EXPLORING THE RELATIONSHIP BETWEEN SCOUTING PROGRAMS AND DELINQUENCY

by

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ABSTRACT

MATTHEW BROWNING. Exploring The Relationship Between Scouting Programs And Delinquency
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This study examines the relationship between youth participation in Boy and Girl Scouting (BSA, GSA, etc.) programs and later delinquency. The primary research question is: Does participation in a Scouting program as a youth influence the likelihood of later delinquency? Many theories, such as learning theories, control theories, and disorganization theories hypothesize that participation in organized, prosocial activities will reduce juvenile delinquency and antisocial behavior. The purpose of this study is to determine whether participation in Scouting programs, such as Boy Scouts and Girl Scouts, effects the likelihood of later delinquency. The influence of Scouting participation on delinquency is not well researched and this study will help to increase the understanding of the benefits of these programs.

This analysis uses data from the National Education Longitudinal Study. The longitudinal nature of this research facilitates an examination on the effects of Scouting participation over time. The dependent variables of importance are self-reported arrest variables (e.g., “Have you been arrested?”), measures of problem behavior, and self-reported drug use variables (marijuana and cocaine). To reduce the influence of any existing selection biases (for example, those more likely to engage in delinquency are already less likely to participate in Scouting programs), the sample will be match/weigh youth based on propensity scores. Individuals will be matched based on race, gender, SES, grades, and other relevant characteristics. The goal of this matching/weighting is to compare the delinquency rates of two youth who are as similar as possible (determined through propensity score matching) who differ only in their participation in scouting programs, thereby reducing the influence of unmeasured

variables. Once matched/weighted, the individual influence of Scouting participation can be effectively measured. The results indicate that there is little to no difference between Scouts and non-Scouts prior to matching and that Scouting participation has virtually no influence on delinquency. The implications of these findings, limitations of the analysis, and directions for future research are also discussed.

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CHAPTER 1: INTRODUCTION

Founded in the United Kingdom in 1907, Scouting was introduced to the United States in 1910 with the creation of the Boy Scouts of America (BSA) (Scout.org). The BSA was soon joined by the Girl Scouts of the United States of America (GSUSA) in 1912 (GSUSA 2020f). While distinctly separate programs, both the BSA and GSUSA use similar frameworks to assist youth participants in developing life skills, strong moral character, and peer networks that may facilitate future success. Despite the prominence of both programs and their enrollment of over four million American youth in 2020 (BSA, 2020a and GSUSA, 2021a), the effects of Scouting participation on delinquent behavior, including crime and recreational substance use, has never been tested. Leading criminological theoretical perspectives, such as social learning theory and social control theory, would support the assumption that participation in Scouting decreases the likelihood of delinquent behavior. While Scouting's effect on delinquency has never been studied using rigorous statistical analyses, the effects of a number of other organized youth programs have, and results indicate that participation in programs that are similar to Scouting does lead to a decreased likelihood of delinquency (e.g., Agnew and Peterson, 1989; Crean, 2012; Mahoney and Cairns, 1997; Persson et al., 2007). Due to the prosocial nature of Scouting programs and emphasis on ethical and moral decision-making, it is logical to assume that Scouting participants would exhibit less deviance or engage in fewer antisocial behaviors than individuals who did not participate in Scouting.

The goal of this analysis is to rectify the existing research gap by evaluating the relationship between Scouting participation and delinquent behavior, operationalized using self-reported physical fighting, self-reported arrest, and self-reported substance use measures. The National Educational Longitudinal Study (NELS) includes measures of Scouting participation in

1988 and four waves of follow-up data on educational, occupational, and criminal outcomes. As data was collected using typical survey techniques, youth were not randomly assigned to participation in Scouting programs; those enrolled in Scouting may have differed from those that did not and simple comparisons of arrest rates between Scouts and non-Scouts at later points in time would potentially be flawed. In order to address the central research questions using observational survey data, this analysis will use two advanced statistical techniques: Propensity score matching and inverse propensity score weighting. Propensity scores are the statistical probability of being in one particular group (being a Scouting participant) and are calculated through logistic regression. By using correlates, such as household structure, poverty status, and race that co-vary with the treatment condition (Scouting) as inputs into a logistical model, propensity scores offer insight into the likelihood of participation in the treatment condition. This information can be used to create comparable treatment (Scouts) and counterfactual groups (non-Scouts) in propensity score matching analyses (PSM). In allowing the creation of two groups matched on their propensity scores, PSM provides a reduced, but easily interpreted, sample for a straightforward comparison between Scouting participants and nonparticipants. Inverse propensity score weighting (IPW) is a related approach that maintains use of the entire sample by using the inverse of the propensity score as a weight for subsequent analyses. Both approaches are explored in this analysis as PSM results are more easily conveyed to practitioners and IPW are more consistent with academic reporting.

This analysis will begin with a test to determine if there are statistically significant differences between Scouting participants and nonparticipants in the baseline wave of NELS data. Using relevant covariates, propensity scores for Scouting participation will be calculated. Then the two main approaches (PSM and IPW) will be applied separately to self-reports of

fighting, arrest, and recreational substance use collected in the follow-up waves of data. Estimates of the average effect of Scouting participation will provide insight into Scouting's potential effect, if any, on each of the outcomes. Following this exploration of the full sample, all analyses will be repeated, separately using the male and female subsamples. These secondary analyses are warranted as GSUSA and BSA programming is not identical; though the BSA now offers co-ed programs, each program was limited to one gender at time of data collection.

CHAPTER 2: LITERATURE REVIEW

Despite the lack of empirical research on the relationship between Scouting and delinquency, there is a significant amount of research on other youth programs and activities, such as youth clubs, sports, and employment. While these programs are not identical to Scouting, they share many theoretical and practical similarities. By comparing and contrasting Scouting to similar programs, one can more effectively hypothesize on the relationship between Scouting and delinquency. Before comparing Scouting to similar programs, an in-depth description of the Scouting program is necessary.

The Scouting Program

At the time of data collection, there were two primary national Scouting organizations in the United States: The Boy Scouts of America (BSA) and the Girl Scouts of the United States of America (GSUSA). The primary purpose of Scouting programs is to prepare youth for the future by providing them with a plethora of life and leadership skills. The mission statement of the BSA is, "The mission of the Boy Scouts of America is to prepare young people to make ethical and moral choices over their lifetimes by instilling in them the values of the Scout Oath and Law" (BSA, 2020b). The mission of the GSUSA is to build "girls of courage, confidence, and character, who make the world a better place" (GSUSA, 2020c). These two national organizations provide a number of Scouting programs and experiences for youth of all ages and locales. Using a "franchise-like" model, the national programs and agendas are administered to individual youth through troops, which consist of groups of youth led by volunteer adult leaders.

Troops are administered through a chartered organization, which serves as a liaison between the national organizations and the local troops (BSA, 2020e). Chartered organizations exert a significant amount of control over the troops they charter and can even impose

membership requirements (such as being a member of a particular religion) (BSA, 2020e). Each troop is a distinct entity, as troop leaders are given a significant amount of discretion in how they administer the program, provided they abide by national guidelines; as such, the Scouting program may look significantly different from troop to troop. Within each troop, there are a number of leadership positions that youth may fill, ranging from patrol leaders (leaders of smaller groups of youth within particular troops) to senior patrol leaders and presidents, who are the central leaders of that particular troop (BSA, 2020f).

In the BSA, there are two types of organizations: Packs and Troops. Packs, utilized only for the younger Cub Scouts, are adult-led organizations that are divided up by age (BSA, 2020h). Each specific age group, known as a "den," has an adult "den leader" who guides the Scouts through highly structured, age-specific activities (BSA, 2020d). Unlike Boy Scout troops, Cub Scout packs rely heavily on adult leadership and have few youth leadership positions available to participants, though there are still a number of awards and recognitions available to the Scouts (BSA, 2020d). As a Scout gets older, he progresses to the next den level and eventually ages out of Cub Scouts and into a Boy Scout troop (BSA, 2020h).

Troops are structured using a "patrol method" (BSA, 2020f). In this system, the Scouts in a particular troop are divided up into smaller groups called "patrols," with each patrol having a designated leader and assistant; depending on the size of a particular patrol, that patrol may have other leadership positions for members to full, such as a patrol quartermaster, who is in charge of patrol's equipment that is owned by the troop (BSA, 2020f). Each patrol leader reports to the senior patrol leader, who is the designated youth leader of the troop; a senior patrol leader may have one or more assistants, depending on troop size (BSA, 2020f). The senior patrol leader is responsible for meeting and activity organization, coordination, and execution (BSA, 2020f). In

order to coordinate and facilitate troop activities, the senior patrol leader works with other troop leaders, including, but not limited to: A troop quartermaster, who is responsible for all troop equipment; a troop scribe, who is tasked with taking notes during all planning meetings; troop instructors, who are responsible for presenting and teaching skills at meetings or outings; and troop guides, who serve as mentors and instructors to new Scouts (BSA, 2020f). The methods by which individual Scouts are selected for leadership positions varies by troop, but patrol leaders and the senior patrol leader are usually elected positions; other positions may be chosen by election or through appointment by youth leaders, though all youth leadership positions must be approved by adult leaders within the troop. It is the teamwork and cooperation between these youth leaders, as well as strict adult oversight, that enables most Scout troops to function.

The particular structure of Girl Scout troops is variable and depends on the ages and preferences of the girls in the troop. Girls are divided into six separate groups based on their grade level: Daisies are kindergarteners and first graders; Brownies are second and third graders; Juniors are fourth and fifth graders; Cadettes are sixth, seventh, and eighth graders; Seniors are ninth and tenth graders; and Ambassadors are eleventh and twelfth graders (GSRV, 2020). There are five types of troop government, two of which are specific to Daisies and Brownies, called the daisy circle and brownie ring, respectively. These methods of troop planning and decision-making are very similar and involve all troop members sitting in a circle to discuss troop matters; strict rules, such as rules against talking over others and against criticizing others' ideas, are mandatory for these forms of government (GSRV). The primary difference between the daisy circle and brownie ring is the level of adult moderation. While both methods are highly structured, in the daisy circle, discussion moderation is done exclusively by adult leaders. For the brownie ring, girls may have a role in moderation, though adults still have the final say.

For troops including all other grade levels, there are three primary systems of troop government: The patrol system, the executive board, and the town meeting system (GSRV, 2020). Much like in the BSA, in the patrol system, a troop of girl Scouts is divided into smaller patrols of Scouts; each patrol may elect a leader and assistant leader (GSRV, 2020). Planning and decision-making is accomplished during a "court of honor," which is a meeting between all the patrol leaders in the troop (GSRV, 2020). This court of honor is supervised by an adult leader, as all decisions must be adult-approved. The primary difference between the BSA patrol method and the GSUSA patrol system is the lack of a centralized youth leader. In the executive board system, troop members elect "board members," such as a president, vice president, secretary, or treasurer (GSRV, 2020). These elected board members serve as the primary planners and decision makers of the troop, though they are still adult-supervised and must seek feedback from their troop before decisions are finalized (GSRV, 2020). The town meeting system is similar to the aforementioned daisy circle and brownie ring: Decisions are made through discussion with participation from the entire troop. The primary difference between the daisy circle/brownie ring and the town meeting system is the use of a youth moderator instead of an adult moderator (though these meetings are still adult-supervised) (GSRV, 2020).

While BSA and GSUSA are distinctly different programs, they share a number of ideological and methodological similarities: Opportunities for youth leadership, opportunities for youth advancement, a focus on community service, a focus on personal growth, a curriculum of outdoor skills, association with positive adult role models, and adult-supervision. The BSA's aims are "character, citizenship, personal fitness, and leadership" (BSA, 2020b). To accomplish these aims, the BSA seeks to provide youth with opportunities for leadership, opportunities for advancement, opportunities for personal growth, opportunities for community service, outdoor

skills, and positive adult role models (BSA, 2020b). Similarly, GSUSA tries to help girls "develop a strong sense of self," pursue challenges, learn from mistakes, develop positive values, build healthy relationships, and serve the community (GSUSA, 2020c). Youth leadership is one of the most important parts of Scouting programs and is emphasized in both Scouting and Girl Scouts (BSA, 2020b and GSUSA, 2020c). There are many youth leadership opportunities in both Boy Scout and Girl Scout troops, some of which are necessary for troop function, and Scouts are encouraged to pursue these opportunities (BSA, 2020f; BSA, 2020g; and GSUSA, 2020e).

During their tenure as Scouts, youth are encouraged to pursue achievement opportunities within their troop, such as the rank of Eagle Scout or the Gold Award for BSA and GSUSA, respectively. The requirements for these awards usually include: Mastery of particular outdoor or life skills, demonstration of leadership, and participation in community service projects. A significant portion of Scouting programs is dedicated to community service, with service hour requirements for many of the ranks, awards, and badges (BSA, 2020c; GSUSA, 2020a; and GSUSA, 2020b). Aside from the community service requirements, Scouts are taught the value of civic participation and prosocial behavior. For example, several merit badges in the BSA and GSUSA programs focus on citizenship and civic duty (BSA, 2020c and GSUSA, 2020c). BSA and GSUSA also provide positive role models in the form of prosocial adult leaders.

BSA and GSUSA meetings take up a considerable amount of time, with weekly or bi-monthly meetings generally taking between one and three hours during the afternoon or evening. Both the Boy Scout and Girl Scout laws (their model codes of conduct and behavior) emphasize service to and respect of others, responsibility, respect of authority, and adherence to rules and laws (see Appendix). Additionally, BSA and GSUSA have a religious component in their

requirement that participants acknowledge the existence of a "higher power." Scouts in both the BSA and GSUSA are usually required to wear an official Scout uniform for all official Scouting functions and activities and may be barred from participating if they are not in the proper uniform. Outdoor skills, such as camping and hiking skills, are also strongly emphasized in both programs, though they are more strongly emphasized in Boy Scouts (BSA, 2020c and GSUSA, 2020a). The merit badge systems provide Boy and Girl Scouts with the opportunity to pursue a myriad of other skills, ranging from camping, cooking, and first aid to astronomy, science, art, and pet care. The most important aspect of BSA and GSUSA programs is that both programs are adult led, supervised, and administered. While youth leaders are required to plan activities, meetings, and outings, all planning is done in the presence of adult leaders and all plans must be approved by adult leadership, ensuring effective adult oversight and compliance with program standards (BSA, 2020i and GSUSA, 2020g). Due to the focus on law-abiding behavior, self-improvement, community service, and youth leadership with adult oversight, it would be logical to hypothesize that those who participate in Scouting programs are less likely to engage in delinquency than those who do not participate in Scouting.

Social Bonding Theory

There are a number of theoretical explanations as to why participation in Scouting should be associated with reduced levels of delinquency, but this analysis will focus on two specific explanations. The hypothesis that Scouting participation will reduce the likelihood of subsequent delinquency is consistent with Hirschi's social bonding theory. Social bonding theory, like most control theories, assumes that deviance is the norm and conformity must be explained (Hirschi, 1969). According to Hirschi (1969), individuals conform to society because of strong social bonds that reduce their desire to commit delinquent acts. Hirschi (1969) argues

that this bond has four primary components: Attachment, commitment, involvement, and belief. Attachment to others, whether delinquent or conforming (later revised to only include attachment to conforming individuals), should reduce an individual's likelihood of engaging in delinquent behavior, as violating social norms could possibly jeopardize a relationship with close friends (Hirschi, 1969). Commitment refers to how invested individuals are in society (Hirschi, 1969). Individuals who are more invested in conformity and normative behavior will be less likely to engage in deviant behavior because of what they stand to lose. Greater commitment means greater stake in conformity, so the more committed an individual is to conformity, the less likely he or she will be to engage in deviance due to the risk of losing what one has gained from conforming behavior. Involvement is mere preoccupation with prosocial activities: If the majority of an individual's time is spent conforming, he or she will simply be too busy to deviate (Hirschi, 1969). Finally, belief refers to an individual's belief in societal norms and values (Hirschi, 1969). If an individual believes that laws and norms are generally fair, just, and beneficial to most persons, he or she will be less likely to violate these norms.

Social bonding theory is one of the most cited and tested criminological theories (Akers et al., 2016). Scholars (e.g., Akers and Cochran, 1985; Greenberg, 1999; Hayes, 2005; Krohn and Massey, 1969) have found moderate-weak correlations between social bonding variables and delinquency. Hayes (2005) reported that all four elements of the social bond were weakly (but consistently) correlated with delinquency, with attachment and belief as the strongest predictors. Additionally, Hayes (2005) reported that the relationship between the social bonding variables and delinquency was influenced by gender. For example, attachment was a stronger protective factor against delinquency for females than for males and levels of explained variance increased when gender was controlled, indicating that gender may be a moderator in the relationship

between social bonding elements and delinquency. However, Chapple (2005) reported that gender only moderated the relationship between social bonding elements and violent crime; gender did not appear to moderate the relationship between social bonding variables and property crime. Hart and Mueller (2013) found that social bonding variables accounted for a significant amount of variance in school delinquency and misconduct.

An individual's time use and beliefs (commitment, involvement, and belief) are important predictors in criminological research and are very important to this study. Contrary to Hirschi's original prediction, an individual who is strongly attached to delinquent peers is more likely to be delinquent (Conger, 1976; Elliot et al., 1985; and Warr, 2002). Still, attachment, especially to parents, has been associated with lower levels of delinquent behavior. Hoeve et al., in their 2012 meta-analysis, reported that poor parental attachment was significantly related to delinquency, though child age moderated this relationship, with larger effects found in younger children. Attachment to school is also important. Cernkovich (1992) reported that individuals who were strongly bonded to their school were less likely to engage in delinquent behavior; these findings remained consistent for both blacks and whites. According to Freidenfelt Liljeberg et al. (2011), poor levels of school bonding were significantly correlated with higher levels of delinquency. Due to the longitudinal nature of their research, Freidenfelt Liljeberg et al. (2011) also observed that delinquent behavior was generally correlated with weaker school bonds, suggesting "bidirectional effects" (p. 7) in the relationship between school bonds and delinquency. Payne (2008) found that individuals who were attached to their school were less likely to engage in delinquency than those who were not.

Additionally, while not originally included in Hirschi's (1969) definition of belief, tightly held religious beliefs have also been found to be associated with a reduced likelihood of

delinquency. Numerous meta-analyses and systematic reviews have demonstrated a negative relationship between religious beliefs and behavior and delinquency (e.g., Baier and White, 2001; Cheung et al., 2011; Johnson et al., 2000; Kelly et al., 2015; Yeung et al., 2009). Few associations in criminology are as strong as the negative relationship between religiosity and delinquency. Religious beliefs represent normative, prosocial values: Most major religions teach prosocial values, reward conforming behavior, and condemn deviant behavior. Therefore, the negative association between religiosity and delinquency is consistent with Hirschi's (1969) social bonding theory.

Scouting programs are conforming, prosocial programs. Scouting offers its participants opportunities to advance and achieve in a prosocial manner, which may increase participants' stake in conforming behavior. While the aforementioned acknowledgement of a higher power is as far as any religious "requirement" goes, there are numerous religious awards and recognitions available for Scouts in BSA and GSUSA programs. The religiosity of each BSA or GSUSA troop is generally dependent on the preferences of the volunteer leaders; some troops are extremely religious and use Scouting as a means to practice their religion while other troops are more secular in nature (while still acknowledging the aforementioned higher power). This may increase stake in conformity and levels of belief, as most religions promote and encourage prosocial values and behavior. As such, participation in Scouting programs would likely increase an individual's level of commitment to prosocial values and norms as well as his or her belief in those values. Additionally, participation in Scouting programs constitutes involvement in a prosocial activity, reducing the amount of time that a participant has to engage in nonconforming behavior. As previously stated, Scout meetings take up a non-insignificant amount of time (between one and three hours, in the afternoon or evening, once every week or

every two weeks), which may significantly reduce the amount of time that individuals have to engage in delinquent behavior. This is especially significant given the time of day during which Scout meetings usually take place: after school in the afternoon or evenings, times that juveniles may potentially spend unsupervised. Finally, participation in Scouting may increase individuals' levels of attachment to prosocial individuals. Scouting promotes youth association with positive adult roles models and prosocial youth behavior; therefore, participation in Scouting should provide individuals with more prosocial attachment opportunities, assuming that Scouting programs develop and foster prosocial values in their participants and leaders.

