Hirschi's argument that child-rearing experiences in early life seem to continue to have an impact on self-control later in the life course.

[Table 5 About Here]

Inconsistent with the persistent heterogeneity perspective and more in agreement with the state dependence argument, each and every one of the later life-course transitions also appears to be significantly related to Low Self-Control, at least at the bivariate level. Marital Status ( $r = -.108$ ,  $p = .033$ ), Educational Attainment ( $r = -.252$ ,  $p < .001$ ), Religious Attendance ( $r = -.108$ ,  $p = .033$ ), Quality of Friendships ( $r = -.101$ ,  $p = .046$ ), and Life Satisfaction ( $r = -.164$ ,  $p = .001$ ) are all significantly associated with Low Self-Control. Individuals that are married, have more education, attend religious functions, report greater quality of friendships, and are more satisfied with their lives have more self-control than their counterparts. Potentially then, at least at the bivariate level, and with the use of cross-sectional data it appears that such events could alter an individual's self-control later in life. Since the effect of these events might be spurious or actually due to child-rearing experiences, it is necessary to employ multivariate analysis.

Model I of Table 6 reports the results of the multivariate analyses when Low Self-Control is regressed on Adequate Child-Rearing, controlling for Gender, Race, and Age. The initial equation lends support for hypothesis #1 since Adequate Child-Rearing significantly predicts Low Self-Control (Beta =  $-.140$ ,  $p = .007$ ). As Gottfredson and Hirschi argue in their theory, early childhood experiences are related to levels of self-control later in life. Those with high levels of Adequate Child-Rearing are less likely to have high levels of Low Self-Control.

Model II of Table 6 contain the regression results including the life-course experiences that Gottfredson and Hirschi's theory suggests would not affect self-control beyond the effects of Adequate Child-Rearing. Most of these items are retrospective, in that they ask about events that occur prior to the self-reports of Low Self-Control (and after self reports of Adequate Child-Rearing). Contrary to Gottfredson and Hirschi's suggestions, some of the later life-course events appear to significantly effect Low Self-Control. However, this equation does not include the influence of early child-rearing experiences on self-control. Gottfredson and Hirschi's would suggest that Adequate Child-Rearing would continue to explain variance in self-control beyond the effects of later life-course trajectories.

To examine this potential, the analysis moves on to more complete tests. First, the analysis tests if Adequate Child-Rearing continues to significantly predict Low Self-Control, controlling for the effects of later life-course events. Second, whether later life-course events significantly increase the amount of variance of Low Self-Control beyond the effects of the Adequate Child-Rearing. And finally, whether these individual experiences appear to significantly alter the respondent's level of Low Self-Control, controlling for the effects of earlier child-rearing experiences.

The last Model of Table 6, includes Adequate Child-Rearing and the effects of later life-course events on Low Self-Control. In support of hypothesis #2, Adequate Child-Rearing appears to continue to exert a significant influence on Self-Control (Beta =  $-.114$ ,  $p = .022$ ) even while controlling for Marital Status, Education, Religious Attendance, Quality of Friendships, and Life Satisfaction. This appears to be rather strong support for both the persistent heterogeneity argument and Gottfredson and

Hirschi's theory.

The change in  $R^2$  test compares the  $R^2$  for Model I (where Low Self-Control is regressed on Adequate Child-Rearing) to the  $R^2$  for Model III (when the later life-course events are added into the equation with Adequate Child-Rearing). An "F" test determines if there is a significant change in the  $R^2$ . Gottfredson and Hirschi would suggest that these variables would not add to the effects of Adequate Child-Rearing on Low Self-Control. Actually they would propose the later life-course events would be a product of it. Regardless of questions in relation to causal order they would not argue that later life-course events would add to the variance explained in Low Self-Control beyond the effects of Adequate Child-Rearing and would argue that later life-course experiences would only explain shared variation between Adequate Child-Rearing and Low Self-Control. The F-test can help to determine whether later life transitions explain more variance; i.e. alter the effects of Adequate Child-Rearing on Low Self-Control.

The results of the F-test refute Hypothesis #3 and provide support for Sampson and Laub's arguments that later life-course events can act as transitions in altering levels of self-control. The  $R^2$  in Model I (.031) when compared to the  $R^2$  in Model III (.133) results in a statistically significant increase ( $F= 7.744$ ,  $p = <.001$ ). The later life-transitions appear to explain about 10% more of the variance in Low Self-Control beyond the effects of Adequate Child-Rearing. These results are consistent with the state dependence hypothesis that self-control is more malleable than Gottfredson and Hirschi's theory suggests.

