ADOLESCENT LABELING, SYSTEM AVOIDANCE, AND EDUCATION OUTCOMES THROUGH THE LIFE COURSE

A Dissertation

by

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ABSTRACT

Longitudinal study investigating whether 7th, 8th, and 9th grade students' interactions with school and criminal justice authority figures affects educational outcomes in adolescence, emerging, and middle adulthood and if system avoidance mediates this relationship. School authority contact was more detrimental to school outcomes in all three time periods while justice authority contact was associated with less years of formal schooling completed in emerging and middle adulthood. Non-surveilling institution avoidance partially mediated the relationship between school authority contact and years of formal schooling completed in middle adulthood. School authority contact and mediation results are both novel contributions to the literature.

DEDICATION

This research is dedicated to the loving memory of Dr. Howard B. Kaplan.

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CHAPTER I

INTRODUCTION

Studies show that juvenile delinquency is associated with decreased educational achievement (Ward and Williams 2015). A negative relationship between formal sanctions (e.g. suspensions rates) and achievement has also been documented (Morris and Perry 2016). This study is an investigation into the effects of contact with social control authorities in adolescence on educational outcomes at three stages of the life course: adolescence, emerging, and middle adulthood. Merging studies on social control and education outcomes, I use a modified interactional approach to test labeling theory's assertions that labels have negative consequences on education outcomes over the life course (Thornberry 1987; Thornberry and Krohn 2001). Specifically, I look at whether contact with school and justice authority figures in adolescence is associated with negative educational outcomes at three stages of the life course. As an extension of the literature, I test whether such a relationship is explained by decreasing an individual's participation in surveilling and non-surveilling social institutions (Brayne 2014).

I use five waves of Howard B. Kaplan's Longitudinal and Multigenerational Study (KLAMS), to analyze whether adolescents who have interactions with school and criminal justice authority figures are more likely to have negative education outcomes than students with no interactions with authority figures. I test two different measures of education outcomes at three points in time: with subject failure as an adolescence in 7th, 8th, and 9th grade, and in emerging and middle adulthood with number of years of

formal schooling completed in emerging and middle adulthood. Furthermore, I address a gap in the education literature by using Brayne's concept of system avoidance as a marker of marginalization that affects access to resources and opportunities that decrease educational success, and thereby increases the likelihood of social exclusion (Foster and Hagan 2007; 2015).

Labeling theories are concerned with two things: the social and legal processes by which potentially stigmatizing labels are attributed to individual actors, and the way in which labeling will affect the subsequent attitudes, values, self-conceptions, and behavior of those who are singled out (Thomas and Bishop 1984; Bernburg et al. 2006). In Punishment and Modern Society, Garland (1990) argues that penality, or societal punishment, is an expression of power and control in modern society manifested in policies that "encapsulate moral values and sensibilities". Accordingly, the implementation of "zero-tolerance" and "tough on crime" policies within schools and the criminal justice system, respectively, reflect and reinforce the U.S.'s view on social control (Kupchik and Monahan 2006; Hirschfield 2008).

Asserting deterrence theory principles, "tough on crime" proponents argue that punishment deters juvenile delinquency and crime, and reduces recidivism (Tonry 2008). Others counter that "formal" interventions (e.g. by police officials) transform minor problems into major ones that potentially affect the rest of one's life (Braithwaite 1989; Heimer and Matsueda 1994; Jensen and Rojek 1992; Link et al. 1989). Furthermore, sanctioning can encourage adoption of a deviant label (Becker 1963; Kaplan 1975, 1986; Matza 1969), increasing the likelihood of deviant/criminal behavior

by creating social obstacles that lead to stigma and exclusionary processes that have negative consequences for conventional opportunities (Bernburg and Krohn 2003).

Research using revised versions of labeling theory suggest that sanctioning in adolescence increases the probability of involvement in subsequent delinquency and deviance because it negatively affects access to conventional opportunities (Bernburg et al. 2003). Studies on criminal justice system involvement and life course outcomes also document social, political, and economic consequences for individuals and families (Foster and Hagan 2015; Garland 2001; Hagan and Dinovitzer 1999; Hagan and Foster 2012; Manza and Uggen 2006; Pager 2007; Pettit and Western 2004; Western 2006). Criminal justice involvement is also stratified by race and class, the apparent social inequality attributed to the stratifying effect of the criminal justice system (Wakefield and Uggen 2010). With the tendency to criminalize/sanction minorities as a problem in schools as well (Castillo 2014; Heitzeg 2009), the stratifying effects of involvement with sanctioning authorities is also evident in this domain.

Status attainment research has explored the link between youthful involvements in crime and delinquency and outcomes in adulthood (Davis and Tanner 2003; Hagan 1991; Sewell and Hauser 1975). Employing stratification theories of attainment, this research shows that educational and occupational positions are important in the successful transition to adulthood (Foster and Hagan 2007). Foster and Hagan's study on paternal incarceration, for example, found that paternal incarceration socially reproduced disadvantage by the exclusion of children from the rights, privileges, and responsibilities of adult social roles. Expounding on this finding and other research on parental

incarceration and its impact on children, Foster and Hagan (2015) put forth the idea of systemic exclusion through the life course. They define systemic exclusion as a disconnection from major societal institutions (e.g. those in the civic, educational, economic, and family domains) basing it on consistent findings within studies on parental incarceration and the effects on their children (Foster and Hagan: 136). I posit that a similar disconnection is reflected in the life outcomes of individuals singled out as deviant as adolescents. However, I attend to an adolescent's contact with authority figures (i.e. school and criminal justice) and its effect on involvement in, or lack-there-of, surveilling and nonsurveilling institutions from adolescent unto adulthood.

System Avoidance

Brayne's (2014) concept of system avoidance provides a possible mechanism for how labeling effects from engagement with sanctioning authorities can have a detrimental effect on the life course. Brayne suggests that individuals who have been involved in the criminal justice system purposely avoid engaging with institutions fearing the outcomes their record might bring about. According to Brayne, being "marked" by the criminal justice system encourages less participation in institutions that keep formal records. She argues, and her findings suggest, that involvement with the criminal justice system at all levels—from police contact to incarceration—affects how people interact with formal, or conventional, social institutions (i.e. medical, financial, labor market, and education).

Using panel data on urban males, Bernberg and Krohn's (2003) tested a revised labeling approach combining developmental theory of structural disadvantage principles

and came to similar conclusions. They found that official intervention in youth has a significant, positive effect on crime in early adulthood. They conclude that official intervention increases the probability of involvement in subsequent delinquency and deviance because of the negative consequences to access to conventional opportunities intervention has. Brayne's concept can potentially illustrate how social control strategies sever already marginalized populations from institutions important for desistance from crime and reintegration into society (Brayne 2014).

Relevance of the Present Study

As a contribution to the literature on labeling effects, I propose that interactions with social control agents in adolescence encourages system avoidance (i.e. disengagement with formal and informal social institutions) in adolescence and continues into adulthood. This dissertation tests a model in which avoidance of surveilling and non-surveilling institutions acts as a mechanism through which adolescent labeling negatively affects educational outcomes through the life course (see Figures 1 and 2 for the conceptual model).

I argue that contact with school and criminal justice system officials (and the accompanying deviant label) is a source of disadvantage that leads individuals to avoid institutions and relationships that generally help improves one's life conditions. Such institutions offer opportunities to form social capital which may in turn one's educational attainment. Additionally, I propose that system avoidance leads to marginalization, and ultimately decreases educational outcomes for individuals. By encouraging a stratification process that begins in adolescence and continues into

adulthood, labels can contribute to and reinforce social inequality through diminished educational attainment. Employing a unique, longitudinal dataset that begins with adolescents and then follows them into emerging and middle adulthood, this dissertation analyzes whether contact with school and justice system officials in adolescence (Time 1, 12-13 years old) increases the chances of getting a failing grade in one or more school subjects in middle school (Time 2, 14-15 years old; see Figure 1), and in the number of years of formal schooling completed in emerging (Time 3, 23-31 years old; see Figure 2) and middle adulthood (35-40 years old), net of controls. Furthermore, I test whether contact with social control authorities in adolescence is negatively associated with educational outcomes through the life course.

Figure 1. System Avoidance as Mechanism Through Which Social Control Contact in Adolescence at T1 Increases Likelihood of Failing a School Subject(s) in Adolescence at T2 and T3.

Independent Variables

Social control contact

1. Justice authority contact (T1)
2. School authority contact (T1)

Dependent Variables

Education outcome

3. Increased likelihood of failing grade in one or more school subjects (T2 & T3).

Mediator Variables

System avoidance

4. Skipped school in last year (T2 & T3).
5. Did not participate in protest in last year (T2 & T3).

T1 Control Variables

Sociodemographics

6. Race/ethnicity
7. Gender
8. Age
9. Parental education
10. Low self-rated socioeconomic status

Prior school engagement

11. Failed one or more school subjects.
12. Skipped school.

Sociostructural correlates

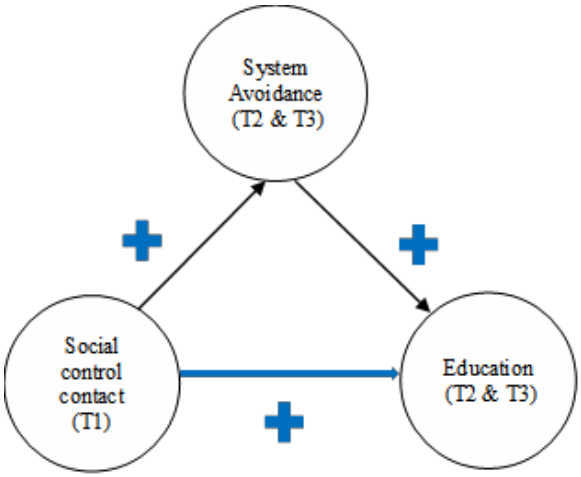
13. Lives with both biological parents.
14. Delinquent peers

Juvenile delinquency

15. Substance use
16. Self-reported delinquency

Mental health

17. Depressive symptoms
18. Anger



Source: KLAMS, T1=1971 (mean age 13); T2=1972 (mean age 14); T3=1973 (mean age 15).

Figure 2. System Avoidance as Mechanism through which Social Control Contact in Adolescence (T1) Decreases Years of Formal Schooling Completed in Emerging (T4) and Middle Adulthood (T7).

Independent Variables

Social control contact

1. Justice system contact (T1)
2. School authority contact (T1)

Dependent Variables

Education outcome (T4=1982-87; T7=1994-98)

3. Decreased years of formal schooling completed (T4 & T7).

Mediator Variables

System avoidance

4. Less likely to interact with *surveilling* institutions (labor market, welfare, prof. organ., and educ. institutions; T4 & T7).
5. Less likely to interact with *nonsurveilling* institutions (civic, religious, social, school organizations; T4 & T7).

T1 Control Variables

Sociodemographics

6. Race/ethnicity
7. Gender
8. Age
9. Parental education
10. Self-rated socioeconomic status

Prior school engagement

11. Failed one or more school subjects.
12. Skipped school.

Sociostructural correlates

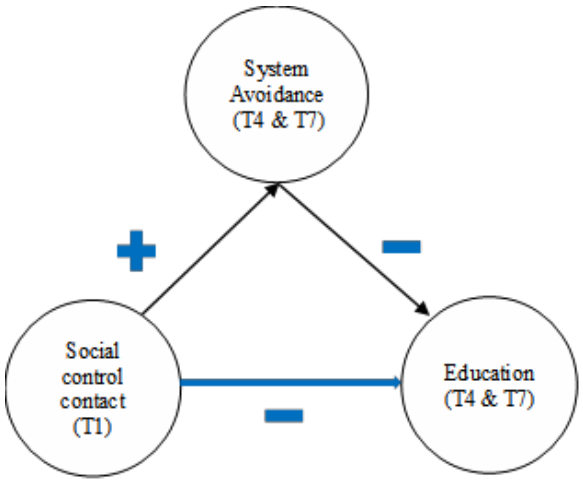
13. Lives with both biological parents.
14. Delinquent peers

Juvenile delinquency

15. Substance use
16. Self-rated delinquency

Mental health

17. Depressive symptoms
18. Anger



Source: KLAMS, T1=1971 (mean age 13); T4=1982-87 (mean age 24); T7=1994-98 (mean age 36).

Following the antecedents and significance of the study presented in this chapter (Chapter I), I present studies on social control and education outcomes and the rationale for selecting system avoidance as a mechanism for explaining the relationship between labeling and educational outcomes (Chapter II), followed by a literature review on studies looking at educational outcomes through the life course, as well as the hypotheses for this study (Chapter III), data collection and analytic strategies (Chapter IV), major findings from the adolescent stage analyses (Chapter V), and major findings from the adulthood life stage analyses. Finally, Chapter VII presents a discussion of the implications and limitations of the results.

CHAPTER II

THEORETICAL FRAMEWORK

This chapter presents a review of studies on social control and education outcomes as well as the rationale for selecting system avoidance as a hypothesized mechanism for explaining a relationship between labeling and educational outcomes. The first section discusses studies on social control and education outcomes in adolescence and in adulthood. The second section discusses system avoidance and its relevance to the accumulation of social capital.

Social Control and Education

Studies show that juvenile delinquency and the punishment resulting from delinquency is associated with decreased educational achievement (Ward and Williams 2015). Most studies point to the negative effect of formal sanctions, such as suspensions, on dropout rates (DeRidder 1991), math and reading achievement (Morris and Perry 2016), and educational attainment in adulthood (Lochner 2008; Tanner et al. 1999). Whether delinquency leads to negative educational outcomes or whether individual behavior that leads to bad educational outcomes that ultimately results in delinquency is less clear (Ganao et al. 2013).

In adulthood, studies tend to focus on the social exclusion that is created by being involved in the criminal justice system (Foster and Hagan 2007, 2015; Turney and Haskins 2014). In the U.S., incarceration is disproportionately made up of the poor, with little education, and are mostly Hispanic or Black, and male (Garland 2001; Wakefield

and Apel 2016; Western 2006). Lochner and Moretti (2004), using prison data and self-reports, find that schooling reduces the probability of arrest and incarceration. But as Ewert et al. (2014) point out, findings on the educational attainment of the incarcerated are skewed because jails and prisons have become repositories for high school dropouts. Although directionality is difficult to assess, studying the marginalization process starting in adolescence will help shed light on this association.

System Avoidance and Social Capital

In a life-cycle context, negative labels during adolescence may interrupt human and social capital accumulation process and reproduce inequality (Aizer and Doyle Jr. 2015; Bourdieu 1977; Murguia 1995). Psychological research has indicated that youths are likely to disengage from school and academic pursuits if they perceive negative information about themselves or their racial group within the school environment (Kaplan 1975: Kaplan and Lin 2000; Roque and Paternoster 2011). Being labeled as a troublemaker can encourage engagement with other troubled youth (Bayer, Hjalmarsson, and Pozen 2009), and hinder the accumulation of social capital (Granovetter 1995). Relatedly, Lochner (2004) proposes a model of crime in which human capital increases the opportunity cost of crime.

I suggest that a process by which labels might lead to a disruption in the capital accumulation process is through the individual's disengagement from formal and informal social institutions. Brayne's (2014) framework posits that system avoidance is a potential mechanism through which criminal justice system involvement contributes to social stratification. System avoidance is operationalized as decreasing one's interactions

with formal institutions such as schooling or the labor market due to criminal justice system involvement (Brayne 3). Brayne argues that system avoidance results in already marginalized populations leads to less social control.

Evidence for this concept appears in Alice Goffman's (2014) ethnographic work within poor communities. Blacks were constantly concerned with avoiding jail. Goffman found that to avoid relatively minor infractions, her subjects avoided hospitals, schools, and gatherings that might get them identified and possibly incarcerated, undermining already tenuous attachments to their family, community, and schooling. Goffman's findings echo Lara-Millan's findings on the urban poor and their access to healthcare resources being rushed, delayed, or deterred because of criminal justice system involvement (Lara-Millán 2014). Both studies illustrate the constraining effect on sources of social capital of interactions with social control agents can have.

Brayne distinguishes between *surveilling* and *non-surveilling* institutions, with the underlying difference whether formal records are a critical part of participation. Examples of surveilling institutions include hospitals, banks, formal employment, and schools. Non-surveilling institutions are characterized by a more casual relationship with participants and although formal records may be kept, there is no legal requirement to do so. Participation in volunteer associations (civic or social) and religious groups are examples of non-surveilling institutions (Brayne 2). Brayne's findings suggest an effect related to less participation in surveilling institutions, and no difference in non-surveilling institutions when it comes to criminal labels.

I suggest that her distinction is a useful one to apply and study the effects of interactions with social control agents in adolescence on educational outcomes through the life course. I extend Brayne's research by applying her concept of surveilling and non-surveilling institutional participation as an intervening mechanism in the relationship between two sources of social control labels (i.e. criminal justice and school authority figures) on educational outcomes in adolescence and adulthood. This dissertation proposes that the distinction is a helpful one to assess whether labeling in adolescence is a source of social exclusion by disrupting formal and informal social participation that negatively affects education outcomes through the life course.

There is also the possibility that system avoidance is an expression of adaptive behavior. If individuals feel a loss of agency due to how other's treat them, withdrawal from society is possible. According to Corrigan et al. (2014), individuals with labels may not access the services to which they are entitled to avoid stigmatization, referred to as "label avoidance" throughout the literature (Nolan et al. 2006). Corrigan et al. also suggest that the prejudices of others lead to "blocked life goals" that make it difficult to participate in social institutions (Link and Phelan 2001), potentially affecting self-concepts such as self-esteem. Link and Phelan (2001) also show that labelling creates the potential for stereotyping and separation that can limit social participation.

Lageson, for example, identifies "opting out" from her work on criminal record expungement clinics (Lageson 2016). Lageson finds that people with a record are opting out of meaningful interactions with community institutions because of stigma or fear of having their online criminal records discovered by teachers, school officials, other

parents, or their own children. Opting out can occur because of the belief that they will be barred from schooling activities such as volunteering (extensive background clearances are required in some states) or because of fear of stigmatization and embarrassment, potentially reproducing social inequalities. Both opting out and system exclusion can occur simultaneously. Labeling increases the likelihood of system inclusion (Sykes and Petit 2015). System inclusion suggests that labeling creates markers of deprivation that can only be alleviated by engagement with institutions such as welfare and health care programs provided by the government. As such, school and justice authority contact could lead to an increased likelihood of engagement in government institutions that provide assistance.

Therefore, I propose that interactions with school and criminal justice authority figures in adolescence affects educational outcomes through the life course (Thornberry 2005). I contribute to the literature by testing Brayne's (2014) concept of system avoidance as an adaptive response in which interactions with authority figures decrease interactions with surveilling and non-surveilling institutions that can be valuable resources for educational achievement. Due to the limits of the data, labor market, financial, and medical institutional avoidance in adolescence is not measured but using approximate measures of surveilling and nonsurveilling avoidance is in line with assessing age-graded forms in life course research (Sampson and Laub 1993, 1995). As such, I further extend Brayne's work by using measures related to skipping school and avoiding participating in social protests (i.e. as a measure of civic participation) in adolescence as approximate measures of surveilling and non-surveilling institutions,

respectively. The use of protests as a measure of civic participation is informed by social capital theory's assertion that participation in groups and accompanying activities constitute a resource that aids in group solidarity and creates social capital (Coleman 1988).

Summary

The literature on labeling and delinquency and crime points to possible direct and indirect effects on the life course associated with the labeling of adolescents as deviant by school and criminal justice system officials, processes that negatively affects school achievement in adolescence and adulthood. I propose that contact with school and criminal justice officials in adolescence has negative short-term and long-term consequences on two outcomes: school subject(s) failure in adolescence and years of formal schooling completed in adulthood. This process occurs by encouraging system avoidance (i.e. avoidance of formal and informal social institutions).

Specifically, I argue that contact with school and criminal justice system officials (and the accompanying deviant label) is a source of disadvantage that leads individuals to avoid institutions that generally improve one's conditions in life. I propose that system avoidance is the intervening mechanism that ultimately decreases educational outcomes for individuals. By encouraging a stratification process that begins in adolescence and continues into adulthood, adolescent labels can contribute to and reinforce social inequality through processes of marginalization over the life course that lead to diminished educational attainment.

CHAPTER III

LITERATURE REVIEW

This chapter examines theoretical perspectives related to social control and delinquency and crime, social control as a source of marginalization in adolescence and adulthood, other factors associated with education outcomes of adolescents, and the importance of a longitudinal analysis. The chapter is an explanation of the reasoning behind the variables specified in my proposed models (see Figures 1 and 2 in Ch. II on pages 7-8). The first section contains on the effect of social control on behavior. The second section discusses life course perspectives on social and individual influences through the life course. Section three discusses studies on social control consequences in adolescence and in adulthood. Section four discusses parental characteristics and child education outcomes. Section five looks at studies on school engagement and academic achievement. Section five looks family and peer influences on child education outcomes. Section six discusses the association between juvenile delinquency and education outcomes. Section seven looks at the relationship between mental health and education outcomes. Section eight discusses the importance of timing and the use of longitudinal data in social control analyses. The final two sections discuss the research questions and hypotheses proposed in this study.

Social Control and Delinquency and Crime

Durkheim's (1951) anomie construct states that individuals engage in delinquency and crime when their bonds to society are weak or disrupted. Social control

refers to the methods employed by social groups to encourage conformity (Hirschi 1969). The social control process can work two ways. First, group norms are internalized by encouraging conformity through socialization, a process that lets individuals know what society expects, and a desire to conform to these expectations. Second, societal reaction further influences conformity in the form of possible sanctions from others in the event of anticipated or actual non-conformity to norms (Meier 1982).

Large social structures such as the U.S. education system and the criminal justice system play an important part in social control. While ostensibly different, both institutions share many goals that reflect and reinforce society. As such, the rise in punitive criminal justice system policies in the 1970s was closely mirrored by a rise in punitive policies within schools in the 1980s and 1990s (Kupchik and Monahan 2006). "Mass incarceration" and the "school-to-prison pipeline" can be seen as products of a more "tough" on crime and deviance approach that has disproportionately affected minorities (Garland 2001; Hirschfield 2008; McCarthy and Hoge 1987).

Social Control and Marginalization Through the Life Course

According to life course perspectives, historical forces shape the social trajectories of family, education, and work, influencing further behavior and actions (Elder 1998). Life course perspectives propose that delinquents and criminals are created by the societal and individual "expectations and options that impinge on decision making processes and the course of events that give shape to life stages, transitions, and turning points" (Elder 1985:17). Implicit within life course theories, "is the constant interactions between individuals and their environment" (Samspon and Laub 2005), and

how these interactions are continuously and simultaneously affecting social interactions and engagement.

Life course theories of crime and delinquency recognize continuity and within-individual changes over time (Rutter 1989; Sampson and Laub 1997), an approach akin to Thornberry's interactional theory (1987). While interactionist theorists emphasize the influence of primary groups in the development of the self, control theorists emphasize the deterrent value of primary group attachments (Brownfield and Thompson 2008). Hirschi (1969) attempts to explain variations in criminal involvement by combining social control and life course perspectives (Hagan and Palloni 1988). Emphasizing the passage of time and social context, crime and deviance is explained as the result of an accumulation process resulting from historical events and changes in society and individuals (Sampson and Laub 2005).

Life course research on crime and delinquency provides evidence of cumulative disadvantage between the disruptive life events experienced by an individual and its effect on delinquency and crime (Juby and Farrington 2001; Murray et al. 2012). From a sociogenic perspective (Sampson and Laub 1993), an individual still possesses agency because adaptations to similar life events can and do differ (Elder 1985). Incarceration, for example, can lead an offender to desist completely, offend at a lower level, or to trade one kind of offense for another (Laub and Sampson 1993). While life course theories suggest that attempts at social control might positively alter the life course of criminal offenders, how often this might occur is less clear (Uggen and Wakefield 2005). However, the interlocked nature of trajectories and transitions leads to the broadly

accepted viewpoint of the life course perspective that negative experiences in adolescence increase an individual's chances of negative outcomes in adulthood (Sampson and Laub 1997).

Therefore, categorizing delinquent or criminal events resulting from engagement with social control officials as a life event is applicable, as they "lead one away from intended or unintended concentrations on restricted periods in the life cycle restricted groupings of persons" (Hagan and Palloni 1988:90). This conceptualization also allows for an analysis of the direct and indirect effect of social control interactions on the life course, whether those trajectories are criminal or noncriminal (Sampson and Laub 1993; 1997). Sampson and Laub (1993) specifically propose that sources of continuity occur in large part from developmental processes or "cumulative disadvantage". Linking labeling theory's emphasis on the effect of stigma on behavior and responses from others over time (Becker 1963; Lemert 1967), the authors propose that societal reactions to primary deviance create problems of adjustment that foster additional or "secondary deviance" (Sampson and Laub 2005). While being labeled (primary deviance) may occur for a myriad of reasons, secondary deviance is the enactment of social roles based on an individual's response to the "stigmatizing" and "segregating" effect of a deviant label (Paternoster and Iovanni 1989: 375).

Chambliss's (1973) classic study *The Saints and The Roughnecks* shows how societal reactions depend on differential expectations based on ascribed labels affects and potentially reinforces stratification outcomes. While sometimes engaging in problem behavior similar to "the Roughnecks", "the Saints" more desirable status (i.e. higher

social class) led the police and regular citizens alike to believe they engaged in less deviant behavior, if at all. As such, “the Saints” were left alone to deviate and age out of deviance, while the Roughnecks were recipients of constant attempts of social control. By adulthood, “the Saints” had successfully transitioned to adulthood while “the Roughnecks” had more difficulties.

Social psychological perspectives emphasize the stigmatizing effect of being negatively labeled, such as encouraging the formation of a deviant identity and further offending (Lemert 1967). Thus, a sociogenic life course model provides a mechanism by which to test assertions that the label itself can become a stepping stone to deviance and potentially a criminal career (Becker 1963; Lemert 1967). Once labeled deviant, individuals are more likely to think of themselves as deviant and associate with other deviants. The offender may withdraw his or her stakes in conformity, reject the institutions that they feel rejected them, and seek out deviant peers who may be less judgmental and willing to provide a system of social support (Ascani 2012). Labeling theory hypothesizes that the labeling and subsequent stigmatization generates negative consequences regarding conventional social networks, jobs, and self-esteem (Davies and Tanner 2003; Link et al. 1989).

Since delinquency and criminal justice system involvement can reflect continuity of behavior and/or have criminogenic effects, interactionist theories have attempted to provide a mechanism by which this process works (Farrington and Murray 2013; Heimer and Matsueda 1994; Liberman et al. 2014; Matsueda and Heimer 1997). Heimer and colleagues propose that delinquency and crime are special cases of differential social

control. Expanding on symbolic interactionism and the role taking process, they highlight the importance of reactions to roles placed on individuals (Heimer and Matsueda 1994). While emphasizing the effect of labels on the adoption of a deviant identity, the process potentially explains why social inequality research consistently finds sanctioning through the life course associated with obstacles/delays in access to potentially beneficial social institutions (Bernburg and Krohn 2003; Bernburg et al. 2006; Garland 2001; Paternoster and Iovanni 1989; Sampson and Laub 1997; Uggen and Wakefield 2010; Western 2006). Research that shows how labeling encourages social inequality can help inform conversations on ways to deal with social control in adolescence that don't negatively affect one's future.

The emphasis on punitive social control within schools has given sanctioning officials an inordinate amount of power when it comes to adolescents and potential life course outcomes. Rios (2011), in his analysis of the social control experienced by Black and Latino youth, argues that schools are now part of a "youth control complex". This phenomenon is characterized by the "hypercriminalization" of juvenile behavior within schools and communities. Defined as overly punitive social control, hypercriminalization is exemplified by the overpolicing of poor, minority neighborhoods and "zero-tolerance policies" aimed at deterring juveniles from crime. But instead of deterrence, research on the "school-to-prison pipeline" illustrates how school punishment has become an entry point for many students of color away from school and into the criminal justice system (Castillo 2014).

According to the U.S. Department of Education Office for Civil Rights, disciplinary disproportionality (i.e. suspension and expulsion) for black students have been evident since the 1970s and continued into the 2000s (Hoffman 2012; Skiba et al. 2011). Students of color have been found to be suspended at two to three times the rate of other students, while also being overrepresented in office referrals, corporal punishment, and school expulsion (Skiba et al. 2011). Similar findings are evident for Hispanics (Castillo 2014). Although directionality is not certain (Wald and Losen 2003), there is a strong relationship between poor academic performance (Ekstrom et al. 1986; Skiba and Rausch 2006), and juvenile (Loeber and Farrington 2012) and criminal justice system involvement (Lochner and Moretti 2004).

Specifically, academic underperformance, exclusionary discipline practices, and elevated dropout rates have been identified as key elements in a "school-to-prison pipeline" (Christle et al. 2005). The "school-to-prison pipeline" refers to educational institutions' use of "zero-tolerance" policies that directly and/or indirectly lead individuals into the juvenile and adult criminal justice systems (Castillo 2014). A problematic outcome as research over 40 years from the Office of Juvenile Justice and Delinquency Prevention (OJJDP) shows that once a child sets foot in the juvenile justice system, their chances of becoming an adult offender go up 50 percent (Holman and Ziedenberg 2013). Yet longitudinal studies looking at the intervening processes by which this occurs in adolescence, and its effects on the life course, are mixed as most studies use aggregate, cross-sectional data from different age cohorts (Loeber and Farrington 2012).

Juvenile justice intervention research provides mixed findings related to deterrence associated from adolescent contact with sanctioning officials. Bernburg et al.'s (2006) analysis of data from the Rochester Youth Development Study (RYDS) found that juvenile justice intervention positively affected subsequent involvement in serious delinquency. They identified involvement in deviant social groups, namely, street gangs and delinquent peers as a mediating mechanism. Wiley and Esbensen's (2016) analysis of data from the Gang Resistance Education and Training (G.R.E.A.T.), on the other hand, found that being stopped or arrested increases future delinquency *and* amplifies deviant attitudes.

In adulthood, criminal justice involvement studies focus on the social exclusion that criminal justice system involvement engenders (Foster and Hagan 2007; Turney and Haskins 2014). The criminal justice system, which includes the juvenile justice system, is one of the largest and most pervasive social control systems in the United States today (Austin et al. 2001). Individuals ensnared within the system must deal consequences related to the labor market, educational attainment, health, families, civic life, and the intergenerational transmission of inequality (Foster and Hagan 2015; Wakefield and Uggen 2010).