Social Learning Theory

Learning theories view crime as a learned behavior, learned in the same way as any other behavior. A learning theory with a considerable amount of empirical support is Akers' social learning theory. Social learning theory is one of the most researched and empirically supported criminological theories (Akers, 1998; Akers et al., 2016; and Cullen et al., 2008.). There are four primary constructs in social learning theory: Differential association, definitions, differential expectations of reinforcement, and imitation (Akers, 1998). Differential association refers to the relationships and interactions an individual has with other persons. Definitions, as originally conceived by Edwin Sutherland (1947), are the beliefs, values, and justifications that support deviant behavior. Differential expectations of reinforcement refers to an individual's expected outcome for a particular act (Akers et al, 1998). These expectations are informed by past behavior and observations: Individuals who have experienced or witnessed positive outcomes from delinquent behavior may be more likely to view delinquent behavior as potentially rewarding. Rates of reinforcement also matter: Even if individuals witness or experience negative consequences as a result of delinquent behavior, if they witness or experience more

positive outcomes than negative outcomes, their likelihood of delinquent behavior may still increase. Similarly, if individuals perceive positive outcomes more often than negative outcomes in regards to delinquent behavior, they will be more likely to view that behavior as rewarding. Imitation, the least important aspect (according to Akers), is the mimicry and replication of deviant behaviors that have been demonstrated by an individual's delinquent peers (Akers et al, 1998). When an individual differentially associates with other persons who engage in delinquent behavior and expects this behavior to be rewarding, they are more likely to develop their own definitions favorable to delinquency and begin to imitate the behavior of their delinquent peers, thus leading to an increased likelihood of subsequent delinquency.

Social learning theory and its core hypotheses have been largely supported by research (Akers and Jensen, 2006; Brauer, 2009; Brauer and Tittle, 2012; Fox et al., 2010; Miller and Morris, 2017; Pratt et al., 2010; and Thomas, 2015). Differential association with delinquent peers, in individual and group contexts, such as gangs, is strongly correlated with delinquency (Akers and Jensen, 2006; Antonaccio et al., 2010; Battin et al., 1998; Curry, 2000; Curry & Spergel, 1992; Curry et al., 2002; Haynie and Osgood, 2005; Jennings et al., 2010; Pratt et al., 2010; Pyrooz et al., 2016; Snyder et al., 2005; Watkins & Taylor, 2016). According to Weerman and Hoeve (2012), the effect of delinquent peers on delinquency is consistent for both male and female adolescents. This correlation remains true even for virtual association with delinquent peers (Miller and Morris, 2016). In fact, association with delinquent peers and gang membership are some of the strongest predictors of delinquency, only falling behind age and gender in terms of predictive strength (Antonaccio et al., 2010; Pratt et al., 2010; Warr, 2002). Gallupe et al.'s (2019) meta-analysis found large-scale support for the hypothesis that association with delinquent peers is likely to lead to an increase in one's own delinquency. In their review of

empirical literature, Akers and Jensen (2006) reported on the consistent strength of social learning variables, particularly association with delinquent peers. In their meta-analysis, Pratt et al. (2010) found a strong relationship between differential association with delinquent peers and delinquency.

Pratt et al. (2010) also observed a strong connection between definitions favorable to delinquency and delinquent behavior. While differential association with delinquent peers and definitions have been consistently related to delinquency, there is less empirical support for differential expectations of reinforcement. Akers and Jensen (2006) report that the proposed reinforcement/feedback loop proposed by social learning theory has generally been supported; however, the 2010 meta-analysis by Pratt et al. concluded that reinforcement was not strongly related to delinquent behavior. Imitation appears to be the least important of the four aspects. Pratt et al. (2010) reports that imitation is not significantly related to delinquent behavior, though it is possible that imitation, as a concept, is improperly measured. Overall, social learning theory has received a significant amount of empirical support and this support has remained consistent for over 60 years.

If association with delinquent peers increases the likelihood of delinquency, then it is logical to assume that association with prosocial peers will reduce the likelihood of delinquency. Scouting programs are adult-led, prosocial programs that teach character values, leadership, and life skills. Therefore, it is likely that participation in Scouting programs will be correlated with lower levels of delinquency for four reasons. First, Scouting facilitates association with prosocial peers in a prosocial setting, which should reduce the likelihood of delinquency, assuming that Scouting participants are generally prosocial. Second, since the Scouting program aims to build ethical and moral individuals and promotes prosocial behavior over deviance,

participants should be more likely to develop and maintain definitions unfavorable to delinquency. Scout leaders and participants should also be prosocial individuals with definitions unfavorable to delinquency, which may then be learned by new participants. Third, Scouting promotes personal achievement and growth; rewards prosocial behavior in the form of ranks, badges, and awards; and condemns/punishes deviant behavior. In theory, this should alter participants' differential expectations of reinforcement, making participants more likely to view prosocial behavior as rewarding and deviant behavior as costly. Fourth, as previously stated, Scouting provides participants prosocial peers with whom to associate, facilitating the imitation of prosocial behavior.

Extracurricular/Peer Group Activities

The BSA and GSUSA have both been active in the United States for over 100 years, founded in 1910 and 1912, respectively. Throughout its existence, Scouting has been advertised and promoted as a beneficial, prosocial program that teaches youth leadership and practical skills. Despite Scouting's omnipresence in American society and culture, the actual effect of Scouting participation remains largely unknown; there have been very few empirical examinations of the effects of Scouting participation, and none that specifically examine delinquency. As such, in order to form an accurate hypothesis on the impact of Scouting on delinquency, youth activities, programs, and groups similar to Scouting must be examined. These similar programs, while nowhere near identical to Scouting, may provide valuable insight into its possible effects on participants' delinquent behavior.

Scouting is peer group activity and though its effects on juvenile delinquency are currently unknown, the effects of other youth group programs and activities are known. In addition to being a peer group activity, Scouting is also an adult-supervised, organized,

extracurricular activity. Generally speaking, studies on the effects of extracurricular activities on delinquency have shown consistent negative relationships between the two variables, though results largely depend on the type of extracurricular activity. Agnew and Peterson (1989) reported that youth who engaged in organized extracurricular activities were less likely to be delinquent than youth who spent most of their leisure time with unorganized peer activities. Mahoney and Cairns (1997) reported that youth who began participation in extracurricular activities at an early age were less likely to drop out of high school. Crean (2012) found that participation in intense extracurricular activities was correlated with higher levels of delinquency while participation in broad activities was correlated with lower levels of delinquency. Guèvremont et al. (2014) found that participation in extracurricular activities was generally correlated with lower rates of marijuana use.

Adult-led, structured activities seem to be the most prosocial. Landers (1978), Mahoney and Stattin (2000), and Persson et al. (2007) all found that participation in adult-led, structured activities reduce the likelihood of juvenile delinquency. Similarly, unstructured or unsupervised socialization is commonly correlated with delinquent behavior. Studies by Bernburg and Thorlindsson (2016), Haynie and Osgood, (2005), Osgood et al., (1996), and Maimon and Browning (2010) have all found a correlation between unsupervised socialization and delinquent behavior. Several scholars have also reported relationships between participation in prosocial activities and reduced rates of delinquency and problem behavior (Eccles & Barber, 1999; Roberts et al., 2011). Interestingly, Weber et al. (2001) found that while belief in the Boys and Girls Clubs' rules and regulations was negatively correlated with delinquency, weekly participation in weekly club activities was positively correlated with delinquency.

Scouting is an adult-led, structured, prosocial activity. Scout leaders supervise all activities, have final say in all meeting proceedings and events, and ensure that meetings and activities are well organized and supervised. Additionally, Scouting teaches and emphasizes prosocial values. From a social learning perspective, Scouting: Increases exposure to prosocial peers and values; facilitates the development of definitions unfavorable to delinquency; frames antisocial behavior as non-rewarding, therefore setting a prosocial expectation of reinforcement; and provides no behavioral model for delinquent imitation. From a social bonding perspective, participants in Scouting: Likely have higher levels of commitment and involvement in conformity, with continued participation being dependent on continued conformity; likely have a stronger belief in societal values; and likely have attachments to prosocial individuals who originally involved them in the program. Additionally, the four aspects of the bond should only grow stronger with continued participation. Therefore, it is logical to assume that participation in Scouting will be more likely to reduce delinquency than to increase it.

In the peer group sense, very little research has been conducted on the impact of religious youth group participation and delinquency. In their analysis of the National Study of Youth and Religion, Smith and Faris (2002) found that participation in religious youth groups was correlated with lower levels of substance use and problematic behavior, but these findings are far from conclusive. Conversely, the individual effect of religiosity on delinquency has been examined for many years and scholars have consistently reported a negative relationship between religiosity and deviant behaviors (Baier and Wright, 2001; Evans et al., 1995; Johnson et al., 2000; and Kelly et al., 2015). There is some debate as to whether this relationship is spurious or not with some scholars (e.g., Cochran et al., 1994) reporting spuriousness and others (e.g., Johnson et al., 2001) finding no spuriousness, but the consistent relationship is meaningful

nonetheless. If the relationship between religiosity and delinquency is not spurious, it would be empirically sound to assume that an activity that has the potential to increase exposure to religion and religious practice, such as Scouting, could possibly lead to reduced levels of delinquency in the long term. If the relationship is spurious, it is entirely meaningless for this study and does not jeopardize any hypotheses made about the impact of Scouting on delinquency.

Gang Membership

Because supervised, prosocial peer group activities are associated with reduced levels of delinquency, it is reasonable to assume that disorganized, unsupervised, antisocial peer group activities will lead to an increase in delinquency. This assumption is generally supported by research, which indicates that disorganized, unsupervised, antisocial peer or group involvement increases an adolescent's likelihood of engaging in delinquent behavior. Gang membership is a good example of this type of group. Research has consistently found a correlation between gang involvement/association and higher levels of juvenile delinquency (Battin et al., 1998; Curry, 2000; Curry & Spergel, 1992; Curry et al., 2002; Pyrooz et al., 2016; Watkins & Taylor, 2016). Gang members are significantly more likely to be delinquent than nonmembers. The relationship between unstructured or unsupervised peer activities and delinquency is not exclusive to gang membership. As highlighted above, numerous studies have found correlations between unstructured or unsupervised time spent with peers and delinquency (Bernburg and Thorlindsson, 2016; Haynie and Osgood, 2005; Osgood et al., 1996; and Maimon and Browning 2010). From a social learning perspective, this correlation can be attributed to the differential associations with delinquent peers (the gang members), the development of definitions favorable to delinquency through associations with the delinquent peers, the increased expectations for positive or negative reinforcement that results from the development of the aforementioned

definitions, and the potential behavioral models that facilitate imitation. From a social bonding perspective, this correlation is likely the result of a selection process, with gang members already having lower levels of attachment to prosocial individuals, commitment to conformity, involvement in prosocial activities, and belief in conformity.

Scouting is different from gang-related activity in a number of important ways. First, Scouting is supervised by prosocial adults, something that gang activity lacks. Second, the Scouting program highlights prosocial values, including respect for laws; prosocial behavior is central to the Scouting program. This prosocial curriculum is something that gangs lack. Third, prosocial behavior is recognized and rewarded while deviant-behavior is controlled and punished, creating an environment where prosocial behavior is beneficial to participants. In gangs, prosocial behavior is not as highly rewarded as deviant behavior, if it is even rewarded at all. If a Scout engages in deviant behavior, he or she will be reprimanded, punished, or otherwise disciplined; if the behavior is severe enough, he or she may not be allowed to continue participating in a particular activity or even a particular troop. However, if a Scout achieves or excels, he or she will be recognized and rewarded. These rewards, coupled with the serious negative consequences for deviant behavior, act to reinforce prosocial behavior. Fourth and finally, Scouting enables participants to associate with other prosocial youth, allowing them to form prosocial attachments and associations. Due to these extreme differences, it is unlikely that participation in Scouting will lead to the increased delinquent behavior that is commonly associated with gang membership.

Sports and Delinquency

Sports is another example of an organized youth group activity. Sports, as a category, shares a number of important similarities with Scouting: it is a peer group activity, it has a

physical component, it has a youth leadership component, it has a teamwork component, and it is supervised by adults. The relationship between sports participation and delinquency, while studied for many years, is not yet fully understood. Despite the common sense belief that sports participation would reduce delinquency, research seems to indicate that sports participation actually increases levels of delinquency. However, this relationship is mediated by a number of other variables and there are a number of contradictory results in the literature. Gardner and Brooks-Gunn (2009), found that youth who participated in sports were more likely to be nonviolently delinquent than those who participated in nonathletic extracurricular activities but just as likely to be nonviolently delinquent as youth who did not participate in any extracurricular activities. This relationship was mediated by deviant peer associations and unstructured socializing time, which, in the case of deviant peer associations, was then moderated by prior externalizing behaviors. O'Donnell and Barber (2018) found that the effect of sports participation was dependent on its subsequent peer exposure. If sports participation exposed individuals to deviant peers, those individuals would be more likely to be delinquent; conversely, if sports participation exposed individuals to conforming peers, levels of delinquency would be reduced. Kelley and Sokol-Katz (2011), found that athletes were generally more delinquent than non-athletes and that individuals who are more actively involved in sports are the most delinquent; for example, a youth who participates in more than one sport will likely be more delinquent than a youth who only plays a single sport. Peer association and self-esteem also influenced this relationship. Conversely, Stansfield (2017) found that, while moderate sports participation increased the likelihood of delinquency, increased levels of involvement in sports reduced the likelihood of delinquency.

Taylor et al. (2016) found that females who participated in sports were less likely to be delinquent when compared to their nonathletic peers. Sokol-Katz et al. (2006) found that the increase in delinquency was sport-dependent, with football and soccer leading to increased levels of delinquency for male and female respondents, respectively. Hartmann and Massoglia (2007) found sports participation had different impacts on different forms of delinquency, reducing some forms and increasing others. Miller et al. (2007) reported that jock identity, not sports participation, led to increased levels of delinquency, suggesting the possible development of deviant definitions because of sports participation. According to Faulkner et al. (2007), physical activity, not explicitly sports participation, increases levels of delinquency. In their meta-analysis, Spruit et al. (2016) found that sports participation had no impact on delinquency in either direction. Despite the large body of sports research, its actual impact on delinquency is still unclear.

Scouting is similar to sports in four ways. First, Scouting is an adult-coordinated, team-based, peer group activity in which peers must work together to achieve a common goal. Second, sports and Scouting emphasize the mastery of particular skills. Third, sports and Scouting provide adolescents with peer leadership opportunities in the form of team captains and leadership positions, respectively. Fourth, both sports and Scouting have a physical component, with sports emphasizing athletics and Scouting emphasizing outdoor skills, such as backpacking, canoeing, and hiking, though sports are admittedly more strenuous. These similarities necessitate an examination of sports' effect on delinquency, yet sports and Scouting remain clearly distinct.

Sports emphasize competition, while Scouting does not. Sports can be viewed as "zero-sum games," meaning that an individual's success is determinant on another individual's failure;

this is not the case in Scouting, as all Scouts have access to the same opportunities for achievement and successes do not require others to fail. In competitive sports (school varsity sports and similar activities), only the best performers are permitted to play; in Scouting, all members are encouraged to participate in all activities. Sports are significantly more physical than Scouting. Sports are far more intense and driven: While Scouts are encouraged to advance in rank and achieve, they are encouraged to do this at their own pace. Sports are generally more limited in scope, while Scouting attempts to address a myriad of different life skills. Finally, Scouting is an explicitly prosocial group that teaches the benefits of conformity through its rank and merit badge systems and advocates for law-abiding behavior. While sports organizations promote prosocial values and behaviors, these values and behaviors are not as central to sports as they are to Scouting. Therefore, it is possible (and not unlikely) that Scouting's impact on delinquency is entirely different than sports', though there may be important similarities.

Employment and Delinquency

Youth employment is another form of organized youth activity, though it is noticeably distinct from youth groups, sports teams, and clubs. Employment is generally adult-supervised and requires teamwork and cooperation. Additionally, there are opportunities for achievement and advancement in youth employment, generally in the form of promotions, bonuses, and raises. As such, while distinct from Scouting, youth employment shares enough similarities to merit an examination. Contrary to popular belief, part-time youth employment actually increases the likelihood of delinquency. Many empirical analyses have found evidence of a positive correlation between high-intensity youth employment (more than 20 hours of work per week) and delinquency (Cullen et al., 1997; Miller and Matthews, 2001; Monahan et al., 2011; Paternoster et al., 2003, Ploeger, 1997; & Staff et al., 2010, to name a few). Several scholars

believe this relationship is primarily spurious, caused by a selection bias in which youth who seek out high-intensity employment are already predisposed to delinquency (Paternoster et al., 2003; Staff et al., 2010). However, the relationship between employment and delinquency remains even when individual differences are accommodated. Ploeger (1997) found that employment exposes adolescents to delinquent peers and that this delinquent peer exposure accounts for the part of the relationship that selection bias did not. Monahan et al. (2011), using a propensity score matched sample to account for selection bias, found that working 20 or more hours each week was positively correlated with increased delinquency and substance use, maintaining the existence of the relationship while attempting to mitigate selection bias.

Employment and Scouting share a number of similarities. Employment and Scouting are structured, organized activities that are generally led by adults or individuals older than 18. Employment and Scouting are primarily group-based activities that involve cooperation, teamwork, and communication. Additionally, employment and Scouting are both prosocial activities, which require adherence to rules, regulations, and laws. However, like sports, employment and Scouting differ in a number of relevant ways. Employment is a for-profit endeavor, whereas Scouting generally does not generate any potential income for its participants. Scouting attempts to teach a myriad of different life skills and not just the task-specific skills of employment. The most obvious difference, highlighted by Cullen et al. (1997), is that employment is not designed to accommodate youth needs. Cullen et al. (1997) argue that employment does not effectively cater to and accommodate the differential, developmental needs of youth, creating a criminogenic environment. By contrast, Scouting is a youth-centered program, designed around the perceived needs and requirements of youth. Therefore, it is likely that, as an activity, Scouting is more conducive to prosocial youth development than

employment. Despite the obvious differences, the strong, consistent impact of youth employment on delinquency, coupled with the aforementioned similarities, highlights the relevance of a review of employment literature.

Research on Scouting

While the previous section reviewed the effects that of a number of youth activities had on delinquency, it did nothing to examine the effect of Scouting participation on delinquency. As previously mentioned, there is a substantial lack of research on the Scouting program; the research that does exist has little focus on delinquency. Still, a few studies examine the influence of Scouting on developmental outcomes and, while they do not focus specifically on delinquency, they do deserve some review.

A few studies (Wang et al., 2017 and Wang et al., 2015) have examined the effect of Scouting on long-term developmental outcomes (such as character) and have reported positive correlations between participation and the development of positive character traits. In their overview of two studies on youth outreach programs conducted by the BSA, Wang et al. (2017) found that the development of positive relationships between participants and youth and exposure to Scouting activities were both correlated with higher levels of reported character values. Wang et al. (2015) found that Scouting participants showed small but significant increases over time in self-reported character traits, such as trustworthiness, helpfulness, and kindness. These increases in self-ratings were not present for non-Scouts. Theoretically, higher levels of positive self-reported character traits could be correlated with lower levels of delinquency, but neither of the Wang et al. studies (2015 and 2017) explored this possibility. Few studies have examined the effect of Scouting on subsequent behavior and life outcomes.