The last analysis examines if the individual later life-course transitions alter Low Self-Control in later life. Model III reveals support for Hypothesis #4 and Sampson and

Laub's point of view that later life course events influence Low Self-Control. Two transitions, Level of Education (Beta =  $-.260$ ,  $p = <.001$ ) and Life Satisfaction (Beta =  $-.101$ ,  $p = .049$ ) appear to alter Low Self-Control. While there could be some question regarding causal order with respect to Life Satisfaction and Low Self-Control, a respondent's level of education clearly reflects a retrospective question (occurring or received prior to self-reports of present levels of Low Self-Control). That is, the level of education attained by a respondent clearly occurs prior to self-reports of present day levels of self-control.

Another retrospective question concerning a later life-course event, which is discussed at some length by Sampson and Laub is Marital Status. While Gottfredson and Hirschi argue that getting married should not alter Self-Control as this life event would be the result of self-control, Sampson and Laub would specify that it would alter an individual's level of self-control. Marital Status, however, does not quite reach significance (Beta =  $-.082$ ,  $p = .101$ ). However, if the .10 level of significance were to be used the effect of getting married becomes close to being significant.

### **C. Reconsidering the Measurement of Marital Status**

Given that Sampson and Laub place a great amount of importance on the event of getting married, a re-examination of the Marital Status variable seemed necessary. As discussed above, Marital status was initially coded 1 for married and 0 for all others. Upon close inspection of the responses from the sample it became apparent that the sample included a relatively large number of individuals who were widowed (10% of the sample fell into the widowed category). Reflecting on this observation it seemed that placing these individuals in the "other" category might not truly capture the effect of

getting married. Treating the widowed individuals the same as divorced individuals (who theoretically might score low on self-control) might “washout” any potential changes in self-control across time. Theoretically, becoming widowed does not seem to be an event that might alter one’s level of self-control (at least relative to getting divorced, etc.).

Given this possibility, the original variable of Martial Status was recoded two different ways. First, those who identified themselves as widowed were excluded from the Married variable (and the analysis). Secondly, the widowed individuals were coded 1 and treated the same as with those who were married. Regardless of the method used, Martial Status (another retrospective variable) *does* seem to significantly affect Low Self-Control.<sup>1</sup> When widowed individuals are excluded from the variable Marital Status (Beta=-.096, p=.077) and/or when they (i.e. widowed) are coded the same as married in the variable Marital Status (Beta=-.097, p=.062), both variables significantly affect and/or alter Low Self-Control. This finding is consistent with the theoretical predictions of Sampson and Laub (1993) and is discussed in more detail in the discussion section below.

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<sup>1</sup> The .10 level of significance is used at this point in the thesis since the direction of the relationship is specifically predicted by Sampson and Laub’s (1993) theory.

## CHAPTER 5: DISCUSSION AND CONCLUSION

### A. Discussion

This thesis tested two competing theories of crime, Gottfredson and Hirschi's (1990) *General Theory of Crime* and Sampson and Laub's (1993) *Crime in the Making: Pathways and Turning Points*. As previously stated, Gottfredson and Hirschi argue that criminal involvement is the direct result of low self-control and that low self-control is the outcome of inadequate child-rearing experienced early in the life-course. Sampson and Laub maintain that early childhood experiences are important when predicting childhood deviance; however, social capital helps to explain involvement in criminal behavior later in the life course as well as changes the level of self-control.

Overall, the thesis provides support for Gottfredson and Hirschi's proposition regarding the importance of child-rearing and the outcome of self-control. Additionally, it also found support for Sampson and Laub's arguments. Hypothesis one was that the child-rearing techniques deemed important by Gottfredson and Hirschi (monitoring the child, recognizing deviant behavior, and punishing deviant behavior) will significantly predict respondents' level of self-control. This hypothesis was supported. The analysis found a significantly strong statistical association in relation to adequate child-rearing and the outcome of self-control. The results suggest that Gottfredson and Hirschi's *model of parenting, which other literature suggests might be simplistic (e.g. Loeber and Loeber, 1986), does appear to affect self-control. Without expanding on their adequate*

parenting model, the specified relationship remained significant. It can be surmised that if their model were expanded upon, however, to include additional child-rearing practices the strength of the relationship and consequently the importance of adequate child-rearing would probably become more important for predicting self-control in later life. While other research has focused on family correlates of delinquent behavior, few have focused on a parenting model and the outcome of self-control (as specified by Gottfredson and Hirschi). Nonetheless this research would lead one to conclude that an expanded model of parenting might better explain the development of self-control.