Entering the 1970s, about 100 Americans out of 100,000 were in prison (Western 2006:13). By 2012, 920 Americans out of 100,000 were in prison (Glaze and Herberman 2013). But as mentioned, incarceration as a punishment has not been evenly distributed across race (Wakefield and Apel 2016). Minorities, particularly African Americans, have borne the brunt of this punishment (Austin et al. 2001). African Americans males, for

example, ages 18 to 19 are almost 9.5 times more likely than white males of the same age group to be in prison (McCarthy and Hoge 1987; Morris and Perry 2016). There are more African Americans (males and females) incarcerated at state and federal levels than any other race (Carson 2018; Greenfeld and Snell 1999; Western 2006). Western's (2006) analysis of punishment as it relates to incarceration focuses on the social costs it creates for the short-term (at best) reduction in crime. Since ex-prisoners, without jobs or family ties, are more likely to re-offend, the disproportionate overpolicing and punishing of poor and minority communities begins a process, or "sows the seed", for recidivism (Western 2009). Western finds incarceration as "devastating for poor, African American communities" and whether intended or not, the consequences are evident.

The consequences of criminal justice system involvement appear in research on stratification outcomes, especially as it relates to status attainment. Those with a record are more likely to have low wages, high unemployment, and less education (Pager 2009; Wakefield and Uggen 2010). The impact of incarceration on labor market prospects and familial ties is well documented but research on how crime and punishment interact to create social and economic disadvantage less so (Foster and Hagan 2015). Teasing out this relationship is difficult because those entering the criminal justice system, lag far behind their age cohort in most markers of adulthood (e.g. employment status, socioeconomic attainment, marriage formation; Loeber and Farrington 2012). Yet, taken altogether, the evidence points to school and police contact in adolescence as a possible turning point that increases the likelihood of delinquency and crime, and begins a

process of cumulative disadvantage that affects other life course outcomes (Sampson and Laub 1997).

Parental Characteristics and Child Education Outcomes

Parental education and net worth best predict children's education and own net worth (Conley 1999). Dickson, Gregg, and Robinson (2016) found that parental education has a positive causal effect on their children's academic achievement throughout their school years. Specifically, in earlier assessments of children's education outcomes (e.g. prior to age 16) mother's education was more significant but when father's education is significant, it tends to have a slightly larger effect, although with similar magnitude. Lareau (2003) provides a convincing account for how social class significantly affects educational and work outcomes. Furthermore, youth from families with lower socioeconomic status have been shown to have less connection to the education system (Staff et al. 2010). DiMaggio (1982) also found that cultural capital was strongly associated with academic achievement.

School Engagement and Academic Achievement

School engagement, which relies on school record data, includes indicators of course failure, poor attendance, GPA, low achievement on standardized test scores, and school suspensions (Henry et al. 2012). When it comes to grades, past failure is associated with future failure (Jimerson et al. Whipple 2002; Allensworth and Easton 1999). Poor academic performance is also associated with dropping out (Eckstrom et al. 1986). Truancy, (e.g. absenteeism, skipping school) is associated with bad grades

(Ginsburg et al. 2014) and is one of the strongest predictors of involvement in the criminal justice system (Rocque and Paternoster 2011). Truancy is also associated with weaker performance on state exams, higher odds of grade retention, and dropout (Alexander et al. 2003; Broadhurst et al. 2005). While the link is still being studied, skipping school and not doing well while in school can create disruptions in human capital accumulation that may lead individuals to fall behind their class, and consequently, repeat a grade or drop out (Hjalmarsson 2008).

Family and Peer Influences on Child Education Outcomes

Social structure refers to the arrangement of institutions that govern how individuals within society interact and live together (Merton 1968). Social structures (such as a family or friendship networks) are important because they create expectations for behavior, while reinforcing the social norms and beliefs of the network (Granovetter 1973, 1985, 1995). Differences in social structures arise for a variety of reasons and may manifest in "differences in the actual needs that persons have for help, in the existence of other sources of aid (such as government welfare services), in the degree of affluence (which reduces aid needed from others), in cultural differences in the tendency to lend aid and ask for aid, in the closure of social networks, and in the logistics of social contacts" (Coleman 1988), to name a few. These are differences, I argue that, that affect the influence of families and peers.

Family structure studies, for example, have shown that children in single-parent households tend to score below children in two-parent households on measures of educational achievement (Amato et al. 2015; Mackay 2005; McLanahan and Sandefur

1994). Furthermore, delinquent peers have been shown to negatively influence educational outcomes (Dong and Krohn 2016; Kirk and Sampson 2013). Haynie (2001) found that friends' delinquency is associated with an adolescent's own delinquency, although she emphasizes that the characteristics of adolescents' friendship networks condition the association. As such, family structure and peers are important resources that must be taken into account, or controlled for, because they can affect an individual's academic success.

Juvenile Delinquency and Education Outcomes

Juveniles who start offending prior to age 12, compared to those who start at a later age, are more likely to persist into early adulthood (Loeber and Farrington 2012). The relationship between adolescent delinquency and adult criminality, it is argued, can be attributed to a continuation of delinquent offending. It is why deterrence theory proponents argue that early intervention is important in reducing the probability of further illegal activity. But when punishment becomes commonplace, stigma's deterrent effect is diluted (Western 2009) even as individuals, once labeled, continue to be negatively affected long after "time" for the crime has been paid. Studies examining the effect of juvenile criminal activity on education outcomes generally find a negative relationship.

Research on juvenile criminal history and its tendency to increase later criminal involvement is attributed to the restricting of work and educational opportunities (Hagan 1993).

Hjalmarsson (2008) found a strong negative correlation between high school graduation and juvenile arrest and incarceration. While they conclude that is unlikely that arrest is causally related to high school graduation, the evidence of causality in the relationship between incarceration and graduation was plausible. Kirk and Sampson (2013) found evidence of official sanctioning of students by the criminal justice system as a source of educational disadvantage in the Chicago public school system. Using longitudinal data, they conclude that institutional responses and disruptions of students' educational trajectories, rather than social-psychological factors, were responsible for the arrest–education link.

Lopes et al.'s (2012) analysis of the Rochester Youth Development Study (RYDS) also found that police intervention had direct and indirect consequences of the life course. Their findings showed that adolescents who experienced police intervention was indirectly related to drug use, unemployment, and welfare receipt at the ages of 29 to 31. Substance use has also been shown to negatively affect education however findings have been mixed (Staff et al. 2010). Breslau et al. (2011) found that smoking was associated with failure to graduate on time but found no association between substance use disorders and graduating on time.

Mental Health and Education Outcomes

Studies on depressive symptoms and education outcomes have provided mixed findings. Depressive symptoms have been shown to affect academic achievement during adolescence, although how it affects school engagement in terms of grades and skipping

class is less clear (Fiorellia et al. 2017). Fiorella et al. found that prior student burnout was the strongest predictor of school achievement, both directly, and indirectly via depressive symptoms. McArdle and colleagues (2014), using a variety of statistical and psychometric measurement models to help clarify the strongest patterns of influence, conclude that depression affects academic achievement and not the other way around. Breslau et al. (2008), on the other hand, did not find an effect associated with school termination and depression. Some studies find that the association does not exist when viewed prospectively over time (Johnson et al. 1999). Others find any association as attributable to childhood adversities that precede the onset of disorders and are likely to have independent effects on educational attainment (Fergusson and Woodward 2002; McLeod and Kaiser 2004; Miech et al. 1999; Woodward and Fergusson 2001).

Agnew's (1992) general strain theory emphasizes the role that anger plays in mediating the relationship between strain and deviant behavior, although this aspect of the theory is rarely investigated (Aseltine et al. 2000). Studies that have considered anger's effect on academics have also been mixed. Zhou et al. (2010) found that teachers' reports of Chinese students' dispositional anger were inversely related to GPA. Bryce et al. (2017) looked at the relationship between preschool temperament (i.e. positive emotionality, anger, and effortful control) and kindergarten academic achievement among a predominantly Mexican/Mexican American sample. They found that preschool anger was negatively associated with kindergarten behavioral engagement, which in turn affects academic achievement. Pekrun et al. (2006), on the other hand, found no association between achievement-related anger and GPA.

Stages of the Life Course and Longitudinal Data

Due to the nature of available data, studies on juvenile deviance and later criminal justice system adult outcomes tend to focus on testing for the general idea of deviance amplification, or the increase of delinquency following justice system contact (Wiley and Esbenson 2016). Studies testing for the intervening processes by which labels negatively affects one life outcomes are lacking (Barrick 2014; Paternoster and Iovanni 1989). Critiques of past labeling research, and the emphasis of current studies, encourage the use of longitudinal data that controls for prior criminal behavior, and includes race and socioeconomic status to identify this process (Bernburg and Krohn 2003; Bernburg et al. 2006; Farrington and Murray 2013). The question of persistence and desistance requires data from as early in the life course as possible since most crime falls off sharply by the late 20s (Wakefield and Apel 2016).

Adolescence in the developmental literature is traditionally defined as youth 10 to 19 years of age (Sacks 2003; Sawyer et al. 2018) and is considered an important period of child cognitive, biological, physiological and psychological development and transition (Bauman and Phongsavan 1999). As a period of individualization and autonomy formation (Shedler and Block 1990), adolescence is also a period of increased risk-taking behavior and is a focus of social control efforts. Traditionally, moving out of the home of origin, completing an education, finding stable work, getting married, and becoming a parent have been markers of adult status (Sampson and Laub 1993; Shanahan 2000). Adult status markers should be obtained in a reasonable sequence at a socially prescribed or normative age (Uggen and Wakefield 2005). For instance, college

completion is only possible through the satisfactory completion of high school or attainment of a G.E.D. Consequently, if individuals do not complete high school, they are blocked from college as well.

Arnett's (2000) research on "emerging adulthood" categorizes the transition from emerging adulthood to young adulthood as separate developmental periods. Arnett's depiction is in-line with a time period that since the 1950's has been turbulent (Fussel and Furstenberg 2005). In the U.S. emerging adulthood is the dynamic and fluid time-period between eighteen and thirty years of age when the status attainment process towards successful adult status begins (Arnett 2000: 477). Arnett's emerging adulthood conception emphasizes potentially "successful" (e.g. university completion) or "unsuccessful" (e.g. failure to find employment) transitions into adulthood, suggesting an optimal time-period in which an individual can begin to benefit from the status attainment process. However, fueled in part by the "democratization" of education (Furstenberg 2008), the transition into adulthood has been extended.

The importance of the time-period, whether conceptualized as emerging adulthood whose time-period has been extended as newer generations take longer to achieve status markers associated with "normal adulthood" (i.e. statistically common such as school completion, marriage, kids etc.), or emphasized as developmentally different as emerging adulthood does, suggests a potential mechanism by which labeling and stigma in adolescence affects status attainment through the life course. The marginalization associated with the social control label can disrupt the transition from adolescence to adulthood by delaying and/or negatively affecting educational outcomes.

While DeLuca and colleagues critique the validity of Arnett's emerging adulthood as a class status concept (Deluca, Clampet-Lundquist, and Edin 2016), the labeling effects hypothesized by this study should hold true regardless of whether individuals are just taking longer to enter adulthood, or whether they are being pushed to be successful and independent as soon as possible.

Summary

The goals of social control are to deter problem behavior in society. Different institutions normally apply different strategies to achieve this goal. Criminal justice policies have historically used some combination of retribution, rehabilitation, and proactive strategies to deter crime. In the 1970s a more punitive approach to social control took root (Garland 1990), trickling down to other institutions, including schools (Simon 2007). Although social control theory suggests penality deters delinquency and crime, research has failed to find consistent evidence for deterrent effects (Tonry 2008; Meares and Fagan 2008). Instead punitive policies touted as necessary for the "War on Crime" and the "War on Drugs" criminalized mostly minorities and helped fuel "mass incarceration" and the "school-to-prison pipeline" (Heitzeg 2009; Garland 2001; Mauer 2001; Western 2006). These policies contribute to social inequality by creating disadvantages and delaying transitions into adulthood that are magnified over time, negatively affecting adulthood status attainment, and increasing criminal offending (Uggen and Wakefield 2005: 135).

The relationship between a lack of school success, school disengagement, and involvement in the criminal justice system is one of the strongest findings in the juvenile

delinquency literature. Labeling theorists attribute this finding as resulting from confirmation bias (Ercole 2009). In effect, the "hypercriminalization" of educational and criminal justice systems encourages the formation of a deviant identity while increasing disengagement from society, creating/reinforcing social inequality, and increasing the possibility of future criminal justice system involvement (Hagan and Palloni 1990; Moffitt 1993). Mixed findings on the association between psychiatric disorders, substance use, and substance use disorders are attributed to their comorbidity (Davis et al. 2008).

Research Questions

This study has two objectives that will contribute to the labeling effects on life course outcomes literature. First, it will assess the association, if any, of a deviant label in adolescence on educational outcomes at three points in time: adolescence at the ages of 11-18, emerging (ages 23-31), and middle adulthood (ages 35-41). A longitudinal approach increases the chances of identifying whether the effect of adolescent labeling effects on education is hetero-or-homotypic behavior (i.e. meaning whether the effect is the same over time or not; Pajer 1998).

Secondly, this dissertation examines whether this relationship is mediated by decreased involvement in surveilling and non-surveilling institutions. Questions to be answered include: (1) Does police and school authority contact in adolescence affect educational outcomes in adolescence and adulthood? (2) Is avoidance of surveilling and non-surveilling institutions an intervening mechanism that explains the association in adolescence and adulthood related to educational outcomes? Or, instead, as Brayne's

study suggests, is it just in adulthood that this occurs and regarding surveilling institutions only?

Hypotheses

Analysis of developmentally sensitive models should explain patterns of onset, course, and desistance (Thornberry 2005). This dissertation proposal aims to test whether labels from social control interactions in adolescences affects educational outcomes through the life course. The uniqueness of the data used (data collection began at the 1971 and ended in 1998 for Generation 1), allows an analysis of the direct and indirect labeling effects of contact with school and criminal justice system officials at three stages in the life course (adolescence, emerging, and middle adulthood).

Specifically, I will assess whether the relationship between labeling in adolescence and educational outcomes is explained by an individual's disengagement from social institutions in adolescence and adulthood meant to improve one's lives. I propose that contact with school and criminal justice authorities in adolescence increases the likelihood of failing a school subject in adolescence (ages 11-18) and decreases the number of years of formal schooling completed in emerging and middle adulthood. Additionally, avoidance of surveilling and non-surveilling institutions is an intervening mechanism[1] (Aneshensel 2012) that explain this relationship.

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[1] An intervening variable is a hypothetical variable used to explain the mechanism or process that underlies an observed relationship between an independent variable and a dependent variable (MacKinnon 2008).

I test a model in which avoidance of surveilling and non-surveilling institutions acts as a mechanism through which adolescent labeling affects educational attainment through the life-course (see Figures 1 and 2 on pages 7-8 for the conceptual model).

Adolescence Life Stage Main Effects Hypotheses:

H1: Contact with school authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of failing one or more school subjects at T2 (1972; mean age 14), net of controls.

H2: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of failing one or more school subjects at T2 (1972; mean age 14), net of controls.

H3: Contact with school authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of failing one or more school subjects at T3 (1973; mean age 15), net of controls.

H4: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of failing one or more school subjects at T3 (1973; mean age 15), net of controls.

Adolescence Life Stage (T2) Mediation Effects Hypotheses:

H5: Contact with school authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of skipping school at T2 (1972; mean age 14), increasing likelihood of failing one or more school subjects at T2, net of controls.

H6: Contact with school authority officials in adolescence at T1 (1971; mean age 13) decreases likelihood of participating in protests at T2 (1972; mean age 14), increasing likelihood of failing one or more school subjects at T2, net of controls.

H7: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of skipping school at T2 (1972; mean age 14), increasing likelihood of failing one or more school subjects at T2, net of controls.

H8: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) decreases likelihood of participating in protests at T2 (1972; mean age 14), increasing likelihood of failing one or more school subjects at T2, net of controls.

Adolescence Life Stage (T3) Mediation Effects Hypotheses:

H9: Contact with school authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of skipping school at T3 (1973; mean age 15), increasing likelihood of failing one or more school subjects in T3, net of controls

H10: Contact with school authority officials in adolescence at T1 (1971; mean age 13) decreases likelihood of participating in protests at T3 (1973; mean age 15), increasing likelihood of failing one or more school subjects at T3, net of controls.

H11: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) increases likelihood of skipping school at T3 (1973; mean age 15), increasing likelihood of failing one or more school subjects at T3, net of controls.

H12: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood of participating in protests at T3 (1973; mean age 15), increasing likelihood of failing one or more school subjects at T3, net of controls.

Adulthood Life Stage Main Effects Hypotheses:

H13: Contact with school authority officials in adolescence at T1 (1971; mean age 13) decreases years of formal schooling completed at emerging adulthood T4 (1982-87; mean age 24), net of controls.

H14: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) decreases years of formal schooling completed at T4 (1982-87; mean age 24), net of controls.

H15: Contact with school authority officials in adolescence at T1 (1971; mean age 13) decreases years of formal schooling completed at T7 (1994-98; mean age 36), net of controls.

H16: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) decreases years of formal schooling completed at T7 (1994-98; mean age 36), net of controls.

Emerging Adulthood Life Stage (T4) Mediation Effects Hypotheses:

H17: Contact with school authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in surveilling institutions (i.e. employment, welfare, professional organizations, enrollment in degree granting program) at T4, decreasing years of formal schooling completed in emerging adulthood at T4 (1982-87; mean age 24), net of controls.

H18: Contact with school authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in nonsurveilling institutions (i.e. civic,

religious, social organizations) at T4, decreasing years of formal schooling completed in emerging adulthood at T4 (1982-87; mean age 24), net of controls.

H19: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in surveilling institutions (i.e. employment, welfare, professional organizations, and degree granting programs), decreasing years of formal schooling completed in emerging adulthood at T4 (1982-87, mean age 24), net of controls.

H20: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in nonsurveilling institutions (i.e. civic, religious, and social organizations) at T4, decreasing years of formal schooling completed in emerging adulthood at T4 (1982-87, mean age 24), net of controls.

Middle Adulthood Life Stage (T7) Mediation Effects Hypotheses:

H21: Contact with school authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in surveilling institutions (i.e. employment, welfare, professional organizations, unions, and degree granting programs), decreasing years of formal schooling completed in middle adulthood at T7 (1994-98, mean age 36), net of controls.

H22: Contact with school authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in nonsurveilling institutions (i.e. civic, religious, social, school organizations) at T7, decreasing years of formal schooling completed in middle adulthood at T7 (1994-98, mean age 36), net of controls.

H23: Contact with justice authority officials in adolescence (1971, mean age 13) decreases likelihood to participate in surveilling institutions (i.e. employment, welfare, professional organizations, unions), decreasing years of schooling completed in middle adulthood at T7 (1994-98, mean age 36), net of controls.

H24: Contact with justice authority officials in adolescence (1971, mean age 13) decreases likelihood to participate in nonsurveilling institutions (i.e. civic, religious, social, school organizations), decreasing years of schooling completed in middle adulthood at T7 (1994-98, mean age 36), net of controls.

Data for the testing of these hypotheses comes from Kaplan's Longitudinal and Multigenerational Study (KLAMS) housed within the Howard B. Kaplan Laboratory for Social Science Research at Texas A&M University and is described in the ensuing section. Further details regarding variables used and analytic methods employed in this study are provided in Chapter IV. The use of this dataset is prescient in that it allows for an examination of how labels in adolescence have both short and long-term effects on on education outcomes through the life course. The time-period when this data begins its initial tracking of the original sample of 7^{th}-9^{th} grade adolescents began in 1971, with follow up waves conducted in 1972 and ending in 1973, provide a unique sample from a time-period from just before the onset of mass incarceration (Garland 2001; Western 2006) but when minority students were still sanctioned at higher rates than White students (Skiba et al. 2011).

CHAPTER IV

DATA AND METHODS

In this chapter I describe how the data used for this study was collected and the waves that will be used for the analysis with the following three objective in mind: (1) to describe the characteristics, composition, and limitations of the sample used in this study; (2) to describe the measures used to operationalize educational outcomes, school and criminal justice system contact, surveilling and non-surveilling institutions, and the control variables that were part of the proposed models described in the previous chapter; (3) to provide rationale behind data analysis employed to address the main research questions of this study.

Sample

Data for this analysis comes from Kaplan's Longitudinal and Multigenerational Study (Generation 1). Time 1, Time 2, and Time 3 (ages 11-18 with an average age of 13, 14, and 15 respectively) is used to examine the relationship between criminal justice and school authority contact (Time 1) and the likelihood to get a failing grade in adolescence (Time 2=1972; Time 3=1973). Time 4 (1982-1987) and Time 7 (1993-1998) are used to examine the relationship between criminal justice and school authority contact in adolescence (Time 1) on years of formal schooling completed in emerging and middle adulthood (Time 4 and Time 7).

Data Collection

The data were collected while conducting a longitudinal survey study of an adolescent population that was designed to test a series of hypotheses comprising a general theory of deviant behavior (Kaplan 1975). A 209-item structured self-administered questionnaire was presented to seventh, eighth, and ninth-grade students in 18 (randomly selected) of the 36 junior high schools in the Houston Independent School District. Data collection began in 1971. The total sample size for this first wave of data collection was about 7,627 students. The same students were re-interviewed in one year (1972; Time 2), in two years (1973; Time 3), in emerging adulthood (1982-1987; Time 4), and middle adulthood (1994-1998; Time 7).

Of the 9,459 seventh-grade students in the selected schools, 3,148 participated in all three initial waves (1971-1973). An examination of subject characteristics associated with sample attrition revealed that those who discontinued participation in the study were appreciably and significantly more likely to have reported prior performance of deviant acts (Kaplan 1975). Attrition is when members in a study drop out, are not re-interviewed, or are not included in the analysis due to missing values (Deng et al. 2013). Sample attrition bias can affect external validity due to generalizability issues, or the internal validity of a study by altering the correlations among the variables in the study (Winefield et al. 1989; Miller and Hollist 2007). The final sample might be biased if the individuals who are lost differ in some systematic way from the participants who remain (Cuddeback et al. 2004). However, if sample attrition over time shows no unique

characteristics among those who drop out, then there is no attrition bias, even if the sample decreases in size between waves of data collection (Miller and Hollist 2007). As such, attrition analysis indicates that deviance related to the T2-T3 sample might be underestimated which is further discussed in relation to the findings in this study in the final chapter.

Time 4 consisted of follow-up household interviews between 1980 and 1988 when the respondents were in their 20s. Time 7 comprised follow-up household interviews between 1993 and 1998, when the respondents were in their fourth decade of life. Valid sample sizes vary, depending on which wave is used because not everyone was re-interviewed in each wave. The largest sample size is 3,876 in Time 4. Time 3 yields the lowest with 2,900.

Measures

The full models within this study contained 18 variables (see Figures 1 and 2 on pages 7-8), with the rationale for their use explained in Chapter III. This section presents a description of the measures used to operationalize them (see Tables 1-3 starting on pg. 58-60 for descriptive tables). Two sources of school and criminal justice system contact are identified as independent variables in adolescence. The dependent variables for this study are approximate measures of educational outcomes in adolescence (see Figure 1) and adulthood (See Figure 2).

Dependent Variables

Failing Grade in One or More School Subjects in Adolescence

In adolescence, the education measure at T2 and T3 is a dichotomous variable (1=Yes) based on an individual's response to the question:

- During the last year did you get a failing grade in one or more school subjects?

At T2, 28% failed one or more school subjects while 27% failed a subject at T3. Failing one or more school subjects has been used in studies looking at associated health outcomes (Needham et al. 2004), problem behavior and dropout (Crosnoe 2002), and educational trajectories into adulthood (Rosenbaum et al. 1999).

Years of Formal Schooling Completed in Adulthood

In adulthood, the educational measure at T4 and T7 reflects years of formal schooling completed. This measure is based on an individual's response to the question:

- How much formal schooling do you have?

The original variable was numbered 1-11 with 1 indicating no formal schooling, 2 some elementary, 3 graduated elementary, 4 some junior high, 5 graduated junior high, 6 some high school/vocational/technical school, 7 indicating high school/vocational/technical school graduation, 8 some college, 9 indicating college degree, 10 some post-graduate education, and 11 indicating a post-graduate degree. The measure was rearranged to indicate number of years of schooling completed with 0 indicating no formal schooling, 2 some elementary, 5 graduated elementary, 6 some junior high, 8 graduated junior high, 9 some high school/vocational/technical school, 12 high school/vocational/technical school graduation, 13 some college, 16 indicating a

college degree, 17 some post-graduate education, and 18 indicating a post-graduate degree. The range of years of formal schooling completed is 0 to 18. The mean in emerging adulthood is 13.07 with a standard deviation of 2.60 (T4). The mean in middle adulthood is 12.83 with a standard deviation of 3.84 (T7). Years of formal schooling has been used to predict earnings (Card 1999) and labor market outcomes (Fasih 2008).

Independent Variables

School Authority Contact

School authority contact is a dichotomous variable (1=Yes), measuring respondent's answer to the following two questions:

1. Were you ever suspended or expelled from school?
2. Within the last year, were you taken to the office for punishment?

At T1, 32% reported school authority contact. At T2, 25% of adolescents had school authority contact. At Time 3, 24% reported school authority contact.

Justice Authority Contact

Justice authority contact is a dichotomous variable (1=Yes) based on respondent's answer to the question:

- Have you ever had anything to do with police, sheriff, or juvenile officers for something you did or they thought you did?

At T1, 16% reported justice authority contact. At T2, 11% of adolescents had justice authority contact. At Time 3, 10% reported school justice contact.

Mediator Variables

A mediator variable allows for the examination of processes that explain by what means X exerts its effect on Y (Baron and Kenny 1986). Specifically, it allows for a decomposition of the focal relationship based on a hypothesized intervening variable (Aneshensel 2012). This study examines the mediating role of system avoidance, operationalized as non-participation or avoidance of surveilling and non-surveilling institutions. Extending work by Brayne (2014), the following indicators from adolescence to adulthood together reflect various ways one may choose not to engage with surveilling and non-surveilling institutions.

Surveilling Institution Avoidance in Adolescence

Avoidance of surveilling institutions in adolescence (T2 and T3) is measured by skipping school, reflecting educational institutional avoidance. The measure is a dichotomous variable (1=Yes) indicating an individual's response to the question:

- Within the last year did you skip school without an excuse?

At T2, 20% of adolescents had skipped school. At T3, 26% reported had skipped school.

Non-surveilling Institution Avoidance in Adolescence

Avoidance of non-surveilling institutions in adolescence (T2 and T3) is operationalized as not participating in protests (1=No). This variable is used as an approximate measure for civic participation, indicating an individual's response to the question:

- Within the last year did you take an active part in a social protest either at school or outside of school?

At T2, 87% of adolescents had not participated in protests. At T3, 89% reported not participating in protests.

Surveilling Institution Avoidance in Emerging Adulthood

System avoidance of surveilling institutions in emerging adulthood (T4) is an index of non-participation based on four dichotomous variables indicating responses to the following four questions:

1. Do you belong to (pay dues or attend meetings) professional organizations? (1=No).
2. Are you currently unemployed? (1=Yes).
3. During the last year, your financial support came from unemployment compensation, welfare (e.g. Aid to Dependent Children, food stamps), or worker's compensation? (1=No).
4. Respondent is enrolled in vocational, technical, or degree-granting program? (1=No).

Pearson product pairwise correlations between these variables were all statistically significant ($p<0.05$). The correlation scores ranged from 0.04 to 0.16. Scores ranged from 0-4, with a mean of 2.57 and a standard deviation of 0.80. The α was low at 0.31 perhaps due to the small number of items, item-test correlation ranged from .53-.62, removing any of the items did not increase the α, and no latent variables are included in the measure (Tavakol and Dennick 2011). To limit the possibility of significance

searching I chose not to keep the variables separate, choosing to keep the variable as an indicator of avoiding surveilling institutions related to life events (Sampson and Laub 1993, 2010).

Nonsurveilling Institution Avoidance in Emerging Adulthood

System avoidance of non-surveilling institutions in emerging adulthood (T4) is an index of non-participation based on three dichotomous variables indicating an individual's response to the questions:

1. Do you belong to (pay dues or attend meetings) civic organizations? (1=No).
2. Do you belong to (pay dues or attend meetings) religious organizations? (1=No).
3. Do you belong to (pay dues or attend meetings) social organizations? (1=No).

Pearson product pairwise correlations between these variables were all statistically significant ($p<0.05$) with correlation scores ranging from 0.15 to 0.24. Scores ranged from 0-3, with a mean of 2.36 and a standard deviation of 0.81. The α was low at 0.41, but again the variable is still used as it is only an indicator of avoiding nonsurveilling institutions.

Surveilling Institution Avoidance in Middle Adulthood

System avoidance of surveilling institutions in middle adulthood (T7) is an index of non-participation based on five dichotomous variables indicating responses to the questions:

1. Do you belong to (pay dues or attend meetings) professional organizations? (1=No).

2. Do you belong to (pay dues or attend meetings) unions? (1=No).
3. Are you currently unemployed? (1=Yes).
4. During the last year, your financial support came from unemployment compensation, welfare (such as Aid to Dependent Children, food stamps), or worker's compensation? (1=No).
5. Respondent is enrolled in vocational, technical, or degree-granting program? (1=No).

Pearson product pairwise correlations between these variables were all statistically significant ($p<0.05$) except two. Across the matrix, correlations between question 5 (enrolled in degree program) and question 4 (welfare; -0.001) were not statistically significant. Correlations between question 5 (enrolled in degree program) and question 3 (unemployed; -0.02) were also not statistically significant. These variables were statistically correlated to the rest of the variables with correlation scores ranging from -0.29 to 0.17. Scores ranged from 0-5, with a mean of 3.60 and a standard deviation of 0.78. The α was higher than at T4 (0.37 vs 0.31) with the addition of professional organization and union nonparticipation (not available at T4), however the variable is still used as it is only an indicator of avoiding surveilling institutions.