In 2012, Jang et al. conducted a study to examine the differences between Eagle Scouts (Scouts who have achieved the highest rank in BSA programs), non-Eagle Scouts (participants who did not achieve the rank of Eagle), and non-Scouts. Jang et al.'s study consisted of a nationally representative sample of around 2,500 adult males, 39% of which had participated in Scouting in some form. This sample was randomly selected from a larger availability sample of individuals who were contacted by the Gallup Organization between April 20, 2010 and October 4, 2010 and indicated that they would be willing to be contacted again for a future survey (Jang et al., 2012). As BSA's highest rank, Eagle Scouts are at the top of achievement in the organization. In order to earn the rank of Eagle Scout, an individual must: Earn a certain number of requisite merit badges; have served in several troop-level youth leadership positions and successfully fulfilled the duties of those positions; plan and lead a service project for a charitable or community organization and accomplish all goals of the project to the beneficiary's standard; and demonstrate proficiency in a myriad of outdoor skills.

Jang et al. (2012) reported a number of findings consistent with the program's expectations. When compared to non-Eagles and non-Scouts, Eagle Scouts reported higher levels of physical activity, such as camping, hiking, and participating in regular exercise. Eagle Scouts were also less likely to consume alcohol than non-Eagles and non-Scouts; this is the only potentially delinquent variable present in Jang et al.'s (2012) analysis. Eagle Scouts were also more likely to report being closely connected to family, friends, and their community than non-Eagles and non-Scouts (Jang et al., 2012). These relationships include relationships with siblings, friends, and even relationships with the Eagle's respective religious community.

According to Jang et al. (2012), Eagle Scouts were more likely to serve in leadership positions, such as workplace and community leadership positions, than non-Eagles and non-

Scouts. Eagle Scouts reported higher levels of volunteer and civic participation than non-Eagles and non-Scouts, such as donating money to institutions, voting in elections, and volunteering for religious and community organizations (Jang et al., 2012). Eagle Scouts were more likely to engage in environmentally conscious behavior than non-Eagles and non-Scouts, such as avoiding harmful products and taking steps to reduce excess water usage (Jang et al., 2012). Eagle Scouts reported higher levels of emergency preparedness than non-Eagles and non-Scouts, such as keeping emergency first aid kits and having emergency meeting places for their families (Jang et al., 2012).

Eagle Scouts were also more likely to achieve their financial, personal, and spiritual goals than non-Eagles and non-Scouts (Jang et al., 2012). Additionally, Eagle Scouts were more likely to engage in continued education than non-Eagles and non-Scouts (Jang et al., 2012). Finally, Eagle Scouts were more likely to report positive character traits and prosocial behaviors than non-Eagles and non-Scouts (Jang et al., 2012). These traits and behaviors include always trying to do the right thing, working hard for success, and respecting those with differing religious beliefs. Overall, Eagle Scouts seemed to surpass non-Eagles and non-Scouts in almost every category that Jang et al. (2012) measured.

While Jang et al. (2012) focused primarily on comparing Eagle Scouts to non-Eagles and non-Scouts, the effect of simple Scouting participation (participation that does not have to result in the achievement of the Eagle rank) can be extrapolated from a number of their reported findings. In terms of physical fitness and outdoor activities, Scouts (both Eagles and non-Eagles) were more likely than non-Scouts to participate in boating activities, fish, and visit parks than non-Scouts (Jang et al., 2012). Scouts also reported closer relationships and connections with their siblings than non-Scouts (Jang et al., 2012). Regarding civic participation, Scouts were

more likely to donate money to both religious and non-religious organizations than non-Scouts. For non-outdoor activities, hobbies, and goals, Scouts were more likely to play musical instruments, read books regularly, and have achieved a professional goal than non-Scouts (Jang et al., 2012). Finally, Scouts reported viewing religion as a positive societal contributor more frequently than non-Scouts.

Most relevant to the current analyses are the increased levels of prosocial behavior and the decreased levels of alcohol consumption. These findings indicate that Scouting participation, at least to its highest level (the Eagle Scout rank), should be correlated with higher levels of prosocial behavior and lower levels of delinquency. Unfortunately, the study has a few shortcomings. First, it seeks only to compare Eagle Scouts with non-Eagles and non-Scouts and does not compare Scouts of any kind to non-Scouts. Therefore, while the study may reasonably conclude that Eagle Scouts tend to be more prosocial than non-Eagles and non-Scouts, it cannot say that mere participation in the Scouting program is correlated with higher levels of prosocial behavior. This is problematic due to the potential for a spurious relationship between Eagle Scout status and prosocial behavior: If individuals who are likely to pursue the Eagle rank are already predisposed to prosocial behavior, then it is not the Eagle rank that causes the prosocial behavior.

Eagle Scouts are high achievers, as the rank is not easily attainable and requires a significant amount of time, commitment, and effort. It is logical to assume that those who achieve the Eagle rank are motivated, committed, and disciplined. The outdoor and fitness requirements necessitate healthy and active behavior in prospective Eagle Scouts. Eagle Scouts have also spent a great deal of time engaging in prosocial behavior, whether it is community service, troop leadership, or merit badge related. Therefore, it is logically possible that

individuals who earn the rank of Eagle are already predisposed to prosocial, civic, healthy behavior. Individuals who will eventually pursue the rank of Eagle Scout may be significantly different from other individuals well before they pursue the rank. This selection would lead to a spurious relationship, where Eagle rank achievement does not cause prosocial, healthy behavior and both are instead caused by an unmeasured variable (or variables).

In an attempt to isolate the independent effect of Scouting participation and Eagle-Scout status, Jang et al. (2012) controlled for several demographic variables: Age; race, divided into four categories (white, black, Hispanic, other); three categorical measures of social class, including education level, yearly income, and employment status; marital status; region of residence, such as West, Southwest, Northeast, etc.; and frequency of religious activity attendance (p. 33-34). While the control variables used by Jang et al. (2012) are relevant, the list could be expanded: Jang et al. (2012) do not control for self-esteem, emotionality, physical status (disability status, etc.), parental variables, or past behaviors (such as participation in sports or youth groups) in their analysis. All of the aforementioned variables are, in theory and practice, relevant to their measured outcomes and their exclusion increases the likelihood of spuriousness.

Additionally, the survey itself is cross-sectional in nature and is not an experiment or quasi-experiment. As random assignment is not entirely feasible for a survey of this kind, participants were not randomly assigned to either previously participate in Scouting or not. Therefore, Jang et al.'s (2012) cannot determine the time order of effects, as cross-sectional research cannot prove that dependent variable outcomes occurred before program participation; and cannot effectively control for spuriousness, or the phenomenon where changes in the independent and dependent variable are actually caused by variation in a third, unmeasured variable. As such, it is difficult for Jang et al.'s (2012) survey to effectively establish causation

between the independent variable (Eagle Rank achievement) and dependent variables (measured behavioral outcomes) and minimize the effect of any present selection bias; in other words, Jang et al. (2012) cannot effectively demonstrate that participation in Scouting is what makes Scouts (or Eagle Scouts) different from non-Scouts.

In terms of comparison to the present analysis, perhaps the largest limitation with Jang et al.'s (2012) study is a limitation of scope, not methodology: Jang et al. do not examine the effect of Scouting participation on delinquency or deviant behavior, though it was admittedly never meant to. The only possibly problematic behavior examined by Jang et al. (2012) is drinking, in which respondents are asked how many alcoholic drinks they have consumed in the past seven days (p. 65). The results of this examination indicate that the difference between Eagle Scout alcohol consumption and non-Scout alcohol consumption is statistically insignificant, though Eagle Scouts are significantly less likely to consume alcohol than non-Eagle Scouts (Jang et al., 2012). While Jang et al.'s study is a compelling exploratory analysis, methodological and practical limitations of the questionnaire limit the scope of its findings and the inferences that can be made about the effect of Scouting participation on delinquent behavior.

The goal of this analysis is to address a gap that exists in youth activity literature by exploring the effect that participation in Scouting programs has on subsequent delinquent behavior. While no direct analysis on the Scouting-delinquency relationship exists, the significant amount of research on similar programs can help form an educated hypothesis. According to research, adult-supervised, prosocial peer group activities are likely to reduce subsequent delinquent behavior. Unsupervised or disorganized activities appear to increase the likelihood of delinquent behavior. Scouting is an organized, adult-supervised, prosocial peer group activity: Adults supervise and approve all activities; prosocial values and behaviors are

required, encouraged, and rewarded; personal growth and achievement are encouraged and rewarded; leadership skills are promoted; and participants are exposed to other prosocial individuals with whom to associate and bond. Therefore, it is logical to hypothesize that individuals who participate in Scouting will be less likely to engage in delinquent behavior.

CHAPTER 3: METHODOLOGY

Sample and Data

This analysis uses data from the National Education Longitudinal Study (NELS). The data was collected from 1,057 eighth-grade schools, both public and private, surveying around 25,000 students in the first wave (1988). Schools excluded for selection were schools already selected by the National Assessment of Educational Progress (NAEP) survey, schools under the jurisdiction of the Bureau of Indian Affairs, and specialty schools for disabled students. The data is collected from a clustered, stratified, random probability sample. The sampling strategy is two-staged, with school selection serving as the first stage and student selection serving as the second. During the first stage of sample selection, 1,734 schools were chosen from a nationally representative list of around 39,000 schools. Due to concerns regarding representation, some population characteristics were oversampled in the primary selection process. To address school nonresponse, extra schools were selected during the initial selection process and were used to replace contacted schools that did not respond. This allowed researchers to maintain their target sample size of 1,032 schools. In total, 1,057 schools participated from a sampling frame of around 39,000 schools. For the second phase of selection, 24 8^{th} grade students were randomly selected from each participating school; in cases where there were fewer than 24 8^{th} grade students in the entire student body, the entire 8^{th} grade class was selected to participate in the survey. Hispanic and Asian/Pacific Islander students were oversampled in this process, with a goal of 2,200 additional Asian/Pacific Islander participants. In total, approximately 24 students participated from each of the 1,057 participating schools (or all eighth graders, if the school had fewer than 26 eighth graders).

The weighted and unweighted response rates for the survey were 91% and 94%, respectively. In the first follow-up, which occurred in 1990, 21,000 students were surveyed from the original 25,000, with new students being added to freshen the sample and ensure representativeness. A total of around 18,000 students and 1,000 dropouts participated in the first follow-up. In 1992, for the second follow-up, new students were again added to the sample to maintain representativeness. The third and fourth follow-ups occurred in 1994 and 2000, respectively. Due to attrition and refreshing, only 11,599 individuals participated in every wave of the survey (base year and each of the four follow-ups). The actual sample in this analysis are all survey respondents who gave an affirmative response to questions regarding Scouting and continued responding to the survey through the fourth follow-up. As data could not be extrapolated for those individuals who did not indicate whether they participated in Scouting, these 10,435 students serve as the sampling frame for this analysis. After data cleaning and variable coding, the true sample size for the analysis is 5,514, with 3,499 non-Scouts and 2,015 Scouts. There were 2,366 males (807 of which were Scouts) and 3,141 females (1,205 of which were Scouts).

Analytic Strategy

To account for the complex, multilayered nature of the NELS sample, two clustering variables were used: One that indicated the sampling stratum and one that indicated the primary sampling unit (the school). Additionally, to account for the oversampling of Hispanics and Asian-Pacific Islanders, a sample selection weight was used. As it is not feasible to randomly assign students to participate in Scouting or to abstain from participation, all data used in this analysis is observational. Therefore, this analysis cannot be classified as a true experiment. In an attempt to address this practical shortcoming, this analysis was conducted with two advanced

statistical methods: Propensity score matching and propensity score weighting. Propensity score matching is a form of logistic regression that attempts to predict a subject's treatment participation by accounting for a number of confounding variables that are believed to be related to the independent or dependent variables. In simpler terms, variables related to treatment participation or outcome are used to predict a subject's participation in the aforementioned treatment. This propensity score takes the form of a probability. After calculating each subject's propensity score, a treatment participant is then matched with a non-treatment participant with a matching score, thus creating a matched sample with a counterfactual comparison group. The goal of propensity score matching is to strengthen any causal inference by controlling for confounding variables that may influence treatment participation or participation outcome, thereby reducing spuriousness and any unmeasured variable bias. Propensity score matching is particularly useful in observational studies; studies where random assignment is not possible or feasible. As random assignment is impossible in this particular analysis (and not feasible regarding this particular topic of study), propensity score matching is an effective way of strengthening the causal inferences of this study's findings. The propensity score matching conducted in this analysis utilized the "MatchIt" package in R and the weighting utilized the "PSWeight" package, also in R.

Before matching, pre-analysis descriptive statistics were collected to examine the differences between those who participated in Scouting and those who did not participate in Scouting. After pre-match descriptive statistics, propensity scores were calculated using binary logistic regression with the selected matching variables (listed below). For this logit model, participation in Scouting was the outcome and the mating variables were used as covariates. Using greedy, nearest-neighbor matching, a treatment group member was paired with the nearest

comparison group member. Caliper width was set at < .25 standard deviations of the predicted probability of Scouting treatment. After matching, a new t-test was conducted to determine if there were still statistically significant differences between the treatment and comparison groups.

Propensity score weighting is similar to propensity score matching but it attempts to address some of the problems created by propensity score matching. With propensity score matching, the comparison group must be downsized to the size of the treatment group (unless multiple comparison group subjects are matched with a single treatment group subject with a matching score), causing a loss of potentially valuable and relevant data. Using the inverse probability of treatment weighting, each subject is given a weight based on his or her calculated propensity score. Treatment group participants are given a weight of one over their propensity score and comparison group participants are given a weight of one over one minus the propensity score, giving special attention to both treatment group participants who were not likely to receive treatment and comparison group participants who were likely to receive treatment.

Propensity score weighting has several benefits over propensity score matching. The first is that weighting allows for the use of the entire sample in comparison to the smaller, matched sample used in traditional matching. The second benefit is that propensity score weighting can effectively compensate for a lack of random group assignment. Observational data, such as data from the NELS, generally lacks random assignment, as it is not feasible to randomly assign individuals to most categories. Therefore, it is possible (and likely) that important covariates between the independent and dependent variables are not randomly distributed between the control and treatment groups. Assuming that all covariates are accounted for, propensity score weighting allows for an unbiased estimate of the effects of Scouting participation.

Treatment Variable

The treatment variable is a dichotomous variable on Scouting participation measured during the base year. Parents were asked if their respondent child had ever participated in boy Scouts or girl Scouts. This question was used to create a nominal, dichotomous variable, where "0" indicates that a respondent did not participate in Scouting and a "1" indicates that he or she did participate in Scouting.

Matching Variables

All matching variables were measured in the base year (1988). Two demographic variables were used for matching: Sex and race. Using the item from the base year that measured respondent sex, a dichotomous sex measure was created for matching: Females were given a value of "0" and males were given a value of "1." Baseline race is measured nominally, with categories for API (Asian/Pacific Islander), White, Black, Hispanic, and Native American; these were further refined into Black, which was given the value of "0"; White, which was given the value of "1"; Hispanic, which was given the value of "2"; and other, which includes Native American and API and was given a value of "3". An additional set of dichotomous variables were created for each race (Black, White, Hispanic, and Other) such that members of that race were given a value of "1" and non-members were given a value of "0". From this race variable four dichotomous racial indicator variables, for White, Black, Hispanic, and Other, were also created for use in the matching analysis.

Participants were matched on a number of socioeconomic and family variables, including yearly family income, estimated poverty status, highest level of parental education, parental marital status, family composition, household academic resources, and household amenities. Base year yearly family income is measured on the ordinal level with fifteen separate categories,

ranging from no family income to over $200,000. These categories were each given a numerical value, ranging from "0" (for no family income) to "14" (for income over $200,000). Additionally, a "percentage of the poverty status" variable was created by taking the estimated family size in 1988, comparing it to the reported income level, and cross-referencing this comparison with its respective poverty threshold, provided by the United States Census Bureau (U.S. Census). The family's income was then divided by the poverty status for their respective household size and multiplied by a factor of 100, creating a variable that measures the percentage that a family makes of their respective poverty status. Further details are provided in Appendix A. These demographic variables were selected for matching due to their consistent correlation with deviant behavior (e.g., Agnew et al., 2008 and Wright et al., 1999). Highest level of parental education at baseline is measured on the ordinal level, with seven categories from no high school to Ph.D. or equivalent degrees. The highest level of education that either parent had achieved (as reported by students and parents, if surveyed) was used for this variable. Each of these categories was given a numerical value ranging from "0" to "6", with "0" being no high school education and "6" being a Ph.D. or equivalent degree. Parental education was selected as a matching variable due to its correlation with child educational attainment and subsequent occupational success (Dubow et al., 2009).

Parental marital status at baseline is measured at the nominal level, with categories for single, marriage-like relationship, married, divorced, separated, and widowed. These were further refined into a dichotomous, "non-married parents" variable, where "0" was assigned to married and marriage-like relationship families and all others were given a value of "1". Family composition, measured on the nominal level during the base year, includes sections for mother and father, mother and male guardian, father and female guardian, mother only, father only, and

other non-parent relative. These were combined into categories for single adult and dual adult and were combined into a dichotomous, "single-parent household" variable where dual adult households were given a value of "0" and single adult households were given a value of "1". This variable was selected because of consistent negative correlations between intact family units and juvenile delinquency (Anderson, 2002; Demuth and Brown, 2016; Thomas et al, 1996; and Wells and Rankin, 1991).

The variable for household academic resources was measured during the base year by asking respondents if they had a specific place to study, an encyclopedia, an atlas, a dictionary, a pocket calculator, and more than 50 books in their house. Each affirmative response was given a value of "1", creating an index with a minimum value of "0" and a maximum value of "6". The variable for household amenities was measured during the base year by asking respondents if they had a dishwasher, dryer, washing machine, microwave, or room of their own in their house. Like the previous variable, this variable was used to create an index, as each affirmative response was given a value of "1" for a maximum possible score of "5". These two index variables were used in an attempt to measure the resources available to respondents, as it is theoretically plausible that households that have more resources and amenities are significantly different from households that do not have these resources.

Participants were matched on activity-related variables, such as grades, sports, unsupervised time, extracurricular activities, and employment. Student grades at baseline is measured on the ordinal level, as the self-reported average of math, science, English, and social sciences grades, which ranged from mostly below Ds to mostly As. This was converted to a five-point index where mostly As was given a value of "4," mostly Bs was given a value of "3," mostly Cs was given a value of "2," mostly Ds was given a value of "1," and mostly below Ds

was given a value of "0". An educational intervention variable was measured using a variable from the base year that asked how often a respondent's parents received warnings about their child's behavior or grades (within the first semester of the current school year), with response choices for never (coded as "0"), once or twice (coded as "1"), or more than twice (coded as "2"). Educational attainment and school performance have been correlated with juvenile delinquency, so it was selected for use in this analysis (Felson and Staff, 2006; Hoffman et al., 2013; Maguin and Loeber, 1996; and van Lier et al., 2012). Sports participation is measured dichotomously, with nonparticipants receiving a score of "0" and participants of any kind receiving a score of "1". This was done for each type of sports organization in the data (school varsity sports, intramural sports, and non-school team sports) for the base year, creating three separate sports participation variables. These variables were further refined into a single sports participation variable, where any respondent who had a value of "1" in either of the three individual sports variables was again given a value of "1" and all others were given a value of "0". Sports participation was selected as a matching variable due to its aforementioned relationship with juvenile delinquency.