Hypothesis two stated adequate Child-Rearing will remain significant in predicting Self-Control, beyond the effects of later Life-Course events. The analysis found when later life-course events (marital status, education, church attendance, friendships and life satisfaction) were introduced into the model predicting self-control, adequate child-rearing did remain significant. However, the strength of the relationship between adequate child-rearing and the outcome of self-control slightly decreased, although it remained significant with the introduction of later life-course events. Therefore hypothesis number 2 was also supported.

Hypothesis three was that later life-course events (e.g. marital status, educational attainment, religious attendance, quality of friendships, and life satisfaction) will not explain more of the variance of self-control, beyond that explained by adequate child-rearing. This hypothesis was not supported. Gottfredson and Hirschi would not suggest that later-life transitions (discussed by Sampson and Laub) would have an impact on self-control. The analysis revealed, however, that once these transitions were added into the equation they significantly accounted for much more of the variance in self-control than

adequate child-rearing explained. Therefore, regardless of potential causal ordering problems, Gottfredson and Hirschi would only argue that marital status, level of education, and/or life satisfaction might account for part of the shared variation that adequate child-rearing explained in self-control; not that they would explain more of the variance. The analysis indicated that the transitions actually did explain a significant amount of the variance in low self-control beyond the effects of adequate child-rearing.

Hypothesis four suggested that the individual life-course events will significantly affect self-control. The results demonstrated that level of education, and life satisfaction were all significant in predicting self-control. Therefore, there was moderate support for hypothesis number four. Some of the later life-course transitions that are discussed in Sampson and Laub's (1993) *Crime in the Making: Pathways and Turning Points Through Life* do seem to alter decision making (i.e. self-control). The fact that church attendance and/or quality of friendships did not predict self-control does not seem to detract too much from this finding (and the support found for Sampson and Laub's theory) since these factors are not specifically focused on in the theory.

In an initial analysis, however, Marital Status was also not significant in predicting self-control. This, on the other hand, was somewhat surprising given Sampson and Laub's extensive discussion of the importance of marital status as a transition in later life. Marital Status was originally coded as a dichotomous variable that was measured as married=1 and other=0. The other category, however, included a large number of individuals that were widowed. While Sampson and Laub do not specifically talk about the calculus used in decision making, they do intimate that the experience of becoming widowed might not change the calculus used in decision making relative to those

individuals who become divorced, separated, and/or never married. Widowed individuals, in general, probably still remain bonded to the person that they have lost, and their social capital remains constant past the loss of their spouse. On the other hand, when an individual divorces or separates they would have the tendency to cease relations not only with their former spouse but also with the relationships that were developed in relation to that individual, thereby expending the social capital and or bonds that were previously developed. The loss of these bonds would then change the calculus used in decision making and propel an individual into a here and now decision making process. Consequently, marital status was recoded two ways by first grouping widowed into the married category and then by excluding widows from the entire sample. When this was done, marital status did become significant in predicting self-control as Sampson and Laub would suggest.

Further, education and life satisfaction were also significant in predicting and/or altering self-control while controlling for adequate child-rearing. Gottfredson and Hirschi would argue that the level of education attained and an individual's life satisfaction are the result of the level of self-control a person has as opposed to Sampson and Laub's assertion that these events can change a persons level of self-control. The degree of the significance of education on the outcome of self-control, however, strongly supports Sampson and Laub's theory that later life-course events can alter self-control. Theoretically, then, the calculus is probably not changed just by virtue of attending school and becoming educated but rather with the process of education. When an individual enters school they become more invested in their social world. The person expands their relationships and develops stronger bonds to their

surroundings. Additionally, by becoming educated people have more opportunities within society and therefore have more to lose if they do not maintain focus on long term benefits. Therefore, education will cause an individual to contemplate the long term consequences of their actions. As such they may demonstrate higher levels of self-control as they do not desire to lose their social capital.