Nonsurveilling Institution Avoidance in Middle Adulthood

System avoidance of non-surveilling institutions in middle adulthood (T7) is an index of non-participation based on four dichotomous variables (1=Yes) indicating individuals' response to the questions:

1. Do you belong to (pay dues or attend meetings) civic organizations? (1=No).

2. Do you belong to (pay dues or attend meetings) religious organizations? (1=No).
3. Do you belong to (pay dues or attend meetings) social organizations? (1=No).
4. Do you belong to (pay dues or attend meetings) school organizations? (1=No).

Pearson product pairwise correlations between these variables were all statistically significant ($p<0.05$) with correlation scores ranging from 0.19 to 0.30. Index scores ranged from 0-4, with a mean of 3.11 and a standard deviation of 1.07. The α was better than at T4 (0.55 vs 0.41) because of the additional variable indicating school organization nonparticipation that was included (not available at T4).

Control Variables

Control variables are used when trying to identify whether an observed relationship is independent of the influence of extraneous variables and not resulting due to bias arising from differences between exposure to other variables (Salkind 2010). Studies on labeling and education were referenced when deciding what controls to include. All control variables were measured at T1 and include: race/ethnicity, gender, age, parental education, self-rated socioeconomic status, school subject(s) failure, skipping school, depressive symptoms, anger, substance use, self-reported delinquency, association with delinquent peers, and living with both biological parents at T1. For analysis of entire descriptives at T1, see Table 1. Table 2 provides descriptives at T2 and T3. Table 3 provides descriptives at T4 and T7 (see pages 59-61).

Sociodemographics

Race/ethnicity

Race/ethnicity is a nominal variable measured at T1 based on the following question:

- Which one of the following groups do you belong to?

While the option of "Other" was available, the N was low and thus only White, Black, and Hispanic were included in the measured. At T1, Whites made up 61% of the sample, 28% were Black, and 11% were Hispanic. During analysis at T2, T3, T4, and T7 Whites averaged 65% of the sample, 26% were Black, and 9% were Hispanic.

Sex

Sex is a dichotomous variable indicating individual's response to sexual identification (1=Male). At T1, males and females were about evenly split at 50%. Depending on the sample used in the analysis, the sample ranges from 54%-55% females.

Age

Age is based on the individual's response to question:

- What was your age on your last birthday?

The age range at T1 was 11-18, with a mean of 13.33, and a standard deviation of 0.85. The age range at T2 was 13-18, with a mean of 14.57, and a standard deviation 0.80. The age range at T3 was 12-18, with a mean of 15.07, and a standard deviation of 0.89. The age range at T4 was 23-29, with a mean of 24.61, and a standard deviation 0.70. The age range at T7 was 35-41, with a mean of 36.61, and a standard deviation 0.70.

Parental Education

Parental education is an ordinal variable measuring parent's college education based on respondent's answer to the following two questions:

1. What is the most schooling your mother or step-mother has had?
2. What is the most schooling your father or step-father has had?

Pairwise correlations were statistically significant with a correlation coefficient of 0.62 ($p<0.05$) with an α of 0.76. Respondent's parental education ranged from 1-4. At T1 the mean was 3.47 with a standard deviation of 0.75. At T2 the mean was 3.49 with a standard deviation of 0.72. At T3 the mean was 3.50 with a standard deviation of 0.72. At T4 and T7 the mean was 3.52 with a standard deviation of 0.71 and 0.70 respectively.

Self-rated Socioeconomic Status

Self-rated socioeconomic status is a dichotomous variable (1=Yes) at T1 based on individual's response to the following question:

1. My family is pretty poor.

At T1, 9% of respondents self-reported as being poor.

Prior School Engagement

Failing Grade in School Subject(s)

Failing grade in school subject(s) is a dichotomous variable (1=Yes) at T1 based on the individual's response to the question:

- During the last nine weeks period did you get a failing grade in one or more school subjects?

At Time 1, 34% of respondents reported failing a school subject(s).

Skipping School

Skipping school is a dichotomous variable at T1 (1=Yes) based on the individual's response to the question:

- Within the last month did you skip school without an excuse?

At T1, 9% of respondents reported skipping school.

Sociostructural Correlates

Lives with Both Biological Parents

Lives with both biological parents is a dichotomous variable at T1 (1=Yes) based on the following question:

- Are you living with both of your real parents?

At T1, 70% of respondents reported living with both parents.

Delinquent Peers

Delinquent peers is a summed index indicating peer delinquency at T1 (1=Yes) based on the following three questions:

1. Do many of your good friends smoke marijuana?
2. Do many of your good friends take narcotic drugs to get high?
3. Many of your close friends are the kinds of kids who get into trouble a lot?

Factor analysis and Kuder-Richardson coefficient of reliability both provide an α of 0.69. The eigenvalue drops from 1.88 for the first factor to 0.77 for the second factor. The scores obtained for this index ranged from 0-3, with a mean of 0.53 and a standard deviation of 0.89.

Juvenile Delinquency

Substance Use

Substance use is a summed index at T1 (1=Yes) based on an individual's response to the following three questions regarding alcohol and drug use:

1. In last week used wine, beer or liquor more than two times?
2. In last month, did you smoke marijuana?
3. In last month, did you take narcotic drugs?

Factor analysis and Kuder-Richardson coefficient of reliability for substance use both provide an α of 0.60. The eigenvalue drops from 1.78 for the first factor to 0.79 for the second factor. Scores were then combined into a dichotomous variable indicating having answered Yes to at least one of the questions. At T1, 18% of respondents reported substance use.

Self-reported Delinquency

Self-reported delinquency is an index of delinquency measuring respondent's participation within the last month of the following eleven items:

1. Taken things worth between 2 and 50 dollars that didn't belong to you?
2. Taken little things worth less than 2 dollars?

3. Carried a razor, a switchblade, or a gun?
4. Started a fist fight?
5. Taken part in gang fights?
6. Used force to get money or valuables from another person?
7. Broken into and entered a home, store, or building?
8. Purposely damaged or destroyed public or private property?
9. Taken a car for a ride without permission?
10. Beaten someone up who had not done anything to you?
11. Taken things worth 50 dollars or more?

Each of these variables is measured as a dichotomous variable (1=Yes). Factor analysis and Kuder-Richardson coefficient of reliability for substance use both provide an α of 0.72. The eigenvalue drops from 3.07 for the first factor to 1.07 for the second factor. Scores at T1 ranged from 0-11, with a mean of 0.83 and a standard deviation of 1.46.

Mental Health

Depressive Symptoms

Depressive symptoms is a scale measuring respondent's depressed affect/emotions and physiological symptoms using the following six questions:

1. Do you wish you could be as happy as others seem to be?
2. Would you say that most of the time you feel in good spirits?
3. Do you often lose track of what you were thinking?
4. Do you often have difficulty keeping your mind on things?

5. Do you often have trouble sitting still for a long time?
6. Do you often have trouble getting to sleep or staying asleep?

Factor analysis and Kuder-Richardson coefficient of reliability both provide an α of 0.61. The eigenvalue drops from 2.08 for the first factor to 0.99 for the second factor. Scores at T1 ranged from 0-6, with a mean of 2.54 and a standard deviation of 1.62.

Anger

Anger is measured by respondent's response to the following six questions:

1. If someone insulted me, I would probably hit him.
2. If someone insulted me, I would probably insult him/her back.
3. If someone insulted me, I would probably think about ways I could get even.
4. If someone insulted me, I would probably take it out on someone else.
5. Do you often get angry, annoyed or upset?
6. Within the last year, did you get angry and break things?

Factor analysis and Kuder-Richardson coefficient of reliability both provide an α of 0.57. The eigenvalue drops from 2.59 for the first factor to 1.04 for the second factor. Scores at T1 ranged from 0-6, with a mean of 2.15 and a standard deviation of 1.49.

Data Analysis Plan

A variety of descriptive, bivariate, and multivariate analyses were conducted to address the research questions. This section details the strategies utilized in analyzing the data. Due to the longitudinal nature of this data and the statistical tests conducted at four points in time with slightly different samples, fours tables of descriptives are included.

Univariate Descriptive Analysis

Descriptive analyses were conducted to examine each variable's distribution and variability in the study sample. They provide lower and maximum values for each of the variables under study, including means and standard deviations, and indicators of skewness and kurtosis. According to Lewis-Beck (1995), if skewness exceeds 0.8 in absolute value (in either direction) the distribution of the data can be said to be skewed. Regarding kurtosis, Acock (2006) indicates that if a variables value is greater than 20, there may be a serious problem with the data. This information provided a basis from which to understand why the different variables under study performed the way they did during the multivariate analysis.

Tables 1-3 (see page 59-61) represent the frequencies, means, standard deviations, range, skewness, and kurtosis of the variables of all four waves analyzed in this study. As Table 1 indicates, the variables indicating justice authority contact, Black, Hispanic, parent's education, self-rated socioeconomic status, skipping school, living with both parents, delinquent peers, substance use, and self-rated delinquency are all skewed at T1. The range of the absolute values are 0.85-2.85.

At T2 and T3 (see Table 2) school authority contact (T1), criminal justice authority contact (T1), White (T1), Black (T1), Hispanic (T1), parent's education (T1), self-rated socioeconomic status (T1), failing grade in one or more school subjects (T1), skipped school last month (T1), lives with both parents (T1), delinquent peers (T1), substance use in last month (T1), self-rated delinquency (T1), depressive symptoms (T1), anger (T1), failing grade in one or more school subjects (T2 and T3), skipped

school last year (T2 and T3), and no protests in last year (T2 and T3) are all skewed. The range of absolute values are 0.96-3.99.

At T4 and T7 (see Table 3) school authority contact (T1), criminal justice authority contact (T1), White (T1), Black (T1), Hispanic (T1), parent's education (T1), self-rated socioeconomic status (T1), failing grade in one or more school subjects (T1), skipped school last month (T1), lives with both parents (T1), delinquent peers (T1), substance use in last month (T1), self-rated delinquency (T1), age (T4 and T7), surveilling (T4 and T7) are all skewed. The range of absolute values are 0.90-3.57.

Regarding kurtosis, none of the study variables exceed 20 in value, assuaging concerns of serious problems with the data.

Table 1. Distribution of Time 1 Study Variables (N=7,627).

	Time 1 Adolescence					
	N	Mean or %	Std. Dev.	Range	Skew.	Kurt.
Main Independent Variables						
School authority contact (1=Yes).	2408	0.32	-	0-1	0.79	1.63
Justice authority contact (1=Yes).	1207	0.16	-	0-1	1.87	4.50
Sociodemographics						
White.	4466	0.61	-	-	-0.47	1.22
Black.	2024	0.28	-	-	0.99	1.98
Hispanic.	792	0.11	-	-	2.51	7.32
Age.	7570	13.33	0.85	11-18	0.20	3.59
Sex (Male=1).	3774	0.50	-	0-1	0.02	1.00
Parent's education.	5984	3.47	0.75	1-4	-1.34	4.20
Low self-rated SES (1=Yes).	685	0.09	-	0-1	2.85	9.13
Prior School Engagement						
Failing grade in school subject(s) (1=Yes).	2593	0.34	-	0-1	0.67	1.45
Skipped school last month (1=Yes).	693	0.09	-	0-1	2.83	9.01
Sociostructural Correlates						
Lives with both biological parents (1=Yes).	5271	0.70	-	0-1	-0.85	1.73
Delinquent peers.	7619	0.53	0.89	0-3	1.57	4.31
Juvenile Delinquency						
Substance use in last month (1=Yes).	1360	0.18	-	0-1	1.68	3.82
Self-rated delinquency.	7627	0.83	1.46	0-11	2.70	12.34
Mental Health						
Depressive Symptoms.	7627	2.54	1.62	0-6	0.17	2.10
Anger.	7627	2.15	1.49	0-6	0.34	2.32

Source: KLAMS, Time 1 (1971).

Table 2. Distribution of Time 2 (N=3,405) and Time 3 (N=2,882) Study Variables.

	Time 2 Adolescence					Time 3 Adolescence				
	Mean or %	Std. Dev.	Range	Skew.	Kurt.	Mean or %	Std. Dev.	Range	Skew.	Kurt.
Main Independent Variables										
School authority contact (T1; 1=Yes).	0.25	-	0-1	1.17	2.37	0.24	-	0-1	1.23	2.51
Justice authority contact (T1; 1=Yes).	0.11	-	0-1	2.47	7.09	0.10	-	0-1	2.61	7.79
Sociodemographics										
White (T1).	0.65	-	-	-0.64	1.41	0.63	-	-	-0.54	1.29
Black (T1).	0.26	-	-	0.96	1.91	0.28	-	-	0.83	1.68
Hispanic (T1).	0.09	-	-	2.33	6.44	0.09	-	-	2.32	6.38
Sex (T1; Male=1).	0.46	-	0-1	0.16	1.02	0.46	-	0-1	0.17	1.03
Parent's education (T1).	3.49	0.72	1-4	-1.33	4.20	3.50	0.72	1-4	-1.35	4.31
Low self-rated SES (T1; 1=Yes).	0.06	-	0-1	3.76	15.17	0.05	-	0-1	3.99	16.89
Prior School Engagement										
Failing grade in school subject(s) (T1; 1=Yes).	0.25	-	0-1	1.16	2.35	0.27	-	0-1	1.01	2.02
Skipped school (T1; 1=Yes).	0.06	-	0-1	3.81	15.52	0.05	-	0-1	3.96	16.65
Sociostructural Correlates										
Lives with both biological parents (T1; 1=Yes).	0.76	-	0-1	-1.20	2.43	0.77	-	0-1	-1.28	2.63
Delinquent peers (T1).	0.41	0.80	0-3	1.94	5.79	0.38	0.78	0-3	2.07	6.37
Juvenile Delinquency										
Substance use in last month (T1; 1=Yes).	0.15	-	0-1	2.00	4.98	0.14	-	0-1	2.09	5.35
Self-rated delinquency (T1).	0.65	1.23	0-11	2.92	14.56	0.61	1.20	0-11	3.16	17.08
Mental Health										
Depressive Symptoms (T1).	2.45	1.63	0-6	0.24	2.10	2.54	1.59	0-6	0.27	2.19
Anger (T1).	2.05	1.47	0-6	0.40	2.36	2.05	1.46	0-6	0.41	2.43
Time 2										
Age.	14.57	0.80	13-18	0.09	3.51	-	-	-	-	-
Dependent Variable										
Failing grade in school subject(s) last year (1=Yes).	0.28	-	0-1	1.01	2.01	-	-	-	-	-
Mediators										
Skipped school last year (1=Yes).	0.20	-	0-1	1.53	3.34	-	-	-	-	-
Protests in last year (1=No).	0.87	-	0-1	-2.17	5.70	-	-	-	-	-
Time 3										
Age.	-	-	-	-	-	15.07	0.89	12-18	0.37	2.43
Dependent Variable										
Failing grade in school subject(s) last year (1=Yes).	-	-	-	-	-	0.27	-	0-1	1.01	2.02
Mediators										
Skipped school last year (1=Yes).	-	-	-	-	-	0.26	-	0-1	1.12	2.25
Protests in last year (1=No).	-	-	-	-	-	0.89	-	0-1	-2.41	6.84

Source: KLAMS, Time 2 (1972); Time 3 (1973)

Table 3. Distribution of Time 4 (N=3,857) and Time 7 (N=3,533) Study Variables.

	Time 4 Emerging Adulthood					Time 7 Middle Adulthood				
	Mean or %	Std. Dev.	Range	Skew.	Kurt.	Mean or %	Std. Dev.	Range	Skew.	Kurt.
Main Independent Variables										
School authority contact (T1; 1=Yes).	0.27	-	0-1	1.03	2.06	0.27	-	0-1	1.05	2.10
Justice authority contact (T1; 1=Yes).	0.13	-	0-1	2.27	6.11	0.12	-	0-1	2.31	6.35
Sociodemographics										
White (T1).	0.67	-	0-1	-0.71	1.50	0.66	-	0-1	-0.69	1.48
Black (T1).	0.25	-	0-1	1.01	2.03	0.25	-	0-1	1.01	2.02
Hispanic (T1).	0.08	-	0-1	2.49	7.21	0.09	-	0-1	2.42	6.89
Sex (T1; Male=1).	0.46	-	0-1	0.14	1.02	0.45	-	0-1	0.18	1.03
Parent's education (T1).	3.52	0.71	1-4	-1.43	4.53	3.52	0.70	1-4	-1.42	4.50
Low self-rated SES (T1; 1=Yes).	0.07	-	0-1	3.53	13.44	0.06	-	0-1	3.57	13.77
Prior School Engagement										
Failing grade in school subject(s) (T1; 1=Yes).	0.27	-	0-1	1.05	2.11	0.26	-	0-1	1.09	2.19
Skipped school last month (T1; 1=Yes).	0.07	-	0-1	3.27	11.71	0.07	-	0-1	3.40	12.55
Sociostructural Correlates										
Lives with both biological parents (T1; 1=Yes).	0.74	-	0-1	-1.10	2.21	0.74	-	0-1	-1.10	2.21
Delinquent peers (T1).	0.46	0.85	0-3	1.81	5.16	0.45	0.84	0-3	1.84	5.29
Juvenile Delinquency										
Substance use in last month (T1; 1=Yes).	0.16	-	0-1	1.85	4.42	0.16	-	0-1	1.90	4.60
Self-rated delinquency (T1).	0.69	1.26	0-11	2.73	12.98	0.66	1.24	0-11	2.74	13.25
Mental Health										
Depressive Symptoms (T1).	2.47	1.62	0-6	0.24	2.15	2.45	1.61	0-6	0.24	2.15
Anger (T1).	2.06	1.47	0-6	0.43	2.42	2.05	1.47	0-6	0.44	2.44
Time 4										
Age.	24.61	0.70	23-29	0.90	3.91	-	-	-	-	-
Dependent Variable										
Years of schooling completed.	13.07	2.60	0-18	-0.50	4.05	-	-	-	-	-
Mediators										
Surveilling institution avoidance.	2.57	0.80	0-4	-0.42	2.98	-	-	-	-	-
Nonsurveilling institution avoidance.	2.36	0.81	0-3	-1.13	3.54	-	-	-	-	-
Time 7										
Age.	-	-	-	-	-	36.61	0.70	35-41	0.90	3.90
Dependent Variable										
Years of schooling completed.	-	-	-	-	-	12.83	3.83	0-18	-0.81	3.44
Mediators										
Surveilling institution avoidance.	-	-	-	-	-	3.60	0.78	0-5	-0.43	3.18
Nonsurveilling institution avoidance.	-	-	-	-	-	3.11	1.07	0-4	-1.05	3.28

Source: KLAMS Time 4 (1982-87); Time 7 (1994-98)

Correlation Analysis

Zero-order correlations between all variables are included in the analysis. Correlation analyses were conducted to determine the strength and direction of the relationships among the different variables analyzed in this study. Zero-order correlations matrixes can provide a general picture regarding the variables used in support of the reviewed literature, and the hypotheses under study. Inter-correlations among the study variables were compared to determine whether the study variables showed any signs of multicollinearity (William 2011). The outcomes of these tests are presented in Chapter V for the adolescent life stage, Chapter VI for emerging adulthood, and Chapter VII in middle adulthood.

Bivariate Analysis

To test the hypotheses addressed by this research project logistic regressions are conducted to analyze the adolescent models. Ordinary Least Squares (OLS) regression analyses are conducted to analyze the adulthood models. For the results to be considered as unbiased, several tests are conducted to ascertain whether the findings are valid statistical inferences. All variables in all regressions are unstandardized. The outcomes of these tests are presented in Chapter V and VI for the adolescent life stage and adulthood life stage respectively.

Multivariate Analysis

A multiple stage process is employed for this analysis. Such an analysis requires a test for significance of the associated coefficients, which will be tested using

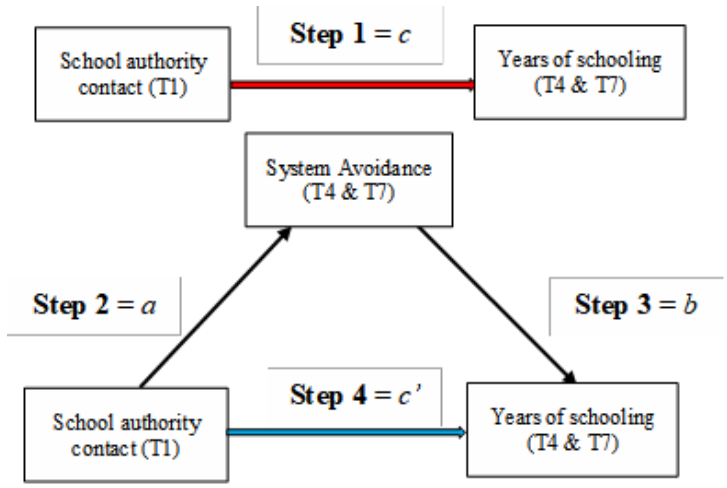
Paternoster et al.'s (1998) recommended equality of regression coefficients test. Baron and Kenny's approach to establishing causality is also followed. The first step is to establish whether a relationship between my dependent and independent variables exists. Second, establish whether the relationship exists net of controls. Third, I examine whether this relationship is mediated by the selected mediators (Baron and Kenny (1986). The four steps in establishing mediation are: (1) To show that the causal variable is correlated with the outcome; (2) To show that the causal variable is correlated with the mediator; (3) To show that the mediator affects the outcome variable, controlling for the causal variable; (4) To establish how much of the X-Y relationship is explained by the chosen mediators.

To test the mediation effect of avoidance (measured as an index indicating avoiding surveilling and non-surveilling institutions at T4 and T7) the following steps are followed (see Figure 3 for a visual representation):

1. Conduct a regression analysis and determine if there is a significant relationship between main independent and dependent variables at T4 and T7, with hypothesized controls included.
2. A regression analysis is then estimated to establish whether the main independent variables at T1 (school and justice authority contact) are associated with the proposed mediators (i.e. system avoidance measures).
3. Regression analysis are estimated to determine whether after including the mediator variables, the relationship between the predictors and the dependent variable is still statistically significant.

4. Sobel tests are conducted to assess both whether the slopes obtained in each of the previous models are different from zero and whether the mediation effect was partial or complete (Preacher and Hayes 2004).

Figure 3. Mediation Effect Steps for OLS Regressions.

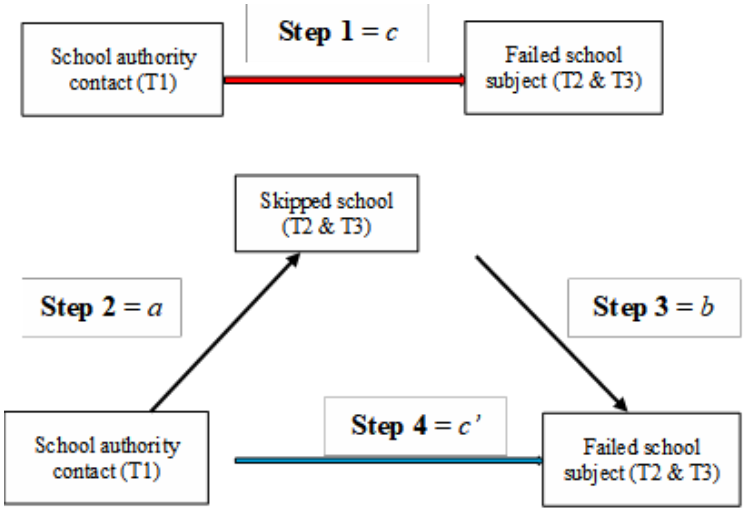


Since the four-step approach does not directly test significance of the indirect pathway (i.e. X affects Y through the compound pathway of a and b) or test total or direct effects directly (Zao et al. 2010), decomposition effects are also calculated and tested for significance using Stata. The sgmediation command computes Sobel-Goodman mediation tests and provides calculations and tests of significance of direct, indirect, and total effects (StataCorp. 2017).

When testing mediation with only a dichotomous outcome variable, the Sobel test is sufficient (Hayes 2013). A mediation analysis with a dichotomous mediator, outcome, or both makes the calculation of the proportion of the effect mediated by the

indirect path problematic because the coefficients for steps 2-4 end up being in different scales (MacKinnon and Dwyer 1993; see Figure 4 for a visual representation). David A. Kenny's (2013) equations based on MacKinnon and Dwyer's paper take this into account and are used to provide the decomposition of the mediated effects for the logistic regression models at T2 and T3 using Stata's binary_med option. All regression and mediation analyses employed Stata's bootstrap option as a resampling method to better approximate standard errors, confidence intervals, and p-values for test statistics of the sample data (StataCorp. 2017).

Figure 4. Mediation Effect Steps for Logistic Regressions.



Note: Break denotes different scales.

CHAPTER V

ADOLESCENT LIFE STAGE RESULTS

This chapter presents the main findings obtained for the adolescent life stage portion of this study. The first section presents the bivariate relationships between all the variables analyzed in this study. The second section presents the results of the multivariate models predicting likelihood of failing one or more school subjects in adolescence at Time 2 (1972; mean age 14) and Time 3 (1973; mean age 15). The third section examines the outcomes of the mediation analysis. The final section discusses attrition analyses and what it means for the multivariate findings. An overview of the core findings concludes this chapter.

Correlation Analysis

Correlation analysis results are presented in Table A1 (see Appendix). T2 zero-order correlations report correlation with the main dependent (failing grade in school subject), mediator (skipping school and no school protests), main independent (school and justice authority contact at T1), and all the T1 control variables in this study ($p<0.001$, two-tailed test). Correlations tests illustrate potential multicollinearity problems and whether the relationships between variables are in the hypothesized direction. All correlations ranged from weak to very weak with no correlations exhibiting strong associations. Skipping school (T2) is correlated with the main dependent of failing grade in school subject at T2 ($r = 0.25$, $p<0.001$), the mediator no school protests at T2 ($r = -0.18$, $p<0.001$), the main independent variables of school ($r = 0.20$, $p<0.001$) and justice

authority contact ($r = 0.20$, $p<0.001$) at T1, and all T1 control variables in this study ($p<0.05$ or $p<0.001$, two-tailed test).

No protest participation (T2) is also correlated with the main dependent variable failing grade in school subject(s) at T2 ($r = -0.14$, $p<0.001$), and the main independent variables of school ($r = -0.11$, $p<0.001$) and justice authority contact ($r = -0.08$, $p<0.001$) at T1. The variable indicating male at T1 is the only control variable not associated with no protest participation at T2 in this study.

T3 zero-order correlations also report correlation with the main dependent variable of failing grade in school subject(s), mediators (skipping school and no school protests), the main independent variables (school and justice authority contact at T1), and all T1 control variables in this study ($p<0.001$, two-tailed test).

Skipping school (T3) is correlated with the main dependent variable of failing grade in school subject(s) at T3 ($r = 0.23$, $p<0.001$), the mediator variable no school protests at T3 ($r = -0.13$, $p<0.001$), the main independent variables of school ($r = 0.20$, $p<0.001$) and justice authority contact at T1 ($r = 0.14$, $p<0.001$), and all T1 control variables in this study ($p<0.05$ or $p<0.001$, two-tailed test) except low self-rated SES (T1).

No protest participation (T3) is correlation with the main dependent variable of failing grade in school subject(s) at T3 ($r = -0.09$, $p<0.001$), and the main independent variables of school ($r = -0.09$, $p<0.001$) and justice authority contact ($r = -0.06$, $p<0.001$) at T1. The variable indicating male and parent's education at T1 are the only control variables not associated with no protests participation at T3 in this study.

Multivariate Findings

This section presents the outcomes of logistic regressions testing the hypotheses that school and justice authority contact at T1 increases the likelihood of failing a school subject(s) at T2 (Hypotheses 1 and 2) and T3 (Hypotheses 3 and 4). The first regression includes only the main dependent variable with the main independent variable of interest, in the second regression sociodemographics (T1) are included, in the third regression school controls are added, and in the fourth regression all T1 controls are added. If the overall model is still significant, the mediators are added separately to the regression analyses.

School Authority Contact (T1) and Failing a School Subject(s) (T2)

The results in this section are a test of Hypothesis 1:

H1: Contact with school authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of failing one or more school subjects at T2 (1972; mean age 14), net of controls.

Model 1 in Table 1 shows the relationship between school authority contact at T1 and likelihood of failing a school subject(s) at T2 only. The model was a rather poor fit (Pseudo R2 = 0.03), but the overall model was significant (Wald chi21 = 131.02, $p<0.001$), showing that school authority contact at T1 had a significant and positive effect on the likelihood of failing a school subject ($b = 0.93$, $p<0.001$) at T2.

Model 2 shows the relationship between school authority contact at T1 and likelihood of failing a school subject(s) at T2, holding constant sociodemographics (T1). This model was a rather poor fit (Pseudo R2 = 0.07), but the overall model was

significant (Wald chi27 = 254.94, p<0.001), showing that school authority contact at T1 had a significant and positive effect on the likelihood of failing a school subject(s) (b = 0.78, p<0.001) at T2. All sociodemographics were statistically significant (p<0.01 or p<0.001) except low self-rated SES (b = 0.24, p>0.05). Including sociodemographics results in an 16% decrease in the school authority contact coefficient.

Model 3 adds school related controls failing grade in school subject(s) and skipping school at T1 to the model. This improves the model (Pseudo R2 = 0.15), with the overall model significant (Wald chi29 = 494.97, p<0.001), showing that school authority contact had a significant and positive effect on the likelihood of failing a school subject (b = 0.51, p<0.001) at T2. T1 school related controls failing grade in school subject(s) (b = 1.50) and skipping school (b = 0.74) were statistically significant and in the hypothesized direction (p<0.001). Including both these variables results in a 35% decrease in the school authority contact coefficient. Low self-rated SES is still the only sociodemographic not significant (b = 0.16, p>0.05). The rest of the demographics stayed statistically significant (p<0.01 or p<0.001).

Model 4 adds all T1 controls to the model. The model improves (Pseudo R2 = 0.15), the overall model remains significant (Wald chi215 = 523.41, p<0.001), and school authority contact still had a significant and positive effect on the likelihood of failing a school subject (b =0.34, p<0.001) at T2. Low self-rated socioeconomic status remains statistically insignificant (b = 0.05, p>0.05). The rest of the demographics stayed statistically significant (p<0.01 or p<0.001). Including T1 controls results in a 33% decrease in the school authority contact coefficient. As it pertains to T1 controls,

having delinquent peers, substance use, and the anger measure were not statistically significant ($p>0.05$). Failing grade in school subject(s), skipping school, living with both biological parents, self-rated delinquency, and depressive symptoms were all statistically significant ($p<0.05$, $p<0.01$, or $p<0.001$). All coefficients go in the expected direction (see Table 4).