Unsupervised time at baseline is measured as the self-reported number of hours after school that respondents spend with no adult present, with response choices for none (assigned a score of "0"), less than 1 hour (assigned a score of "1"), 1-2 hours (assigned a score of "2"), 2-3 hours (also assigned a score of "2", see below), or more than 3 hours (assigned a score of "3"). For the sake of mutual exclusivity, the 1-2 and 2-3 hour response categories were combined into a single category for 1-3 hours of unsupervised time. Unsupervised time, especially time spent with peers, has been found to be significantly related to juvenile delinquency (Agnew and Petersen, 1989; Barnes et al., 2006; and Lee and Vandell, 2015). Base year extracurricular

activity involvement is measured dichotomously ("0" for nonparticipants and "1" for participants) for each outside-school activity that a respondent participated in, including Boys and Girls Clubs, 4 H groups, and religious youth groups, but excluding Scouting. Additionally, a dichotomous "extracurricular club/group" variable was created, where participants in extracurricular clubs or groups were given a value of "1" and all others were given a value of "0". Participants were matched on extracurricular participation primarily due to the aforementioned relationship between extracurricular activity participation and juvenile delinquency and the potential similarities between extracurricular clubs or groups and Scouting programs. Employment is measured as an ordinal variable from the base year, with categories for no hours worked (assigned a score of "0"), four or fewer hours worked (assigned a score of "1"), five to ten hours worked (assigned a score of "2"), eleven to fifteen hours worked (assigned a score of "3"), sixteen to twenty hours worked (assigned a score of "4"), and greater than twenty-one hours worked (assigned a score of "5"). It is important to note that the rate of employment in this sample is quite low, likely due to the age of the respondents at the time of the base year (8th graders, likely between 13 and 14) and the minimum age at which juveniles can have jobs (between 14 and 16 in most states). However, as employment has been consistently correlated with juvenile delinquency, its exclusion as a matching variable would not be appropriate.

Participants were matched on measured levels of self-esteem and perceived locus of control at baseline. Student self-esteem and locus-of-control were measured with Likert-style questions, with seven questions examining respondent self-esteem and six questions examining respondent locus of control. Respondents were asked how they felt about certain statements ("I feel good about myself," "I certainly feel useless at times," "I don't have enough control over the

direction my life is taking," see Appendix A for full list of variables in each scale) and given four response choices: Strongly agree ("1"), agree ("2"), disagree ("3"), and strongly disagree ("4"). Some of the variables were reverse-coded to maintain consistency with the other variables. The seven self-esteem questions and six locus of control questions were combined into two averaged scales for self-esteem and locus of control, respectively. Both self-esteem (Donnellan et al., 2016; Mier and Ladny, 2018; and Rosenberg et al., 1978) and perceived locus of control (Page and Scalora, 2004 and Parrott and Strongman, 1984) are potentially related to delinquent behavior, so they were included in this analysis.

Problematic behavior was measured with a series of questions on school trouble, fights, truancy, and cigarette usage, all from the base year. The primary reason for measuring and matching on problematic behavior is simple: Since the analysis is examining later-in-life delinquent behavior, base year delinquent behavior should also be accounted for. Cigarette smoking, for example, would be considered a type of delinquent behavior (a status offense), as 8th graders are not old enough to purchase and use cigarettes. Similarly, substance use in the first and second follow-ups is used as an outcome variable. Therefore, individual participants were matched on all potentially delinquent behaviors measured in the first wave of the study. Cigarette usage is measured as the self-reported average of cigarettes smoked per respondent, per day, with ordinal response choices for 0 cigarettes per day ("I don't smoke"), 1-5 cigarettes per day, about half a pack per day, 1-2 packs per day, and 2+ packs per day; these responses were numerically coded as "0," "1," "2," and "3,", respectively.

There were a number of variables used to measure problems at school. Respondents were asked how often they were sent to the office for poor behavior, how often their parents received warnings about their poor behavior, and how many times they got into physical fights

(all within the first semester of the current school year), with response choices for never (coded as “0”), once or twice (coded as “1”), or more than twice (coded as “2”). These three questions were used to create two separate, dichotomous variables: A “school misbehavior” variable and a “fighting” variable. The “school misbehavior” variable was created by combining and dichotomizing the outcomes from the “parents received a warning about my behavior” and “I was sent to the office for my behavior” items. Affirmative responses to either of those respective items were given a value of “1” and negative responses were given a value of “0.” For the fighting measure, an affirmative response to the original fighting item was given a value of “1” and a negative response was given a value of “0.” To measure school absence, respondents were also asked how many days of school they missed in the past four weeks, with response choices for none (coded as “0”), one or two days (coded as “1”), three or four days (coded as “2”), five to ten days (coded as “3”), or more than ten days (coded as “4”).

Respondents were also matched on levels of parental involvement, interest, and structure. Parental attachment and involvement are theorized to be protective factors against delinquency (e.g., Hoeve et al., 2012). Parental interest in school was measured through a number of variables, such as how often parents discussed course and program selection, school events or activities of personal importance, and things the respondent studied in class, with responses for never (coded as “0”), once or twice (coded as “1”), and three or more times (coded as “2”). These three variables were combined into a parental school interest scale by averaging the scores between the three base year items, with a minimum possible score of “0” and a maximum score of “3.” Parental involvement with school was measured with variables that measured whether or not parents attended a school meeting, phoned or spoke to teachers or counselors, visited class, or attended a school event. Response choices were yes, no, or do not know. Each of these

variables were measured dichotomously, with “0”s given to “no” responses and “1”s given to “yes” responses. These scores were then averaged to create the final variable (with a maximum value of four and a minimum value of “0”). Parental structure was measured through variables that asked how often parents checked on whether respondents had done their homework, required respondents to do chores or work around the house, limited the amount of time respondents could watch television, and limited the amount of time respondents could spend out with friends on school nights. The response choices were often (coded as “3”), sometimes (coded as “2”), rarely (coded as “1”), and never (coded as “0”). These variables were also combined into a parental structure scale by averaging the scores between the four base year items.

Outcome Variables

Several measures of delinquent behaviors and attitudes were used as the outcomes for this analysis, including arrests, alcohol use, marijuana use, cocaine use, binge drinking, and the expression of definitions favorable to delinquency. Arrest was measured dichotomously using arrest items from follow-ups one and two. For both follow-ups one and two, students and dropouts were asked how many times they were arrested in the past six months; response choices were never (“0”), one to two times (“1”), three to six times (“2”), seven to nine times (“3”), and over ten times (“4”). These were used to create two dichotomous arrest variables: One for follow-up one (F1) and one for follow-up two (F2), in which a code of “1” or greater in the variable from its respective wave would be given a new code of “1” and all “0s” remained as “0s”.

The substance use measures were alcohol, marijuana, cocaine, and binge drinking. Alcohol use was measured using the alcohol use items from follow-ups one and two which asked

students and dropouts how many times they drank alcohol within the past year. Marijuana use was measured using the marijuana use items from follow-ups, which asked students and dropouts how many times they marijuana within the past year. Cocaine use was measured using the cocaine use items from follow-ups one and two, which asked students and dropouts how many times they used cocaine within the past year. Finally, binge drinking was measured using items from follow-ups one and two, which asked students and dropouts how many times they had more than five drinks at once during the past year. The response choices for all of these variables were: zero occasions ("0"), one or two occasions ("1"), three to nineteen occasions ("2"), or twenty or more occasions ("3").

Two alcohol use variables were created: An alcohol use variable for follow-up one (F1) and an alcohol use variable for follow-up two (F2). The alcohol use variables for follow-ups one and two were created by using the unaltered scores from the original alcohol use variables. Two marijuana use variables were created: A marijuana use variable for follow-up one (F1) and a marijuana use variable for follow-up two (F2). The marijuana use variables for follow-ups one and two were created by using the unaltered scores from the original marijuana use variables. Two binge drinking variables were created: binge drinking variable for follow-up one (F1) and a binge drinking variable for follow-up two (F2). The binge drinking variables for follow-ups one and two were created by using the unaltered scores from the original variables. Finally, two cocaine use variables were created: A dichotomous cocaine use variable for follow-up one (F1) and a dichotomous cocaine use variable for follow-up two (F2). For these dichotomous variables, any scores greater than "1" are set to the new value of "1" while all scores of "1" and "0" remain unaltered.

Definitions favorable to delinquency were also measured during the first follow-up. Respondents currently in school and respondents no longer in school were asked how often they thought it was okay to engage in a total of eighteen antisocial or delinquent behaviors, such as skip class, cheat on tests, get into fights, and smoke at school (a full list is available in Appendix A); responses were often (coded as "3"), sometimes (coded as "2"), rarely (coded as "1"), and never (coded as "0"). The scores for these eighteen items was averaged to create a "definitions favorable to delinquency" scale, with higher numbers indicating more delinquent definitions.

The analysis will begin with pre-test descriptive statistics to highlight any differences between Scouting participants and nonparticipants. The goal of these initial tests is to examine differences in delinquent behavior and matching variables between Scouting participants and nonparticipants before any matching or weighting is completed (before measurable selection bias is controlled). After the descriptive statistics are presented and the pre-test is completed, propensity scores will be calculated using the "MatchIt" and "PSWeight" packages in R. Once the propensity score calculation is complete, two analyses will be completed: A propensity score matched analysis (using "Matchit") and a propensity score weighted analysis (using "PSWeight"). These analyses will be completed for males, females, and the aggregate of both gender groups, allowing for the examination of possible differential participation effects.

Missing Data/Data Cleaning

This analysis used a missing tolerance level of 25% (or as close to 25% as was possible, given the variable). This tolerance applies to all scale and index variables as well as total missing-ness in the other variables. If more than 25% (or as close to 25% as the variable can get) of the items included in a scale or index were missing, that index was set to missing and the individual was excluded from the analysis. For the majority of non-scale and non-index

matching variables, all missing or inappropriate values were recoded as “9”. For each matching variable except for the employment, sports participation, and extracurricular activity participation variables, a dummy variable was created to indicate whether an individual had a value of “9” in that variable and were included in the analysis for matching purposes. However, a total “dummy count” variable was created as the sum of all the dummy variables created for matching. If one individual had a score of seven or more in the dummy count variable (indicating that he or she had seven or more missing values for matching), he or she was excluded from the analysis.

The exceptions to this recode were the employment, sports participation, and extracurricular activity participation variables. Due to the similarities between these three activities and Scouting (as highlighted in the Literature Review), these variables were considered too important to be left as missing and as such, any individual missing from any of these three variables was excluded from the analysis. Finally, all individuals who were missing on the Scouting participation variable or any of the outcome variables were also excluded from the analysis.

CHAPTER 4: RESULTS

Pre-Match

Descriptive statistics for all outcome variables are presented for the full sample (Table 1), males (Table 2), and females (Table 3). As seen in Table 1, there are very few differences between Scouts and non-Scouts prior to matching. Scouts tend to report slightly more frequent alcohol use as compared to non-Scouts, but they report less binge drinking variables. The groups are substantively equivalent in regards to arrest, cocaine use, marijuana use, and delinquent definitions (Table 1).

TABLE 1: Descriptive statistics for full sample outcome variables

Outcome	non-Scout N=3499				Scout N= 2015			
	Mean	SD	Min	Max	Mean	SD	Min	Max
F1 Arrest	0.02	0.15	0	1	0.02	0.15	0	1
F2 Arrest	0.02	0.16	0	1	0.02	0.17	0	1
F1 Marijuana	0.22	0.62	0	3	0.21	0.61	0	3
F2 Marijuana	0.33	0.76	0	3	0.33	0.76	0	3
F1 Cocaine	0.02	0.14	0	1	0.02	0.13	0	1
F2 Cocaine	0.02	0.15	0	1	0.02	0.15	0	1
F1 Alcohol	1.17	0.96	0	3	1.21	0.92	0	3
F2 Alcohol	1.47	1.02	0	3	1.51	1.02	0	3
F1 Binge Drinking	0.47	1.03	0	5	0.42	0.99	0	5
F2 Binge Drinking	0.68	1.19	0	5	0.65	1.15	0	5
F1 Delinquent Definitions	0.39	0.36	0	3	0.38	0.34	0	3

Tables 2 and 3 separate males and females since the Boy and Girl Scout programs are distinct; however, these tables show similar patterns to Table 1. A slightly higher proportion of Scouts report arrest during the second follow-up. Male Scouts also scored higher on alcohol and marijuana use measures during both follow-up waves (Table 2). Conversely, Scouts had slightly fewer F1 arrests and lower scores in for binge drinking and delinquent definitions relative to

non-Scouts. Finally, cocaine use was equivalent between the groups. Female Scouts slightly had lower levels of marijuana use and binge drinking compared to female non-Scouts in the first follow-up (Table 3). Female Scouts had higher levels of alcohol use, binge drinking (second follow-up) and delinquent definitions than non-Scouts. Female Scouts were no different from female non-Scouts in terms of arrests, marijuana use (second follow-up) and cocaine use.

TABLE 2: Descriptive statistics for male sub-sample outcome variables

Outcome	non-Scout N=1559				Scout N=807			
	Mean	SD	Min	Max	Mean	SD	Min	Max
F1 Arrest	0.04	0.20	0	1	0.03	0.18	0	1
F2 Arrest	0.04	0.20	0	1	0.05	0.23	0	1
F1 Marijuana	0.24	0.66	0	3	0.25	0.67	0	3
F2 Marijuana	0.38	0.85	0	3	0.41	0.85	0	3
F1 Cocaine	0.02	0.15	0	1	0.02	0.14	0	1
F2 Cocaine	0.03	0.17	0	1	0.03	0.16	0	1
F1 Alcohol	1.23	0.98	0	3	1.23	0.97	0	3
F2 Alcohol	1.66	1.05	0	3	1.66	1.07	0	3
F1 Binge Drinking	0.56	1.13	0	5	0.46	1.06	0	5
F2 Binge Drinking	0.9	1.34	0	5	0.86	1.36	0	5
F1 Delinquent Definitions	0.47	0.40	0	3	0.44	0.39	0	3

TABLE 3: Descriptive statistics for female sub-sample outcome variables

Outcome	non-Scout N=1936				Scout N=1205			
	Mean	SD	Min	Max	Mean	SD	Min	Max
F1 Arrest	0.01	0.09	0	1	0.02	0.13	0	1
F2 Arrest	0.01	0.11	0	1	0.01	0.10	0	1
F1 Marijuana	0.2	0.60	0	3	0.19	0.57	0	3
F2 Marijuana	0.28	0.68	0	3	0.27	0.69	0	3
F1 Cocaine	0.02	0.13	0	1	0.01	0.11	0	1
F2 Cocaine	0.02	0.13	0	1	0.02	0.13	0	1
F1 Alcohol	1.13	0.94	0	3	1.2	0.88	0	3
F2 Alcohol	1.32	0.97	0	3	1.4	0.97	0	3
F1 Binge Drinking	0.4	0.93	0	5	0.39	0.94	0	5
F2 Binge Drinking	0.5	1.01	0	5	0.5	1.02	0	5
F1 Delinquent Definitions	0.32	0.29	0	3	0.33	0.30	0	3

Table 4 provides descriptive statistics for all matching variables used in the matching and weighting processes. Consistent with previous tables, the results presented in Table 4 indicates that the youth that would become Scouts are largely similar to non-Scouts, but there are a few items of note. Scouts were more likely to be employed for pay, more likely to participate in sports of any kind, more likely participate in extracurricular activities, and more likely to spend time unsupervised than non-Scouts. In terms of socioeconomic status, Scouts had higher scores on the income, poverty status percentage, the household commodities index, and the parental education variables than non-Scouts. Scouts were more likely than non-Scouts to report that their parents were actively involved in their activities and schooling but tended to score higher on measures of school and academic performance. Scouts were also more likely to live in single-adult or unmarried households than non-Scouts. Finally, Scouts reported higher levels of problematic behavior than non-Scouts, such as smoking. The overall differences between Scouts and non-Scouts were very negligible, indicating a lot of balance between the two groups even prior to matching.

TABLE 4: Descriptive statistics for full sample matching variables

Matching Variable	non-Scouts N=3499				Scouts=2015			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Income	8.94	2.47	0	14	9.21	2.29	0	14
Academic Resources	5.56	1.62	0	8	5.85	1.50	0	8
Household Commodities	6.82	1.38	0	8	7.08	1.19	0	8
Fighting	0.19	0.63	0	9	0.19	0.66	0	9
Smoking	0.12	0.83	0	9	0.15	0.96	0	9
Employment	1.16	1.12	0	4	1.27	1.07	0	4
Family Composition	0.16	0.36	0	1	0.16	0.37	0	1
Average Grades	3.12	0.82	0.5	9	3.13	0.74	0.5	9
Self-Esteem	3.10	0.49	0	4	3.10	0.48	0	4
Locus of Control	3.03	0.47	0	4	3.05	0.46	0	4
Parental Interest in School	1.43	0.49	0	2	1.50	0.45	0	2
Parental Structure	1.94	0.62	0	3	1.98	0.59	0	3
Parental Education	2.12	1.26	0	9	2.35	1.18	0	5
Parental Marital Status	0.26	1.02	0	9	0.29	1.12	0	9
Parental Involvement in School	2.01	1.18	0	4	2.21	1.12	0	4
Poverty Status	334.44	294.02	0	2596.1	353.57	285.93	0	1947
Poor Academic Performance	0.34	0.73	0	9	0.34	0.61	0	9
White	0.7	0.46	0	1	0.79	0.41	0	1
Black	0.06	0.23	0	1	0.07	0.25	0	1
Latin	0.11	0.31	0	1	0.06	0.24	0	1
Other	0.12	0.33	0	1	0.07	0.26	0	1
School Absence	0.85	1.31	0	9	0.79	1.13	0	9
Poor Behavior in School	0.30	0.6	0	9	0.31	0.68	0	9
Sex	0.46	0.57	0	9	0.41	0.59	0	9
Sports Participation	0.71	0.45	0	1	0.75	0.43	0	1
Tardiness	0.52	1.07	0	9	0.43	0.76	0	9
Unsupervised Time	1.77	1.31	0	9	1.87	1.34	0	9
Extracurricular Activities	0.74	0.44	0	1	0.78	0.41	0	1

Descriptive statistics for the male sub-sample's matching variables are reported in Table 5 and are very similar to the results reported in Table 4. Much like the full sample, Scouts tended to have higher average scores in socioeconomic variables than non-Scouts. Scouts were also more likely to be employed, more likely to participate in sports and extracurricular activities, and more likely to spend time unsupervised than non-Scouts. Scouts were more likely

to report having involved parents and more likely to live in single and unmarried parent households than non-Scouts. Scouts were virtually equal to non-Scouts in terms of academic performance, while maintaining the previous exceptions of school absence and tardiness. Finally, like the full sample, Scouts reported higher levels of problematic behavior, such as fighting and smoking. Much like the full sample, the differences are subtle.

Table 6 provides the descriptive statistics for the female sub-sample's matching variables, which are similar to the previously reported results. Scouts were more likely to be employed, more likely to play sports, more likely to participate in extracurricular activities, and more likely to spend time unsupervised than non-Scouts. Scouts had higher scores on socioeconomic variables than non-Scouts but were more likely have married parents than non-Scouts, a deviation from their full sample and male sub-sample counterparts. Scouts reported higher levels of problematic behavior and poor performance in school than non-Scouts, but their parents were more involved in their activities than non-Scouts. Finally, consistent with the previous results, Scouts reported lower levels of school absence and tardiness than non-Scouts. It is important to note that all reported differences here, like the previous tables, are very minor, indicating substantial balance before any propensity score procedures.