Life satisfaction was also found to be related to self-control. Again, theoretically, it can be argued that respondents that express a high degree of life satisfaction are also invested within their social world. Humans are social beings and desire interaction with and approval of others. Those that are involved and connected would arguably have more social capital and as such more to lose than people who are not. This could also affect self-control in terms of focusing on the distal consequences of one's action. Life satisfaction, however, is a phenomenon that most likely is interrelated with the other transitional factors used in the analysis and might also be product of them. Life satisfaction, therefore, brings into question the causal order problem mentioned at the beginning of the thesis. For example, the variable education was clearly a retrospective question since people attained their level of education prior to the self-reports of present day levels of self-control (i.e. educational attainment affects self-control in later life). Life satisfaction, on the other hand, could be wrapped up in and/or within the concept of low self-control across the life-course (i.e. it appears to be almost a reciprocal relationship as opposed to a causal one). Therefore, life satisfaction does not appear to be a very good of an example of "transition" (at least relative to prior educational attainment).

Aside from questions of causal order, however, the use of retrospective questions

and questions pertaining to present day self-control has helped to shed light on both Gottfredson and Hirschi's theory of persistent heterogeneity, as well as Sampson and Laub's theory of state dependence. Mixed results were found that supported arguments in both perspectives. The retrospective questions concerning adequate child rearing (at time 1) did predict respondents' self-control in later life. Those self-reported child-rearing experiences continued to have an impact even beyond the effects of the "transitions" encountered in later life. Both findings strongly support Gottfredson and Hirschi's theory, especially given the initial criticism of their limited model of adequate child rearing. Furthermore, however, later life course transitions explained a significant amount of the variation in self-control, beyond the effects of the child-rearing techniques discussed by Gottfredson and Hirschi. Finally, some of the individual later life-course transitions (at time 2) did seem to change and/or alter the respondents' self reports of self-control in later life (time 3). Both of these later findings lend support to Sampson and Laub's theory; i.e. although what happens to people in early life is important, so too are later life events.

## **B. Conclusion**

This study brings several questions to light. What is it that changes in relation to self-control when an individual marries, becomes educated, or is more satisfied with their life? The results of this study propose there is a need for a more complex model to explain the persistence of self-control across the life-course. It has been demonstrated here that there may be other things happening within the social world to alter the decision making process as to whether an individual decides to engage in criminal and analogous acts. This thesis indicates that there is support for some of Sampson and Laub's argument that later life-course events may, in fact, change the path of an individual. That

is, that they may become more invested in their social world and refrain from deviant behavior by virtue of being educated, married, and satisfied with their life circumstances. The findings of the thesis, however, also points to the importance of child-hood experiences as, perhaps being the focal starting point for the “life-start transition” of where an individual’s trajectory begins, which in part supports the arguments of the persistent heterogeneity perspective espoused by Gottfredson and Hirschi.

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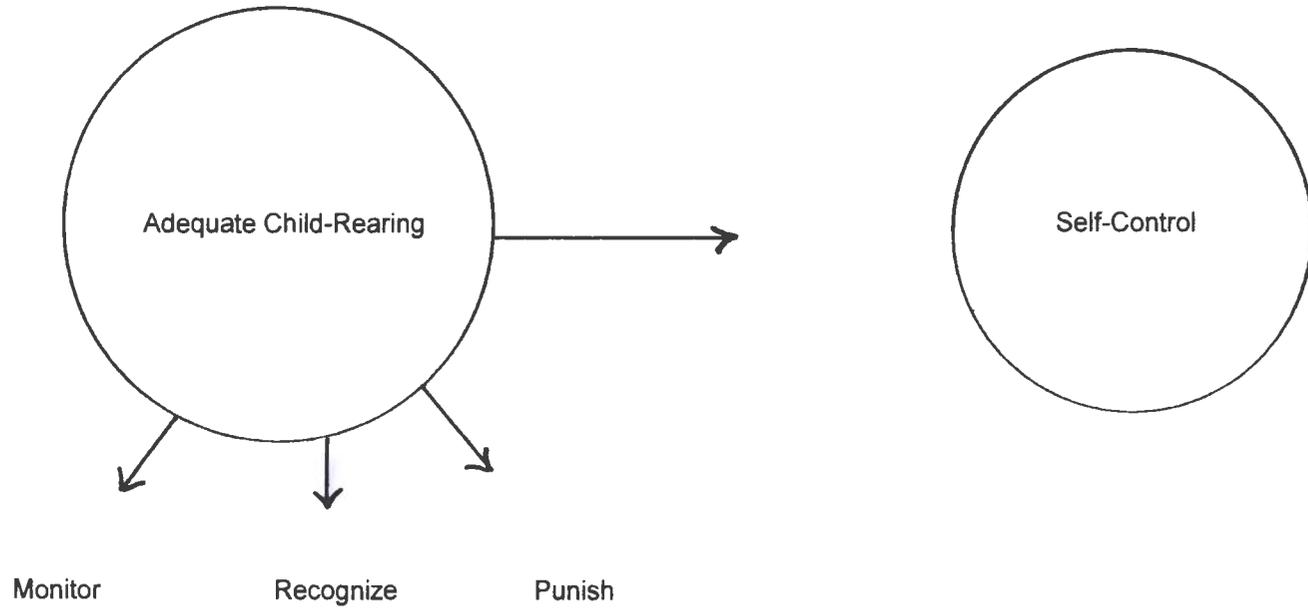
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Figure 1: Adequate Child-Rearing Will Significantly Predict Self-Control (Hypothesis 1).