Table 4. Logistic Regressions of School Authority Contact in Adolescence (T1; mean age 13) and Failing One or More School Subjects in Last Year (T2; mean age 14), with Mediators (N=3,405).

	(1)	(2)	(3)	(4)	(5)	(6)
School authority contact (T1).	0.93***	0.78***	0.51***	0.34***	0.26**	0.33***
Time 1 Sociodemographics						
Black[a]	-	0.40***	0.30**	0.27**	0.37***	0.20*
Hispanic[b]	-	0.60***	0.47**	0.51***	0.48**	0.48**
Male	-	0.41***	0.43***	0.39***	0.44***	0.42***
Age	-	0.26***	0.21***	0.21***	0.20**	0.20***
Parent's education	-	-0.30***	-0.25***	-0.25***	-0.25***	-0.25***
Low self-rated SES	-	0.24	0.16	0.05	0.07	0.03
Time 1 School Controls						
Failing grade in school subject(s).	-	-	1.50***	1.38***	1.38***	1.37***
Skipped school in last month.	-	-	0.74***	0.44*	0.22	0.46*
Time 1 Controls						
Lives with both biological parents.	-	-	-	-0.31**	-0.29**	-0.31**
Delinquent peers.	-	-	-	0.09	0.03	0.07
Substance use in last month.	-	-	-	0.12	0.03	0.10
Self-rated delinquency.	-	-	-	0.12**	0.08	0.10*
Depressive symptoms	-	-	-	0.08**	0.08**	0.08**
Anger.	-	-	-	0.04	0.02	0.04
Time 2 Mediators						
Surveilling institution avoidance (skipped school).	-	-	-	-	1.05***	-
Nonsurveilling institution avoidance (no protest).	-	-	-	-	-	-0.57***
Constant	-1.23***	-3.97***	-3.96***	-4.07***	-4.01***	-3.37***
Wald chi[2]	131.02***	254.94***	494.97***	523.41***	549.17***	530.63***
Degrees of Freedom	1	7	9	15	16	16
Pseudo R^2	0.03	0.07	0.15	0.16	0.18	0.17

* $p<0.05$, ** $p<0.01$, *** $p<0.001$; a, b reference category: White.

Note: b coefficients; standard errors available upon request; Source: KLAMS, T1 (1971) and T2 (1972).

Using Stata's logistic command gives us the odds ratios for the logistic regression analysis. Odds ratios allow a more intuitive interpretation of the logistic coefficients (Treiman 2009: 311) allowing for a comparison of the odds of respondents falling in the 1 vs the 0 category in the outcome variable. At T2, the odds to fail a school subject(s) at T2 for those who experience school authority contact at T1 are 1.4 times the odds (OR = 1.40, $p<0.001$) of those with no school authority contact. As expected, being Black (OR = 1.30, $p<0.01$), Hispanic (OR = 1.66, $p<0.001$), and male (OR = 1.48, $p<0.001$), as well as age (OR = 1.24, $p<0.001$), increases the odds that they will fail a school subject at T2.

The odds for those who failed a school subject(s) at T1 failing a school subject at T2 also increase, reflecting the highest coefficient of all predictors (OR = 3.97, $p<0.001$). Skipping school at T1 increases the odds that respondent will fail a school subject at T2 (OR = 1.56, $p<0.05$). Self-rated delinquency at T1 also increases the odds that respondent will fail a school subject at T2 (OR = 1.12, $p<0.01$). The odds that those who experience depressive symptoms at T1 will fail a school subject at T2 also increase (OR = 1.08, $p<0.01$). As expected, parental education at T1 decreases the odds that respondent will fail a school subject at T2 (OR = 0.78, $p<0.001$). Living with both biological parents also decreases the odds that respondent will fail a school subject at T2 (OR = 0.74, $p<0.01$). Altogether, with other variables held constant, failing a school subject(s) at T2 was positively predicted by school authority contact at T1. The results of Models 1-4 confirm Hypothesis 1.

Mediation Analysis

To test the hypothesis that the system avoidance measures (i.e. skipping school and no protest participation at T2) mediate the association between school and justice authority contact (T1) and failing a school subject (s) at T2 and T3, a causal step approach for each proposed pathway was conducted (Baron and Kenny 1986). The first step was presented in the multivariate regressions in the last section, the regression models estimated helping to determine the empirical relationship between school authority contact, the hypothesized predictors of education outcomes at T1 and the dependent variable failing grade in school subject(s) at T2.

The second step is to establish whether the main independent variables (school and justice authority contact, respectively) are associated with the proposed mediators (i.e. skipping school and no school protest participation at T2). The third step is to conduct regression analyses to assess the relationship between school outcomes (i.e. failing grade in school subject(s) at T2 and T3, respectively) and the mediators used in this study, holding constant sociodemographics, T1 school and other controls. The final step, if a mediation effect is determined using Stata's binary_mediation command, is to provide direct, indirect, and total effects using the bootstrapping method of Preacher and Hayes (2004) in Stata that better account for the issues with Sobel tests when it comes to computing indirect effects (Zhao et al. 2010).

Surveilling and Nonsurveilling Avoidance in Adolescence (T2 and T3)

Skipping school in last year (i.e. an approximate measure of surveilling institution avoidance) and no protest participation in last year (i.e. an approximate measure of nonsurveilling institution avoidance) are dichotomous variables measured at T2 and T3.

School Authority Contact (T1) and Surveilling Institution Avoidance (T2)

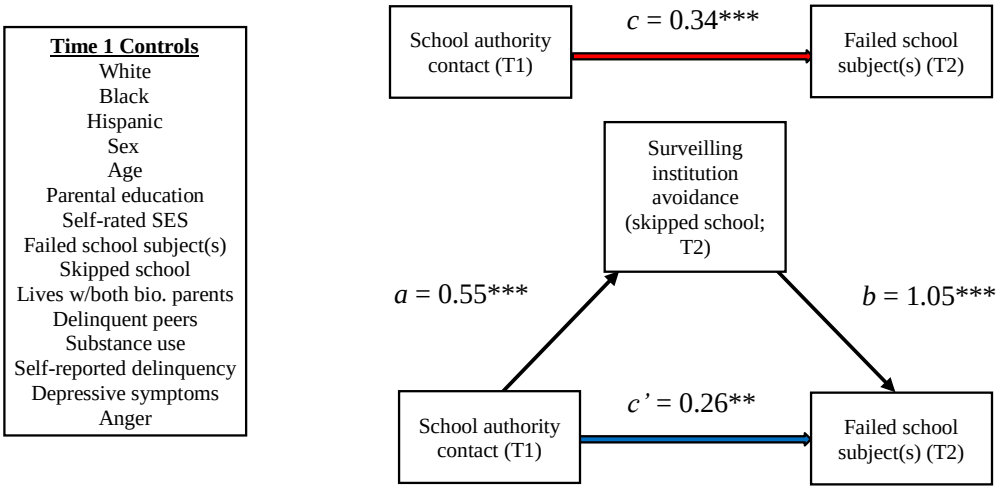
Skipping school (T2)

As Model 5 in Table 4 shows (see page 70), when skipping school is included in the full model (i.e. regressions with sociodemographics, T1 school and other controls included), the relationship between school authority contact and failing a school subject(s) had a decrease in the coefficient from 0.34 to 0.26 ($p<0.01$), a 24% reduction. Skipping school at T2 was also statistically significant ($b = 1.05$, $p<0.001$). School authority contact still being statistically significant indicates partial mediation.

Stata's binary_med command confirms these findings. The binary_mediation command, used to compute indirect effects using the product of coefficients approach, standardizes all the coefficients (StataCorp. 2017). For there to be mediation, skipping school must be associated with school authority contact holding sociodemographics, T1 school, and other controls constant. As Figure 5 Path a illustrates (see page 74), school authority contact was significant and positively associated with skipping school ($b = 0.55$, $p<0.001$) at T2. The first column in Table 5 (see page 74) shows the total indirect effect (Path a + Path b in Figure 5), direct, and total effects, confirming that they were all

statistically significant (p<0.01, p<0.001). The results confirm that skipping school partially mediates the relationship between school authority contact at T1 and failing a

Figure 5. Mediation Effects of School Authority Contact in Adolescence (T1; mean age 13) and Failing One or More School Subjects in Last Year (T2; mean age 14; N=3,405).



Note: b coefficients; * p<0.05, *** p<0.001.

Table 5. Decomposition Effects of School Authority Contact (T1; mean age 13) and Failing Grade in School Subject(s) (T2; mean age 14; N=3,405).

	Skipped school (T2)	No protest participation (T2)
Indirect Effect	0.0288***	0.0083*
Direct Effect	0.0609**	0.0766**
Total Effect	0.0897***	0.0849***

* p<0.05, **, p<0.01, *** p<0.001; Effects based on standardized coefficients.

school subject(s) at T2 (see Table 5). Skipping school at T1 is the only predictor no longer significant compared to Model 4.

Hence, skipping school at T2 increases the odds that respondent will fail a school subject at T2 (OR = 2.85, $p<0.001$), net of controls. Since the decomposition effects inTable 5 are standardized, we can conclude that the direct effect of school authority contact at T1 is stronger than the indirect effect of skipping school at T2 (Menard 2004). Combined, the results of Model 5 in Table 4, Figure 5, and the first column in Table 5 confirm Hypothesis 5:

> H5: Contact with school authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of skipping school at T2 (1972; mean age 14), increasing likelihood of failing one or more school subjects at T2, net of controls.

School Authority Contact (T1) and Nonsurveilling Institution Avoidance (T2) No protest participation (T2)

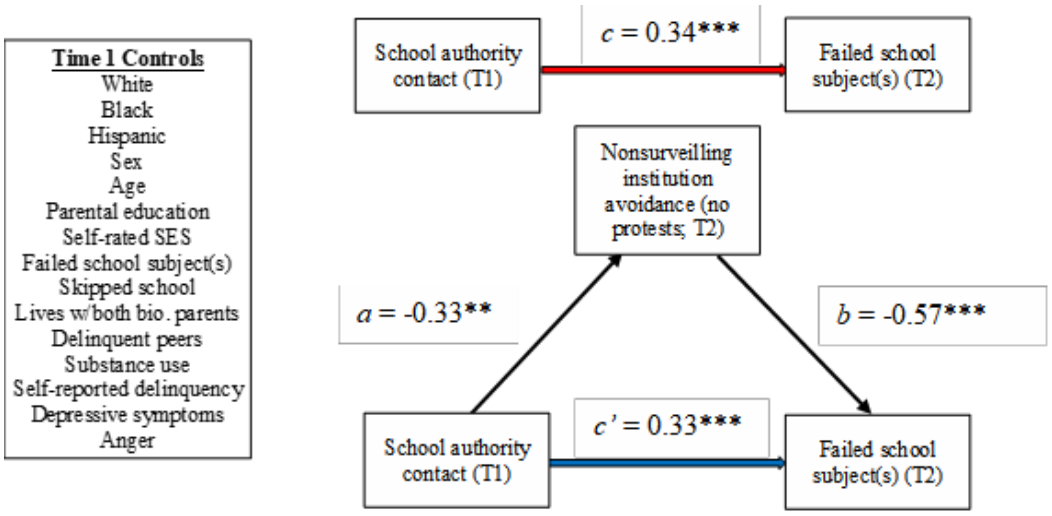
As Model 6 in Table 4 shows (see page 70), when not participating in protests was included in the full model (i.e. regression with sociodemographics, T1 school and other controls included), the relationship between school authority contact and failing school subject(s) had a decrease in the coefficient from 0.34 to 0.33 ($p<0.001$), a 3% reduction. Not participating in protests at T2 was also statistically significant ($b = -0.57$, $p<0.001$). School authority contact still being statistically significant indicates partial mediation.

As Figure 6, Path A shows (see page 76), holding sociodemographics, T1 school and other controls constant, not participating in protests was significant and

negatively associated with school authority contact (b = -0.33, p<0.01). The second column in Table 5 shows the total indirect effect (Path a + Path b in Figure 6), direct, and total effects, confirming that they were all statistically significant (p<0.05, p<0.01, p<0.001).

Hence, participating in protests at T2 decreases the odds that respondent will fail a school subject at T2 (OR = 0.57, p<0.001). As the second column in Table 5 (see page 74) shows, the direct effect of school authority contact at T1 is stronger than the indirect effect of not participating in protests at T2. All statistically significant predictors from Model 4 remain statistically significant.

Figure 6. Mediation Effects of School Authority Contact in Adolescence (T1; mean age 13) and Failing One or More School Subjects in Last Year (T2; mean age 14; N=3,405).



Note: b coefficients; ** p<0.01, *** p<0.001.

The results show that not participating in protests partially mediates the relationship between school authority contact and failing school subject(s) at T2 (see Table 5). However, the coefficient for not participating in school protests being negative is acting as a suppressor (Aneshensel 2012) in Model 6 of Table 4 and does not support Hypothesis 6:

> H6: Contact with school authority officials in adolescence at T1 (1971; mean age 13) decreases likelihood of participating in protests at T2 (1972; mean age 14), increasing likelihood of failing one or more school subjects at T2, net of controls.

The hypothesized relationship in H6 assumed that not participating in protests illustrated a lack of attachment to civic institutions and civic engagement, potentially affecting peer relationships and by extension the accumulation of social capital of respondents. This, I hypothesized, would should be associated with failing at school. However, it is also possible that good students would be less likely to risk jeopardizing their schooling by protesting which would explain the negative association between no protest participation and failing a school subject(s). Additionally, not being involved in protests means less exposure to authority figures.

Justice Authority Contact (T1) and Failing a School Subject(s) (T2)

The results in this section are a test of Hypothesis 2:

> H2: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of failing one or more school subjects at T2 (1972; mean age 14), net of controls.

Model 1 in Table 6 (see page 79) shows the relationship between justice

authority contact at T1 and likelihood of failing a school subject(s) at T2 only. The model was a rather poor fit (Pseudo R2 = 0.02), but the overall model was significant (Wald chi21 = 80.83, $p<0.001$), showing that school authority contact had a significant and positive effect on the likelihood of failing a school subject ($b = 0.93$, $p<0.001$).

Model 2 shows the relationship between justice authority contact at T1 and likelihood of failing a school subject(s) at T2, holding constant sociodemographics (T1). This model was also a rather poor fit (Pseudo R2 = 0.06) but the overall model was significant (Wald chi27 = 227.74, $p<0.001$), showing that justice authority contact had a significant and positive effect on the likelihood of failing a school subject ($b = 0.79$, $p<0.001$). All sociodemographics were statistically significant ($p<0.001$) except low self-rated SES ($b = 0.26$, $p>0.05$). Including sociodemographics results in a 15% decrease in the justice authority contact coefficient.

Table 6. Logistic Regressions of Justice Authority Contact in Adolescence (T1; mean age 13) and Failing One or More School Subjects in Last Year (T2; mean age 14; N=3,405).

	(1)	(2)	(3)	(4)
Justice authority contact (T1).	0.93***	0.79***	0.50***	0.23
Time 1 Sociodemographics				
Black[a]	-	0.48***	0.35***	0.29**
Hispanic[b]	-	0.63***	0.48**	0.51***
Male	-	0.44***	0.45***	0.42***
Age	-	0.26***	0.21***	0.22***
Parent's education	-	-0.30***	-0.25***	-0.25***
Low self-rated SES	-	0.26	0.17	0.05
Time 1 School Controls				
Failing grade in school subject(s).	-	-	1.53***	1.40***
Skipped school in last month.	-	-	0.79***	0.48*
Time 1 Controls				
Lives with both biological parents.	-	-	-	-0.31**
Delinquent peers.	-	-	-	0.09
Substance use in last month.	-	-	-	0.14
Self-rated delinquency.	-	-	-	0.12**
Depressive Symptoms.	-	-	-	0.08**
Anger.	-	-	-	0.05
Constant	-1.09***	-3.91***	-3.93***	-4.05***
Wald chi^2	80.83***	227.74***	480.00***	507.61***
Degrees of Freedom	1	7	9	15
Pseudo R^2	0.02	0.06	0.14	0.16

* p<0.05, ** p<0.01, *** p<0.001; a, b reference category: White.

Note: b coefficients; standard errors available upon request; Source: KLAMS, T1 (1971) and T2 (1972).

Model 3 adds school related controls failing grade in school subject(s) and skipping school at T1 to the model. This improves the model (Pseudo R2 = 0.14), with the overall model significant (Wald chi29 = 480.00, p<0.001), showing that justice authority contact had a significant and positive effect on the likelihood of failing a school subject(s) (b = 0.50, p<0.001). T1 school related controls failing grade in school

subject(s) (b = 1.53) and skipping school (b = 0.79) were statistically significant and in the hypothesized direction ($p<0.001$). Including both these variables results in a 37% decrease in the justice authority contact coefficient.

Model 4 adds all T1 controls to the model. The model is a slightly better fit (Pseudo R2 = 0.16) and the overall relationship is significant (Wald chi215 = 507.61, $p<0.001$). While justice authority contact had a positive effect on the likelihood of failing a school subject(s) it was not statistically significant (b = 0.23, $p>0.05$). Self-rated socioeconomic status is still not statistically significant (b = 0.05, $p>0.05$). The rest of the demographics stayed statistically significant ($p<0.01$ or $p<0.001$). Adding T1 controls results in a 54% reduction in the justice authority coefficient. As it pertains to T1 controls, delinquent peers, substance use, and the anger measure were not statistically significant ($p>0.05$). Failing grade in school subject(s), skipping school, living with both biological parents, self-rated delinquency, and depressive symptoms were all statistically significant ($p<0.05$, $p<0.01$, or $p<0.001$), seeming to mediate the relationship between justice authority contact and failing a school subject at T2 as hypothesized by delinquency literature.

Using odd ratios, the odds to fail a school subject(s) at T2 for those who experience justice authority contact at T1 are 1.26 times the odds of those with no school authority contact but the relationship is not significant (OR = 1.26, $p>0.05$). As expected, being Black (OR = 1.34, $p<0.01$), being Hispanic (OR = 1.67, $p<0.001$), and being male (OR = 1.52, $p<0.001$), as well as age (OR = 1.24, $p<0.001$), increases the

odds that they will fail a school subject at T2. As in the school authority regressions, the odds for those who failed a school subject(s) at T1 failing a school subject at T2 reflected the highest coefficient (OR = 4.06, $p<0.001$). Skipping school at T1 increases the odds that respondent will fail a school subject at T2 (OR = 1.61, $p<0.05$). Self-rated delinquency at T1 increases the odds that respondent will fail a school subject at T2 (OR = 1.13, $p<0.01$). The odds that those who experience depressive symptoms at T1 will fail a school subject at T2 also increase (OR = 1.09, $p<0.01$). Parental education at T1 decreases the odds that respondent will fail a school subject at T2 (OR = 0.78, $p<0.001$). Living with both biological parents also decreases the odds that respondent will fail a school subject at T2 (OR = 0.73, $p<0.01$). Altogether, with other variables held constant, justice authority contact at T1 does not predict failing a school subject(s) at T2.

The implications of this suggest that the effects of justice authority contact can be decreased before any contact occurs by being aware of and trying to provide guidance and/or help with the statistically significant risk factors. While the results of Models 1-3 show the relationship between justice authority contact and failing a school subject(s) as significant when T1 controls are included the relationship is no longer significant. Thus, the results of Model 4 do not support Hypothesis 2.

Mediation tests for justice authority contact at T2 were not conducted as sociodemographics, T1 school and other controls explain the relationship (see Table 6). As such, Hypotheses 7 and 8 are not confirmed:

H7: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of skipping school at T2 (1972; mean age 14), increasing likelihood of failing one or more school subjects at T2, net of controls.

H8: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) decreases likelihood of participating in protests at T2 (1972; mean age 14), increasing likelihood of failing one or more school subjects at T2, net of controls.

School Authority Contact (T1) and Failing a School Subject(s) (T3)

The results in this section are a test of Hypothesis 3:

H3: Contact with school authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of failing one or more school subjects at T3 (1973; mean age 15), net of controls.

Model 1 in Table 7 (see page 84) shows the relationship between school authority contact at T1 and likelihood of failing a school subject(s) at T3 only. The model was a rather poor fit (Pseudo R2 = 0.02), but the overall model was significant (Wald chi21 = 70.75, $p<0.001$), showing that school authority contact at T1 had a significant and positive effect on the likelihood of failing a school subject ($b = 0.78$, $p<0.001$) at T3.

Model 2 shows the relationship between school authority contact at T1 and likelihood of failing a school subject(s) at T3, holding constant sociodemographics (T1). This model was a slightly better fit (Pseudo R2 = 0.05), and the overall model was significant (Wald chi27 = 170.97, $p<0.001$), showing that school authority contact at T1 had a significant and positive effect on the likelihood of failing a school subject (b =

0.60, p<0.001) at T3. All sociodemographics were statistically significant (p<0.01 or p<0.001) except age (b = 0.05, p>0.05) and low self-rated SES (b = 0.33, p>0.05). Including sociodemographics results in a 23% decrease in the school authority contact coefficient.

Model 3 adds school related controls failing grade in school subject(s) and skipping school at T1 to the model. This model improves the model (Pseudo R2 = 0.10), with the overall model significant (Wald chi29 = 304.62, p<0.001), showing that school authority contact had a significant and positive effect on the likelihood of failing a school subject (b = 0.37, p<0.001). T1 school related controls failing grade in school subject(s) (b = 1.14) and skipping school (b = 0.81) were statistically significant and in the hypothesized direction (p<0.001). Including both these variables results in a 38% decrease in the school authority contact coefficient.

Model 4 adds all T1 controls to the model. The model improves slightly (Pseudo R2 = 0.11), the overall model remains significant (Wald chi215 = 351.16, p<0.001), and school authority contact still had a significant and positive effect on the likelihood of failing a school subject (b = 0.25, p<0.05). When T1 controls are included in the model, self-rated SES (b = 0.25), age (b = 0.03), and the variable denoting a Black respondent (b = 0.16) are not statistically significant (p>0.05) while the rest of the sociodemographics remain statistically significant (p<0.01, or p<0.001). Including T1 controls results in a 32% decrease in the school authority contact coefficient. As it pertains to T1 controls, substance use, self-rated delinquency, and the anger measure were not statistically significant (p>0.05). Failing grade in school subject(s), skipping

school, living with both biological parents, delinquent peers, and depressive symptoms were all statistically significant and in the hypothesized direction ($p<0.05$, $p<0.01$, or $p<0.001$).

Table 7. Logistic Regressions of School Authority Contact in Adolescence (T1; mean age 13) and Failing One or More School Subjects in Last Year (T3; mean age 15), with Mediators (N=2,882).

	(1)	(2)	(3)	(4)	(5)	(6)
School authority contact (T1).	0.78***	0.60***	0.37***	0.25*	0.15	0.25*
Time 1 Sociodemographics						
Black[a]	-	0.35**	0.22*	0.17	0.28*	0.12
Hispanic[b]	-	0.59***	0.43**	0.42**	0.36*	0.39*
Male	-	0.55***	0.55***	0.57***	0.55***	0.58***
Age	-	0.05	0.03	0.02	0.01	0.01
Parent's education	-	-0.27***	-0.23***	-0.24***	-0.24***	-0.24***
Low self-rated SES	-	0.33	0.25	0.18	0.20	0.15
Time 1 School Controls						
Failing grade in school subject(s).	-	-	1.14***	1.05***	1.05***	1.05***
Skipped school in last month.	-	-	0.81***	0.54**	0.42*	0.53**
Time 1 Controls						
Lives with both biological parents.	-	-	-	-0.33**	-0.29**	-0.33**
Delinquent peers.	-	-	-	0.16*	0.13*	0.15*
Substance use in last month.	-	-	-	0.15	0.08	0.16
Self-rated delinquency.	-	-	-	0.02	0.00	0.01
Depressive Symptoms.	-	-	-	0.08*	0.08*	0.08*
Anger.	-	-	-	0.02	0.01	0.02
Time 3 Mediators						
Surveilling institution avoidance (skip school).	-	-	-	-	0.89***	-
Nonsurveilling institution avoidance (no protest).	-	-	-	-	-	-0.40**
Constant	-1.18***	-1.36	-1.45	-1.29	-1.42	-0.82
Wald chi^2	70.75***	170.97***	304.62***	351.16***	394.60***	359.78***
Degrees of Freedom	1	7	9	15	16	16
Pseudo R^2	0.02	0.05	0.10	0.11	0.13	0.11

* $p<0.05$, ** $p<0.01$, *** $p<0.001$; a, b reference category: White.

Note: b coefficients; standard errors available upon request; Source: KLAMS, T1 (1971) and T3 (1973).

Employing odds ratios, the odds to fail a school subject(s) at T3 for those who

experience school authority contact at T1 are 1.28 times the odds (OR = 1.28, $p<0.05$) of those with no school authority contact. Being Hispanic (OR = 1.52, $p<0.01$), and being male (OR = 1.77, $p<0.001$), increases the odds that they will fail a school subject at T3. The odds for those who failed a school subject(s) at T1 failing a school subject at T3 also increase, still the highest coefficient of all predictors (OR = 2.87, $p<0.001$). Skipping school at T1 increases the odds that respondent will fail a school subject at T3 (OR = 1.72, $p<0.01$). The odds that those who experience depressive symptoms at T1 will fail a school subject at T3 also increase (OR = 1.08, $p<0.05$). Parental education at T1 decreases the odds that respondent will fail a school subject(s) at T3 (OR = 0.79, $p<0.001$). Living with both biological parents also decreases the odds that respondent will fail a school subject at T3 (OR = 0.71, $p<0.01$). Altogether, with other variables held constant, failing a school subject(s) at T3 was positively predicted by school authority contact at T1. The results of Models 1-4 confirm Hypothesis 3.

School Authority Contact (T1) and Surveilling Institution Avoidance (T3)

Skipping school (T3). As Model 5 in Table 7 shows (see page 84), when skipping school was included in the full model (i.e. regressions with sociodemographics, T1 school and other controls included), the relationship between school authority contact and failing school subject(s) had a decrease in the coefficient from 0.25 to 0.15, a 40% reduction, and was no longer significant ($p>0.05$). Skipping school at T3 however was statistically significant (b = 0.89, $p<0.001$). School authority contact not being statistically significant indicates full mediation.

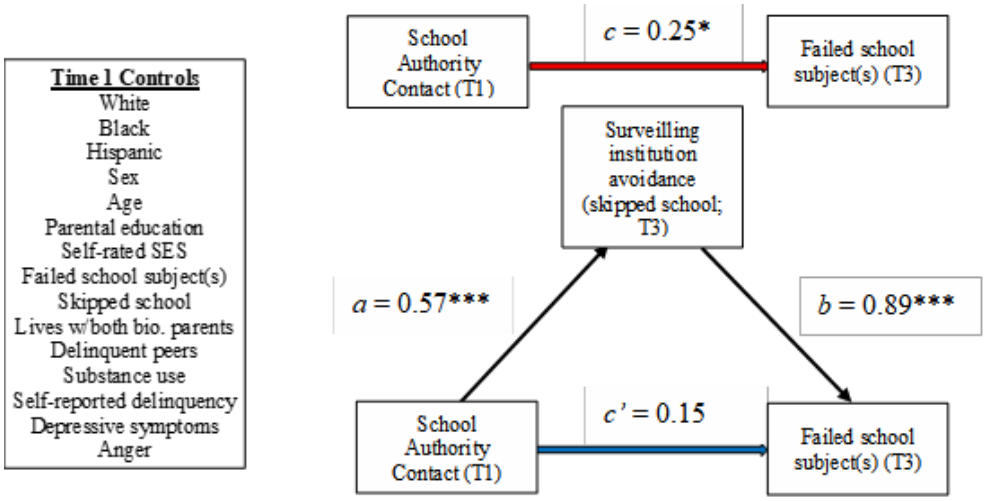
As Figure 7 Path a shows (see page 87), holding sociodemographics, T1 school,

and other controls constant, school authority contact was significant and positively associated with skipping school ($b = 0.57$, $p<0.001$). The first column in Table 8 (seepage 87) shows the total indirect effect (Path a + Path b in Figure 7), direct, and total effects. The indirect and total effects were both statistically significant ($p<0.05$, $p<0.001$), and the direct effect was no longer statistically significant ($p>0.05$), confirming that skipping school at T3 completely mediates the relationship between school authority contact at T1 and failing a school subject(s) at T3. All statistically significant predictors from Model 4 stayed significant. Interestingly, respondent being Black is now statistically significant as well.

Hence, skipping school at T3 increases the odds that respondent will fail a school subject at T3 ($OR = 2.44$, $p<0.001$). While Table 8 shows that the direct effect of school authority contact at T1 is stronger than skipping school at T3, the effect is no longer significant. The results of Model 5 in Table 7, Figure 7, and first column in Table 8 confirm Hypothesis 9:

> H9: Contact with school authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of skipping school at T3 (1973; mean age 15), increasing likelihood of failing one or more school subjects in T3, net of controls.

Figure 7. Mediation Effects of School Authority Contact in Adolescence (T1; mean age 13) and Failing One or More School Subjects in Last Year (T3; mean age 15; N=2,882).



Note: b coefficients; * p<0.05, *** p<0.001.

Table 8. Decomposition Effects of School Authority Contact (T1; mean age 13) and Failing Grade in School Subject(s) (T3; mean age 14; N=2,882).

	Skipped school (T3)	No protest participation (T3)
Indirect Effect	0.028***	0.001
Direct Effect	0.034	0.058*
Total Effect	0.062*	0.059*

* p<0.05, *** p<0.001; Effects based on standardized coefficients.