TABLE 5: Descriptive statistics for male sub-sample matching variables

Matching Variables	non-Scouts N=1559				Scouts N=807			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Income	9.19	2.22	0	14	9.32	2.26	0	14
Academic Resources	5.79	1.58	0	8	5.97	1.52	0	8
Household Commodities	6.99	1.22	0	8	7.17	1.09	0	8
Fighting	0.30	0.73	0	9	0.31	0.76	0	9
Smoking	0.12	0.84	0	9	0.20	1.15	0	9
Employment	1.24	1.18	0	4	1.32	1.14	0	4
Family Composition	0.14	0.35	0	1	0.17	0.38	0	1
Average Grades	3.07	0.83	0.5	9	3.08	0.76	0.5	9
Self-Esteem	3.2	0.46	1	4	3.22	0.46	1.14	4
Perceived Locus of Control	3.06	0.46	1	4	3.06	0.45	1.33	4
Parental Interest in School	1.38	0.49	0	2	1.42	0.46	0	2
Parental Structure	1.95	0.62	0	3	2.01	0.60	0	3
Parental Education	2.22	1.24	0	5	2.44	1.2	0	5
Parental Marital Status	0.21	0.87	0	9	0.32	1.21	0	9
Parental Involvement In School	2.06	1.16	0	4	2.23	1.11	0	4
Poverty Status	350.58	283.77	0	1654	365.1	292.52	0	1654
Poor Academic Performance	0.40	0.75	0	9	0.40	0.65	0	9
White	0.74	0.44	0	1	0.78	0.41	0	0
Black	0.04	0.2	0	1	0.07	0.25	0	1
Latin	0.10	0.29	0	1	0.07	0.25	0	1
Other	0.12	0.32	0	1	0.08	0.27	0	1
School Absence	0.78	1.36	0	9	0.71	1.18	0	9
Poor Behavior in School	0.42	0.66	0	9	0.44	0.72	0	9
Sports Participation	0.79	0.41	0	1	0.81	0.39	0	1
Tardiness	0.55	1.17	0	9	0.45	0.81	0	9
Unsupervised Time	1.84	1.32	0	9	1.94	1.47	0	9
Extra-Curricular Activity	0.73	0.45	0	1	0.77	0.42	0	1

TABLE 6: Descriptive statistics for female sub-sample matching variables

Matching Variable	non-Scouts N=1936				Scouts N=1205			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Income	8.75	2.63	0	14	9.14	2.3	0	14
Academic Resources	5.38	1.62	0	8	5.78	1.47	0	8
Household Commodities	6.68	1.47	1	8	7.03	1.25	1	8
Fighting	0.10	0.53	0	9	0.11	0.58	0	9
Smoking	0.12	0.82	0	9	0.11	0.76	0	9
Employment	1.08	1.06	0	4	1.22	1.03	0	4
Family Composition	0.17	0.38	0	1	0.16	0.37	0	1
Average Grades	3.16	0.80	0.5	9	3.16	0.73	0.5	9
Self-Esteem	3.01	0.50	1	4	3.03	0.48	1	4
Locus of Control	3.01	0.49	1.33	4	3.04	0.46	1	4
Parental Interest in School	1.46	0.49	0	2	1.55	0.43	0	2
Parental Structure	1.93	0.62	0	3	1.96	0.58	0	3
Parental Education	2.05	1.26	0	9	2.29	1.16	0	5
Parental Marital Status	0.30	1.12	0	9	0.27	1.04	0	9
Parental Involvement In School	1.96	1.19	0	4	2.19	1.13	0	4
Poverty Status	321.19	301.68	0	2596.1	346.19	281.48	0	1947
Poor Academic Performance	0.30	0.71	0	9	0.31	0.58	0	9
White	0.67	0.47	0	1	0.78	0.40	0	1
Black	0.07	0.25	0	1	0.07	0.26	0	1
Latin	0.12	0.33	0	1	0.06	0.23	0	1
Other	0.12	0.33	0	1	0.07	0.25	0	1
School Absence	0.90	1.27	0	9	0.84	1.09	0	9
Poor Behavior in School	0.21	0.53	0	9	0.22	0.64	0	9
Sports Participation	0.65	0.48	0	1	0.71	0.45	0	1
Tardiness	0.48	0.98	0	9	0.42	0.73	0	9
Unsupervised Time	1.72	1.31	0	9	1.81	1.23	0	9
Extra-Curricular Activities	0.75	0.43	0	1	0.79	0.39	0	1

In addition to descriptive statistics, pre-match and pre-weight tests were conducted to determine how much overlap existed between Scouts and non-Scouts before any propensity score analyses took place. Initial tests revealed that there was significant overlap between Scouts and non-Scouts prior to matching and weighting. Where there were differences, propensity score matching and weighting did rectify some of the discrepancies between Scouts and non-Scouts in the full sample, female sub-sample, and male sub-sample, with a few exceptions. For the full sample, the base year fighting variable, the self-esteem variable, the poor school performance variable, and the poor school behavior variable, became slightly less balanced with matching. For the male sub-sample, propensity score matching had a negative impact on the balance of the base year fighting, perceived locus of control, and poor academic performance variables. For the female sub-sample, the balance of the base year fighting, base year fighting dummy, base year smoking, base year smoking dummy, average grades, poor academic performance, and Black racial dummy variables all declined after matching. Despite the preexisting balance and these inconsistencies, the matching and weighting algorithms did add some balance to all other matching variables.

Matching Analysis

The first analyses conducted were the propensity score matching analyses, conducted using the MatchIt package in R. The results of the unmatched and matched analyses for the full sample are reported in Table 7. The unmatched analysis found negligible and directionally irrelevant relationships between Scouting participation and all delinquent variables. None of these relationships reached statistical significance and all estimates were quite negligible, regardless of direction. Due to the absence of statistical significance, these relationships are functionally nonexistent.

TABLE 7: Results of unmatched and matched analysis of full sample

Outcome	Unmatched N=5514				Matched N=2009 Matched Pairs			
	Estimate	Std. E	t	p	Estimate	Std. E	t	p
F1 Arrest	-0.001	0.004	0.279	0.780	-0.002	0.005	0.422	0.673
F2 Arrest	0.003	0.005	-0.626	0.531	0.001	0.005	-0.193	0.847
F1 Marijuana	-0.003	0.017	0.187	0.851	-0.018	0.020	0.900	0.368
F2 Marijuana	0.002	0.021	-0.081	0.935	-0.018	0.024	0.735	0.463
F1 Cocaine	-0.002	0.004	0.617	0.537	-0.001	0.004	0.359	0.720
F2 Cocaine	-0.001	0.004	0.318	0.751	-0.002	0.005	0.524	0.600
F1 Alcohol	0.042	0.026	-1.627	0.104	0.006	0.030	-0.200	0.842
F2 Alcohol	0.034	0.029	-1.192	0.233	-0.004	0.032	0.139	0.889
F1 Binge Drinking	-0.046	0.028	1.628	0.104	-0.070	0.032	2.177	0.030*
F2 Binge Drinking	-0.032	0.033	0.967	0.333	-0.032	0.037	0.857	0.392
F1 Delinquent Definitions	-0.010	0.010	0.987	0.324	-0.010	0.011	0.885	0.376

*$p < 0.05$.

Table 7 also reports the results of the full sample matching analysis. The results for the matched sample were similar to the unmatched sample, with negligible, statistically insignificant relationships between Scouting participation and almost all delinquent variables. Of these relationships, the only one reaching statistical significance is the negative relationship between Scouting participation and F1 binge drinking. Scouts report lower levels of binge drinking than non-Scouts, but the effect size is very small (-0.07).

Table 8 reports the results of the unmatched and matched analyses for the male sub-sample. The unmatched male analysis indicates negligible relationships between Scouting participation and all delinquency variables, which matching did not rectify. The only

relationship of statistical significance was between Scouting participation and F1 binge drinking. Scouts reported less binge drinking than non-Scouts after samples were matched, but the estimate was very small.

TABLE 8: Results of unmatched and matched analysis for male sub-sample

Outcome	Unmatched N=2366				Matched N=794 Pairs			
	Estimate	Std. E	t	p	Estimate	Std. E	t	p
F1 Arrest	-0.011	0.008	1.409	0.159	-0.010	0.009	1.070	0.285
F2 Arrest	0.012	0.009	-1.285	0.199	0.010	0.011	-0.918	0.359
F1 Marijuana	0.007	0.029	-0.233	0.816	0.003	0.034	-0.075	0.941
F2 Marijuana	0.022	0.037	-0.602	0.548	-0.008	0.044	0.173	0.863
F1 Cocaine	-0.002	0.006	0.322	0.747	-0.001	0.007	0.176	0.861
F2 Cocaine	-0.003	0.007	0.402	0.688	0.004	0.008	-0.474	0.635
F1 Alcohol	0.001	0.042	-0.035	0.972	0.015	0.050	-0.305	0.761
F2 Alcohol	0.004	0.046	-0.079	0.937	0.045	0.054	0.842	0.400
F1 Binge Drinking	-0.087	0.047	1.857	0.063	-0.112	0.056	2.004	0.045*
F2 Binge Drinking	-0.039	0.059	0.670	0.503	-0.027	0.017	1.602	0.109
F1 Delinquent Definitions	-0.027	0.017	1.602	0.109	-0.017	0.020	0.833	0.405

*$p < 0.05$.

Table 9 reports the findings of the unmatched and matched analyses of the female sub-sample. The unmatched female analysis found negligible relationships between Scouting participation and the delinquency variables. Scouting participation had a positive, statistically significant impact on three variables in the unmatched female analysis: F1 arrest, F1 alcohol use, and F2 alcohol use, though all estimates were small. In the matched female analysis, no relationships reached statistical significance and all estimates were negligible.

TABLE 9: Results of unmatched and matched analysis for female sub-sample

Outcome	Unmatched N=3141				Matched N=1197 Pairs			
	Estimate	Std. E	t	p	Estimate	Std. E	t	p
F1 Arrest	0.008	0.004	-1.976	0.048*	0.008	0.004	-1.682	0.093
F2 Arrest	-0.001	0.004	0.283	0.778	0.000	N/A	0.000	1.000
F1 Marijuana	-0.008	0.021	0.361	0.718	-0.013	0.024	0.558	0.577
F2 Marijuana	-0.006	0.025	0.222	0.825	0.001	0.028	-0.030	0.976
F1 Cocaine	-0.002	0.005	0.461	0.645	-0.003	0.005	0.484	0.628
F2 Cocaine	0.001	0.005	-0.143	0.887	-0.001	0.006	0.150	0.880
F1 Alcohol	0.077	0.033	-2.323	0.020*	0.018	0.037	-0.491	0.624
F2 Alcohol	0.081	0.036	-2.260	0.024*	0.006	0.040	-0.147	0.883
F1 Binge Drinking	-0.005	0.034	0.139	0.889	-0.017	0.038	0.436	0.663
F2 Binge Drinking	0.003	0.037	-0.086	0.931	-0.020	0.042	0.473	0.637
F1 Delinquent Definitions	0.013	0.011	-1.211	0.226	0.006	0.012	-0.496	0.620

*$p < 0.05$.

IPW Analysis

The results of the IPW analysis for the full sample are reported in Table 10. The IPW analysis found negligible relationships between Scouting participation and all outcome variables. None of the relationships reached statistical significance. Table 11 reports the results of the IPW analyses for the male and female sub-samples. The male sub-sample analysis' findings are similar to the full-sample IPW analysis, demonstrating negligible relationships between Scouting participation and all delinquency variables. None of the relationships in the male IPW analysis was of statistical significance. The female IPW, also reported in Table 11, reported negligible relationships between Scouting participation and all delinquent behavior variables. The only relationships to reach statistical significance were the positive relationships between Scouting

participation and F1 arrest. Female Scouts were more likely to report being arrested than female non-Scouts.

TABLE 10: Results of full sample IPW analysis

Outcome	Estimate	Std. E	t	p
F1 Arrest	-0.001	0.004	-0.160	0.873
F2 Arrest	0.004	0.004	1.009	0.313
F1 Marijuana	0.001	0.017	0.035	0.972
F2 Marijuana	-0.004	0.021	-0.181	0.856
F1 Cocaine	0.000	0.004	-0.128	0.898
F2 Cocaine	0.000	0.004	0.121	0.904
F1 Alcohol	0.036	0.025	1.409	0.159
F2 Alcohol	0.023	0.028	0.837	0.403
F1 Binge Drinking	-0.013	0.028	-0.465	0.642
F2 Binge Drinking	0.001	0.032	0.016	0.987
F1 Delinquent Definitions	-0.005	0.009	-0.478	0.633

* $p < 0.05$

TABLE 11: Results of IPW analysis for male and female sub-samples

Outcome	Males				Females			
	Estimate	Std. E	t	p	Estimate	Std. E	t	p
F1 Arrest	-0.013	0.008	-1.663	0.097	0.009	0.004	2.153	0.031*
F2 Arrest	0.013	0.009	1.413	0.158	-0.002	0.004	-0.623	0.533
F1 Marijuana	0.014	0.028	0.518	0.604	-0.015	0.021	-0.738	0.461
F2 Marijuana	0.015	0.035	0.427	0.669	-0.018	0.025	-0.739	0.460
F1 Cocaine	0.001	0.006	0.121	0.903	-0.002	0.004	-0.457	0.648
F2 Cocaine	0.000	0.007	-0.060	0.952	0.002	0.005	0.370	0.712
F1 Alcohol	0.019	0.040	0.467	0.641	0.048	0.033	1.472	0.141
F2 Alcohol	0.015	0.044	0.351	0.726	0.030	0.035	0.848	0.397
F1 Binge Drinking	-0.033	0.047	-0.697	0.486	-0.024	0.034	-0.724	0.469
F2 Binge Drinking	-0.009	0.056	-0.159	0.873	0.000	0.037	0.001	0.999
F1 Delinquent Definitions	-0.023	0.016	-1.419	0.156	0.007	0.011	0.646	0.519

*$p < 0.05$.

CHAPTER 5: DISCUSSION

Interpretation

There few relationships of statistical significance in the analyses suggesting the absence of an impact of Scouting participation on crime and substance use. One significant relationship, between Scouting participation and binge drinking at the first follow-up, existed in both the full sample and male sub-sample analyses. This may indicate that Scouting participation at or before completion of 8th grade is associated with a negligible reduction in binge drinking behaviors before the completion of 10th grade and that this effect is most prominent in males. However, since the relationship loses its significance in the full sample and male sub-sample IPW analyses and is of no significance in the female analyses, it is unlikely that these findings are indicative of a true relationship, especially given the inconsistent and non-significant relationship between Scouting and F2 binge drinking in all samples. As such, these results are likely the result of mere alpha inflation and do not represent a true relationship between variables.

The most intriguing finding may be from the IPW portion of the analysis with the female sub-sample (although a similar result was not indicated within the matched analysis). In the female sub-sample, a positive association was observed between Scouting participation and arrest prior to the first follow-up, indicating that women who participate in Scouting are more likely to be arrested than non-Scouts. It is likely that this is nothing more than an abnormality in the data or a byproduct of alpha inflation, as the relationship is very negligible, but it could be indicative of an actual relationship that could be visualized with different propensity score operations or a different dataset. If another dataset had access to more in-depth arrest, Scouting participation, and matching measures, this relationship could be explored in more detail.

However, given the nature of the current analysis' findings, the existence of an actual relationship here is unlikely.

The most noteworthy findings of the analyses were the remarkable consistency of the results. While estimates may have changed direction depending on the analysis or propensity score operations at work, they remained small, almost to the point of nonexistence (and to that point, in some cases); there were a number of estimates what were barely visible to the nearest thousandth and a few that were not visible at all. The near-absence of statistically significant relationships and the negligible, inconsistent estimates indicate that, for the purposes of this analysis, simple Scouting participation has no meaningful impact on delinquent behavior.

The primary finding of the analysis is clear: Simple Scouting participation has no noticeable impact on delinquent behavior. All relationships reported in the analysis, even the aforementioned relationships of significance, were very negligible. If all relationships were of a consistent direction across most or all forms of analysis, it may indicate that a trend or pattern exists and that the current statistical models are simply not capturing the relationship properly. However, most relationships were not directionally consistent between analyses, indicating that any impact that Scouting participation has on delinquency is so negligible that it can vary from model to model. The near total absence of statistically significant findings reinforces the conclusion that there is no relationship between delinquency and Scouting participation, at least as it is defined in this analysis.

These findings are not consistent with the expectations of this analysis. This analysis was primarily informed by social learning theory (Akers, 1998) and social bonding theory (Hirschi, 1969). Both of these theories would support the existence of a relationship between Scouting participation and delinquency. As an adult-organized, prosocial peer group activity, Scouting

should facilitate a participant's association with prosocial peers, reinforce a participant's view of prosocial behavior as rewarding, teach prosocial definitions, and provide adequate prosocial models for behavior. As a prosocial activity, participation in Scouting constitutes involvement in prosocial activities and raises a participant's stake in conformity while simultaneously reinforcing a participant's belief in prosocial values and providing a participant with potential prosocial attachments. The similarity of Scouting to prosocial programs recommended by social learning and social bonding theorists indicates that Scouting should have some correlation with delinquency. Despite these potential theoretical explanations, no relationship between Scouting and delinquency was found in this analysis.

These findings are also inconsistent with extant research. While there is no direct research on Scouting participation and delinquency, there is a sizeable body of research on similar extracurricular youth group activities. Aforementioned studies, such as Agnew and Peterson (1989), Mahoney and Stattin (2000), and Persson et al. (2007), all found a negative relationship between participation in structured, adult-supervised, extracurricular activities and delinquent behavior. As a structured, adult-supervised, peer-group activity, it would be logical to assume that Scouting participation would have a negative effect on delinquency. If, on the other hand, Scouting participation was more similar to sports participation or high-intensity youth employment, both of which may have positive relationships with delinquent behavior (Cullen et al., 1997; 2001Kelley and Sokol-Katz, 2011; Miller and Matthews, 2001; etc.), then there would potentially be a positive relationship between Scouting and delinquency. Whatever the direction of the relationship, the research indicates that there should logically be some correlation between Scouting participation and delinquency, but this analysis has found no such evidence.

Explanations

One of the reasons for investigating the relationship between Scouting and delinquency is the existence of other relationships between similar youth programs or activities and delinquency. Participation in sports and high-intensity youth employment are both related to delinquency, while participation in organized, adult-led youth programs is associated with lower levels of delinquency. As an organized, adult-led activity with a prosocial curriculum, it seems odd that Scouting has no meaningful impact on delinquency. There may be a number of reasons for this discrepancy. One explanation is that Scouting is not operating the way that is intended to operate. If this is the case, then despite the prosocial nature of the programs, Scouting may not be teaching, rewarding, reinforcing, and facilitating prosocial values and behavior as intended. Given the monolithic nature of prosocial values within the program, this seems unlikely, though it is a possibility. However, it is possible that Scouting operates differently from other youth group programs in terms of dosage and exposure time. Scout meetings, while taking up a significant amount of time on the day that they are held, are generally not everyday occurrences and tend to only occur once a week or once every-other-week. Therefore, the time that youth are exposed to the Scouting program and all of its prosocial rhetoric may be less time than youth would be exposed to the prosocial rhetoric of similar programs that operate every day or more frequently during the week, such as sports, religious youth groups, or Boys' and Girls' Club programs. As such, the impact of Scouting participation may not be as pronounced as the impact of participation in programs where youth spend more time exposed to the program and its directives.

Another explanation is that the propensity score variables did not adequately account for different propensities for Scouting participation: While the list of matching variables included in

this analysis is extensive, it is possible that Scouting participation is more adequately explained by unknown or unmeasured variables, which would prevent propensity score operations from effectively estimating Scouting's impact on delinquency. A final explanation for the lack of impact is that mere participation in Scouting (the Scouting variable in this study) has no impact on delinquency, or that individuals who have merely participated in Scouting are no different from those who have not participated at all. Scouting may "work" but only for those that remain in the program for a requisite length of time. Given the absence of a measure indicating the degree or length of Scouting participation, present analysis could not evaluate this possibility.