Gottfredson and Hirschi Hypothesis #1

Figure 2. A) Adequate Child-Rearing Will Remain Significant in Predicting Self-Control (Beyond the Effects of Later Life-Course Events) and B) Later Life-Course Events Will Not Significantly Add to The Variance Explained in Self-Control (Beyond the Effects of Adequate Child-Rearing) (Hypothesis 2 & 3)

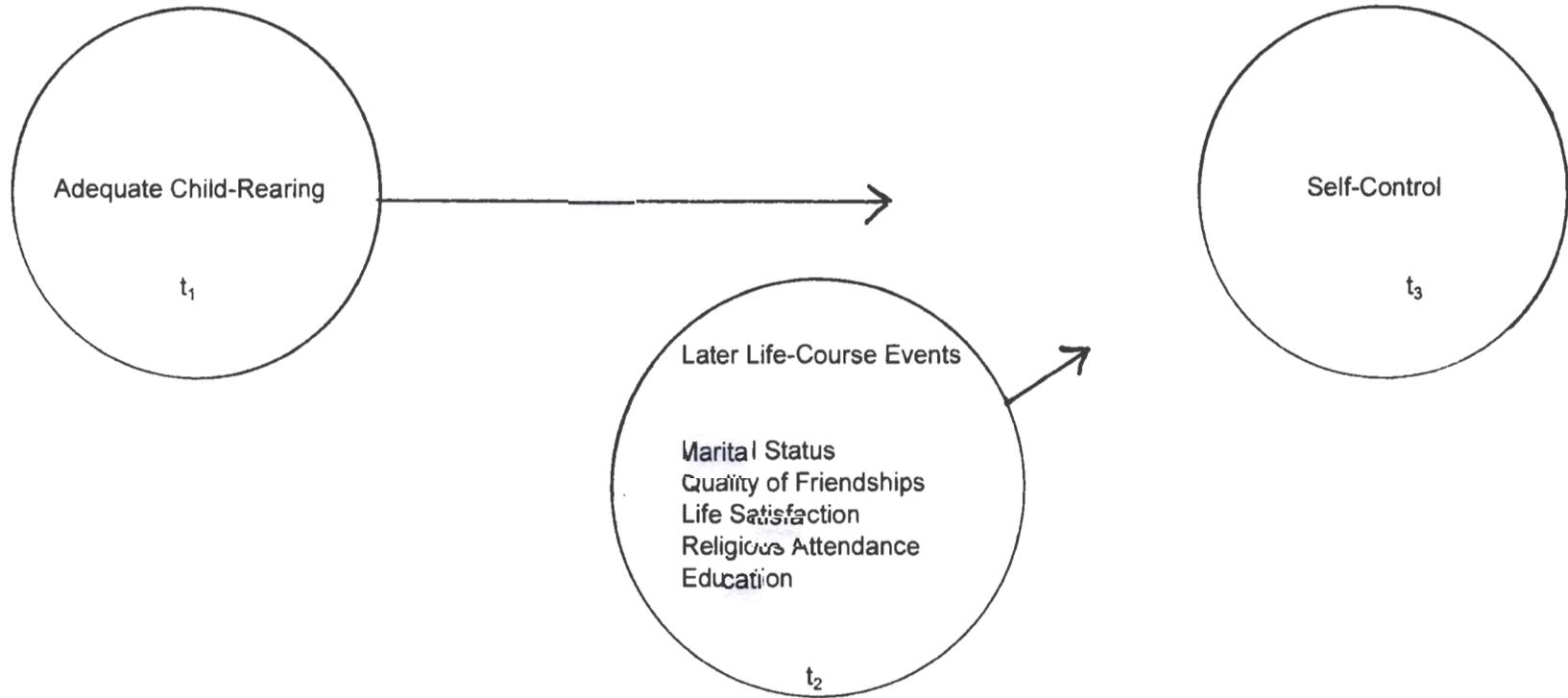
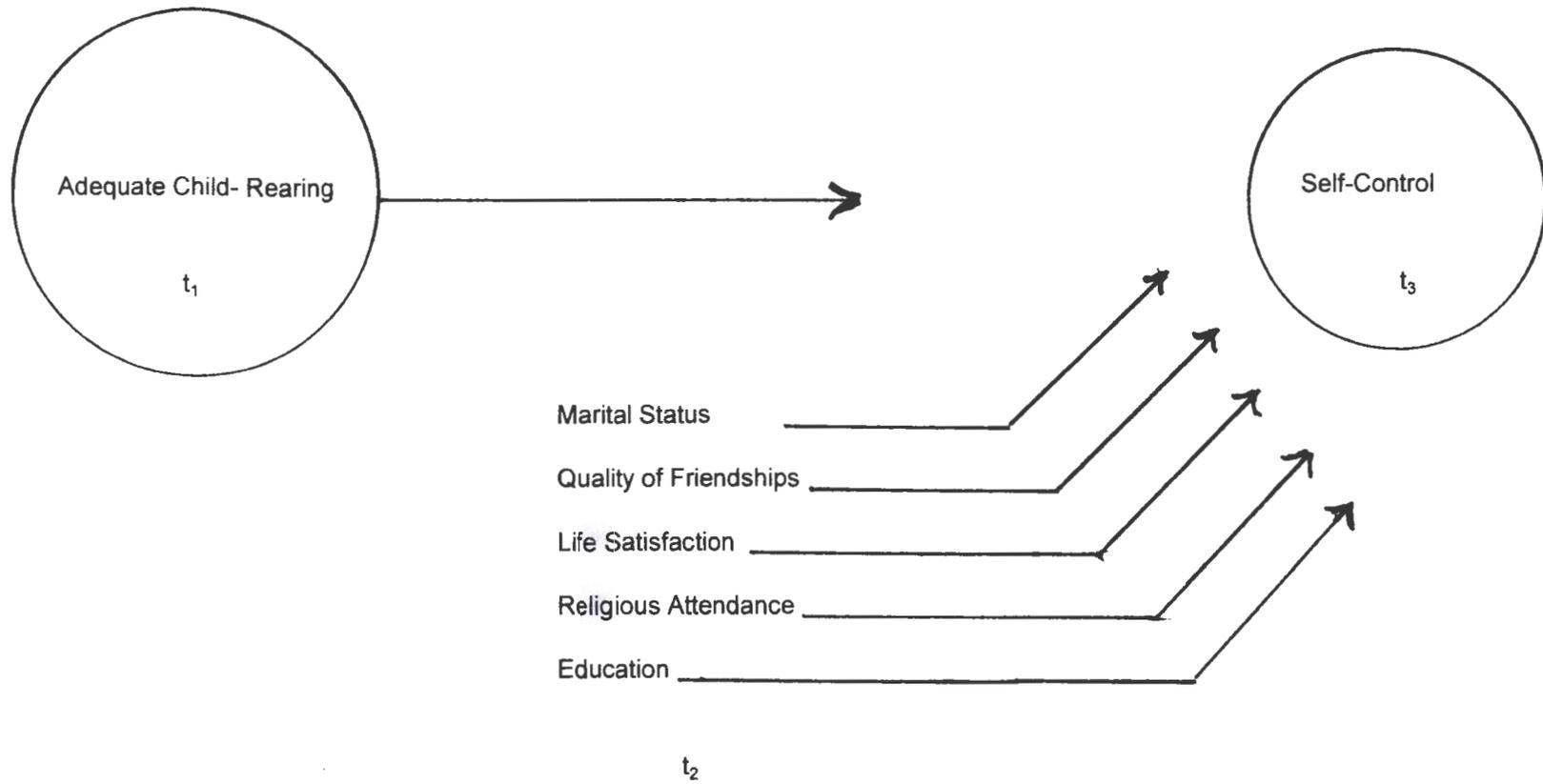