School Authority Contact (T1) and Nonsurveilling Institution Avoidance (T3)

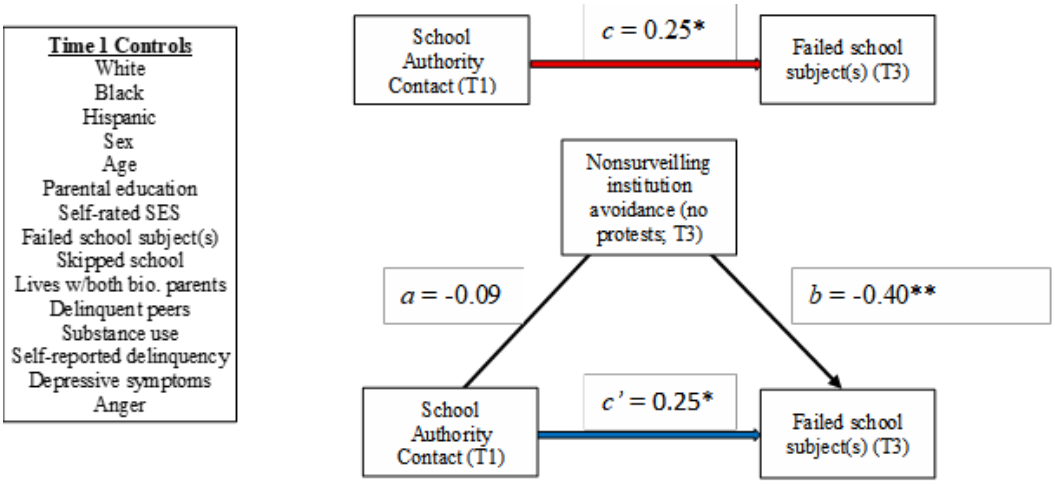
No protest participation (T3)

As Model 6 in Table 7 shows (see page 84), when no protest participation was included in the full model (i.e. regressions with sociodemographics, T1 school and other

controls), the relationship between school authority contact and failing school subject(s) stayed the same ($b = 0.25$, $p<0.05$), indicating no mediation.

Table 8 and Figure 8 (see page 89) confirm this. Holding sociodemographics, T1 school and other controls constant, not participating in school protests was negatively associated with school authority contact, however the effect was not significant ($b = -0.09$, $p>0.05$). All statistically significant predictors in Model 4 stayed significant. However, of note, is that in this model no protest participation slightly decreased the coefficient for skipping school at T1 (from 0.54 to 0.53). The second column in Table 8 shows the total indirect effect (Path a + Path b in Figure 8) as not statistically significant ($p>0.05$). Since the indirect effect was not statistically significant no mediation can be claimed (Aneshensel 2012; Baron and Kenny 1986; MacKinnon 2008; Preacher and Hayes 2004; Zhao et al. 2010).

Figure 8. Mediation Effects of School Authority Contact in Adolescence (T1; mean age 13) and Failing One or More School Subjects in Last Year (T3; mean age 15; N=2,882).



Note: b coefficients; * p<0.05, ** p<0.01.

With the relationship between school authority contact and not participating in protests not significant, thereby failing Baron and Kenny's Step 2, we can conclude that not participating in protests does not mediate the relationship between school authority contact and failing a school subject(s) at T3. The results of Model 6 in Table 7, Path a in Figure 8, and indirect effects not being significant in the second column of Table 8 do not support Hypothesis 10:

> H10: Contact with school authority officials in adolescence at T1 (1971; mean age 13) decreases likelihood of participating in protests at T3 (1973; mean age 15), increasing likelihood of failing one or more school subjects at T3, net of controls.

Justice Authority Contact (T1) and Failing a School Subject(s) (T3)

The results in this section are a test of Hypothesis 4:

H4: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) increases likelihood of failing one or more school subjects at T3 (1973; mean age 15), net of controls.

Model 1 in Table 9 (see page 92) shows the relationship between justice authority contact at T1 and likelihood of failing a school subject(s) at T3 only. The model was a rather poor fit (Pseudo R2 = 0.01), but the overall model was significant (Wald chi21 = 38.84, $p<0.001$), showing that justice authority contact at T1 had a significant and positive effect on the likelihood of failing a school subject ($b = 0.76$, $p<0.001$) at T3.

Model 2 shows the relationship between justice authority contact at T1 and likelihood of failing a school subject(s) at T3, holding constant sociodemographics (T1). This was also a rather poor fit (Pseudo R2 = 0.05), but the overall model was significant (Wald chi27 = 147.75, $p<0.001$), showing that justice authority contact at T1 had a significant and positive effect on the likelihood of failing a school subject(s) ($b = 0.56$, $p<0.001$) at T3. All sociodemographics were statistically significant ($p<0.001$) except age ($b = 0.06$, $p>0.05$) and low self-rated SES ($b = 0.32$, $p<0.05$). Including sociodemographics results in a 26% reduction in the justice authority contact coefficient.

Model 3 adds school related controls failing grade in school subject(s) and skipping school in last month at T1 to the model. This improves the model (Pseudo R2 =

0.10), with the overall model significant (Wald chi29 = 281.54, p<0.001). Additionally, justice authority contact is no longer significant (b = 0.24, p>0.05). T1 school related controls failing grade in school subject(s) (b = 1.17) and skipping school (b = 0.86) were statistically significant and in the hypothesized direction (p<0.001). Including both these variables results in a 57% decrease in the justice authority contact coefficient. When T1 school controls are included in the model age (b=0.03) and low self-rated SES (b=0.25) are still not statistically significant (p>0.05). The rest of the demographics stayed statistically significant (p<0.05, p<0.01, or p<0.001). Failing grade in school subject(s) and skipping school at T1 seemingly mediate the relationship between justice authority contact at T1 and failing a school subject(s) at T3.

Using odd ratios again, the odds to fail a school subject(s) at T3 for those who experience justice authority contact at T1 are 1.27 times the odds of those with no school authority contact but the relationship is not significant (OR = 1.27, p>0.05). Being Black (OR = 1.29, p<0.05), being Hispanic (OR = 1.55, p<0.01), and being male (OR = 1.79, p<0.001) increases the odds that they will fail a school subject at T3. As all previous models, the odds for those who failed a school subject(s) at T1 failing a school subject at T3 reflected the highest coefficient (OR = 3.23, p<0.001). Skipping school at T1 increases the odds that respondent will fail a school subject at T3 (OR = 2.36, p<0.001). Altogether, with sociodemographics and T1 school controls held constant, justice authority contact at T1 does not predict failing a school subject(s) at T3.

The implications of this suggest that the effect of justice authority contact at T1 on failing a school subject at T3 can be decreased before any contact occurs by

Table 9. Logistic Regressions of Justice Authority Contact in Adolescence (T1; mean age 13) and Failng One or More School Subjects in Last Year (T3; mean age 15; N=2,882).

	(1)	(2)	(3)
Justice authority contact (T1).	0.76***	0.56***	0.24
Time 1 Sociodemographics			
Black[a]	-	0.41***	0.25*
Hispanic[b]	-	0.61***	0.44**
Male	-	0.59***	0.58***
Age	-	0.06	0.03
Parent's education	-	-0.27***	-0.23***
Low self-rated SES	-	0.32	0.25
Time 1 School Controls			
Failing grade in school subject(s).	-	-	1.17***
Skipped school in last month.	-	-	0.86***
Time 1 Controls			
Lives with both biological parents.	-	-	-
Delinquent peers.	-	-	-
Substance use in last month.	-	-	-
Self-rated delinquency.	-	-	-
Depressive Symptoms.	-	-	-
Anger.	-	-	-
Time 3 Mediators			
Surveilling institution avoidance (skip school).	-	-	-
Nonsurveilling institution avoidance (no protest).	-	-	-
Constant	-1.06***	-1.35	-1.44
Wald chi^2	38.84***	147.75***	281.54***
Degrees of Freedom	1	7	9
Pseudo R^2	0.01	0.05	0.10

* p<0.05, ** p<0.01, *** p<0.001; a, b reference category: White.

Note: b coefficients; standard errors available upon request; Source: KLAMS, T1 (1971) and T3 (1973).

decreasing a respondent's propensity to skip. Additionally, offering them resources to ensure that failing a school subject does not happen and if it does that resources such as tutoring are offered as soon as possible should also be helpful. While the results of Models 1-2 show the relationship between justice authority contact and failing a school

subject(s) as significant, when T1 school controls are included the relationship is no longer significant. The results of Model 3 do not support Hypothesis 4.

Mediation tests for the relationship between justice authority contact at T1 and failing a school subject(s) at T3 were not conducted as sociodemographics and T1 school controls explain the relationship (see Table 9 on page 92). As such, Hypotheses 11 and 12 are not confirmed:

> H11: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) increases likelihood of skipping school at T3 (1973; mean age 15), increasing likelihood of failing one or more school subjects at T3, net of controls.
>
> H12: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood of participating in protests at T3 (1973; mean age 15), increasing likelihood of failing one or more school subjects at T3, net of controls.

Sample Attrition Bias

Attrition analyses were conducted to determine characteristics differentiating those who participated at T1 with data on all study variables at that time point with those not included at T2 and T3, respectively, compared with those included in all three samples. Differences between these groups were not statistically significant on any of the T1 variables for the T2 sample (see Table A2). At T3 (see Table A3), there were less Whites (3,654 vs 1,815; $F = 6.38$, $p<0.05$) and less Blacks (1,461 vs 893; $F = 6.35$, $p<0.05$) than at T1. The T3 sample was also less angry than at T1 (2.12 vs 2.05; $F = 4.32$, $p<0.05$)). As such, for T3, school and justice authority contact results could be

underestimating the effects of labeling as Blacks are more likely to have school and justice authority contact (Heitzeg 2009; Rocque and Paternoster 2011) and anger is associated with disciplinary problems (Zhou et al. 2010; Bryce et al. 2017).

Summary

The following is a summary of all adolescent life stage results. The implications of these results are discussed in Chapter VIII.

The Relationship between School Authority Contact (T1) and Failing a School Subject(s) in Adolescence (T2 and T3)

School authority contact at T1 is a dichotomous variable indicating whether a respondent was ever suspended, expelled, or taken to the office for punishment. In both adolescent time periods those with school authority contact were more likely to fail a school subject in all models except in the T3 mediation model where skipping school at T3 is added since this variable completely mediates the relationship. These results all confirm the main effect hypotheses proposed at the end of Chapter III in this study. School related controls failing a school subject(s) and skipping school at T1 were consistently the biggest predictors of failing a school subject in all the unstandardized models in which they were included, except one. The mediation model where skipping school at T2 is included is the only model in which T1 skipping school was not statistically significant.

As the literature indicates, sociodemographics being Black, being Hispanic, and being male consistently predicts school subject failure in almost all models. Being Black

does not predict school subject failure at T3 when all controls are added and at T3 in the no protest participation mediation model. However, being Black in the skipping school mediation model turning significant at T3 suggests a mediation effect associated with skipping school at T3. Age at T1 is statistically significant in all T2 models but not at T3. At T2 and T3, the approximate measure of SES indicating low self-rated SES was not significant in any of the models.

As for the rest of T1 controls, depressive symptoms was statistically significant and predicted school subject failure in all models included. Self-rated delinquency at T1 was significant and predicted school failure at T2 in all models included except the skipping school mediation model and not significant in any of the T3 models included. While having delinquent peers at T1 was not statistically significant in any T2 models it was statistically significant and predicted school subject failure in all T3 models included. Additionally, as the literature suggests, living with both parents and parental education at T1 were significant and negative in all models included indicating protective factors. Finally, substance use and anger at T1 did not predict school subject failure in any model where they were included.

The Role of Institution Avoidance (T2 and T3) in the Relationship between School Authority Contact (T1) and Failing a School Subject(s) in Adolescence (T2 and T3)

Avoidance of surveilling institutions in adolescence (T2 and T3) is a dichotomous variable measured by skipping school, reflecting educational institutional avoidance. Avoidance of nonsurveilling institutions in adolescence (T2 and T3) is a

dichotomous variable indicating not participating in protests as an approximate measure for avoiding civic participation.

Using Baron and Kenny's steps for mediation, mediation results at T2 show that both skipping school and no protest participation partially mediate the relationship between school authority contact at T1 and failing a school subject(s) at T2. Skipping school at T2 predicts school failure at T2 but although the unstandardized coefficient is bigger than all other predictors included in the model, the decomposition effects which provide standardized coefficients for the direct and indirect effects show that school authority contact has a bigger impact on failing a school subject at T2. No protest participation at T2 also partially mediates the relationship between school authority contact at T1 and failing a school subject at T2. Mediation analysis results show that no protest participation at T2 decreases the likelihood of failing a school subject(s) at T2. The direction is the opposite of that hypothesized in this study.

Mediation results at T3 show that skipping school at T3 completely mediates the relationship between school authority contact at T1 and failing a school subject(s) at T3. Skipping school at T3 predicts school failure at T3 and while the decomposition effects which provide standardized coefficients for the direct and indirect effects again show that school authority contact has a slightly larger impact on failing a school subject at T3, the effect is no longer significant. As such mediation analysis results for no protest participation at T3 find no mediation in this relationship.

Mediation results confirm the mediation hypotheses proposed in Chapter III for skipping school at T2 suggesting that any relationship between school authority contact

and failing a school subject at T2 and T3 would be mediated by skipping school. While mediation results at T2 confirmed partial mediation related to not participating in protests, the direction of the relationship was the opposite of the proposed hypothesis. Meanwhile no mediation at T3 was found for no protest participation in the relationship between school authority contact and failing a school subject at T3.

The Relationship between Justice Authority Contact (T1) and Failing a School Subject(s) in Adolescence (T2 and T3)

Justice authority contact is a measure delineating ever having had anything to do with the police, sheriff, or juvenile officers. In both adolescent time periods, the effects of justice authority contact were explained by sociodemographics and T1 school and other control variables, which was not hypothesized.

As with the school authority regressions, school related controls failing a school subject(s) and skipping school at T1 were consistently the biggest predictors of failing a school subject in all the unstandardized models in which they were included. Sociodemographics being Black, being Hispanic, and being male predicts school subject failure in all models included. Age at T1 is statistically significant in all T2 models but not at T3. Low self-rated SES was not statistically significant in any of the models included.

As for the rest of T1 controls, depressive symptoms and self-rated delinquency at T1 were significant and predicted school failure at T2. Living with both parents and parental education at T1 were significant and negative in all models included, again

indicating protective factors related to these measures. Finally, having delinquent peers, substance use, and anger at T1 did not predict school subject failure at T2.

Regressions for T3 stopped once sociodemographics and T1 school related controls were included as the justice authority coefficient was no longer significant after this. Relatedly, no mediation analyses were conducted in the relationship between justice authority contact and failing a school subject at T2 and T3 since sociodemographics, T1 school and other controls explain the relationship at T2 while sociodemographics and T1 school related controls explain the relationship at T3.

CHAPTER VI

EMERGING ADULTHOOD LIFE STAGE RESULTS

This chapter presents the main findings obtained for the emerging adulthood (Arnett 2000) life stage portion of this study. The first section presents the bivariate relationships between all the variables analyzed in this study. The second section presents the results of the multivariate models predicting years of schooling completed at Time 4 (1982-1987; mean age 24). The third section examines the outcomes of the mediation analysis. The final section discusses attrition analyses and what it means for the multivariate findings. An overview of the core findings concludes this chapter.

Correlation Analysis

Correlation analysis results analysis results are presented in Table A4 (see Appendix). T4 zero-order correlations report correlation with the main dependent (years of formal schooling completed), mediator (avoidance of surveilling and nonsurveilling institutions), the main independent (school and justice authority contact at T1), and most of the T1 control variables in this study ($p<0.05$ or $p<0.001$, two-tailed test). Again, correlation analysis tests potential multicollinearity problems and whether the relationships between variables are in the hypothesized direction. All correlations ranged from weak to very weak with no correlations exhibiting strong associations.

Surveilling institution avoidance (T4) is correlated with the main dependent variable years of formal schooling completed at T4 ($r = -0.28$, $p<0.001$), the mediator nonsurveilling institution avoidance at T4 ($r = 0.20$, $p<0.001$), and the main independent variables school

(r = 0.04, p<0.001) and justice authority contact (r = 0.05, p<0.001) at T1. The variables indicating anger and substance use at T1 are the only control variables not associated with surveilling institution avoidance at T4 in this study.

Nonsurveilling institution avoidance (T4) is also correlated with the main dependent variable years of formal schooling completed at T4 (r = -0.24, p<0.001), and the main independent variables school (r = 0.08, p<0.001) and justice authority contact (r = 0.07, p<0.001) at T1. The variable indicating respondent as Black and substance use at T1 are the only T1 control variables not associated with nonsurveilling institution avoidance at T4 in this study.

Multivariate Findings

This section presents the outcomes of ordinary least square regression (OLS) testing the hypotheses that school and justice authority contact at T1 decreases years of formal schooling completed at T4 (Hypotheses 13 and 14). The first regression includes only the main dependent variable with the main independent variable of interest, in the second regression sociodemographics (T1) are included, in the third regression school controls are added, and in the fourth regression all T1 controls are added. If the overall model is still significant, the mediators are added separately to the regression analyses.

School Authority Contact (T1) and Years of Formal Schooling Completed (T4)

The results in this section are a test of Hypothesis 13:

H13: Contact with school authority officials in adolescence at T1 (1971; mean age 13) decreases years of formal schooling completed at emerging adulthood T4 (1982-87; mean age 24), net of controls.

Model 1 in Table 10 (see page 103) shows the relationship between school authority contact at T1 and years of formal schooling completed at T4 only. The model was a rather poor fit (Adjusted R2 = 0.03), but the overall model was significant (Wald chi21 = 126.97, $p<0.001$), showing that school authority contact had a significant and negative effect on years of formal schooling completed ($b = -1.03$, $p<0.001$).

Model 2 shows the relationship between school authority contact at T1 and years of formal schooling completed at T4, holding constant sociodemographics (T1). This model was a better fit (Adjusted R2 = 0.16), and the overall relationship was significant (Wald chi27 = 593.58, $p<0.001$), showing that school authority contact had a significant and negative effect on years of formal schooling completed ($b = -0.81$, $p<0.001$). All sociodemographics, except sex of respondent, were statistically significant ($p<0.01$ or $p<0.001$). Including sociodemographics results in a 21% decrease in the school authority contact coefficient.

Model 3 adds school related controls failing grade in school subject(s) and skipping school at T1 to the model. This improves the model (Adjusted R2 = 0.20), with the overall model significant (Wald chi29 = 824.81, $p<0.001$), showing that school authority contact had a significant and negative effect on years of formal schooling completed ($b = -0.48$, $p<0.001$). Sex of respondent remains not significant while the rest of the demographics remain statistically significant ($p<0.01$ or $p<0.001$). T1 school related

controls failing grade in school subject(s) (b = -1.12) and skipping school (b = -0.83) were statistically significant and in the hypothesized direction ($p<0.001$). Including both these variables results in a 41% decrease in the school authority contact coefficient.

Model 4 adds all T1 controls to the model. The model improves slightly (Adjusted R2 = 0.21) and the overall model remains significant (Wald chi215 = 979.70, $p<0.001$), showing that school authority contact had a significant and negative effect on years of formal schooling completed (b = -0.36, $p<0.001$). Sex of respondent is still not statistically significant while the rest of the demographics remain statistically significant ($p<0.01$ or $p<0.001$). Including T1 controls results in a 25% reduction in the school authority contact coefficient.

In Model 4, being Black (b = -0.22), being Hispanic (b = -0.56), age (b = -0.63), parent's education (b = 0.60), and low self-rated SES (b = -0.45) were all statistically significant and in the hypothesized direction ($p<0.01$ or $p<0.001$). T1 school related controls failing grade in school subject(s) (b = -1.01) and skipping school (b = -0.56) were statistically significant and remain in the hypothesized direction ($p<0.01$ or $p<0.001$). As it pertains to T1 controls, substance use, self-rated delinquency, and the anger measure were not statistically significant ($p>0.05$). Living with both biological parents (b = 0.55), having delinquent peers (b = -0.21), and depressive symptoms (b = -0.07) were all statistically significant ($p<0.05$ or $p<0.001$). As such, with hypothesized control variables held constant, years of formal schooling completed at T4 was negatively associated with school authority contact at T1. The results of Models 1-4 in Table 10 confirm Hypothesis 13.

Table 10. OLS Regressions of School Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Emerging Adulthood (T4; mean age 24), with Mediators (N=3,857).

	(1)	(2)	(3)	(4)	(5)	(6)
School authority contact (T1).	-1.03***	-0.81***	-0.48***	-0.36***	-0.35***	-0.33***
Time 1 Sociodemographics						
Black[a]	-	-0.33***	-0.25**	-0.22**	-0.21**	-0.25**
Hispanic[b]	-	-0.64***	-0.50**	-0.56***	-0.51***	-0.49**
Male	-	0.10	0.13	0.08	-0.07	0.12
Age	-	-0.76***	-0.67***	-0.63***	-0.60***	-0.62***
Parent's education	-	0.68***	0.61***	0.60***	0.56***	0.58***
Low self-rated SES	-	-0.70***	-0.57***	-0.45**	-0.40*	-0.39*
Time 1 School Controls						
Failing grade in school subject(s).	-	-	-1.12***	-1.01***	-0.92***	-0.97***
Skipped school in last month.	-	-	-0.83***	-0.56**	-0.52**	-0.49**
Time 1 Controls						
Lives with both biological parents.	-	-	-	0.55***	0.51***	0.49***
Delinquent peers.	-	-	-	-0.21***	-0.19***	-0.21***
Substance use in last month.	-	-	-	0.07	0.07	0.06
Self-rated delinquency.	-	-	-	-0.06	-0.06	-0.07
Depressive Symptoms.	-	-	-	-0.07*	-0.05*	-0.06*
Anger.	-	-	-	0.04	0.03	0.05
Time 4 Mediators						
Surveilling institution avoidance.	-	-	-	-	-0.69***	-
Nonsurveilling institution avoidance.	-	-	-	-	-	-0.54***
Constant	13.34***	21.31***	20.54***	19.83***	21.34***	20.94***
Wald chi[2]	126.97***	593.58***	824.81***	979.70***	1308.42***	1132.57***
Degrees of Freedom	1	7	9	15	16	16
Adjusted R^2	0.03	0.16	0.20	0.21	0.26	0.24

* p<0.05, ** p<0.01, *** p<0.001; a, b reference category: White.

Note: b coefficients; standard errors available upon request; Source: KLAMS, T1 (1971) and T4 (1982-1987).

Mediation Analysis

To test the hypothesis that system avoidance measures mediate the relationship between school and justice authority contact (T1) and years of formal schooling completed at T4 and T7, a causal step approach for each proposed pathway was conducted (Baron and Kenny 1986). The first step related to school authority contact was presented in the multivariate regressions presented in the last section, the regression

models estimated helping to determine the empirical relationship between the predictors of school outcomes at T1 and the dependent variable years of formal schooling completed at T4.

The second step is to establish whether the main independent variables (school and justice authority contact) are associated with the proposed mediators (i.e. surveilling and nonsurveilling institution avoidance). The third step is to conduct regression analyses to assess the relationship between the main independent variables and years of formal schooling completed at T4 with the mediators included, holding constant sociodemographics, T1 school and other controls. The final step, if a mediation effect is determined, is to provide direct, indirect, and total effects.

Surveilling and Nonsurveilling Institution Avoidance in Emerging Adulthood (T4)

Surveilling institution avoidance at T4 (mean age 24) is an index based on four questions denoting unemployment, not being on welfare, not belonging to professional organizations, and not being enrolled in a vocational, technical, or degree-granting program. Nonsurveilling institution avoidance at T4 is an index based on three questions denoting not belonging to civic, religious, or social organizations.

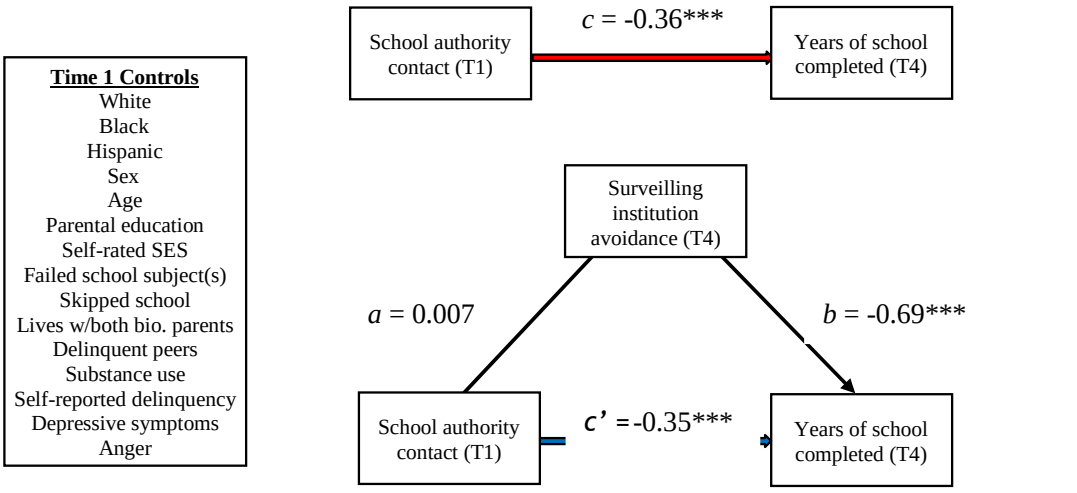
School Authority Contact (T1) and Surveilling Institution Avoidance (T4)

As Model 5 in Table 10 shows (see page 103), when surveilling institution avoidance was included in the full model (i.e. regression with sociodemographics, T1 school and other controls included), the relationship between school authority contact and years of formal schooling completed decreased from -0.36 to -0.35 (a 3% reduction

in the coefficient) and stayed statistically significant (p<0.001). Furthermore, surveilling institution avoidance was statistically significant (b = -0.69, p<0.001) indicating possible partial mediation.

However, results from Stata's sgmediation command shows that this is not the case. As Figure 9 Path a illustrates, holding sociodemographics, T1 school and other controls constant, school authority contact was positively associated with surveilling institution avoidance but the effect was not significant (b = 0.007, p>0.05).

Figure 9. Mediation Effects of School Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Emerging Adulthood (T4; mean age 24; N=3,857).



Note: b coefficients; *** p<0.001.

Table 11. Decomposition Effects of School Authority Contact (T1; mean age 13) and Years of Formal Schooling Completed (T4; mean age 24; N=3,857).

	Surveilling institution avoidance (T4)	Nonsurveilling institution avoidance (T4)
Indirect Effect	-0.005	-0.026
Direct Effect	-0.351***	-0.330***
Total Effect	-0.356***	-0.356***

Note: b coefficients; *** p<0.001.

The first column in Table 11 shows the total indirect effect (Path a + Path b in Figure 9), confirming that the indirect effect was not significant (b = -0.005, p>0.05). Additionally, while the coefficients from the statistically significant predictors from Model 4 were reduced, the p-values for all, except low self-rated SES (p<0.05) stayed the same. Since the relationship between school authority contact and surveilling institution avoidance is not significant, thereby failing Baron and Kenny's Step 2, we can conclude that surveilling institution avoidance does not mediate the relationship between school authority contact and years of formal schooling completed at T4. The results of the relationship between school authority contact and surveilling institution avoidance do not support Hypothesis 17:

> H17: Contact with school authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in surveilling institutions (i.e. employment, welfare, professional organizations, enrollment in degree granting program) at T4, decreasing years of formal schooling completed in emerging adulthood at T4 (1982-87; mean age 24), net of controls.

School Authority Contact (T1) and Nonsurveilling Institution Avoidance (T4)

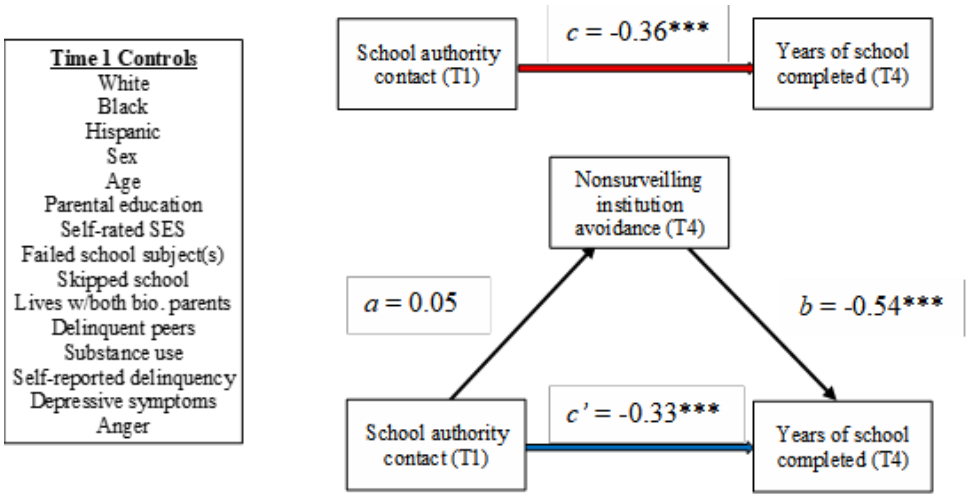
Similarly, as Model 6 in Table 10 shows (see page 103), when nonsurveilling institution avoidance was included in the full model (i.e. regression with sociodemographics, T1 school and other controls included), the relationship between school authority contact and years of formal schooling completed decreased by 8% and stayed statistically significant ($b = -0.33$, $p<0.001$). Nonsurveilling institution avoidance was also statistically significant ($b = -0.54$, $p<0.001$) indicating possible partial mediation.

However, as Path a in Figure 10 shows (see page 108), holding sociodemographics, T1 school and other controls constant, nonsurveilling institution avoidance was positively associated with school authority contact but the effect was not significant ($b = 0.05$, $p>0.05$). The second column in Table 11 (see page 106) indicating the total indirect effect (Path a + Path b in Figure 10), confirms that the indirect effect was not significant ($b = -0.026$, $p>0.05$). Again, while the coefficients from the statistically significant predictors from Model 4 were reduced (except for the variable indicating respondent at Black which increased from -0.22 to -0.25), the p-values for all stayed the same. Since the relationship between school authority contact and nonsurveilling institution avoidance is not significant, thereby failing Baron and Kenny's Step 2, we can conclude that nonsurveilling institution avoidance does not mediate the relationship between school authority contact and years of formal schooling completed at T4. The results from Table 10, Figure 10, and the first column in Table 11 analyzing

the relationship between school authority contact and nonsurveilling institution avoidance do not support Hypothesis 18:

H18: Contact with school authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in nonsurveilling institutions (i.e. civic, religious, social organizations) at T4, decreasing years of formal schooling completed in emerging adulthood at T4 (1982-87; mean age 24), net of controls.