Limitations

Despite the consistency of the findings, this study has a few limitations. Most of the limitations are a product of the Scouting participation variable. The variable, asked in the parent questionnaire during the base year, is a dichotomous, "Has your child ever participated in Boy Scouts or Girl Scouts?" The simplicity of the variable leaves little room for nuance and creates a few potential problems. First, the variable does not specify when the subject participated in Scouting; he or she could have participated years ago or could be an active participant. Based on the programs aims, methods, and curricula, it is reasonable to assume that recent participation may have more of an impact than distant participation. This assumption is also consistent with both social learning theory and social bonding theory. Scouting teaches prosocial values, behaviors, and definitions while facilitating association with prosocial peers and models. Therefore, recent or current participation should have a more direct impact on subsequent behavior than past participation. Recent or current participation would also maintain a youth's attachment to conforming peers, facilitate their involvement in conforming activities, raise their stake in conformity, and reinforce their beliefs in conforming values. Not having a time-based

indicator of when a youth participated presents analytical problems, as one cannot differentiate from youth who participated in the program two years ago and youth who are active members of the program.

Second, the variable does not account for duration of participation. An individual answering "yes" to this variable (thereby being included in the Scouting participant group of this analysis) could have attended one Scout meeting, several, or could have been active in the program for years. It is also logical to assume that an individual who spends longer in the program would be more influenced by the program's teachings and values. From a social learning perspective, long-term participation in the program should facilitate continued association with prosocial peers, provide continued access to prosocial models, facilitate continued exposure to and development of definitions unfavorable to delinquency, and reinforce prosocial behavior. From a social bonding perspective, long-term participation would increase a participant's stake in conformity, constitute substantial involvement in conformity, potentially reinforce one's belief in prosocial values, and facilitate continued attachment to prosocial individuals. If the majority of individuals surveyed were short-term participants, then the actual impact of full participation in Scouting may be obscured. Conversely, if the majority of survey members are long-term participants, the effect of simple, base-level participation may also be lost. Without an adequate method to separate those who participated for a short period of time from those who have been long-term Scouting participants, both groups must be classified as one and the same, at least for purposes of analysis.

Third, the variable does not effectively measure the intensity of participation in Scouting: how actively one participated while a member of the program. While participation in Scouting may be as simple as attending weekly or bi-monthly meetings, Scouting programs offer a myriad

of other activities for their participants as well as a plethora of awards and achievements. Following program expectations (and the expectations of other researchers, such as Jang, et al., 2012), an individual who achieves the BSA rank of Eagle Scout or the GSUSA rank of Gold should be more likely to have internalized and accepted the programs ideals and values. An individual who has been an active or achieving participant is also more likely to have developed definitions unfavorable to delinquency, view deviance as unrewarding, be associated with other prosocial peers, and be consistently exposed to prosocial models. Active participation in Scouting should also greatly increase an individual's stake in conformity and reinforce his or her belief in prosocial values in addition to facilitate involvement in conforming activities and attachment to prosocial individuals. If the majority of survey subjects are inactive or passive participants who do not engage with many of the programs activities and offerings, the actual impact of active participation may be diminished. Similarly, if the majority of respondents were active participants, the impact of base-level participation will be impossible to estimate. Without an adequate measure of participation intensity, it is difficult for this study to determine how actively any particular individual participated in the program. The assumption that the time, duration, or intensity of Scouting participation has a differential impact on participants is supported by the founder of the entire Scouting program, Lord Robert Baden Powell, who believed that Scouts were not full Scouts until they had earned the rank of First Class (which generally took around one year for an active Scout (BSA, 1998).

An additional limitation is that the other extracurricular activity and sports participation variables only measured participation nominally (like the Scouting variable) and do not effectively account for anything more than simple participation, which may compromise their effectiveness as matching variables. If, like in Scouting, differential exposure to programs could

theoretically alter participation effects, then the nominal nature of the extracurricular activity participation and sports participation variables could be problematic. Additionally, it could be hypothesized that individuals who superficially participate in a wide variety of programs but do not actively engage with all of them are less likely to be affected by program participation than an individual who actively participates in one or more programs. Unfortunately, the current dataset does not provide an effective method of differentiating active participants from superficial participants.

The final limitations are related to the matching variables (or lack thereof). Despite an extensive variable list, the data did not include a variable for delinquent peer association/peer delinquency, one of the most consistent predictors of delinquency. The data also did not include any neighborhood-level or geographic variables (likely for privacy reasons). As such, participants could not be matched on their geographic location or on neighborhood characteristics. Any causal inferences made by either propensity score matching or inverse propensity weighting would be significantly bolstered by the inclusion of the aforementioned variables.

Future Directions

While the limitations with the Scouting variable prevent any inferences from being made about intense, long-term, or current-versus-past participation, the variable used in the current analysis does effectively capture baseline participation in Scouting. As such, any inferences made for basic, cross-sectional participation are robust and the consistency of the findings demonstrates this. Future research should seek to effectively delineate and measure variations in participatory patterns and study the impact of those variations on delinquency, as well as on other relevant variables. As an explicitly prosocial program, the relationship between Scouting

participation and other outcomes, such as character development, educational attainment, employment status, and civic participation, should be examined. Where possible, future research should seek to separate out nominal Scouting participation from more active or prolonged participation to determine if there is a meaningful difference between the groups. Finally, additional matching variables, such as peer delinquency and neighborhood-level variables, should be included in subsequent propensity score analyses of Scouting participation to further expand on the model utilized here.

While this analysis used a nominal Scouting participation variable, it may be possible to create a more robust Scouting participation variable from the NELS 88 using its other nominal Scouting participation variables that ask parents whether their children have participated in Cub Scouts or Brownies and ask respondents if they have participated or plan to participate in Scouting during the base year. By creating a dichotomous "intense Scouting participation" variable that is coded as "1" only for individuals who gave affirmative responses to all three Scouting variables, a future analysis could potentially isolate more active and long-term Scouts than were observed in the nominal variable used in this analysis. While this new variable would not directly measure the duration or intensity of a subject's Scouting participation, it would allow researchers to separate out individuals who had been involved in Scouting during multiple points in the years prior to the base year, which would aid in inferences made about long-term participation.

Additionally, future analyses could operationalize the outcome variables differently. One option would be to dichotomize all variables instead of only the variables without significant variation. While this would make the results uniform, it would reduce what little variability is already present in the analysis. An alternative would be to use all delinquent variables together

to create a variety score outcome measure. A variety score would add more variability to the results and potentially enable observation of some impact of Scouting participation on overall delinquency and would be a beneficial addition to future analyses.

A final step for future analyses would be to include prosocial outcome variables in addition to delinquency variables. As Scouting programs are explicitly prosocial and reference active citizenship, volunteer work, and community service throughout their curricula, it may be beneficial to explore the relationship between Scouting participation and other outcomes, such as voter participation, educational attainment, and employment status. Subsequent analyses should still utilize statistically rigorous methods, such as inverse propensity weighting, but would greatly benefit from the inclusion of a more robust Scouting variable, a delinquent behavior variety score, and prosocial variables as potential outcomes.

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APPENDIX A: Appendix of variables

Scouting

- Since your eighth grader began the first grade, has he or she been involved in any of the following non-school activities? (MARK ONE EACH)
  - BYP63A: Boy or Girl Scouts

Code	#	%	Description
1	3612	29.7	yes
2	6683	55.0	no
6	2	0.0	{multiple respnse}
8	475	3.9	{missing}
9	1372	11.3	{legitimate skip/not in wave}

Scouting participation was measured using the BYS83A, BYP63A, and BYP63B items from the base year. BY283A was recoded such that all codes of 2 and 3 were given a new value of 1 and all old values of 1 were given a new value of 0. BYP63A and BYP63B were recoded such that all old values of 2 were given a new value of 0. These three recoded items were then combined into a new, dichotomous scouting participation variable called scout, where a value of 0 indicates a value of 0 in all three of the aforementioned items while a value of 1 indicates a 1 in or more of the three aforementioned items. If an individual had illegitimate codes (such as missing or skipped codes) for all three questions, they were excluded from this analysis.

Arrest

- F1S10G: How many times were you arrested in the first half of the current school year?,

Code	#	%	Description
0	10772	88.7	never
1	288	2.4	1-2 times
2	26	0.2	3-6 times
3	6	0.0	7-9 times
4	16	0.1	over 10 times
8	69	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave

- F2S9H: How many times were you arrested in the first semester or term of the current school year?,

Code	#	%	Description
0	10337	85.1	never
1	258	2.1	1-2 times
2	38	0.3	3-6 times
3	5	0.0	7-9 times
4	3	0.0	10-15 times
5	16	0.1	over 15 times
8	157	1.3	{missing}
9	1330	11.0	{legitimate skip/not in wave}

- F1D15G: How many times did the following things happen to you during the last 6 months you were in school? (I was arrested)

Code	#	%	Description
0	295	2.4	never
1	23	0.2	1-2 times
2	4	0.0	3-6 times
3	1	0.0	7-9 times
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F2D19H: How many times did the following things happen to you during the last 6 months you were in school? (I was arrested)

Code	#	%	Description
0	1051	8.7	never
1	59	0.5	1-2 times
2	15	0.1	3-6 times
3	6	0.0	7-9 times
4	1	0.0	10-15 times
5	3	0.0	over 15 times
98	56	0.5	{missing}
99	10955	90.2	{legitimate skip/not in wave}

Two total arrest measures were created using the above variables. The first is a dichotomous, "Have you been arrested in the past six months?" variable for follow-up one called arrest1, in which all responses greater than zero are set to one while all zeroes remained zeroes for the variables F1S10G and F1D15G. The second is a dichotomous, "Have you been arrested in the past six months?" variable for follow-up two called arrest2, in which all responses greater than zero are set to one while all zeroes remained zeroes for the variables F2S9H and F2D19H.

Because the variables are administered to either students (as indicated by an "S" in the variable name) or dropouts (as indicated by a "D" in the variable name), respondents should only have a legitimate response in one their respective variable for each wave. Additionally, only legitimate responses (responses that were not indicative of missing data or being excluded from a wave) were included in the calculation. As such, the average score is calculated by adding an individual's two highest legitimate scores for follow-up one and follow-up two and dividing that number by two.

Alcohol/Drugs

- F1S78B: NEXT WE WANT TO ASK YOU ABOUT DRINKING ALCOHOLIC BEVERAGES INCLUDING BEER, WINE, WINE COOLERS, AND LIQUOR. On how many occasions (if any) have you had alcoholic beverages to drink during the last twelve months? (Leave alcohol and binge drinking as they are, but dichotomize cocaine)

	Code	#	%	Description
o	0	2934	24.2	0 occasions
o	1	3021	24.9	1-2 occasions
o	2	2847	23.4	3-19 occasions
o	3	827.	6.8.	20+ occasions
o	6	3	0.0	{multiple respnse}
o	8	1329	10.9	{missing}
o	9	1183	9.7	{legitimate skip/not in wave}

- F1D67B: NEXT WE WANT TO ASK YOU ABOUT DRINKING ALCOHOLIC BEVERAGES INCLUDING BEER, WINE, WINE COOLERS, AND LIQUOR. On how many occasions (if any) have you had alcoholic beverages to drink during the last twelve months?

	Code	#	%	Description
o	0	40	0.3	0 occasions
o	1	56	0.5	1-2 occasions
o	2	89	0.7	3-19 occasions
o	3	119	1.0	20+ occasions
o	6	1	0.0	{multiple respnse}
o	8	128	1.1	{missing}
o	9	11711	96.4	{legitimate skip/not in wave}

- F1S79: # TIMES R HAD 5 DRINKS OR MORE IN A ROW (Think back over the LAST TWO WEEKS. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink)?

Code	#	%	Description

o	0	8095	66.7	NONE
o	1	1007	8.3	once
o	2	638	5.3	twice
o	3	422	3.5	three to five times
o	4	124	1.0	six to nine times
o	5	155	1.3	ten or more times
o	6	6	0.0	{multiple respnse}
o	8	730	6.0	{missing}
o	9	967	8.0	{legitimate skip/not in wave}

- F1S80AB: On how many occasions (if any) have you used marijuana (grass, pot) or hashish (hash, hash oil) during the last 12 months?

	Code	#	%	Description
o	0	8246	67.9	0 occasions
o	1	649	5.3	1-2 occasions
o	2	414	3.4	3-19 occasions
o	3	201	1.7	20+ occasions

- F1S80BB: During the last 12 months, # OF TIMES TAKEN COCAINE. On how many occasions (if any) have you taken cocaine in any form (including 'crack') during the last 12 months?

	Code	#	%	Description
o	0	9304	76.6	0 occasions
o	1	129	1.1	1-2 occasions
o	2	42	0.3	3-19 occasions
o	3	16	0.1	20+ occasions
o	6	1	0.0	{multiple respnse}
o	8	767	6.3	{missing}
o	9	1885	15.5	{legitimate skip/not in wave}

- F2S81B: On how many occasions (if any) have you had alcoholic beverages to drink during the last 12 months?

	Code	#	%	Description
o	0	2173	17.9	0 occasions
o	1	2445	20.1	1-2 occasions
o	2	3131	25.8	3-19 occasions
o	3	1747	14.4	20+ occasions
o	8	1181	9.7	{missing}
o	9	1467	12.1	{legitimate skip/not in wave}

- F2S82: # TIMES R HAD 5 DRINKS OR MORE IN A ROW. Think back over the last two weeks. How many times have you had five or more drinks in a row? (A drink is a glass of wine or beer, a shot glass of liquor, or a mixed drink).

Code	#	%	Description
0	7216	59.4	NONE
1	1071	8.8	once
2	684	5.6	twice
3	592	4.9	3-5 times
4	194	1.6	6-9 times
5	199	1.6	10 or more times
8	858	7.1	{missing}
9	1330	11.0	{legitimate skip/not in wave}

- F2S83B: LAST 12 MONTHS, # TIMES USED MARIJUANA. On how many occasions (if any) have you used marijuana (grass, pot) or hashish during the last 12 months?

Code	#	%	Description
0	7382	60.8	0 occasions
1	696	5.7	1-2 occasions
2	558	4.6	3-19 occasions
3	329	2.7	20+ occasions
6	1	0.0	{mult response}
8	1399	11.5	{missing}
9	1779	14.6	{legitimate skip/not in wave}

- F2S84B: LAST 12 MONTHS, # OF TIMES TAKEN COCAINE. On how many occasions (if any) have you used cocaine in any form during the last 12 months?

Code	#	%	Description
0	8766	72.2	0 occasions
1	96	0.8	1-2 occasions
2	66	0.5	3-19 occasions
3	29	0.2	20+ occasions
6	1	0.0	{mult response}
8	1329	10.9	{missing}
9	1857	15.3	{legitimate skip/not in wave}

- F1D68: AMT OF TIMES R HAD 5 DRINKS OR MORE. Think back over the LAST TWO WEEKS. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)

Code	#	%	Description

o	0	215	1.8	none
o	1	26	0.2	once
o	2	29	0.2	twice
o	3	24	0.2	three to five times
o	4	10	0.1	six to nine times
o	5	11	0.1	ten or more times
o	8	118	1.0	{missing}
o	9	11711	96.4	{legitimate skip/not in wave}

- F1D69AB: IN LAST 12 MONTHS, HOW OFTEN R USED MARIJUANA. On how many occasions (if any) have you used marijuana (grass, pot) or hashish (hash, hash oil) during the last 12 months?

	Code	#	%	Description
o	0	196	1.6	0 occasions
o	1	36	0.3	1-2 occasions
o	2	23	0.2	3-19 occasions
o	3	26	0.2	20+ occasions
o	8	125	1.0	{missing}
o	9	11738	96.7	{legitimate skip/not in wave}

- F1D69BB: On how many occasions (if any) have you taken cocaine in any form (including 'crack') during the last 12 months?

	Code	#	%	Description
o	0	259	2.1	0 occasions
o	1	15	0.1	1-2 occasions
o	2	4	0.0	3-19 occasions
o	3	3	0.0	20+ occasions
o	8	121	1.0	{missing}
o	9	11742	96.7	{legitimate skip/not in wave}

- F2D71B# TIMES LAST 12 MONTHS R DRANK ALCOHOL. On how many occassion have you had alcoholic beverages to drink?

	Code	#	%	Description
o	0	309	2.5	0 occasions
o	1	254	2.1	1-2 occasions
o	2	298	2.5	3-19 occasions
o	3	232	1.9	20+ occasions
o	8	85	0.7	{missing}
o	9	10966	90.3	{legitimate skip/not in wave}

- F2D72: 5 OR MORE DRINKS IN LAST 2 WEEKS. Think back over the Last Two Weeks. How many times have you had five or more drinks in a row?

	Code	#	%	Description
o	1	786	6.5	none
o	2	104	0.9	once
o	3	83	0.7	twice
o	4	92	0.8	3 to 5 times
o	5	22	0.2	6 to 9 times
o	6	34	0.3	10 or more times
o	96	1	0.0	{multiple respnse}
o	98	67	0.6	{missing}
o	99	10955	90.2	{legitimate skip/not in wave}

- F2D73B:# TIMES LAST 12 MONTHS R USED MARIJUANA. On how many occasions have you used marijuana or hashish?

	Code	#	%	Description
o	0	786	6.5	0 occasions
o	1	99	0.8	1-2 occasions
o	2	63	0.5	3-19 occasions
o	3	68	0.6	20+ occasions
o	7	1	0.0	{refused}
o	8	137	1.1	{missing}
o	9	10990	90.5	{legitimate skip/not in wave}

- F2D74B: # TIMES LAST 12 MONTHS R USED COCAINE. On how many occassion have you taken cocaine in any form?

	Code	#	%	Description
o	0	955	7.9	description 0 occasions
o	1	27	0.2	1-2 occasions
o	2	19	0.2	3-19 occasions
o	3	8	0.1	20+ occasions
o	7	1	0.0	{refused}
o	8	135	1.1	{missing}
o	9	10999	90.6	{legitimate skip/not in wave}

A number of variables were created to measure substance use The first is an alcohol use variable called achl1, which is an individual's average score on F1S78B for students and F1D67B for dropouts. The second is an alcohol use variable called achl2, which is an individual's average score on F2S81 for students and F2D71B for dropouts. The third is a marijuana use variable called pot1, which is an individual's score on F1S80AB for students and

F1D69AB for dropouts. The fourth is a marijuana use variable called pot2, which is an individual's average score on F2S83B for students and F2D73Bfor dropouts. The fifth is a dichotomous cocaine use variable called coke1, in which all individuals who had a score of 1, 2, or 3 in F1S80BB and F1D69BB were given a new value of 1 while all 0s remained as such. The sixth is a cocaine use variable called coke2, in which all individuals who had a score of 1, 2, or 3 in F2S84B and F2D74B were given a new value of 1 while all 0s remained as such. The seventh is a binge drinking variable called binge1, which is an individual's average score on F1S79 for students and F1D68 for dropouts. The eighth is a binge drinking variable called binge2, which is an individual's average score on F2S82 for students and F2D72 for dropouts.

In all of these variables, higher scores indicate higher levels of respective substance use. Additionally, when computing averages scores, all scores of 6 (indicating a multiple response), 7 (indicating a refusal to answer), 8 (indicating a missing entry), or 9 (indicating a legitimate skip or a data point not present in the current wave) were excluded. This is important because these variables were specific to students (as indicated by the presence of "S" in the variable name) or dropouts (as indicated by the presence of "D" in the variable name). Only an individual's legitimate scores were averaged. Most respondents will only have a legitimate score (scores that are not 6, 7, 8, or 9) in two of the four listed variables for each respective substance average. For example, an individual with a score of 2 in F1S80AB would likely have a score of 9 (indicating a legitimate skip or absence from the wave) in the wave's corresponding dropout variable, F1D69AB. In the calculation of this individual's average score, the individual's score in the dropout variable would be ignored and not factored into average calculation, as the score itself is illegitimate. In the event where an individual has legitimate scores in both student and dropout variables from the same wave, the highest score is used in average calculation.