Figure 3: Later Life Course Events Will Significantly Effect Self-Control (Hypothesis 4)



Sampson and Laub Hypothesis #1

**Table 1** Low-Self Control Scale Items (n=391)

ITEM	Mean	St.D.
<i>Impulsivity Component</i>		
I don't devote much thought and effort to preparing for the future.	1.797	.834
I often do whatever brings me pleasure here and now, even at the cost of some distant goal.	2.056	.913
I'm more concerned about what happens to me in the short run than in the long run.	1.921	.937
I much prefer doing things that pay off right away rather than in the future.	2.176	.940
<i>Simple Tasks Component</i>		
I frequently try to avoid things that I know will be difficult.	2.107	.927
When things get complicated, I tend to quit or withdraw.	1.693	.777
The things in life that are easiest to do bring me the most pleasure.	2.151	.856
I dislike really hard tasks that stretch my abilities to the limit.	1.928	.871
<i>Risk Taking Component</i>		
I like to test myself every now and then by doing something a little risky.	2.872	.966
Sometimes I will take a risk just for the fun of it.	2.359	1.056
I sometimes find it exciting to do things for which I might get in trouble.	1.798	.944
Excitement and adventure are more important to me than security.	1.627	.825
<i>Physical Activities Component</i>		
If I had a choice, I would almost always rather do something physical than something mental.	2.366	.886
I almost always feel better when I am on the move than when I am sitting and thinking.	2.903	.909
I like to get out and do things more than I like to read or contemplate ideas.	2.739	.911
I seem to have more energy and a greater need for activity than most other people my age.		---
<i>Self-Centered Component</i>		
I try to look out for myself first, even if it means making things difficult for other people.	1.639	.768
I'm not very sympathetic to other people when they are having problems.	1.585	.793
If things I do upset people, it's their problem, not mine.	1.726	.844
I will try to get the things I want even when I know it's causing problems for other people.	1.49	.676
<i>Temper Component</i>		
I lose my temper pretty easily.	2.013	1.009
Often, when I'm angry at people I feel more like hurting them than talking to them about why I am angry.	1.613	.833
When I am really angry, other people better stay away from me.	2.146	1.119
When I have a serious disagreement with someone, it's usually hard for me to talk about it without getting upset.	2.341	1.002

All Likert items are answered on a 4-point scale of strongly agree (4), agree somewhat (3), disagree somewhat (2), and strongly disagree (1).

All reliability for the entire Low Self-Control Scale = 0.8139.

**Table 2.** Adequate Child-Rearing Scale (N = 391)

<u>ITEM</u>	MEAN	STANDARD DEVIATION
<i>Adequate Child-Rearing</i>		
Generally, when I was growing up my parents or guardians kept a pretty close eye on me. (monitor)	3.560	0.720
Generally, when I was growing up my parents or guardians recognized when I had done something wro (recognize)	3.590	0.660
Generally, when I was growing up my parents or guardians punished me when they knew I had done something w (punish)	3.600	0.620

All likert items are answered on a 4-point scale of strongly agree (1), agree somewhat (2), disagree somewhat (3), and strongly disagree (4).

Alpha reliability for the entire Adequate Child-Rearing Scale = 0.7320

Table 3. Means and Standard Deviations for All Items (N=391)

Item	Mean	Standard Deviation
<i>Low Self-Control Scale</i>	47.047	9.201
Impulsivity	7.951	2.747
Simple Tasks	7.880	2.553
Risk Taking	7.029	2.449
Physical Activities	8.008	2.136
Self-Centered	6.440	2.301
Temper	8.112	2.988
<i>Adequate Child-Rearing Scale*</i>	10.750	1.620
Monitor		
Recognize		
Punish		
<u>Life Course Transitions</u>		
<i>Quality of Friendships Scale**</i>	12.028	2.666
Close Relationships		
Share thoughts and Feelings		
Turn to for Help		
<i>Life Satisfaction Scale***</i>	9.606	1.867
Ideal Life	2.940	0.840
Excellent Life Conditions	2.850	0.840
Life Satisfaction	3.090	0.800
Attained Important Things	3.140	0.820
Marital Status ****	0.606	0.489
Religious Attendance*****	.813	0.390
Educational Attainment	13.560	2.690
<u>Controls</u>		
Gender (Male = 1, Female = 0 )	0.453	0.498
Age	46.500	17.750
Race ( White = 1, Other = 0 )	0.816	0.388