Figure 10. Mediation Effects of School Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Emerging Adulthood (T4; mean age 24; N=3,876).



Note: b coefficients; *** p<0.001.

Justice Authority Contact (T1) and Years of Formal Schooling Completed (T4)

The results in this section are a test of Hypothesis 14:

H14: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) decreases years of formal schooling completed at T4 (1982-87; mean age 24), net of controls.

Model 1 in Table 12 (see page 110) shows the relationship between justice

authority contact at T1 and years of formal schooling completed at T4 only. The model was a rather poor fit (Adjusted $R^2 = 0.02$), but the overall model was significant (Wald $chi^2_1 = 76.87$, $p<0.001$), showing that justice authority contact had a significant and negative effect on years of formal schooling completed ($b = -1.05$, $p<0.001$).

Model 2 shows the relationship between justice authority contact at T1 and years of formal schooling completed at T4, holding constant sociodemographics (T1). This model improved (Adjusted $R^2 = 0.15$) and the overall relationship was significant (Wald $chi^2_7 = 605.94$, $p<0.001$), showing that justice authority contact had a significant and negative effect on years of formal schooling completed ($b = -0.92$, $p<0.001$). All sociodemographics, except sex of respondent, were statistically significant ($p<0.001$). Including sociodemographics results in a 12% decrease in the justice authority contact coefficient.

Model 3 adds school related controls failing grade in school subject(s) and skipping school in last month at T1 to the model. These additions improve the model (Pseudo $R^2 = 0.20$) with the overall model significant (Wald $chi^2_9 = 826.13$, $p<0.001$), showing that justice authority contact had a significant and negative effect on years of formal schooling completed ($b = -0.54$, $p<0.001$) at T4. All sociodemographics, except sex of respondent, remain statistically significant ($p<0.001$). T1 school related controls failing grade in school subject(s) ($b = -1.16$) and skipping school ($b = -0.84$) were statistically significant and in the hypothesized direction ($p<0.001$). Including both variables results in a 41% decrease in the justice authority contact coefficient.

Model 4 adds all T1 controls to the model. The model is a slightly better fit

(Adjusted $R^2 = 0.21$) and the overall relationship is significant (Wald $chi^2_{15} = 966.32$, $p<0.001$) showing that justice authority contact had a significant and negative effect on years of formal schooling completed ($b = -0.32$, $p<0.01$). All sociodemographics, except sex of respondent, remain statistically significant ($p<0.01$ or $p<0.001$). Including T1 controls results in a 41% decrease in the justice authority contact coefficient.

Table 12. OLS Regressions of Justice Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Emerging Adulthood (T4; mean age 24), with Mediators (N=3,857).

	(1)	(2)	(3)	(4)	(5)	(6)
Justice authority contact (T1).	-1.05***	-0.92***	-0.54***	-0.32**	-0.28*	-0.29*
Time 1 Sociodemographics						
Black[a]	-	-0.43***	-0.30***	-0.26**	-0.24**	-0.29***
Hispanic[b]	-	-0.71***	-0.54***	-0.59***	-0.54***	-0.51**
Male	-	0.09	0.12	0.07	-0.08	0.11
Age	-	-0.77***	-0.67***	-0.64***	-0.61***	-0.62***
Parent's education	-	0.67***	0.60***	0.59***	0.56***	0.57***
Low self-rated SES	-	-0.71***	-0.57***	-0.45**	-0.40*	-0.40*
Time 1 School Controls						
Failing grade in school subject(s).	-	-	-1.16***	-1.03***	-0.95***	-0.99***
Skipped school in last month.	-	-	-0.84***	-0.57**	-0.54**	-0.51**
Time 1 Controls						
Lives with both biological parents.	-	-	-	0.54***	0.51***	0.48***
Delinquent peers.	-	-	-	-0.22***	-0.20***	-0.21***
Substance use in last month.	-	-	-	0.05	0.05	0.05
Self-rated delinquency.	-	-	-	-0.06	-0.06	-0.07
Depressive Symptoms.	-	-	-	-0.07*	-0.06*	-0.06*
Anger.	-	-	-	0.03	0.02	0.05
Time 4 Mediators						
Surveilling institution avoidance.	-	-	-	-	-0.69***	-
Nonsurveilling institution avoidance.	-	-	-	-	-	-0.55***
Constant	13.20***	21.47***	20.61***	19.92***	21.42***	21.03***
Wald chi^2	76.87***	605.94***	826.13***	966.32***	1307.05***	1128.67***
Degrees of Freedom	1	7	9	15	16	16
Adjusted R^2	0.02	0.15	0.20	0.21	0.25	0.24

* p<0.05, ** p<0.01, *** p<0.001; a, b reference category: White.

Note: b coefficients; standard errors available upon request; Source: KLAMS, T1 (1971) and T4 (1982-1987).

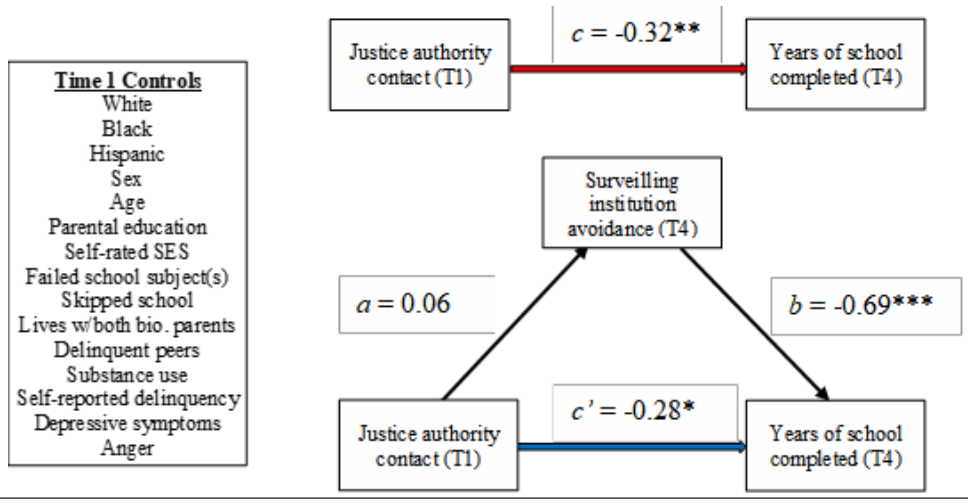
In Model 4, being Black (b = -0.26), being Hispanic (b = -0.59), age (b = -0.64), parent's education (b = 0.59), and low self-rated SES (b = -0.45) were all statistically significant and in the hypothesized direction ($p<0.01$ or $p<0.001$). T1 school related controls failing grade in school subject(s) (b = -1.03) and skipping school (b = -0.57) remain statistically significant and in the hypothesized direction ($p<0.01$ or $p<0.001$). As it pertains to T1 controls, substance use, self-rated delinquency, and the anger measure were not statistically significant ($p>0.05$). Living with both biological parents (b = 0.54), having delinquent peers (b = -0.22), and depressive symptoms (b = -0.07) were all statistically significant ($p<0.05$ or $p<0.001$). As such, with hypothesized control variables held constant, years of formal schooling completed at T4 was negatively associated with justice authority contact at T1. The results of Models 1-4 in Table 12 confirm Hypothesis 14.

Justice Authority Contact (T1) and Surveilling Institution Avoidance (T4)

As Model 5 in Table 12 shows (see page 110), when surveilling institution avoidance was included in the full model (i.e. regressions with sociodemographics, T1 school and other controls), the relationship between justice authority contact and years of formal schooling completed had a decrease in the coefficient from -0.32 to -0.28 ($p<0.05$), a 13% reduction in the coefficient. Again, while the coefficients from the statistically significant predictors from Model 4 were reduced, the p-values for all except self-rated SES ($p<0.05$) stayed the same. Surveilling institution avoidance was also statistically significant (b = -0.69, $p<0.001$). Years of formal schooling still being statistically significant indicates partial mediation.

But as Path a in Figure 11 shows, holding sociodemographics and T1 controls constant, justice authority contact was positively associated with surveilling institution avoidance but the effect was not significant (b = 0.06, p>0.05). The first column in Table 13 shows the total indirect effect (Path a + Path b in Figure 9), confirming that the indirect effect was not significant (b = -0.042, p>0.05).

Figure 11. Mediation Effects of Justice Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Emerging Adulthood (T4; mean age 24; N=3,876).



Note: b coefficients; * p<0.05, ** p<0.01, *** p<0.001.

Table 13. Decomposition Effects of Justice Authority Contact (T1; mean age 13) and Years of Formal Schooling Completed (T4; mean age 24; N=3,857).

	Surveilling institution avoidance (T4)	Nonsurveilling institution avoidance (T4)
Indirect Effect	-0.042	-0.034
Direct Effect	-0.282*	-0.290*
Total Effect	-0.324**	-0.324**

Note: b coefficients; * p<0.05, ** p<0.01.

The results of Path a in Figure 11 and column one in Table 13 do not support

Hypothesis 19:

> H19: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in surveilling institutions (i.e. employment, welfare, professional organizations, and degree granting programs), decreasing years of formal schooling completed in emerging adulthood at T4 (1982-87, mean age 24), net of controls.

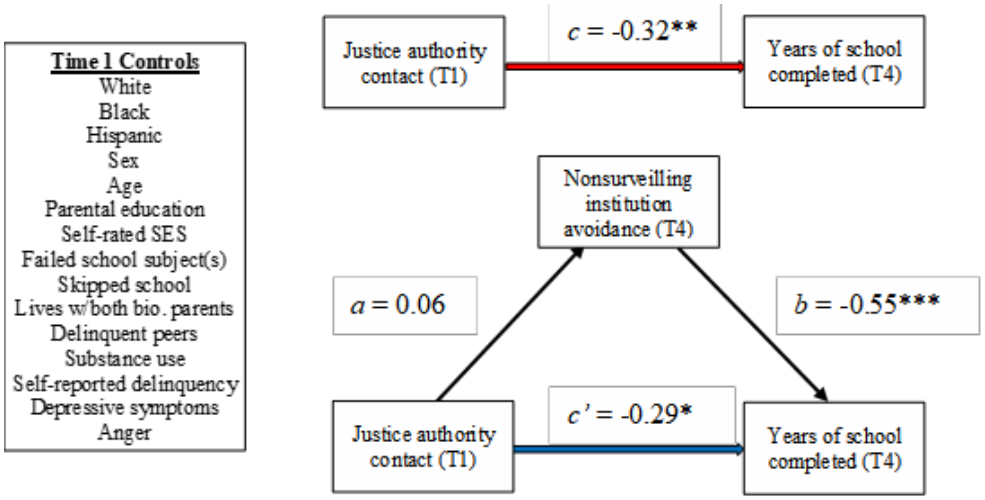
Justice Authority Contact (T1) and Nonsurveilling Institution Avoidance (T4)

As Model 6 in Table 12 shows (see page 110), when nonsurveilling institution avoidance was included in the full model (i.e. regression with sociodemographics, T1 school and other controls), the relationship between justice authority contact and years of formal schooling completed had a decrease in the coefficient from -0.32 to -0.29 ($p<0.05$), a 9% reduction in the coefficient. Nonsurveilling institution avoidance was also statistically significant ($b = -0.55$, $p<0.001$). Like in previous models, the coefficients from most of the statistically significant predictors from Model 4 were reduced and the p-values for them stayed the same. However, for the variable indicating being Black, the coefficient increased from -0.26 to -0.29 ($p<0.001$) indicating a suppression effect (Aneshensel 2012). Years of formal schooling still being statistically significant indicates partial mediation.

However, as *Path a* in Figure 12 shows, holding sociodemographics, T1 school and other controls constant, nonsurveilling institution avoidance was positively associated with justice authority contact, but the effect was not significant ($b = 0.06$, $p>0.05$). The second column in Table 13 (see page 112) shows the total indirect effect

(Path a + Path b in Figure 12), confirming that the indirect effect was not significant (b = -0.034, p>0.05). Since the relationship between justice authority contact and nonsurveilling institution avoidance is not significant, thereby failing Baron and Kenny's Step 2, we can conclude that nonsurveilling institution avoidance does not mediate the relationship between justice authority contact at T1 and years of formal schooling completed at T4.

Figure 12. Mediation Effects of Justice Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Emerging Adulthood (T4; mean age 24; N=3,876).



Note: b coefficients; * p<0.05, *** p<0.001.

The results of *Path a* in Figure 12 and column 2 in Table 13 (see page 112) do not support Hypothesis 20:

> H20: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in nonsurveilling institutions (i.e. civic, religious, and social organizations) at T4, decreasing years of formal schooling completed in emerging adulthood at T4 (1982-87, mean age 24), net of controls.

Sample Attrition Analysis

Attrition analyses were conducted to determine characteristics differentiating those who participated at T1 with data on all study variables at that time point with those not included at T4, compared with those included in both samples. Differences between these groups were not statistically significant on any of the T1 variables except for Whites (see Table A5). At T4, there were less Whites (3,654 vs 2,584; $F = 5.05$, $p<0.05$).

Summary

The following is a summary of all emerging life stage results. The implications of these results are discussed in Chapter VIII.

The Relationship between School Authority Contact (T1) and Years of Formal Schooling Completed in Emerging Adulthood (T4)

Years of formal schooling completed in emerging adulthood (T4) is an interval-ratio (0-18) measure. In emerging adulthood, school authority contact in adolescence (T1) is associated with 0.36 less years of formal schooling completed compared to those with no school authority contact, net of controls. This result confirms the main effect hypothesis proposed at the end of Chapter III in this study.

As in the adolescent analyses, the school related control failing a school subject(s) at T1 was still associated with the largest decrease in years of formal schooling completed in all models. Skipping school at T1 was also significant and associated with less years of formal schooling completed in all models it was included in, although the coefficient decreased in size at a higher magnitude when T1 controls

were included in the model than failing a school subject(s) at T1. Sociodemographics being Black, being Hispanic, age, parent's education, and interestingly low self-rated SES at T1 were all significant and in the hypothesized direction in all models included. Being male, however, was not associated with less years of formal schooling completed in any of the models as the literature suggests.

Having lived with both parents at T1 was significant and positively related to years of formal schooling completed in the model with all controls included. As for the rest of T1 controls, depressive symptoms and having delinquent peers were significant and associated with less years of formal schooling completed. Finally, substance use, self-rated delinquency, and anger at T1 were not significant in any of the models included.

The Role of Institution Avoidance in the Relationship between School Authority Contact (T1) and Years of Formal Schooling Completed in Emerging Adulthood (T4)

Surveilling institution avoidance in emerging adulthood (T4) is an index denoting unemployment, not being on welfare, not belonging to professional organizations, not being enrolled in a vocational, technical, or degree-granting program. Nonsurveilling institution avoidance is an index denoting not belonging to civic, religious, or social organizations. Using Baron and Kenny's steps for mediation, mediation results at T4 show that neither surveilling or nonsurveilling institution avoidance mediates the relationship between school authority contact at T1 and years of formal schooling complete in emerging adulthood. Thus, mediation results do not support the mediation hypotheses proposed in Chapter III.

Statistically significant predictors' p-values in the baseline model remained unchanged for all variables except being Hispanic in the nonsurveilling institution avoidance mediation model. In this model, being Hispanic's coefficient decreased from -0.56 to -0.49 while also changing in p-value from $p<0.001$ to $p<0.01$. Additionally, being Black's coefficient increased from -0.22 to -0.25 although the p-value remained the same ($p<0.01$).

The Relationship between Justice Authority Contact (T1) and Years of Formal Schooling Completed in Emerging Adulthood (T4)

In emerging adulthood, justice authority contact in adolescence at T1 is associated with 0.32 less years of formal schooling completed compared to those with no justice authority contact, net of controls. This result confirms the main effect hypothesis proposed at the end of Chapter III in this study. The predictors also perform very similar to the predictors in the previous section. As in the adolescent analyses and the school authority contact results in emerging adulthood, the school related control failing a school subject(s) at T1 was associated with the largest decrease in years of formal schooling completed. Skipping school at T1 was also significant and associated with less years of formal schooling completed in all models it was included in, the coefficient reduction in size at a higher magnitude when T1 controls are added in the model than failing a school subject(s) at T1.

Sociodemographics being Black, being Hispanic, age, parent's education, and low self-rated SES at T1 were all significant and in the hypothesized direction in all models included. Being male was not associated with less years of formal schooling

completed in any of the models included. Having lived with both parents at T1 was positively related to years of formal schooling completed. As for the rest of T1 controls, having delinquent peers and depressive symptoms were statistically significant and associated with less years of formal schooling completed. Finally, substance use, self-rated delinquency, and anger at T1 were not significant in any of the models included.

The Role of Institution Avoidance in the Relationship between Justice Authority Contact (T1) and Years of Formal Schooling Completed in Emerging Adulthood (T4)

Using Baron and Kenny's steps for mediation, mediation results at T4 show that neither surveilling or nonsurveilling institution avoidance mediates the relationship between justice authority contact at T1 and years of formal schooling completed in emerging adulthood. Therefore, mediation results do not support the mediation hypotheses proposed in Chapter III.

Again, statistically significant predictors' p-values in the full model with controls and the mediation models remained unchanged for most predictors. In the surveilling institution avoidance model, the p-value for low self-rated SES changed from $p<0.01$ to $p<0.05$. In the nonsurveilling institution model being Hispanic's coefficient decreased from -0.59 to -0.51 while also changing in p-value from $p<0.001$ to $p<0.01$. Additionally, being Black's coefficient increased from -0.26 to -0.29 while the p-value changed from $p<0.01$ to $p<0.001$.

CHAPTER VII

MIDDLE ADULTHOOD LIFE STAGE RESULTS

This chapter presents the main findings obtained for the middle adulthood life stage portion of this study. The first section presents the bivariate relationships between all the variables analyzed in this study. The second section presents the results of the multivariate models predicting years of schooling completed at Time 7 (1994-1998; mean age 36). The third section examines the outcomes of the mediation analysis. The final section discusses attrition analyses and what it means for the multivariate findings.

Correlation Analysis

Correlation analysis results are presented in Table A4 (see Appendix). Surveilling institution avoidance (T7) is correlated with the main dependent variable years of formal schooling completed at T7 ($r = -0.24$, $p<0.001$), the mediator nonsurveilling institutions at T7 ($r = 0.20$, $p<0.001$), and the main independent variable justice authority contact at T1 ($r = 0.03$, $p<0.05$). The main independent variable of school authority contact, the variable indicating respondent as Hispanic, parent's education, self-rated SES, anger, substance use, and self-rated delinquency at T1 are not associated with surveilling institution avoidance at T7 in this study.

Avoidance of nonsurveilling institutions (T7) is also correlated with the main dependent variable years of formal schooling completed at T7 ($r = -0.32$, $p<0.001$), and the main independent variables school ($r = 0.13$, $p<0.001$) and justice authority contact ($r = 0.08$, $p<0.001$) at T1, and all the T1 control variables in this study ($p<0.01$ or $p<0.001$,

two-tailed test). All correlations ranged from weak to very weak with no correlations exhibiting strong associations.

Multivariate Findings

This section presents the outcomes of ordinary least square regression (OLS) testing the hypothesis that school and justice authority contact at T1 decreases years of formal schooling completed at T7 (Hypotheses 15 and 16). The first regression includes only the main dependent variable with the main independent variable of interest, in the second regression sociodemographics (T1) are included, in the third regression school controls at T1 are added, and in the fourth regression all T1 controls are added. If the overall model is still significant, the mediators are added separately to the regression analyses.

School Authority Contact (T1) and Years of Formal Schooling Completed (T7)

The results in this section are a test of Hypothesis 15:

> H15: Contact with school authority officials in adolescence at T1 (1971; mean age 13) decreases years of formal schooling completed at T7 (1994-98; mean age 36), net of controls.

Model 1 in Table 14 (see page 121) shows the relationship between school authority contact at T1 and years of formal schooling completed at T7 only. The model was a poor fit (Adjusted $R^2 = 0.03$), but the overall model was significant (Wald $chi^2 = 104.90$, $p<0.001$), showing that school authority contact had a significant and negative effect on years of formal schooling completed ($b = -1.52$, $p<0.001$).

Model 2 shows the relationship between school authority contact at T1 and years of formal schooling completed at T7, holding constant sociodemographics (T1). This improved the model (Adjusted $R^2 = 0.19$), and the overall relationship was significant (Wald $chi^2_7 = 687.68$, $p<0.001$), showing that school authority contact had a significant and negative effect on years of formal schooling completed ($b = -1.09$, $p<0.001$). All sociodemographics, except sex of respondent, were statistically significant ($p<0.001$). Including sociodemographics results in a 28% decrease in the school authority contact coefficient.

Model 3 adds school related controls failing grade in school subject(s) and skipping school in last month at T1 to the model. This model improves the model (Adjusted $R^2 = 0.22$), with the overall model significant (Wald $chi^2_9 = 834.96$, $p<0.001$), showing that school authority contact had a significant and negative effect on years of formal schooling completed ($b = -0.71$, $p<0.001$). All sociodemographics, except sex of respondent, remain statistically significant ($p<0.001$). Failing a grade in school subject(s) ($b= -1.67$, $p<0.001$) performs similarly to all previous models. Skipping school, on the other hand, is in the hypothesized direction ($b = -0.55$) but the p-value is lower than all previous models ($p<0.05$ vs $p<0.001$). This indicates that the negative effect of skipping school at T1 is losing relevance. Including both these variables does result in a 25% decrease in the school authority contact coefficient.

Model 4 adds all T1 controls to the model. The model improves slightly (Adjusted $R^2 = 0.23$), the overall relationship is significant (Wald $chi^2_{15} = 887.11$, $p<0.001$), showing that school authority contact had a significant and negative effect on

years of formal schooling completed (b = -0.53, p<0.001). All sociodemographics, except sex of respondent, remain statistically significant (p<0.001).

In Model 4, being Black (b = -0.60), being Hispanic (b = -0.99), age (b = -1.15), parent's education (b = 0.89), and low self-rated SES (b = -0.88) were all statistically significant and in the hypothesized direction (p<0.001). T1 school related control failing grade in school subject(s) (b = -1.51) was statistically significant and in the hypothesized

Table 14. OLS Regressions of School Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Middle Adulthood (T7; mean age 36), with Mediators (N=3,533).

	(1)	(2)	(3)	(4)	(5)	(6)
School authority contact (T1).	-1.52***	-1.09***	-0.71***	-0.53***	-0.50***	-0.45**
Time 1 Sociodemographics						
Black[a]	-	-0.72***	-0.62***	-0.60***	-0.73***	-0.47***
Hispanic[b]	-	-1.03***	-0.89***	-0.99***	-1.08***	-0.89***
Male	-	0.16	0.19	0.12	-0.09	0.34**
Age	-	-1.40***	-1.22***	-1.15***	-1.09***	1.07***
Parent's education	-	0.98***	0.90***	0.89***	0.87***	0.82***
Low self-rated SES	-	-1.21***	-1.05***	-0.88***	-0.75**	-0.86***
Time 1 School Controls						
Failing grade in school subject(s).	-	-	-1.67***	-1.51***	-1.43***	-1.37***
Skipped school in last month.	-	-	-0.55*	-0.19	-0.23	-0.15
Time 1 Controls						
Lives with both biological parents.	-	-	-	0.63***	0.63***	0.55***
Delinquent peers.	-	-	-	-0.36***	-0.35***	-0.35***
Substance use in last month.	-	-	-	0.05	-0.00	0.05
Self-rated delinquency.	-	-	-	-0.04	-0.04	-0.05
Depressive Symptoms.	-	-	-	-0.07	-0.08*	-0.06
Anger.	-	-	-	0.02	0.02	0.03
Time 7 Mediators						
Surveilling institution avoidance.	-	-	-	-	-0.88***	-
Nonsurveilling institution avoidance.	-	-	-	-	-	-0.74***
Constant	13.23***	29.05***	27.15***	26.03***	28.49***	27.23***
Wald chi^2	104.90***	687.68***	834.96***	887.11***	1094.99***	1250.90***
Degrees of Freedom	1	7	9	15	16	16
Adjusted R^2	0.03	0.19	0.22	0.23	0.27	0.27

* p<0.05, ** p<0.01, *** p<0.001; a, b reference category: White.

Note: b coefficients; standard errors available upon request; Source: KLAMS, T1 (1971) and T7 (1994-1998).

direction ($p<0.001$) while skipping school at T1 is now no longer significant. Including T1 controls results in a 25% reduction in the school authority contact coefficient. As it pertains to T1 controls, substance use, self-rated delinquency, depressive symptoms, and the anger measure were not statistically significant ($p>0.05$). Living with both biological parents ($b = 0.63$) and having delinquent peers ($b = -0.36$) were both statistically significant ($p<0.001$). As such, with hypothesized control variables held constant, years of formal schooling completed at T7 was negatively associated with school authority contact at T1. The results of Models 1-4 in Table 14 confirm Hypothesis 15.

Surveilling and Nonsurveilling Institution Avoidance in Middle Adulthood (T7)

Surveilling institution avoidance at T7 (mean age 36) is an index based on five questions denoting unemployment, not being on welfare, not belonging to professional organizations, not belonging to unions, not being enrolled in a vocational, technical, or degree-granting program. Nonsurveilling institution avoidance at T7 is an index based on four questions denoting not belonging to civic, religious, social, or school organizations.

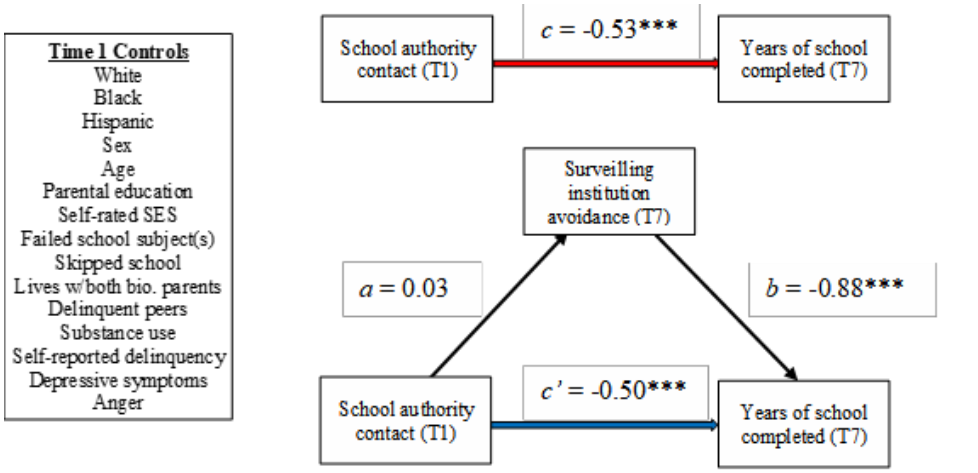
School Authority Contact (T1) and Surveilling Institution Avoidance (T7)

As Model 5 in Table 14 shows (see page 121), when surveilling institution avoidance was included in the full model (i.e. regression with sociodemographics, T1 school and other controls are included), the relationship between school authority contact and years of formal schooling completed had a decrease in the coefficient from -0.53 to -0.50 ($p<0.001$), a 6% reduction in the coefficient. Surveilling institution

avoidance was also statistically significant (b = -0.88, p<0.001). School authority contact still being statistically significant indicates partial mediation.

However, as *Path a* in Figure 13 shows, holding sociodemographics, T1 school and other controls constant, surveilling institution avoidance was positively associated with school authority contact but the effect was not significant (b = 0.03, p>0.05). The first column in Table 15 shows the total indirect effect (*Path a* + *Path b* in Figure 13), confirming that the indirect effect was not significant (b = -0.029, p>0.05). Most of the

Figure 13. Mediation Effects of School Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Middle Adulthood (T7; mean age 36; N=3,533).



Note: b coefficients; *** p<0.001.

Table 15. Decomposition Effects of School Authority Contact (T1; mean age 13) and Years of Formal Schooling Completed (T7; mean age 36; N=3,533).

	Surveilling institution avoidance (T7)	Nonsurveilling institution avoidance (T7)
Indirect Effect	-0.029	-0.085**
Direct Effect	-0.504**	-0.448**
Total Effect	-0.533***	-0.533***

Note: b coefficients; ** p<0.01,*** p<0.001.

coefficients from statistically predictors from Model 4 were reduced and the p-values stayed the same except for self- rated SES's p-value which changed (from $p<0.001$ to $p<0.01$). Additionally, depressive symptoms changed from not significant to significant (changed from $b = 0.07$, $p>0.05$ to $b = .08$, $p<0.05$). Of note is an increase in the coefficients for the variables indicating being Black (changed from -0.60 to -0.73) and being Hispanic (changed from -0.99 to - 1.08) although their p-values remained the same ($p<0.001$).

Since the relationship between school authority contact and surveilling institution avoidance is not significant, thereby failing Baron and Kenny's Step 2, we can conclude that surveilling institution avoidance does not mediate the relationship between school authority contact at T1 and years of formal schooling completed at T7. The results of *Path a* in Figure 13 and column 1 in Table 15 do not support Hypothesis 21:

> H21: Contact with school authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in surveilling institutions (i.e. employment, welfare, professional organizations, unions, and degree granting programs), decreasing years of formal schooling completed in middle adulthood at T7 (1994-98, mean age 36), net of controls.

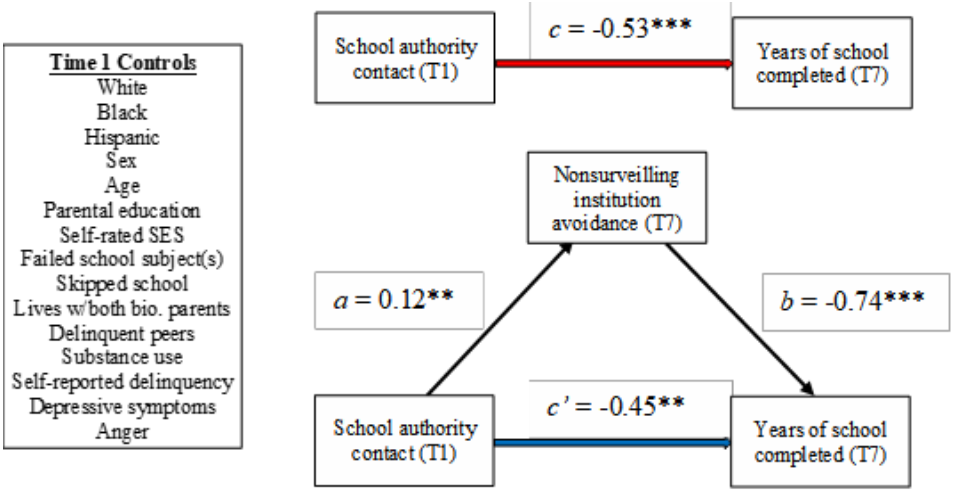
School Authority Contact and Nonsurveilling Institution Avoidance (T7)

As Model 6 in Table 14 shows (see page 121), when nonsurveilling institution avoidance was included in the full model (i.e. regression with sociodemographics, T1 school and other controls included), the relationship between school authority contact and years of formal schooling completed had a decrease in the coefficient from -0.53 to -0.45 ($p<0.01$), a 15% reduction. Nonsurveilling institution avoidance was also

statistically significant (b = -0.74, p<0.001). Years of formal schooling still being statistically significant indicates partial mediation.