Other important delinquent variables:

Delinquent Definitions

- How often do you feel it is 'OK' for you to ...
  - F1S12A: Be late for school?

Code	#	%	Description
1	267	2.2	often
2	3102	25.5	sometimes
3	5449	44.9	rarely
4	2295	18.9	never
8	64	0.5	{missing}
9	967	8.0	{legitimate skip/not in wave}

  - F1S12B: Cut a couple of classes?

Code	#	%	Description
1	16.	1.4.	often
2	1215	10.0	sometimes
3	3014	24.8	rarely
4	6722	55.4	never
8	61	0.5	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12C: Skip school for a whole day?

Code	#	%	Description
1	191	1.6	often
2	1136	9.4	sometimes
3	3247	26.7	rarely
4	6534	53.8	never
6	1	0.0	{multiple respnse}
8	68	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12D: Cheat on tests?

Code	#	%	Description
1	287	2.4	often
2	913	7.5	sometimes
3	2603	21.4	rarely
4	7289	60.0	never
6	1	0.0	{multiple respnse}
8	84	0.7	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12E: Copy someone else's homework?

Code	#	%	Description
1	808	6.7	often
2	2340	19.3	sometimes
3	4211	34.7	rarely
4	3749	30.9	never
8	69	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12F: Get into physical fights?

Code	#	%	Description
1	163	1.3	often

- 2 764 6.3 sometimes
- 3 2378 19.6 rarely
- 4 7799 64.2 never
- 6 1 0.0 {multiple respnse}
- 8 72 0.6 {missing}
- 9 967 8.0 {legitimate skip/not in wave}

- F1S12G: Belong to gangs?

Code	#	%	Description
1	172	1.4	often
2	318	2.6	sometimes
3	744	6.1	rarely
4	9859	81.2	never
6	1	0.0	{multiple respnse}
8	83	0.7	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12H: Make racist remarks?

Code	#	%	Description
1	192	1.6	often
2	333	2.7	sometimes
3	1102	9.1	rarely
4	9470	78.0	never
8	80	0.7	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12I: Make sexist remarks?

Code	#	%	Description
1	318	2.6	often
2	661	5.4	sometimes
3	1773	14.6	rarely
4	8344	68.7	never
8	81	0.7	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12J: Steal belongings from school, a student, or a teacher?

Code	#	%	Description
1	48	0.4	often
2	83	0.7	sometimes
3	407	3.4	rarely

- 4 10564 87.0 never
- 8 75 0.6 {missing}
- 9 967 8.0 {legitimate skip/not in wave}

- F1S12K: Destroy or damage school property?

Code	#	%	Description
1	72	0.6	often
2	119	1.0	sometimes
3	668	5.5	rarely
4	10241	84.3	never
8	77	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12L: Smoke on school grounds?

Code	#	%	Description
1	534	4.4	often
2	388	3.2	sometimes
3	636	5.2	rarely
4	9541	78.6	never
8	78	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12M: Drink alcohol during school day?

Code	#	%	Description
1	99	0.8	often
2	145	1.2	sometimes
3	458	3.8	rarely
4	10394	85.6	never
6	2	0.0	{multiple respnse}
8	79	0.7	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12N: Use illegal drugs during school day?

Code	#	%	Description
1	64	0.5	often
2	84	0.7	sometimes
3	198	1.6	rarely
4	10760	88.6	never
8	71	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12O: Bring weapons to school?

Code	#	%	Description
1	108	0.9	often
2	222	1.8	sometimes
3	604	5.0	rarely
4	10167	83.7	never
6	1	0.0	{multiple respnse}
8	75	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12P: Abuse teachers physically?

Code	#	%	Description
1	56	0.5	often
2	38	0.3	sometimes
3	183	1.5	rarely
4	10825	89.1	never
6	2	0.0	{multiple respnse}
8	73	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12Q: Talk back to teachers?

Code	#	%	Description
1	368	3.0	often
2	1396	11.5	sometimes
3	3898	32.1	rarely
4	5441	44.8	never
6	1	0.0	{multiple respnse}
8	73	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave}

- F1S12R: Disobey school rules?

Code	#	%	Description
1	282	2.3	often
2	1030	8.5	sometimes
3	3661	30.1	rarely
4	6130	50.5	never
6	2	0.0	{multiple respnse}
8	72	0.6	{missing}
9	967	8.0	{legitimate skip/not in wave}

- When you were in school, how often did you feel it was 'OK' for you to ...
  - F1D14A: Be late for school?

Code	#	%	Description
1	48	0.4	often
2	111	0.9	sometimes
3	89	0.7	rarely
4	75	0.6	never
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

  - F1D14B: Cut a couple of classes?

Code	#	%	Description
1	57	0.5	often
2	68	0.6	sometimes
3	53	0.4	rarely
4	144	1.2	never
8	111	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

  - F1D14C: Skip school for a whole day?

Code	#	%	Description
1	55	0.5	often
2	83	0.7	sometimes
3	57	0.5	rarely
4	128	1.1	never
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

  - F1D14D: Cheat on tests?

Code	#	%	Description
1	15	0.1	often
2	31	0.3	sometimes
3	69	0.6	rarely
4	207	1.7	never
8	111	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

  - F1D14E: Copy someone else's homework?

Code	#	%	Description
1	28	0.2	often
2	51	0.4	sometimes
3	82	0.7	rarely
4	161	1.3	never
8	111	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14F: Get into physical fights?

Code	#	%	Description
1	34	0.3	often
2	44	0.4	sometimes
3	66	0.5	rarely
4	179	1.5	never
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14G: Belong to gangs?

Code	#	%	Description
1	15	0.1	often
2	16	0.1	sometimes
3	21	0.2	rarely
4	270	2.2	never
8	111	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14H: Make racist remarks?

Code	#	%	Description
1	10	0.1	often
2	22	0.2	sometimes
3	44	0.4	rarely
4	244	2.0	never
8	113	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14I: Make sexist remarks?

Code	#	%	Description
1	12	0.1	often
2	16	0.1	sometimes
3	30	0.2	rarely

- 4 263 2.2 never
- 8 112 0.9 {missing}
- 9 11711 96.4 {legitimate skip/not in wave}

- F1D14J: Steal belongings from school, a student, or a teacher?

Code	#	%	Description
1	2	0.0	often
2	6	0.0	sometimes
3	5	0.0	rarely
4	308	2.5	never
8	112	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14K: Destroy or damage school property?

Code	#	%	Description
1	7	0.1	often
2	13	0.1	sometimes
3	25	0.2	rarely
4	278	2.3	never
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14L: Smoke on school grounds?

Code	#	%	Description
1	67	0.6	often
2	26	0.2	sometimes
3	33	0.3	rarely
4	197	1.6	never
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14M: Drink alcohol during the school day?

Code	#	%	Description
1	8	0.1	often
2	10	0.1	sometimes
3	19	0.2	rarely
4	286	2.4	never
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14N: Use illegal drugs during the school day?

Code	#	%	Description
1	8	0.1	often
2	9	0.1	sometimes
3	13	0.1	rarely
4	293	2.4	never
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14O: Bring weapons to school (such as knives and guns)?

Code	#	%	Description
1	11	0.1	often
2	9	0.1	sometimes
3	15	0.1	rarely
4	288	2.4	never
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14P: Abuse teachers physically?

Code	#	%	Description
1	3	0.0	often
2	5	0.0	sometimes
3	8	0.1	rarely
4	306	2.5	never
8	111	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14Q: Talk back to teachers?

Code	#	%	Description
1	36	0.3	often
2	71	0.6	sometimes
3	72	0.6	rarely
4	144	1.2	never
8	110	0.9	{missing}
9	11711	96.4	{legitimate skip/not in wave}

- F1D14R: Disobey school rules?

Code	#	%	Description
1	47	0.4	often
2	62	0.5	sometimes

▪	3	83	0.7	rarely
▪	4	131	1.1	never
▪	8	110	0.9	{missing}
▪	9	11711	96.4	{legitimate skip/not in wave}

One attitudinal measure of definitions favorable to delinquency was created using F1S12 and F1D14. To create this measure, each variable response for the parent variables F1S12 and F1D14 was recoded so that 4s were recoded as 0s, 3s were recoded as 1s, and 1s were recoded as 3s; 2s remained as they were. This was done to maintain the pattern of higher scores indicating more delinquency. The two variables were then combined into a singular, average variable called meandef for both students and dropouts. If four or more values were missing from the above variables, the meandef variable was set to a value of NA. Due to the recoding, higher scores are indicative of more delinquent attitudes.

Family Income

- BYFAMINC: YEARLY FAMILY INCOME

	Code	#	%	Description
○	1	40	0.3	none
○	2	86	0.7	less than $1,000
○	3	147	1.2	$1,000 - $2,999
○	4	183	1.5	$3,000 - $4,999
○	5	305	2.5	$5,000 - $7,499
○	6	352	2.9	$7,500 - $9,999
○	7	823	6.8	$10,000-$14,999
○	8	788	6.5	$15,000-$19,999
○	9	1078	8.9	$20,000-$24,999
○	10	1967	16.2	$25,000-$34,999
○	11	2182	18.0	$35,000-$49,999
○	12	1450	11.9	$50,000-$74,999
○	13	397	3.3	$75,000-$99,999
○	14	395	3.3	$100,000-199,999
○	15	155	1.3	$200,000 or more
○	98	1036	8.5	{missing}

- 99 760 6.3 {legitimate skip/not in wave}

Family income is measured using the BYFAMINC item from the base year survey. BYFAMINC is the total household income for each particular respondent. The BYFAMINC item was slightly recoded, such that all legitimate values (values from 1 to 15) were moved down by one number (1 was coded as 0, 2 was coded as one, etc.). The missing and skip values were not changed.

Family Size

- BYFAMSIZ: Estimated family size
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
  - 9
  - 10 (coded for families of ten or more)

This variable was used in conjunction with the BYFAMINC variable and 1988 census data to create a poverty status indicator. If BYFAMINC is less than or equal to the estimated poverty status threshold for the estimated family size (measured by BYFAMSIZ), that individual receives a code of 1 in the poverty status indicator variable. If the BYFAMINC value is greater than the poverty status threshold set by the census for the estimated family size (BYFAMSIZ), that individual receives a score of 0.

Parental Education Level

- BYPARED: PARENTS' HIGHEST EDUCATION LEVEL

Code	#	%	Description
1	1172	9.7	didn't finish h.s.
2	2280	18.8	h.s. grad or ged
3	4565	37.6	> h.s. & < 4yr deg
4	1690	13.9	college graduate
5	1006	8.3	m.a./equivalent
6	601	4.9	ph.d., m.d., other
7	64	0.5	don't know
98	6	0.0	{missing}

- 99 760 6.3 {legitimate skip/not in wave}

Parental education was measured using the BYPARED item from the base year, which indicates the highest level of education that either parent has achieved. For this analysis, BYPARED was recoded slightly, such that all legitimate values (1 through 6) were moved down by 1 integer value (1 was recoded as 0, 2 was recoded as 1, etc.). The missing, skip, and "don't know" values were left unaltered.

Parental Marital Status

- BYPARMAR: PARENTS' MARITAL STATUS

Code	#	%	Description
1	1085	8.9	divorced
2	255	2.1	widowed
3	332	2.7	separated
4	212	1.7	never married
5	141	1.2	marriage-like relationship
6	8493	69.9	married
98	866	7.1	{missing}
99	760	6.3	{legitimate skip/not in wave}

Parental marital status was measured using the BYPARMAR item from the base year, which measured the marital status of the parent who was living with the student during the base year survey. BYPARMAR was recoded to become a dichotomous variable: Codes of 1, 2, 3, and 4 were recoded as 1, while codes of 5 and 6 were recoded as 0. The result is a variable that categorizes parents as either marriage-like or single. The codes for missing and skip responses were left unchanged.

Family Composition

- BYFCOMP: BYFCOMP characterizes the family or household composition. It was constructed from the student responses to BYS8A-I. The values for BYFCOMP are:

Code	#	%	Description:
1	7882	64.9	mother & father
2	1051	8.7	mother & male guardn
3	228	1.9	father & fem guard.
4	1584	13.0	mother only
5	248	2.0	father only
6	259	2.1	oth rel/non-relative
98	132	1.1	{missing}
99	760	6.3	{legitimate skip/not in wave}

Family composition was measured using the BYFCOMP item from the base year. BYFCOMP was recoded as a dichotomous variable: Codes 1, 2, and 3 were recoded to have a value of 0 while codes 4, 5, and 6 were recoded to have a value of 1. The result is a dichotomous variable that defines a household as either two-parent or single-parent. The missing and skip values were not altered.

Family Resources Index: Academic

- BYS35: Which of the following does your family have in your home? (MARK ONE EACH)
  - BYS35A: A specific place for study

Code	#	%	Description
1	4452	36.7	have
2	6601	54.4	do not have
8	331	2.7	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS35B: A daily newspaper

Code	#	%	Description
1	8239	67.8	have
2	2906	23.9	do not have
8	239	2.0	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS35C: Regularly received magazine

Code	#	%	Description
1	8485	69.9	have
2	2637	21.7	do not have
6	2	0.0	{multiple respnse}
8	260	2.1	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS35D: An encyclopedia

Code	#	%	Description
1	8974	73.9	have
2	2166	17.8	do not have
6	3	0.0	{multiple respnse}
8	241	2.0	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS35E: An atlas

Code	#	%	Description
1	7766	63.9	have
2	3289	27.1	do not have
6	1	0.0	{multiple respnse}
8	328	2.7	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS35F: A dictionary

Code	#	%	Description
1	10992	90.5	have
2	222	1.8	do not have
6	4	0.0	{multiple respnse}
8	166	1.4	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS35G: Typewriter

Code	#	%	Description
1	8243	67.9	have
2	2869	23.6	do not have
6	3	0.0	{multiple respnse}
8	269	2.2	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS35H: Computer

Code	#	%	Description
1	4702	38.7	have
2	6251	51.5	do not have
6	4	0.0	{multiple respnse}
8	427	3.5	{missing}
9	760	6.3	{legitimate skip/not in wave}

Family academic resources was measured using the BYS53A, BYS35B, BYS35C, BYS35D, BYS35E, BYS35F, BYS35G, and BYS35H items from the base year, which ask the respondent whether or not his or her family possesses a variety of household items that could be used for academic purposes. BYS53A, BYS35B, BYS35C, BYS35D, BYS35E, BYS35F, BYS35G, and BYS35H were recoded so that all values of 2 were given a new value of 0. Using these recoded variables, a new index variable was created, called acandxsum, which consisted of the sum of all legitimate scores in the aforementioned items. The highest possible score is 8 and the lowest possible score is 0.

Family Resource Index: Commodities

- BYS35: Which of the following does your family have in your home? (MARK ONE EACH)
  - BYS35I: An electric dishwasher

Code	#	%	Description
1	6444	53.1	have
2	4593	37.8	do not have
6	1	0.0	{multiple respnse}
8	346	2.8	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS35J: Clothes dryer

Code	#	%	Description
1	9753	80.3	have
2	1406	11.6	do not have
6	1	0.0	{multiple respnse}
8	224	1.8	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS35K: Washing machine

Code	#	%	Description
1	10607	87.3	have
2	575	4.7	do not have
6	1	0.0	{multiple respnse}
8	201	1.7	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS35L: Microwave oven

Code	#	%	Description
1	9259	76.2	have
2	1889	15.6	do not have
6	2	0.0	{multiple respnse}
8	234	1.9	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS35M: More than 50 books

Code	#	%	Description
1	10021	82.5	HAVE

2	1119	9.2	do not have
6	2	0.0	{multiple respnse}
8	242	2.0	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS35N: VCR

Code	#	%	Description
1	9428	77.6	have
2	1735	14.3	do not have
6	2	0.0	{multiple respnse}
8	219	1.8	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS35O: Pocket calculator

Code	#	%	Description
1	10683	88.0	have
2	498	4.1	do not have
6	1	0.0	{multiple respnse}
8	202	1.7	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS35P: A room of your own

Code	#	%	Description
1	9096	74.9	have
2	2091	17.2	do not have
6	2	0.0	{multiple respnse}
8	195	1.6	{missing}
9	760	6.3	{legitimate skip/not in wave}

Family commodities was measured using the BYS53I, BYS35J, BYS35K, BYS35L, BYS35M, BYS35N, BYS35O, and BYS35P items from the base year, which ask the respondent whether or not his or her family possesses a variety of household items that could be used for academic purposes. BYS53I, BYS35J, BYS35K, BYS35L, BYS35M, BYS35N, BYS35O, and BYS35P were recoded so that all values of 2 were given a new value of 0. Using these recoded variables, a new index variable was created, called comndxsum, which consisted of the sum of all legitimate scores in the aforementioned items. The highest possible score is 8 and the lowest possible score is 0.

Race

- BYS31A: What is your race? (MARK ONE)

Code	#	%	Description
1	764	6.3	api
2	1444	11.9	hispanic
3	1041	8.6	black,non-hispanic
4	7626	62.8	white,non-hispanic
5	399	3.3	american indian
6	17	0.1	{multiple respnse}
7	19	0.2	{refusal}
8	74	0.6	{missing}
9	760	6.3	{legitimate skip/not in wave}

Race was measured using the BYS31A item from the base year, which measured respondent race. The BYS31A variable was recoded such that codes of 1 and 5 were given a value of 4, codes of 2 were given a value of 3, codes of 3 were given a value of 2, and codes of 4 were given a value of one. These four categories were described as: 1, White; 2, Black; 3, Hispanic; and 4, Other. The codes for multiple responses, refusals, missing, and legitimate skip responses were not altered. An additional, dichotomous variable, called nonwhite was created using the recoded BYS31D. For nonwhite, all respondents in the Black, Hispanic, and Other race categories were recoded to have a value of 1 while all respondents in the White category were recoded to have a value of 0. Four racial indicator dummy variables, called white, black, latin, and other, were created using the race measure.

Sex

- BYS12: What is your sex? (MARK ONE)

Code	#	%	Description
1	5308	43.7	male
2	5986	49.3	female
7	4	0.0	{refusal}
8	86	0.7	{missing}
9	760	6.3	{legitimate skip/not in wave}

Sex is measured using the BYS12 item from the base year, which measured respondent sex. BYS12 was recoded so that all codes of 2 (females) were given a value of 0. Refusals, missing, and legitimate skip codes were not altered.

Grades

- BYGRADS: BYGRADS is an average, with all nonmissing elements equally weighted, of the self-reports for grades over the four subject areas (English, mathematics, science, and social studies).

Average student grades was measured by the composite item BYGRADS from the base year, which provided an average of all reported student grades.

Poor Academic Performance

- BYS55B: I was sent to the office because of problems with my school work

	Code	#	%	Description
○	0	10259	84.5	never
○	1	738	6.1	once or twice
○	2	209	1.7	more than twice
○	8	178	1.5	{missing}
○	9	760	6.3	{legitimate skip/not in wave}

- BYS55D: My parents received a warning about my grades

	Code	#	%	Description
○	0	7460	61.4	never
○	1	3020	24.9	once or twice
○	2	740	6.1	more than twice
○	8	164	1.4	{missing}
○	9	760	6.3	{legitimate skip/not in wave}

Problematic academic performance was measured using the BYS55B and BYS55D items from the base year. These items measured whether or not the respondent had been sent to the office because of his or her grades (BYS55B) or whether or not the respondent's parents had received a warning about his or her grades (BYS55D). BYS55B and BYS55D were recoded so that all values of 1 or 2 were given a new value of 1, creating dichotomous variables. Then, the two were combined into a new dichotomous variable called prprf, in which a value of 0 was given to all respondents who had values of 0 in both BYS55B and BYS55D and a value of 1 was given to all respondents who had a value of 1 in either BYS55B or BYS55D (or had a 1 in both).