\*Alpha reliability for the Adequate Child-Rearing Scale = 0.7320

\*\*Alpha reliability for the quality of Friendships Scale = 0.7174

\*\*\* Alpha reliability for the Life Satisfaction Scale = 0.8227

\*\*\*\* Marital Status is a dichotomous variable ( 1 = married )

\*\*\*\*\* Religious Attendance is a dichotomous variable ( 1 = Yes, 0 = No )

**Table 4.** Life Course Transitions Scale (N = 391)

ITEM	MEAN	STANDARD DEVIATION
<i>Quality of Friendships</i>		
On average, my relationships with these people are very close.	3.330	0.700
Thinking of these same people, I often share my inner-most thoughts and feelings with them.	2.850	0.880
When I need help, I can turn to these people.	3.430	0.740
<i>Life Satisfaction</i>		
In most ways my life is close to my ideal.	2.940	0.840
The conditions of my life are excellent.	2.850	0.840
I am satisfied with my life.	3.090	0.800
So far I have gotten the important things I want in life.	3.140	0.820

All likert items are answered on a 4-point scale of strongly agree (1), agree somewhat (2), disagree somewhat (3), and strongly disagree (4).

Alpha reliability for the quality of friendships component = 0.7174

Alpha reliability for the Life Satisfaction Component = 0.8227

**Table 5** Correlations Among the Low Self-Control Scale, Adequate Child-Rearing, Marriage, Education, Religious Attendance, Quality of Friendships, Life Satisfaction and Control Variables. Two -Tailed Tests of Significance in Parentheses. (N=391)

	(LSC)	(ACR)	(MAR)	(EDU)	(RA)	(QOF)	(LS)	(M)	(A)	(W)
Low Self-Control	1.000									
Adequate Child-Rearing	-.145 (.004)	1.000								
<u>Life-Course Trajectories</u>										
Marital Status	-.108 (.033)	-.034 (.503)	1.000							
Education	-.252 (.000)	.016 (.747)	.081 (.109)	1.000						
Religious Attendance	-.108 (.033)	.164 (.001)	.070 (.164)	-.046 (.361)	1.000					
Quality of Friendships	-.101 (.046)	.066 (.190)	-.123 (.015)	-.016 (.757)	.055 (.280)	1.000				
Life Satisfaction	-.164 (.001)	.064 (.206)	.205 (.000)	.052 (.302)	.050 (.328)	.159 (.002)	1.000			
<u>Controls</u>										
Male	.079 (.118)	.008 (.869)	.102 (.044)	.077 (.127)	-.171 (.001)	-.142 (.005)	.010 (.843)	1.000		
Age	-.073 (.150)	.116 (.022)	.032 (.530)	-.172 (.001)	.144 (.004)	.079 (.118)	.212 (.000)	-.033 (.514)	1.000	
White	.012 (.819)	-.144 (.004)	.049 (.332)	-.021 (.681)	-.041 (.415)	.018 (.720)	.104 (.039)	-.019 (.713)	.161 (.001)	1.000

**Table 6.** OLS Regression Analysis for the effects of Adequate Child-Rearing on Low Self-Control, Controlling for Life-Course Transitions and Control Variables (N=391)

	Equation I			Equation II			Equation III		
	b	Beta	p	b	Beta	p	b	Beta	p
Adequate Child-Rearing	-.058	-.140	.007				-.047	-.114	.022
<u>Life-Course Trajectories</u>									
Marital Status				-.078	-.078	.119	-.082	-.082	.101
Education				-.284	-.284	<.001	-.260	-.260	<.001
Church Attendance				-.080	-.080	.109	-.062	-.062	.214
Friendships				-.030	-.073	.140	-.029	-.071	.153
Life Satisfaction				-.034	-.110	.033	-.031	-.101	.049
<u>Controls</u>									
Male	.158	.079	.118	.135	.067	.190	.175	.087	.078
Age	-.003	-.054	.289	-.005	-.084	.100	-.004	-.066	.199
White	.005	.002	.972	.079	.031	.533	.039	.015	.756
R2	.031			.125			.133		
P	.017			<.001			<.001		