As *Path a* in Figure 14 illustrates, holding sociodemographics, T1 school and other controls constant, school authority contact was significant and positively associated with nonsurveilling institution avoidance (b = 0.12, p<0.01). The second column in Table 15 (see page 123) shows the total indirect effect (*Path a* + *Path b* in Figure 11), direct, and total effects, confirming all as statistically significant (p<0.01, p<0.001). In this model the coefficients from all statistically significant predictors in Model 4 were reduced but the p-values for all stayed the same. Of further note, being male is now significant and positive (0.34, p<0.01), indicating that being male has a suppression effect on the nonsurveilling institution avoidance measure.

Figure 14. Mediation Effects of School Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Middle Adulthood (T7; mean age 36; N=3,533).



Note: b coefficients; **p<0.01 *** p<0.001.

Combined, the results illustrate that nonsurveilling institution avoidance partially mediates the relationship between school authority contact at T1 and years of formal schooling completed at T7. The results of Model 6 in Table 14, Figure 14, and the second column of Table 15 confirm Hypothesis 22:

> H22: Contact with school authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in nonsurveilling institutions (i.e. civic, religious, social, school organizations) at T7, decreasing years of formal schooling completed in middle adulthood at T7 (1994-98, mean age 36), net of controls.

Justice Authority Contact (T1) and Years of Formal Schooling Completed (T7)

The results in this section are a test of Hypothesis 16:

> H16: Contact with justice authority officials in adolescence at T1 (1971; mean age 13) decreases years of formal schooling completed at T7 (1994-98; mean age 36), net of controls.

Model 1 in Table 16 (see page 128) shows the relationship between justice authority contact at Time 1 and years of formal schooling completed at T7 only. The model was a rather poor fit (Adjusted $R^2 = 0.01$), but the overall model was significant (Wald $chi^2_1 = 44.51$, $p<0.001$), showing that school authority contact had a significant and negative effect on years of formal schooling completed ($b = -1.44$, $p<0.001$).

Model 2 shows the relationship between justice authority contact at T1 and years of formal schooling completed at T7, holding constant sociodemographics (T1). This improved the model (Adjusted $R^2 = 0.18$), and the overall relationship was significant (Wald $chi^2_7 = 671.53$, $p<0.001$), showing that justice authority contact had a significant

and negative effect on years of formal schooling completed (b = -1.13, p<0.001). All sociodemographics, except sex of respondent, were statistically significant (p<0.001). Including sociodemographics results in a 25% reduction in the justice authority contact coefficient.

Model 3 adds school related controls failing grade in school subject(s) and skipping school in last month at T1 to the model. This model improves the model (Pseudo R^2 = 0.22), with the overall model significant (Wald chi^2_9 = 819.80, p<0.001), showing that justice authority contact had a significant and negative effect on years of formal schooling completed (b = -0.71, p<0.001) at T4. As with the school authority model, failing a grade in school subject(s) is significant (b= -1.73, p<0.001) while skipping school is in the hypothesized direction (b = -0.60) but the p-value is lower than from T2-T4 models (p<0.05 vs p<0.001). Including both variables results in a 37% reduction in the justice authority contact coefficient.

Model 4 adds all T1 controls to the model. The model is a slightly better fit (Adjusted R^2 = 0.23) and the overall model was significant (Wald chi^2_{15} = 882.50, p<0.001) showing that justice authority contact had a significant and negative effect on years of formal schooling completed (b = -0.41, p<0.05). All sociodemographics, except sex of respondent, were statistically significant (p<0.001). Including T1 controls results in a 42% reduction in the justice authority coefficient.

In Model 4, being Black (b = -0.66), being Hispanic (b = -1.02), age (b = -1.16), parent's education (b = 0.89), and low self-rated SES (b = -1.05) were all statistically significant and in the hypothesized direction (p<0.001). T1 school related controls

failing grade in school subject(s) (b = -1.52) were statistically significant and in the hypothesized direction (p<0.001). Like the school authority models, skipping school at T1 is now no longer significant. As it pertains to T1 controls, substance use, self-rated delinquency, and the anger measure were not statistically significant (p>0.05). Living with both biological parents (b = 0.63) and having delinquent peers (b = -0.34), and depressive symptoms (b = 0.08) were statistically significant (p<0.05 or p<0.001). As

Table 16. OLS Regressions of Justice Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Middle Adulthood (T7; mean age 36; N=3,533).

	(1)	(2)	(3)	(4)	(5)	(6)
Justice authority contact (T1).	-1.44***	-1.13***	-0.71***	-0.41*	-0.44*	-0.39
Time 1 Sociodemographics						
Black[a]	-	-0.86***	-0.70***	-0.66***	-0.78***	-0.52***
Hispanic[b]	-	-1.12***	-0.94***	-1.02***	-1.11***	-0.92***
Male	-	0.13	0.17	0.10	-0.11	0.32*
Age	-	-1.42***	-1.23***	-1.16***	-1.09***	1.07***
Parent's education	-	0.97***	0.89***	0.88***	0.86***	0.81***
Low self-rated SES	-	-1.23***	-1.05***	-0.88***	-0.75**	-0.86***
Time 1 School Controls						
Failing grade in school subject(s).	-	-	-1.73***	-1.56***	-1.47***	-1.41***
Skipped school in last month.	-	-	-0.60*	-0.23	-0.26	-0.18
Time 1 Controls						
Lives with both biological parents.	-	-	-	0.63***	0.63***	0.55***
Delinquent peers.	-	-	-	-0.37***	-0.35***	-0.35***
Substance use in last month.	-	-	-	0.03	-0.01	0.04
Self-rated delinquency.	-	-	-	-0.05	-0.04	-0.05
Depressive Symptoms.	-	-	-	-0.08*	-0.08*	-0.06
Anger.	-	-	-	0.02	0.02	0.03
Time 7 Mediators						
Surveilling institution avoidance.	-	-	-	-	-0.89***	-
Nonsurveilling institution avoidance.	-	-	-	-	-	-0.75***
Constant	13.00***	29.24***	27.20***	26.11***	28.59***	27.31***
Wald chi^2	44.51***	671.53***	819.80***	882.50***	1098.23***	1247.60***
Degrees of Freedom	1	7	9	15	16	16
Adjusted R^2	0.01	0.18	0.22	0.23	0.26	0.27

* p<0.05, ** p<0.01, *** p<0.001; a, b reference category: White.

Note: b coefficients; standard errors available upon request; Source: KLAMS, T1 (1971) and T7 (1994-98).

such, with hypothesized control variables held constant, years of formal schooling completed at T7 was significant and negatively associated with justice authority contact at T1. The results of Models 1-4 in Table 16 confirm Hypothesis 16.

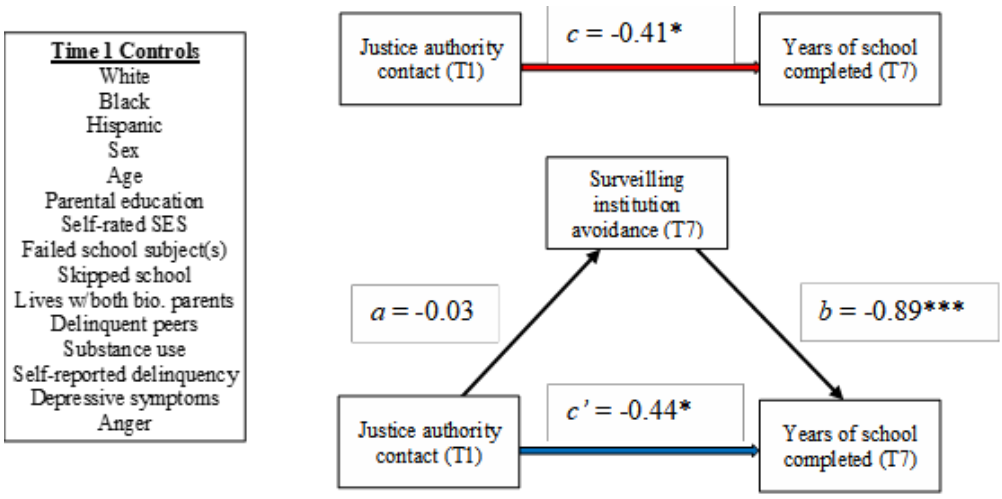
Justice Authority Contact (T1) and Surveilling Institution Avoidance (T7)

As Model 5 in Table 16 shows (see page 128), when surveilling institution avoidance was included in the full model (i.e. regression with sociodemographics, T1 school and other controls are included), the relationship between justice authority contact and years of formal schooling completed had an increase in the coefficient from -0.41 to -0.44 ($p<0.001$), a 7% increase in the coefficient indicating a suppression effect. Surveilling institution avoidance measure was also statistically significant ($b = -0.89$, $p<0.001$). Justice authority contact still being statistically significant indicates partial mediation.

However, as Path a in Figure 15 shows (see page 130), holding sociodemographics, T1 school and other controls constant, surveilling institution avoidance was negatively associated with justice authority contact but the effect was not significant ($b = 0.03$, $p>0.05$). The first column in Table 17 (see page 130) shows the total indirect effect (Path a + Path b in Figure 13), confirming that the indirect effect was not significant ($b = 0.029$, $p>0.05$). Most of the coefficients from statistically significant predictors from Model 4 were reduced and the p-values stayed the same except for self-rated SES's p-value which changed (from $p<0.001$ to $p<0.01$). Like in the school authority mediation models there is an increase in the coefficients for the variables

indicating being Black (changed from -0.66 to -0.78) and being Hispanic (changed from -1.02 to -1.11) although the p-values remained the same ($p<0.001$).

Figure 15. Mediation Effects of Justice Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Middle Adulthood (T7; mean age 36; N=3,533).



Note: b coefficients; * $p<0.05$, *** $p<0.001$.

Table 17. Decomposition Effects of Justice Authority Contact (T1; mean age 13) and Years of Formal Schooling Completed (T7; mean age 36; N=3,533).

	Surveilling institution avoidance (T7)	Nonsurveilling institution avoidance (T7)
Indirect Effect	0.029	-0.016
Direct Effect	-0.435*	-0.389
Total Effect	-0.405*	-0.405*

Note: b coefficients; * $p<0.05$.

Since the relationship between justice authority contact and surveilling institution avoidance is not significant, thereby failing Baron and Kenny's Step 2, we can conclude that surveilling institution avoidance does not mediate the relationship between justice

authority contact at T1 and years of formal schooling completed at T7. The results of *Path a* in Figure 15 and column 1 in Table 17 do not support Hypothesis 23:

> H23: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in surveilling institutions (i.e. employment, welfare, professional organizations, unions, and degree granting programs), decreasing years of formal schooling completed in middle adulthood at T7 (1994-98, mean age 36), net of controls.

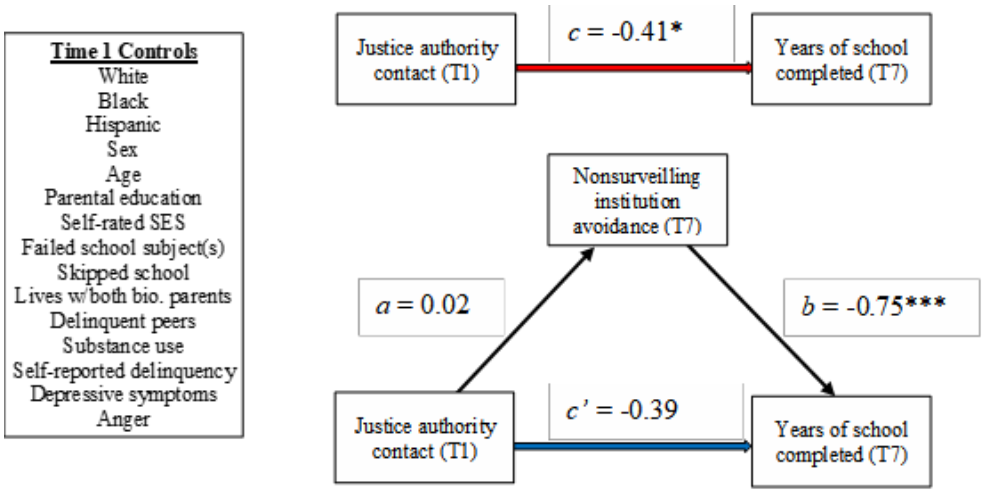
School Authority Contact and Nonsurveilling Institution Avoidance (T7)

As Model 6 in Table 16 shows (see page 128), when nonsurveilling institution avoidance was included in the full model (i.e. regression with sociodemographics, T1 school and other controls are included), the relationship between justice authority contact and years of formal schooling completed had a decrease in the coefficient from -0.41 to -0.39, a 5% reduction in the justice authority coefficient and was no longer significant. Nonsurveilling institution avoidance measure was statistically significant ($b = -0.75$, $p<0.001$). Justice authority contact not being statistically significant indicates full mediation.

However, as *Path a* in Figure 16 shows (see page 132), holding sociodemographics, T1 school and other controls constant, nonsurveilling institution avoidance was positively associated with justice authority contact but the effect was not significant ($b = 0.02$, $p>0.05$). The second column in Table 17 (see page 130) shows the total indirect effect (*Path a* + *Path b* in Figure 13), confirming that the indirect effect was not significant ($b = -0.016$, $p>0.05$). Almost all the coefficients from statistically significant predictors from Model 4 were reduced and the p-values stayed the same

except for depressive symptoms which was no longer significant (b = -0.06, p>0.05) and being male which increased (from -0.11 to 0.32) and is now significant (p<0.05).

Figure 16. Mediation Effects of Justice Authority Contact in Adolescence (T1; mean age 13) and Years of Formal Schooling Completed in Middle Adulthood (T7; mean age 36; N=3,533).



Note: b coefficients; * p<0.05, *** p<0.001.

Since the relationship between justice authority contact and nonsurveilling institution avoidance is not significant, thereby failing Baron and Kenny's Step 2, we can conclude that nonsurveilling institution avoidance does not mediate the relationship between justice authority contact at T1 and years of formal schooling completed at T7. The results of *Path a* in Figure 16 and column 2 in Table 17 do not support Hypothesis 24:

> H24: Contact with justice authority officials in adolescence at T1 (1971, mean age 13) decreases likelihood to participate in nonsurveilling institutions (i.e. civic, religious, social, and school organizations), decreasing years of formal

schooling completed in middle adulthood at T7 (1994-98, mean age 36), net of controls.

Sample Attrition Analysis

Attrition analyses were conducted to determine characteristics differentiating those who participated at T1 with data on all study variables at that time point with those not included at T7, compared with those included in both samples. Differences between these groups were not statistically significant on any of the T1 variables except for race/ethnicity and parental education (see Table A6). At T7, there were less Whites (3,654 vs 2,332; $F = 1791.62$, $p<0.001$), less Blacks (1,461 vs 883; $F = 1222.27$, $p<0.001$), and less Hispanics (505 vs 318; $F = 340.78$, $p<0.001$). Parental education for the T7 sample was higher than the T1 sample (3.47 vs 3.52, $F = 1618.91$, $p<0.001$). Again, having less Blacks and Hispanics could mean that respondents with school and justice authority contact were lower than could have been while having respondents with more parental education increases the variable's suppression effect.

Summary

The following is a summary of all middle adulthood life stage results. The implications of these results are discussed in Chapter VIII.

The Relationship between School Authority Contact (T1) and Years of Formal Schooling Completed in Middle Adulthood (T7)

Years of formal schooling completed in middle adulthood (T7) is an interval-ratio (0-18) measure. In middle adulthood, school authority contact in adolescence (T1)

decreases average years of formal schooling completed by 0.53 compared to those with no school authority contact, net of controls. These results confirm the main effect hypothesis proposed at the end of Chapter III in this study. Furthermore, most of the predictors in this analysis performed similarly to the results in the emerging adulthood analyses.

As in the adolescent and emerging adulthood analyses, the school related control failing a school subject(s) at T1 was associated with the largest decrease in years of formal schooling completed. Unlike the adolescent and emerging adulthood analyses, skipping school was no longer significant in the full models it was included in.

Like the emerging adulthood analyses, sociodemographics being Black, being Hispanic, age, parent's education, and low self-rated SES at T1 were all significant and in the hypothesized direction in all models included. Being male was also not associated with less years of formal schooling completed in any of the models included.

Having lived with both parents at T1 was positively related to years of formal schooling completed. As for the rest of T1 controls, having delinquent peers was significant and associated with less years of formal schooling completed. Finally, substance use, self-rated delinquency, depressive symptoms, and anger at T1 were not significant in the model with all controls.

The Role of Institution Avoidance in the Relationship between School Authority Contact (T1) and Years of Formal Schooling Completed in Middle Adulthood (T7)

Surveilling institution avoidance in emerging adulthood (T7) is an index denoting unemployment, not being on welfare, not belonging to professional organizations, not belonging to unions, and not being enrolled in a vocational, technical, or degree-granting program. Nonsurveilling institution avoidance is an index denoting not belonging to civic, religious, social, or school organizations.

Using Baron and Kenny's steps for mediation, mediation results at T7 show that surveilling institution avoidance does not mediate the relationship between school authority contact at T1 and years of formal schooling completed in middle adulthood. Furthermore, the coefficients of the variables indicating being Black and being Hispanic both increase while retaining the p-values from the model with all controls only. Depressive symptoms, associated with less years of formal schooling completed, also increases compared to the model with all controls only while changing from a non-significant association to a significant association.

For nonsurveilling institution avoidance, on the other hand, results show partial mediation in the relationship between school authority contact at T1 and years of formal schooling completed in middle adulthood. While all coefficients perform similarly to the full model, the measure indicating male increases and changes to significant in the nonsurveilling institution avoidance mediation model. The findings confirm the hypothesis related to nonsurveilling institution avoidance but not to surveilling institution avoidance as proposed in Chapter III of this study.

The Relationship between Justice Authority Contact (T1) and Years of Formal Schooling Completed in Middle Adulthood (T7)

In middle adulthood, justice authority contact in adolescence (T1) is associated with less years of formal schooling completed by 0.41 compared to those with no justice authority contact, net of controls. This result supports the main effect hypothesis proposed at the end of Chapter III in this study. Again, the predictors performed similarly to the school authority contact analyses in the previous section.

As in all previous analyses, the school related control failing a school subject(s) at T1 was associated with the largest decrease in years of formal schooling completed. Unlike the adolescent and emerging adulthood analyses, but like the school authority results aforementioned, skipping school was no longer significant in the model with all controls included.

Like the emerging adulthood analyses, sociodemographics being Black, being Hispanic, age, parent's education, and low self-rated SES at T1 were all significant and in the hypothesized direction in all models included. Being male was also not associated with less years of formal schooling completed in any of the models included.

Having lived with both parents at T1 was positively related to years of formal schooling completed in the model with all controls included. As for the rest of T1 controls, having delinquent peers at T1 was significant and associated with less years of formal schooling completed. Depressive symptoms, unlike the school authority models, was significant and associated with less years of formal schooling completed. Finally, substance use, self-rated delinquency, and anger at T1 were not significant.

The Role of Institution Avoidance in the Relationship between Justice Authority Contact (T1) and Years of Formal Schooling Completed in Middle Adulthood (T7)

Surveilling institution avoidance in emerging adulthood (T7) is an index denoting unemployment, not being on welfare, not belonging to professional organizations, not belonging to unions, and not being enrolled in a vocational, technical, or degree-granting program. Nonsurveilling institution avoidance is an index denoting not belonging to civic, religious, social, or school organizations.

Using Baron and Kenny's steps for mediation, mediation results at T7 show that neither surveilling institution avoidance or nonsurveilling institution avoidance mediates the relationship between justice authority contact at T1 and years of formal schooling completed in middle adulthood. Furthermore, in the surveilling institution avoidance model, the coefficients of the variables indicating being Black and being Hispanic both increase while retaining the p-values from the model with all controls only.

In the nonsurveilling institution avoidance mediation model all coefficients perform similarly to the model with all controls only but like in the school authority results, the measure indicating male increases and changes to significant. The findings do not confirm the hypotheses related to surveilling or nonsurveilling institution avoidance as proposed in Chapter III of this study.

CHAPTER VIII

DISCUSSION AND CONCLUSION

The aim of this chapter is to examine the link between the empirical results obtained by this research and the theoretical perspectives that guided this study. In the first section substantive findings related to the central hypotheses addressed by this research are analyzed. The second section outlines the implications of the findings with regards to practice, theory, and further research on the matter of authority contact in adolescence on educational outcomes through the life course. The next section raises methodological issues relating to the source of data for this study. The final section discusses

Discussion

This study was informed by labeling theory's assertion that labels have short and long-term consequences related to delinquency and crime (Hirschi 1980; Farrington and Murray 2013; Tannenbaum 1938). Upon further research, it was evident that social control attempts in adolescence did not just increase the chances of involvement in juvenile delinquency and crime, but that other aspects of one's life were affected as well (Hagan 1991; Tanner et al. 1999; Ward and Williams 2015). Of interest was research on social control and its effect on education outcomes (DeRidder 1991; Hoffman 2012; Kirk and Sampson 2013).

As such, the analysis undertaken in this study was intended to look at whether school and justice authority contact affected one's likelihood of failing a school subject

in adolescence and years of formal schooling completed in adulthood similarly using the Kaplan Longitudinal and Multigenerational Study (KLAMS) data. A further objective was to test whether Brayne's (2014) concept of surveilling and nonsurveilling institution avoidance helped explain this possible relationship by testing it at three life stages (adolescence, emerging, and middle adulthood) and four points in time (1972, 1973, 1982-87, and 1994-98). A test of these concepts using longitudinal data seemed especially prescient based on research looking at the effects of school criminalization commonly referred to as the school-to-prison-pipeline (Heitzeg 2009; Wald and Losen 2003).

The KLAMS data provided information of adolescents aged 12-13 years old at their youngest and 35-41 at their oldest, reporting their race, gender, thoughts on their socioeconomic status, school engagement, parental living arrangements, peer behaviors, personal deviant behavior, mental health, and approximate measures of surveilling and nonsurveilling institutions. The findings of this research provided interesting information concerning the impact of adolescent labeling on educational outcomes through the life course, important predictors, and one's engagement with social institutions.

The Relationship between School Authority Contact in Adolescence (T1) and Education Outcomes through the Life Course

School authority contact at T1 (1971, mean age 13) indicated whether a respondent was ever suspended, expelled, or taken to the office for punishment. School authority contact in adolescence at T1 was found to predict failing a school subject(s) in adolescence at T2 (1972, mean age 14) and T3 (1973, mean age 15), net of controls.

School authority contact was also associated with less years of formal schooling completed in emerging (T4; 1982-87, mean age 24) and middle adulthood (T7; 1994-98, mean age 36), net of controls. These results confirmed all four main effects hypotheses regarding the relationship between school authority contact and education outcomes proposed in Chapter III.

The findings regarding adolescence are in line with research that suggests that school discipline in adolescence increases the likelihood of academic underperformance (Castillo 2014; Morris and Perry 2016; Skiba and Rausch 2006). Getting a failing grade is particularly relevant as it can lead to grade retention, which is highly associated with high school dropout (Jimerson et al. 2002) and which was the largest coefficient in all models analyzed in this study. Adulthood findings point to a life course impact of adolescent labeling related to school authority contact on educational attainment. These findings are important as research shows that as educational levels increase, individuals tend to commit fewer criminal or delinquent acts, presumably due to their increased employability and social integration (Gottfredson and Hirschi 1990; Sampson and Laub 2005). With respondents still feeling the impact in adulthood of school authority interactions in adolescence, one wonders if a better approach could lessen the negative effect of such practices. If educational attainment is a path to future success, and disciplinary problems decrease as one ages (Sampson and Laub 1993), it stands to reason that punitive practices in adolescence that affect life time educational attainment should be reconsidered at best, a last option at worse.

The Relationship between Justice Authority Contact (T1) and Education Outcomes through the Life Course

Justice authority contact at T1 (1971, mean age 13) indicated whether a respondent ever had anything to do with police, sheriff, or juvenile officers. Justice authority contact in adolescence was found to predict failing a school subject(s) in adolescence at T2 (1972, mean age 14) and T3 (1973, mean age 15) only in the reduced model (with sociodemographics included only. At T2, when T1 controls in addition to school related controls were added to the model the relationship was no longer significant. At T3, the effect was accounted for with only sociodemographics and school related controls included. At T4 and at T7, justice authority contact was associated with less years of formal schooling completed, net of controls. These results confirmed two of the four main effects hypotheses regarding the relationship between justice authority contact and education outcomes through the life course proposed in Chapter III.

The use of justice authority contact was employed to compare the effects with school authority contact and see if both were associated with educational outcomes similarly. Labeling theory suggests that the effects should be similar as the importance lies in the stigma from the negative label associated with justice or school authority contact (Hirschi 1980; Thomas and Bishop 1984). While the connection between justice authority contact and educational outcomes is hinted at in delinquency and crime research, studies assessing whether there is a causal link are limited (Hjalmarsson 2008). Some studies in the criminology literature show a negative relationship between justice system interactions and education outcomes (Bernburg and Krohn, 2003; Tanner et al.

1999) but they are only looking at adulthood. Studies on juvenile delinquency also suggest such a link (Heitzeg 2009) however the lack of longitudinal data makes assertions of a causal link difficult (Ganao 2013).

Regression analyses in adolescence at T2 show that T1 sociodemographics (except self-rated socioeconomic status), prior school engagement, living with both parents, self-rated delinquency, and depressive symptoms seemingly mediate this relationship. At T3, being Black, being Hispanic, being male, parental education, and prior school engagement seem to mediate the relationship between justice authority contact and failing a school subject(s). These findings echo Barrick's (2014) meta-analysis of labeling studies that have found no effect due to official intervention, net of controls. While research suggests that justice authority contact in adolescence is associated with negative education outcomes (Bernburg and Krohn 2003; Wiley et al. 2013) the results of this study show that within this sample, this relationship is best explained by other risk factors. Such findings went against the stated hypotheses of this study related to the relationship between justice authority contact and academic performance in adolescence.

However, the results from adulthood do confirm the emerging adulthood hypothesis that justice authority contact has long-lasting, negative effects on one's educational attainment. In emerging adulthood at T4 (1982-87, mean age 26) and in middle adulthood at T7 (1994-98, mean age 36) justice authority contact is associated with less years of formal schooling completed, net of controls. These results provide a potential mechanism by which justice authority contact in adolescence can have negative

consequences for educational attainment that could lead to unemployment and welfare receipt in adulthood (Bernburg and Krohn 2003; Lopes et al. 2012; Sampson and Laub 1993, 1997) and, potentially, how to minimize such effects.

The Role of Institution Avoidance in the Relationship between School and Justice Authority Contact in Adolescence (T1) and Education Outcomes through the Life Course

Skipping school and not participating in protests were used as approximate measures of Brayne's concept of surveilling and nonsurveilling institution avoidance in adolescence. In adulthood an index reflecting the hypothesized measures for surveilling (except medical and bank institution avoidance for surveilling institutions) and nonsurveilling institution avoidance proposed by Brayne (2014) are used.

In adolescence at T2 (1972, mean age 14), skipping school and not participating in protests were found to partially mediate the relationship between school authority contact and failing a school subject(s). While skipping school's coefficient was in the hypothesized direction, increasing the likelihood of school subject(s) failure, no protest participation was significant but in the opposite direction of that hypothesized in this study, decreasing the likelihood of school subject(s) failure. In adolescence at T3 (1973, mean age 15), skipping school was found to completely mediate the relationship between school authority contact and failing a school subject(s). No protest participation did not mediate this relationship at T3. Mediation analysis for justice authority contact at both adolescent time periods were not conducted as sociodemographics, T1 school and other controls accounted for the relationship between justice authority contact and failing

a school subject(s) at T2 and T3. As such, only three of the eight mediation hypotheses for the adolescent life stage were confirmed/partially confirmed.

The idea behind system avoidance as explained by Brayne (2014) and Lageson's similar concept of "opting out", is that interactions with authority figures lead individuals to want to avoid further interactions with formal and informal social institutions due to a belief that people will look unkindly or judge individuals who have been labeled or are perceived as being labeled through such interactions. Furthermore, by avoiding such institutions, individuals are further removed from social relationships leading to less accumulation of social and cultural capital, as well as quantifiable resources (e.g. employment, welfare access, education etc.), that are beneficial in society.

The use of skipping school as an approximate measure of surveilling institution avoidance in adolescence was deemed appropriate since attachment to institutions like schools provides access to traditional avenues of social mobility (Haskins and Jacobsen 2017). While it could be argued that skipping school is an indicator of delinquency, avoiding social institutions can be viewed as deviant as well and the similarity, I argue, makes its use appropriate. Furthermore, with no other measure approximating surveilling institution avoidance available in this dataset (i.e. participating in school sports or after school programs might have been a better measure if available) skipping school as approximating institutional avoidance seems appropriate because while the dataset does not provide motivations for skipping school, it does not seem like much of a leap to imagine that if a respondent feels unfairly picked on by school authority figures at

school, school disengagement (Henry et al. 2012) could occur, potentially manifesting in individuals skipping school.

With no measure perfectly approximating Brayne's concept of nonsurveilling institution avoidance, no protest participation as an approximate measure was chosen. This is likely why the measure had a small and opposite impact than hypothesized when it comes to mediating the relationship between school authority contact and failing a school subject(s). However, the effect is closer to Brayne's hypothesis since in her work she hypothesized less surveilling institution avoidance but no change in non-surveilling institution avoidance.

The hypothesized relationship I chose (i.e. an increase in non-protest participation that increased likelihood of failing a school subject) assumed that not participating in protests illustrated a lack of attachment to civic institutions and civic engagement, potentially affecting peer relationships and by extension the accumulation of social capital of respondents. This, I hypothesized, would then be associated with failing at school. However, it is also possible that good students would be less likely to risk jeopardizing their schooling by protesting which would explain the negative association between no protest participation and failing a school subject(s). Furthermore, not protesting would also decrease one's potential interaction with authority figures, also decreasing the negative effects such interactions might have on educational performance.

In emerging adulthood at T4 (1982-87, mean age 24) and middle adulthood at T7 (1994-98, mean age 36) T1 sociodemographics, school, and other controls did not fully

explain the relationship between school or justice authority contact and years of formal schooling completed.

Neither avoidance measure mediated the relationship between school or justice authority contact and years of formal schooling completed in emerging adulthood at T4 nor justice authority contact and years of formal schooling completed in middle adulthood at T7. While surveilling institution avoidance also did not mediate the relationship between school authority contact and years of formal schooling completed in middle adulthood either, nonsurveilling institution avoidance did. Specifically, it partially mediated this relationship. Furthermore, including the mediators reduced the coefficient of years of formal schooling completed, in both mediation models. Altogether, only one of the seven mediating hypotheses proposed for adulthood was found to be partially confirmed.

The partial mediation results of nonsurveilling institution avoidance in the relationship between school authority contact and years of formal schooling completed in middle adulthood is important as Brayne's (2014) work suggests that justice authority interactions are associated with an increase in surveilling institution avoidance while there should be no change related to nonsurveilling institution avoidance in adulthood. Furthermore, the finding that nonsurveilling institution avoidance partially mediates the relationship between school authority contact in adolescence and years of formal schooling completed in middle adulthood is a contribution to the literature since justice authority contact was the focus of her study. As such, to find that an increase in

nonsurveilling institution avoidance in this study is associated with less years of formal schooling completed in adulthood is a novel contribution.

Mediation results for school authority contact in adolescence also offer a different look at the pathway by which labeling negatively affects academic performance in adolescence (except protest participation as this measure decreased the likelihood to fail a school subject). The fact that skipping school has such an effect on academic performance is not a new finding (Bock et al. 1998) but does point to the importance of school attachment (and thus institutional engagement) in academic performance as suggested by Brayne (2014) and others' work (Ginsburg et al. 2014; Henry et al. 2012).

Predictors in the Relationship between School and Justice Authority Contact in Adolescence (T1) and Education Outcomes through the Life Course

The overall results of the predictors used in this study support Sampson and Laub's (1997) cumulative disadvantage theory. As the literature suggests, school-related controls are important in assessing educational outcomes. In all regression models included, the stability coefficient (Cureton 1971) of failing a school subject(s) at T1 was significantly associated with failing a school subject in adolescence at T2 and T3 and less years of formal schooling completed in emerging and middle adulthood, confirming the literature's assertion that past failure predicts future failure (Jimerson et al. 2002). Skipping school at T1 was also significant in all models included except in middle adulthood, pointing to the long-term negative impact of school disengagement (Henry et al. 2012).

Of interest with regards to all models is parental education's (T1) significant and positive influence on all models analyzed in this study. Regarding the relationship between school authority contact and likelihood of failing a school subject(s), parental education at T1 was associated with a reduced likelihood to fail a school subject(s) in both adolescent time periods analyzed (T2 and T3). Parental education was also associated with more years of formal schooling completed in both adulthood time periods analyzed (emerging adulthood at T4 and middle adulthood at T7). These findings confirm research on the positive effect of parental education on children (Blau and Duncan 1967; Dickson et al. 2016).

Furthermore, the positive influence of living with both biological parents was evident in all models included, pointing to the importance of family structure in educational outcomes (Amato et al. 2015). Specifically, that family structure is a protective factor in the relationship between school and justice authority contact and negative effects associated with such contact (Chen and Kaplan 1997; Dong and Krohn 2016). Also, as the literature shows (Goffman 2015; Rios 2011), Blacks and Hispanics all had significantly less academic success that Whites in all four time periods analyzed. Interestingly, being male predicted school subject failure in adolescence but was not associated with less years of formal schooling completed in either adulthood models.

Low self-rated SES indicated subjective feelings related to SES and not an objective measure of socioeconomic status which might explain why it was not statistically significant in any of the adolescent models. However, adulthood results are noteworthy in that such feelings were significant and negatively related to years of

formal schooling completed in emerging and middle adulthood. This finding should be kept in mind with studies that suggest "that poverty need not predict academic success" (Christle et al. 2005:83). While that may be the case in adolescence, and indeed the results from adolescence in this study confirm this, the long-term effects of such feelings on academic success merit further study.

Having delinquent peers at T1 being significantly associated at all life course stages included, except T2, is consistent with research that shows that as one ages through adolescence and into adulthood peers have a stronger influence on behavior (Ascani 2012; Berndt 1999). Depressive symptoms at T1 being significant in both adolescent and in the emerging adulthood models confirms research on mental health being a risk factor that affects academic performance (Fergusson and Woodward 2002; Fiorella et al. 2017).

Self-rated delinquency at T1 was significant only at T2, while substance use was not significant in any of the models included. The results related to delinquency could be due to spuriousness in the association. (Felson and Staff 2006). Substance use at T1 was not significant in any of the models and may be the result of the relatively young age of respondents at that life stage (mean age 13) in this study. While substance use starts in adolescence, use escalates and problems associated with such escalation occur over the course of adolescence (Bryant et al. 2003; Johnston et al. 2002). Anger was also not significant in any of the models included which may be why this emotion is rarely included in studies on academic achievement (Valiente et al. 2012) or studies in general (Aseltine et al. 2000). Overall, this suggests using T1 controls only in this study could

have limited the findings related to these measures and including more recent measures at each life course stage could change the results.

Conclusion

This study was an investigation into the effects of contact with social control authorities in adolescence on educational outcomes at three stages of the life course: adolescence, emerging, and middle adulthood. Merging studies on social control and education outcomes, I applied a modified interactional approach to test labeling theory's assertions that labels have negative consequences on education outcomes over the life course (Bartusch and Matsueda 1996; Thornberry 1987; 2005). The findings of this study bear this fact. Specifically, the findings of this study lend credence to the idea that interactions with labeling authorities in adolescence can have deleterious effects through the life course, negatively affecting academic performance, educational attainment, institutional engagement, and non-institutional relationships (Brayne 2014; Skiba et al. 2011).

Such deleterious effects impact the ability of adolescents to achieve academic success and take advantage of the positive influence of institutional and non-institutional relationships essential for success through the life course (Sampson and Laub 1997). While disciplinary practices will always be an integral part of any society in which social control is important, justice and school authority officials should be aware (Hirschfield 2008) that such efforts can potentially undermine the success of individuals for the remainder of their lives and potentially across generations (Ascani 2012; Foster and Hagan 2015; Hagan and Foster 2012). Furthermore, while life course research

suggests that predictors of adolescent success or failure might not be the same in adulthood (Sampson and Laub 1993; Thornberry 2005), most statistically significant predictors for adolescence were also significant in adulthood. This points to the importance of early interventions to increase the likelihood of success in later life.

Since justice and school authority contact are disproportionately distributed, like Brayne's (2014) and Lageson's (2016) work, this study suggests that system avoidance of surveilling and nonsurveilling institution avoidance is a potential mechanism through which the labeling contributes to social stratification by negatively affecting educational outcomes. As a novel contribution to the literature, the findings in this study point towards labeling effects in early adolescence as having the same impact as formal justice authority interactions in adulthood. As such, disciplinary actions, whether by school or justice authority figures, should be reserved as a tool only when all other options have been exhausted (i.e. parent teacher conferences, talking with the student, mediation etc.; Castillo 2014).

Further research will look at whether these effects are moderated by race/ethnicity and gender since social control research suggests that males, and Black and Hispanics, are disproportionately affected by school and justice authority disciplinary practices (Castillo 2014; Ganao et al. 2013; Rios 2011; Skiba et al. 2009). Another potential avenue for research is to test the idea that labeling increases the likelihood of system inclusion (Sykes and Pettit 2015) since labeling creates markers of deprivation that can only be alleviated by engagement with certain institutions such as

welfare and health care programs provided by the government (Brayne 2014). Future work will also look at whether these findings apply to Generation 2 of the KLAMS data.

The idea of avoidance coping, which involves cognitive and behavioral efforts minimizing or avoiding dealing directly with stress (e.g. school or general life success) and is closely linked to distress and depression (Holahan et al. 2005), also merits further research. The interaction of stress related to academic success and the impact of school and justice authority contact could be why depressive symptoms were significant in the adolescent models and in the emerging adulthood models, not in the middle adulthood model and nonsurveilling institution avoidance mediation model, yet significant in the nonsurveilling institution avoidance mediation model. Combining them both in regression models could provide a path by which they contribute to the stratification process associated with justice and school authority contact in adolescence (Fiorella et al 2017).

Attrition Analyses Implications

Attrition analysis conducted by Dr. Kaplan for Times 2-3 suggest that these samples had less delinquency. As such, it is possible that adolescent life stage results could be underestimating results related to social control interactions. It is possible that those that stayed in the study were better at coping with or dealing with any issues associated with delinquency than those who did not continue in this portion of the study.

While the samples used in this study found no attrition bias in the adolescent samples, at T4 and T7 there were less Whites included. This could have affected the substance use predictors since Whites are more likely to use substances than Blacks or

Hispanics (Johnston et al. 2018). At T7 there were also less Blacks and Hispanics which could again mean that respondents with school and justice authority contact were lower than could have been and thus underestimating their effect in middle adulthood. While parental education for the T7 sample was higher than the T1 sample, the exogenous nature of this variable limits any possible conclusions associated with this finding but as mentioned earlier having more parental education could have increased the variable's suppression effect.

Limitations

While this study's results suggest the negative impact of school and justice authority contact on education through the life course and the potential mediating effect of system avoidance measures, its design has some limitations for the purposes of this analysis. Questions related to delinquency and substance use gauge how often they were doing them only at T1 when perhaps measuring at all life course stages would have better assessed their impact. Additionally, the measures related to child mental health are all measured subjectively from the child's point of view which could be perceived as underreporting since studies suggest that children can find it difficult to express such sentiments (Deighton et al. 2014).

Further limitations of this research include the use of data with measures where the Cronbach's alphas were low (e.g. the variables measuring system avoidance in adulthood, even if such measures were just indicating non-participation) but as members of my committee discussed, the measures as a summative index are appropriate. While analyses of each variable used for the surveilling and nonsurveilling institution

avoidance measure could have been done separately, significance hunting related to the issue of multiple potential comparisons (Gelman and Loken 2014) was something this study wanted to avoid while also staying as true as possible to the measures Brayne used.

Furthermore, the wording of the surveys asking about justice authority contact makes it difficult to ascertain if justice authority contact led to any disciplinary problems for the individuals. It is also not possible to tell if the measures indicating school subject failure was related to only one subject or more as the question does not separate the two. Also, as mentioned in the previous section, the data for surveilling and nonsurveilling avoidance in adolescence were single, approximate indicators only and perhaps a better measure of delinquency (skipping school) or avoidance of delinquency (e.g. no protest participation) and perhaps not the best measures to use to test such a complex concept as avoidance as described by Brayne in her research.

Theoretical Contributions

The findings of this study support an age graded theory of social control related to education attainment processes. Sampson and Laub's theory posits that "social control, routine activities, and human agency, both directly and in interaction, affect trajectories of crime across the entire life course" (Sampson and Laub 2010:3). The theory emphasizes informal family and school social controls as fundamental social structures that influence behavior and explain delinquency in childhood and adolescence, antisocial behavior in childhood as having a strong likelihood of continuing through adulthood across a variety of life domains, and informal social control in adulthood as

explaining changes in criminal behavior over the life span, independent of prior individual differences in criminal propensity.

This study's findings confirm the theory's emphasis on both adolescent pathways. Specifically, labels related to school and justice authority interactions associated with delinquent behavior attained in adolescence can impact education outcomes through the lifecourse. Findings in this study also provide evidence for Brayne's system avoidance and Lageson's opting out measures as occurring in adolescence and not just in adulthood. Future work should try to test whether this is true using other adolescent data available.

Social control interactions in adolescence affecting education through the life course further validates Dr. Kaplan's efforts in collecting data related to stress and its impact on adolescents and whether such outcomes also affect adulthood. Results provide further evidence as to why the KLAMS data should continue in its efforts to collect data. If such collection efforts occur, researchers should consider collecting information on Generation 2's children related to extracurricular activities they might engage in.

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APPENDIX

Table A1. Adolescence Pairwise Pearson Correlations (T1, T2, and T3).

	1	2	3	4	5	6	7	8	9	10	11
1. Failing grade in school subject (T2).	1										
2. Failing grade in school subject (T3).	0.42***	1									
3. Skipped school (T2)	0.25***	0.17***	1								
4. No school protest (T2)	-0.14***	-0.11***	-0.18***	1							
5. Skipped school (T3)	0.17***	0.23***	0.41***	-0.11***	1						
6. No school protest (T3)	-0.10***	-0.09***	-0.10***	0.27***	-0.13***	1					
7. School authority contact (T1).	0.21***	0.15***	0.20***	-0.11***	0.20***	-0.09***	1				
8. Justice authority contact (T1).	0.17***	0.11***	0.20***	-0.08***	0.14***	-0.06***	0.26***	1			
9. White (T1).	-0.13***	-0.12***	0.04*	0.15***	0.04*	0.17***	-0.06***	0.03*	1		
10. Black (T1).	0.11***	0.09***	-0.08***	-0.17***	-0.09***	-0.18***	0.07***	-0.05*	-1.00*	1	
11. Hispanic (T1).	0.14***	0.14***	0.06***	-0.06***	0.08***	-0.09***	0.02	0.01	-1.00	-0.22***	1
12. Male (T1).	0.11***	0.12***	0.05***	-0.01	0.10***	-0.02	0.21***	0.23***	0.02	-0.02*	0.00
13. Age (T1).	0.11***	0.06***	0.07***	-0.06***	0.04**	-0.07***	0.08***	0.07***	-0.11***	0.05***	0.10***
14. Parent's education (T1).	-0.15***	-0.13***	-0.07***	0.03*	-0.06***	0.03	-0.06***	-0.06***	0.22***	-0.04**	-0.31***
15. Low self-rated SES (T1).	0.07***	0.05***	0.03*	-0.04*	0.02	-0.07***	0.09***	0.10***	-0.10***	0.08***	0.12***
16. Failing grade (T1).	0.36***	0.28***	0.13***	-0.09***	0.11***	-0.10***	0.23***	0.18***	-0.14***	0.08***	0.10***
17. Skipped school (T1).	0.14***	0.13***	0.23***	-0.06***	0.18***	-0.09***	0.24***	0.24***	-0.05***	-0.01	0.09***
18. Depressive symptoms (T1).	0.16***	0.13***	0.10***	-0.06***	0.07***	-0.05**	0.12***	0.09***	-0.09***	0.07***	0.04***
19. Anger (T1).	0.16***	0.13***	0.17***	-0.11***	0.14***	-0.11***	0.21***	0.19***	-0.06***	0.05***	0.03*
20. Substance use (T1).	0.13***	0.10***	0.23***	-0.10***	0.18***	-0.07***	0.24***	0.24***	0.04**	-0.03**	-0.01
21. Self-rated delinquency (T1).	0.20***	0.14***	0.23***	-0.17***	0.20***	-0.13***	0.31***	0.36***	-0.01	0.01	0.02
22. Delinquent peers (T1).	0.16***	0.16***	0.25***	-0.15***	0.18***	-0.12***	0.26***	0.26***	0.01	-0.03**	0.03**
23. Lives w/ both bio. parents (T1).	-0.10***	-0.07***	-0.06***	0.05***	-0.05**	0.04**	-0.11***	-0.12***	0.09***	-0.13***	0.06***

* p<0.05, ** 0.01, *** 0.001 (two-tailed test).

Table A1. Adolescence Pairwise Pearson Correlations (T1, T2, and T3; continued).

	12	13	14	15	16	17	18	19	20	21	22	23
12. Male (T1).	1											
13. Age (T1).	0.06***	1										
14. Parent's education (T1).	-0.03*	-0.12***	1									
15. Low self-rated SES (T1).	0.06***	0.04***	-0.09***	1								
16. Failing grade in school subject (T1).	0.08***	0.10***	-0.12***	0.11***	1							
17. Skipped school in last month (T1).	0.08***	0.09***	-0.10***	0.14***	0.17***	1						
18. Depressive Symptoms (T1).	-0.08***	0.01	-0.07***	0.12***	0.17***	0.09***	1					
19. Anger (T1).	0.17***	0.03*	-0.08***	0.12***	0.17***	0.15***	0.38***	1				
20. Substance use (T1).	0.08***	0.06***	-0.03	0.10***	0.15***	0.25***	0.13***	0.20***	1			
21. Self-rated delinquency (T1).	0.25***	0.05***	-0.08***	0.17***	0.20***	0.33***	0.18***	0.36***	0.42***	1		
22. Delinquent peers (T1).	0.05***	0.07***	-0.06***	0.15***	0.19***	0.29***	0.20***	0.25***	0.41***	0.41***	1	
23. Lives w/ both bio. parents (T1).	0.01	-0.05***	-0.01	-0.08***	-0.09***	-0.08***	-0.09***	-0.03**	-0.07***	-0.07***	-0.09***	1

* p<0.05, ** 0.01, *** 0.001 (two-tailed test).

Table A2. Mean or Percent and Standard Deviations of Variables from Adolescence at Time 1 (N=5,622), Time 2 (N=3,405), and Attrition Sample (N=2,217).

	Time 1		Time 2		Attrition Sample	
	Mean or %	Std. Dev.	Mean or %	Std. Dev.	Mean or %	Std. Dev.
Main Independent Variables						
School authority contact (T1).	0.30	-	0.25	-	0.39	-
Justice authority contact (T1).	0.15	-	0.11	-	0.21	-
Sociodemographics						
White (T1).	0.65	-	0.65	-	0.65	-
Black (T1).	0.26	-	0.28	-	0.26	-
Hispanic (T1).	0.09	-	0.11	-	0.09	-
Age (T1).	13.31	0.82	14.57	0.80	14.69	0.77
Male (T1).	0.49	-	0.46	-	0.54	-
Parent's education (T1).	3.47	0.74	3.49	0.72	3.45	0.78
Self-rated socioeconomic status (T1).	0.08	-	0.06	-	0.10	-
Prior School Engagement						
Failing grade in one/more school subjects (T1).	0.31	-	0.25	-	0.40	-
Skipped school last month (T1).	0.09	-	0.06	-	0.14	-
Sociostructural Correlates						
Lives with both biological parents (T1).	0.71	-	0.76	-	0.64	-
Delinquent peers (T1).	0.52	0.89	0.41	0.80	0.67	0.99
Juvenile Delinquency						
Substance use in last month (T1).	0.18	-	0.15	-	0.23	-
Self-rated delinquency (T1).	0.78	1.40	0.65	1.24	0.98	1.60
Mental Health						
Depressive Symptoms (T1).	2.49	1.63	2.45	1.63	2.55	1.62
Anger (T1).	2.12	1.49	2.05	1.47	2.23	1.51

Source: KLAMS, Time 1 (1971) and Time 2 (1972).

Note: T1 and T2 Ns are from variables with nonmissing data.

Table A3. Mean or Percent and Standard Deviations of Variables from Adolescence at Time 1 (N=5,622), Time 3 (N=2,882), and Attrition Sample (N=2,740).

	Time 1		Time 3		Attrition Sample	
	Mean or %	Std. Dev.	Mean or %	Std. Dev.	Mean or %	Std. Dev.
Main Independent Variables						
School authority contact (T1).	0.30	-	0.24	-	0.37	-
Justice authority contact (T1).	0.15	-	0.10	-	0.20	-
Sociodemographics						
White (T1).	0.65	-	0.63*	-	0.67	-
Black (T1).	0.26	-	0.31*	-	0.24	-
Hispanic (T1).	0.09	-	0.12	-	0.09	-
Age (T1).	13.31	0.82	15.07	0.89	15.70	0.75
Male (T1).	0.49	-	0.46	-	0.53	-
Parent's education (T1).	3.47	0.74	3.50	0.72	3.45	0.76
Self-rated socioeconomic status (T1).	0.08	-	0.05	-	0.10	-
Prior School Engagement						
Failing grade in one/more school subjects (T1).	0.31	-	0.27	-	0.38	-
Skipped school last month (T1).	0.09	-	0.05	-	0.13	-
Sociostructural Correlates						
Lives with both biological parents (T1).	0.71	-	0.77	-	0.65	-
Delinquent peers (T1).	0.52	0.89	0.38	0.78	0.65	0.98
Juvenile Delinquency						
Substance use in last month (T1).	0.18	-	0.14	-	0.22	-
Self-rated delinquency (T1).	0.78	1.40	0.61	1.20	0.96	-
Mental Health						
Depressive Symptoms (T1).	2.49	1.63	2.54	1.59	2.56	1.66
Anger (T1).	2.12	1.49	2.05*	1.46	2.20	1.51

Sample differences significant at * $p<0.05$; Source: KLAMS, Time 1 (1971) and Time 3 (1973).

Note: T1 and T3 Ns are from variables with nonmissing data.

Table A4. Adulthood Pairwise Pearson Correlations (T1, T4, and T7).

	1	2	3	4	5	6	7	8	9	10	11
1. Years of schooling completed (T4).	1										
2. Years of schooling completed (T7).	0.78***	1									
3. Surveilling institution avoidance (T4).	-0.28***	-0.28***	1								
4. Nonsurveilling institution avoidance (T4).	-0.24***	-0.22***	0.20***	1							
5. Surveilling institution avoidance (T7).	-0.21***	-0.24***	0.24***	0.10***	1						
6. Nonsurveilling institution avoidance (T7).	-0.31***	-0.32***	0.12***	0.26***	0.20***	1					
7. School authority contact (T1).	-0.20***	-0.18***	0.04**	0.08***	0.03	0.13***	1				
8. Justice authority contact (T1).	-0.15***	-0.13***	0.05***	0.07***	0.03*	0.08***	0.26***	1			
9. White (T1).	0.18***	0.21***	-0.06***	-0.03*	0.04*	-0.13***	-0.06***	0.03**	1		
10. Black (T1).	-0.12***	-0.16***	0.05***	-0.01	-0.05**	0.12***	0.07***	-0.05***	-1.00***	1	
11. Hispanic (T1).	-0.22***	-0.25***	0.06***	0.10***	0.01	0.09**	0.02	0.01	-1.00	.	1
12. M ale (T1).	-0.03*	-0.04**	-0.11***	0.06***	-0.10***	0.16***	0.21***	0.23***	0.02	-0.02*	0.00
13. Age (T1).	-0.33***	-0.38***	0.10***	0.07***	0.08***	0.17***	0.08***	0.07***	-0.11***	0.05***	0.10***
14. Parent's education (T1).	0.25***	0.27***	-0.07***	-0.08***	-0.02	-0.12***	-0.06***	-0.06***	0.22***	-0.04**	-0.31***
15. Self-rated SES (T1).	-0.13***	-0.13***	0.05***	0.06***	0.03	0.05**	0.09***	0.10***	-0.10***	0.08***	0.11***
16. Failing grade in school subject (T1).	-0.29***	-0.29***	0.11***	0.09***	0.07***	0.15***	0.23***	0.18***	-0.14***	0.08***	0.10***
17. Skipped school (T1).	-0.17***	-0.14***	0.06***	0.07***	0.03*	0.07***	0.24***	0.24***	-0.05***	-0.01	0.09***
18. Depressive symptoms (T1).	-0.14***	-0.13***	0.08***	0.06***	0.04*	0.07***	0.12***	0.10***	-0.09***	0.07***	0.04***
19. Anger (T1).	-0.11***	-0.12***	0.01	0.08***	0.01	0.10***	0.21***	0.19***	-0.06***	0.05***	0.03*
20. Substance use (T1).	-0.10***	-0.10***	0.03.	0.02	0.02	0.05**	0.24***	0.24***	0.04**	-0.03**	-0.01
21. Self-rated delinquency (T1).	-0.15***	-0.15***	0.03*	0.05***	0.01	0.09***	0.31***	0.36***	-0.01	0.00	0.01
22. Delinquent peers (T1).	-0.18***	-0.19***	0.08***	0.05***	0.06***	0.07***	0.26***	0.26***	0.01	-0.03**	0.03**
23. Lives w/ both bio. parents (T1).	0.15***	0.14***	-0.06***	-0.07***	-0.04*	-0.09***	-0.11***	-0.12***	0.09***	-0.13***	0.06***

* p<0.05, ** 0.01, *** 0.001 (two-tailed test).

Table A4. Adulthood Pairwise Pearson Correlations (T1, T4, and T7; continued).

	12	13	14	15	16	17	18	19	20	21	22	23
12. M ale (T1).	1											
13. Age (T1).	0.06***	1										
14. Parent's education (T1).	-0.03*	-0.12***	1									
15. Self-rated SES (T1).	0.06***	0.04***	-0.09***	1								
16. Failing grade in school subject (T1).	0.08***	0.10***	-0.12***	0.11***	1							
17. Skipped school (T1).	0.08***	0.09***	-0.10***	0.14***	0.17***	1						
18. Depressive symptoms (T1).	-0.08***	0.01	-0.07***	0.12***	0.17***	0.09***	1					
19. Anger (T1).	0.17***	0.03*	-0.08***	0.12***	0.17***	0.15***	0.38***	1				
20. Substance use (T1).	0.08***	0.06***	-0.03	0.10***	0.15***	0.25***	0.14***	0.20***	1			
21. Self-rated delinquency (T1).	0.25***	0.05***	-0.08***	0.17***	0.20***	0.33***	0.18***	0.36***	0.42***	1		
22. Delinquent peers (T1).	0.05***	0.07***	-0.06***	0.15***	0.19***	0.29***	0.20***	0.25***	0.41***	0.41***	1	
23. Lives w/ both bio. parents (T1).	0.01	-0.05***	-0.01	-0.08***	-0.09***	-0.08***	-0.09***	-0.03**	-0.07***	-0.07***	-0.09***	1

* p<0.05, ** 0.01, *** 0.001 (two-tailed test).

Table A5. Mean or Percent and Standard Deviations of Variables from Adolescence at Time 1 (N=5,622), Emerging Adulthood at Time 4 (N=3,857), and Attrition Sample (N=1,765).

	Time 1		Time 4		Attrition Sample	
	Mean or %	Std. Dev.	Mean or %	Std. Dev.	Mean or %	Std. Dev.
Main Independent Variables						
School authority contact (T1).	0.30	-	0.27	-	0.38	-
Justice authority contact (T1).	0.15	-	0.13	-	0.20	-
Sociodemographics						
White (T1).	0.65	-	0.67*	-	0.62	-
Black (T1).	0.26	-	0.27	-	0.28	-
Hispanic (T1).	0.09	-	0.11	-	0.11	-
Age (T1).	13.31	0.82	24.61	0.70	24.63	0.79
Male (T1).	0.49	-	0.46	-	0.55	-
Parent's education (T1).	3.47	0.74	3.52	0.71	3.36	0.81
Self-rated socioeconomic status (T1).	0.08	-	0.07	-	0.10	-
Prior School Engagement						
Failing grade in one/more school subjects (T1).	0.31	-	0.27	-	0.40	-
Skipped school last month (T1).	0.09	-	0.07	-	0.12	-
Sociostructural Correlates						
Lives with both biological parents (T1).	0.71	-	0.74	-	0.64	-
Delinquent peers (T1).	0.52	0.89	0.46	0.85	0.65	0.97
Juvenile Delinquency						
Substance use in last month (T1).	0.18	-	0.16	-	0.22	-
Self-rated delinquency (T1).	0.78	1.40	0.69	1.26	0.99	1.66
Mental Health						
Depressive Symptoms (T1).	2.49	1.63	2.47	1.62	2.54	1.65
Anger (T1).	2.12	1.49	2.06	1.47	2.25	1.51

Sample differences significant at * $p<0.05$; Source: KLAMS, Time 1 (1971) and Time 4 (1982-87).

Note: T1 and T4 Ns are from variables with nonmissing data.

Table A6. Mean or Percent and Standard Deviations of Variables from Adolescence at Time 1 (N=5,622), Middle Adulthood at Time 7 (N=3,533), and Attrition Sample (N=2,089).

	Time 1		Time 7		Attrition Sample	
	Mean or %	Std. Dev	Mean or %	Std. Dev.	Mean or %	Std. Dev.
Main Independent Variables						
School authority contact (T1).	0.30	-	0.27	-	0.37	-
Justice authority contact (T1).	0.15	-	0.12	-	0.20	-
Sociodemographics						
White (T1).	0.65	-	0.66***	-	0.63	-
Black (T1).	0.26	-	0.25***	-	0.27	-
Hispanic (T1).	0.09	-	0.09***	-	0.10	-
Age (T1).	13.31	0.82	36.60	0.70	36.80	0.77
Male (T1).	0.49	-	0.45	-	0.55	-
Parent's education (T1).	3.47	0.74	3.52***	0.70	3.39	0.79
Self-rated socioeconomic status (T1).	0.08	-	0.06	-	0.10	-
Prior School Engagement						
Failing grade in one/more school subjects (T1).	0.31	-	0.26	-	0.39	-
Skipped school last month (T1).	0.09	-	0.07	-	0.12	-
Sociostructural Correlates						
Lives with both biological parents (T1).	0.71	-	0.74	-	0.66	-
Delinquent peers (T1).	0.52	0.89	0.45	0.84	0.63	0.96
Juvenile Delinquency						
Substance use in last month (T1).	0.18	-	0.16	-	0.22	-
Self-rated delinquency (T1).	0.78	1.40	0.66	1.24	0.98	1.63
Mental Health						
Depressive Symptoms (T1).	2.49	1.6	2.45	1.61	2.55	1.66
Anger (T1).	2.12	1.49	2.05	1.47	2.24	1.50

Sample differences significant at *** p<0.001; Source: KLAMS, Time 1 (1971) and Time 7 (1994-98).

Note: T1 and T7 Ns are from variables with nonmissing data.