Smoking

- BYS43: NO. OF CIGARETTES R SMOKES PER DAY. How many cigarettes do you usually smoke a day? (MARK ONE).

	Code	#	%	Description
o	0	10587	87.2	i don't smoke
o	1	385	3.2	1-5 cigarettes
o	2	124	1.0	about 1/2 pack
o	3	65	0.5	mt 1/2,lt 2 packs
o	4	24	0.2	2 packs or more
o	8	199	1.6	{missing}
o	9	760	6.3	{legitimate skip/not in wave}

Smoking was measured using the BYS43 item from the base year, which ordinally measured the rates of respondent smoking. This variable was recoded to become a dichotomous variable: All legitimate response codes greater than or equal to 1 (1, 2, 3, and 4) were assigned a value of 1, while all other codes remained unchanged. Therefore, a 0 in this variable indicates that the respondent does not smoke while a value of one indicates that he or she does smoke.

Behavioral Problem in School

- During the first semester of the current school year, has any of the following things happened to you? (MARK ONE EACH)
  - BYS55A: I was sent to the office because I was misbehaving

	Code	#	%	Description
▪	0	8144	67.1	never
▪	1	2213	18.2	once or twice
▪	2	883	7.3	more than twice
▪	8	144	1.2	{missing}
▪	9	760	6.3	{legitimate skip/not in wave}

  - BYS55E: My parents received a warning about my behavior

	Code	#	%	Description
▪	0	9137	75.2	never
▪	1	1529	12.6	once or twice
▪	2	538	4.4	more than twice
▪	8	180	1.5	{missing}
▪	9	760	6.3	{legitimate skip/not in wave}

Behavioral problems in school were measured using the BYS55A and BYS55E items from the base year. These items asked whether the respondent had been sent to the office because of a behavioral problem (BYS55A) or if the respondent's parents had received a warning about his or her behavior (BYS55E) during the past semester. The variables were combined into a single, dichotomous variable called sclbhvr, where a value of 0 was given to all respondents who had score of 0 in both BYS55A and BYS55E and a value of 1 was given to all respondents who had a score of 1 or 2 in either or both of the aforementioned items. Illegitimate codes, such as missing values, were not altered.

Fighting

- During the first semester of the current school year, has any of the following things happened to you? (MARK ONE EACH)
  - BYS55F I got into a physical fight with another student

Code	#	%	Description
0	9091	74.9	never
1	1698	14.0	once or twice
2	422	3.5	more than twice
6	1	0.0	{multiple respnse}
8	172	1.4	{missing}
9	760	6.3	{legitimate skip/not in wave}

Fighting was measured dichotomously using the BYS55F item from the base year, which asked respondents whether they had been in a fight in the past semester. The variable was recoded so that all previous values of 2 were given the new value of 1. Illegitimate codes were not altered.

Truancy/School Absence/Tardiness

- BYS75: # OF DAYS MISSED FROM SCHL PAST 4 WEEKS

Code	#	%	Description
0	5213	42.9	none
1	3602	29.7	1 or 2 days
2	1313	10.8	3 or 4 days
3	516	4.2	5 to 10 days
4	209	1.7	more than 10 days
6	2	0.0	{multiple respnse}
8	529	4.4	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS77: How many times were you late for school over the past four weeks?

	Code	#	%	Description
o	0	7058	58.1	none
o	1	2743	22.6	1 or 2 days
o	2	740	6.1	3 or 4 days
o	3	242	2.0	5 to 10 days
o	4	149	1.2	more than 10 days
o	8	452	3.7	{missing}
o	9	760	6.3	{legitimate skip/not in wave}

- BYS55C: My parents received a warning about my attendance (not sure if we should use this or not)

	Code	#	%	Description
o	0	10122	83.3	never
o	1	842	6.9	once or twice
o	2	240	2.0	more than twice
o	8	180	1.5	{missing}
o	9	760	6.3	{legitimate skip/not in wave}

School Absence was measured using the BYS75 item from the base year, which measured the number of days of school the respondent had missed in the past four weeks. Tardiness was measured using the BYS77 item from the base year, which measured the number of times the respondent admitted to being late for school in the past four weeks. The codes for these variables were left unchanged.

Locus of Control

- How do you feel about the following statements? (MARK ONE EACH)
  - BYS44B: I don't have enough control over the direction my life is taking (locus)

	Code	#	%	Description
▪	1	522	4.3	strongly agree
▪	2	1604	13.2	agree
▪	3	5441	44.8	disagree
▪	4	3702	30.5	strongly disagree
▪	6	13	0.1	{multiple respnse}
▪	8	102	0.8	{missing}
▪	9	760	6.3	{legitimate skip/not in wave}

- BYS44C: In my life, good luck is more important than hard work for success (locus)

Code	#	%	Description
1	307	2.5	strongly agree
2	871	7.2	agree
3	5298	43.6	disagree
4	4767	39.3	strongly disagree
6	11	0.1	{multiple respnse}
8	130	1.1	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS44F: Every time I try to get ahead, something or somebody stops me (locus)

Code	#	%	Description
1	635	5.2	strongly agree
2	2313	19.0	agree
3	6427	52.9	disagree
4	1873	15.4	strongly disagree
6	9	0.1	{multiple respnse}
8	127	1.0	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS44G: My plans hardly ever work out, so planning only makes me unhappy (locus)

Code	#	%	Description
1	540	4.4	strongly agree
2	1525	12.6	agree
3	5963	49.1	disagree
4	3223	26.5	strongly disagree
6	7	0.1	{multiple respnse}
8	126	1.0	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS44K: When I make plans, I am almost certain I can make them work (locus)

Code	#	%	Description
1	2237	18.4	strongly agree
2	6767	55.7	agree
3	1967	16.2	disagree
4	256	2.1	strongly disagree
6	12	0.1	{multiple respnse}
8	145	1.2	{missing}

▪ 9	760	6.3	{legitimate skip/not in wave}

- BYS44M: Chance and luck are very important for what happens in my life (locus)

Code	#	%	Description
▪ 1	1043	8.6	strongly agree
▪ 2	3139	25.8	agree
▪ 3	4716	38.8	disagree
▪ 4	2356	19.4	strongly disagree
▪ 6	6	0.0	{multiple respnse}
▪ 8	124	1.0	{missing}
▪ 9	760	6.3	{legitimate skip/not in wave}

Perceived locus of control was measured using items BYS44B, BYS44C, BYS44F, BYS44G, BYS44K, and BYS44M, which asked questions related to the perceived locus of control of each respondent. Larger values were indicative of an internal locus of control while smaller values were indicative of an external locus of control. For this purpose, BYS44K was recoded such that all 1s were given the value of 4, all 2s were given the value of 3, all 3s were given the value of 2, and all 4s were given the value of 1. For matching, a new variable, called meanlocus, was created by combining and averaging all legitimate scores in the six aforementioned locus of control items. In the event of an illegitimate score (such as a multiple response or missing item) in one or more of the items, that individual's average was calculated based on the number of legitimate responses. meanlocus, the final average score, was used in the matching process. If two or more items from the scale were missing, meanlocus was set to NA.

Self-Esteem

- How do you feel about the following statements? (MARK ONE EACH)
  - BYS44A: I feel good about myself (esteem)

Code	#	%	Description
▪ 1	3927	32.3	strongly agree
▪ 2	6527	53.7	agree
▪ 3	743	6.1	disagree
▪ 4	94	0.8	strongly disagree
▪ 6	6	0.0	{multiple respnse}
▪ 8	87	0.7	{missing}
▪ 9	760	6.3	{legitimate skip/not in wave}

  - BYS44D: I feel I am a person of worth, the equal of other people (esteem)

Code	#	%	Description

1	4535	37.3	strongly agree
2	5781	47.6	agree
3	702	5.8	disagree
4	145	1.2	strongly disagree
6	3	0.0	{multiple respnse}
8	218	1.8	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS44E: I am able to do things as well as most other people (esteem)

Code	#	%	Description
1	4405	36.3	strongly agree
2	5932	48.8	agree
3	777	6.4	disagree
4	99	0.8	strongly disagree
6	14	0.1	{multiple respnse}
8	157	1.3	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS44H: On the whole, I am satisfied with myself (esteem)

Code	#	%	Description
1	3786	31.2	strongly agree
2	6117	50.4	agree
3	1112	9.2	disagree
4	186	1.5	strongly disagree
6	11	0.1	{multiple respnse}
8	172	1.4	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS44I: I certainly feel useless at times (esteem) flip

Code	#	%	Description
1	956	7.9	strongly agree
2	4694	38.7	agree
3	4038	33.3	disagree
4	1504	12.4	strongly disagree
6	5	0.0	{multiple respnse}
8	187	1.5	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS44J: At times I think I am no good at all (esteem) flip

Code	#	%	Description

▪	1	880	7.2	strongly agree
▪	2	3702	30.5	agree
▪	3	3957	32.6	disagree
▪	4	2660	21.9	strongly disagree
▪	6	25	0.2	{multiple respnse}
▪	8	160	1.3	{missing}
▪	9	760	6.3	{legitimate skip/not in wave}

- BYS44L: I feel I do not have much to be proud of (esteem) flip

	code	#	%	description
▪	1	379	3.1	strongly agree
▪	2	1114	9.2	agree
▪	3	4682	38.6	disagree
▪	4	5051	41.6	strongly disagree
▪	6	4	0.0	{multiple respnse}
▪	8	154	1.3	{missing}
▪	9	760	6.3	{legitimate skip/not in wave}

Self-esteem was measured using BYS44A, BYS44D, BYS44E, BYS44H, BYS44I, BYS44J and BYS44L from the base year, which measured respondent self-perceptions. Higher numbers are indicative of higher self-esteem. To that end, BYS44A, BYS44D, BYS44E, and BYS44H were all recoded: All 1s were given the value of 4, all 2s were given the value of 3, all 3s were given the value of 2, and all 4s were given the value of 1. For matching, a new variable, called meanesteem, was created by combining and averaging all legitimate scores in the seven aforementioned locus of control items. In the event of an illegitimate score (such as a multiple response or missing item) in one or more of the items, that individual's average was calculated based on the number of legitimate responses. meanesteem, the final average score, was used in the matching process. If two or more items from the scale were missing, meanesteem was set to NA.

Unsupervised Time

- BYS41: TIME SPENT AFTER SCHL WTH NO ADULT PRSNT. On average, how much time do you spend after school each day at home with no adult present? (MARK ONE) (do not dichotomize)

	Code	#	%	Description
o	0	1553	12.8	none

o	1	3744	30.8	less than 1 hour
o	2	3104	25.6	1-2 hours
o	3	1406	11.6	2-3 hours
o	4	1392	11.5	more than 3 hrs
o	6	5	0.0	{multiple respnse}
o	8	180	1.5	{missing}
o	9	760	6.3	{legitimate skip/not in wave}

Unsupervised time was measured using the BYS41 item from the base year, which ordinally measured the number of hours the respondent spent unsupervised each day. There were no coding changes for this variable. However, a second, dichotomous variable, called unsupd, was created that recoded all legitimate coded responses that were greater than 1 as 1 and all responses of 1 and 0 as 0. All illegitimate codes (missing, skips, etc.) were left unchanged.

Employment

- BYS53: NO. OF HOURS R WORKS FOR PAY PER WEEK. Not counting chores around the house, how many hours do/did you work a week for pay on your present or most recent job? (MARK ONE)

	Code	#	%	Description
o	0	3538	29.1	none
o	1	3987	32.8	up to 4 hours
o	2	2262	18.6	5-10 hours
o	3	841	6.9	11-20 hours
o	4	595	4.9	21 or more hours
o	6	3	0.0	{multiple respnse}
o	8	158	1.3	{missing}
o	9	760	6.3	{legitimate skip/not in wave}

Employment was measured using the BYS53 item from the base year, which ordinally measured the number of hours each respondent worked per week. The codes for this variable were left unchanged. However, a dichotomous, high-intensity youth employment variable, called hiye, was created. For hiye, all BYS53 codes of 4 and 5 were recoded as 1 while all 2s, 1, and 0s, were set to 0. Illegitimate codes (missing data, skips, etc.) were left unchanged.

Sports

- BYS82B: Have you or will you have participated in any of the following school activities during the current school year, either as a member, or as an officer (for example, vice-president, coordinator, team captain)? (MARK ONE EACH)
    - BYS82B: School varsity sports (playing against teams from other schools)

Code	#	%	Description
1	5366	44.2	did not participate
2	4788	39.4	participated member
3	420	3.5	participated officer
6	18	0.1	{multiple respnse}
8	792	6.5	{missing}
9	760	6.3	{legitimate skip/not in wave}

    - BYS82C: Intramural sports (playing against teams from your own school)

Code	#	%	Description
1	5914	48.7	did not participate
2	4363	35.9	participated member
3	238	2.0	participated officer
6	18	0.1	{multiple respnse}
8	851	7.0	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS83F: Have you or will you have participated in any of the following outside-school activities this year, either as a member, or as an officer (for example, vice-president, coordinator, team captain)? (MARK ONE EACH)
    - BYS83F: Non-school team sports

Code	#	%	Description
1	6525	53.7	did not participate
2	3640	30.0	participated member
3	210	1.7	participated officer
6	17	0.1	{multiple respnse}
8	992	8.2	{missing}
9	760	6.3	{legitimate skip/not in wave}

Sports participation was measured using BYS82B, BYS82C, and BYS83F from the base year, which measured respondent participation in varsity, intramural, and non-school team sports, respectively. BYS82B, BYS82C, and BYS83F were dichotomously recoded so that all codes of 1 were set to 0 and all codes of 2 or 3 were set to 1. Illegitimate codes (missing, skips, etc.) were left unchanged. A composite sports participation variable, called SPORT, was created using the three aforementioned recodes. For sport, all individuals who had a value of 1 in any of

the three sport items were given a value of 1 while all individuals who did not have at least one value of 1 were given a 0 (excluding illegitimate codes). If all three values were illegitimate, sport was set to NA.

Group Extracurricular Activities

- Youth Groups/Extracurriculars: Have you or will you have participated in any of the following outside-school activities this year, either as a member or an officer?
  - BYS83B: Religious youth groups

Code	#	%	Description
1	6778	55.8	did not participate
2	3347	27.6	participated member
3	293	2.4	participated officer
6	12	0.1	{multiple respnse}
8	954	7.9	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS83C: Hobby clubs

Code	#	%	Description
1	8827	72.7	did not participate
2	1442	11.9	participated member
3	113	0.9	participated officer
6	11	0.1	{multiple respnse}
8	991	8.2	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS83D: Neighborhood clubs or programs

Code	#	%	Description
1	9135	75.2	did not participate
2	1095	9.0	participated member
3	140	1.2	participated officer
6	9	0.1	{multiple respnse}
8	1005	8.3	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS83E: Boys' clubs or girls' clubs

Code	#	%	Description
1	9387	77.3	did not participate
2	876	7.2	participated member
3	86	0.7	participated officer

6	24	0.2	{multiple respnse}
8	1011	8.3	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS83G: FOUR H CLUB

Code	#	%	Description
1	9384	77.3	did not participate
2	743	6.1	participated member
3	188	1.5	participated officer
6	18	0.1	{multiple respnse}
8	1051	8.7	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS83H: Y or other youth groups

Code	#	%	Description
1	8738	72.0	did not participate
2	1405	11.6	participated member
3	106	0.9	participated officer
6	6	0.0	{multiple respnse}
8	1129	9.3	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS83I: Summer programs, such as workshops or institutes in science, language, drama, and so on

Code	#	%	Description
1	8323	68.5	did not participate
2	1907	15.7	participated member
3	116	1.0	participated officer
6	9	0.1	{multiple respnse}
8	1029	8.5	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS83J: Other

Code	#	%	Description
1	5668	46.7	did not participate
2	4156	34.2	participated member
3	398	3.3	participated officer
6	17	0.1	{multiple respnse}
8	1145	9.4	{missing}

- 9 760 6.3 {legitimate skip/not in wave}

Participation in extracurricular group activities was measured using a combination of the BYS83B, BYS83C, BYS83D, BYS83E, BYS83G, BYS83H, and BYS83I items from the base year. These items measured respondent participation in religious youth groups, hobby clubs, neighborhood clubs/programs, Boys'/Girls' clubs, Four H clubs, YMCA groups, or group summer programs, respectively. BYS83B, BYS83C, BYS83D, BYS83E, BYS83G, BYS83H, and BYS83I were dichotomously recoded so that all codes of 1 were set to 0 and all codes of 2 or 3 were set to 1. Illegitimate codes (missing, skips, etc.) were left unchanged. A composite group participation variable, called xtracur, was created using the three aforementioned recodes. For xtracur, all individuals who had a value of 1 in any of the seven group/club items were given a value of 1 while all individuals who did not have at least one value of 1 were given a 0 (excluding illegitimate codes). If all values were illegitimate, xtracur was set to NA.

Parental Interest in School

- Since the beginning of the school year, how often have you discussed the following with either or both of your parents/or guardians? (MARK ONE EACH)
  - BYS36A: Selecting courses or programs at school

Code	#	%	Description
1	1434	11.8	not at all
2	5258	43.3	once or twice
3	4535	37.3	3 or more times
8	157	1.3	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS36B: School activities or events of particular interest to you

Code	#	%	Description
1	927	7.6	not at all
2	3716	30.6	once or twice
3	6602	54.4	3 or more times
6	2	0.0	{multiple respnse}
8	137	1.1	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS36C: Things you've studied in class

Code	#	%	Description
1	1182	9.7	not at all
2	4070	33.5	once or twice
3	5981	49.3	3 or more times

8	151	1.2	{missing}
9	760	6.3	{legitimate skip/not in wave}

Parental interest in school was measured using the BYS36A, BYS36B, and BYS36C items from the base year. These items asked respondents if their parents had discussed school/related subjects them and how frequently. BYS36A, BYS36B, and BYS36C were recoded so that all legitimate scores moved down by one digit: 3s became 2s, 2s became 1s, and 1s became 0s. These items were then combined into a new variable, called meanpints, which recorded the total average score from BYS36A, BYS36B, and BYS36C. This average was calculated as the sum of the legitimate values divided by the total number of legitimate values. As such, illegitimate codes, such as missing or skipped responses, were not included in calculation. If one or more items were missing from the scale, meanpints was set to NA.

Parental Involvement in School

- Since the beginning of this school year, has either of your parents or guardians done any of the following? (MARK ONE EACH)
  - BYS37A: Attended a school meeting

Code	#	%	Description
1	5695	46.9	yes
2	4153	34.2	no
3	1330	11.0	don't know
6	1	0.0	{multiple respnse}
8	205	1.7	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS37B: Phoned or spoken to your teacher or counselor

Code	#	%	Description
1	6373	52.5	yes
2	3507	28.9	no
3	1329	10.9	don't know
8	175	1.4	{missing}
9	760	6.3	{legitimate skip/not in wave}

  - BYS37C: Visited your classes

Code	#	%	Description
1	3168	26.1	yes
2	7353	60.5	no
3	589	4.9	don't know
6	1	0.0	{multiple respnse}

▪ 8	273	2.2	{missing}
▪ 9	760	6.3	{legitimate skip/not in wave}

- BYS37D: Attended a school event such as a play, concert, gym exhibit, sports competition, honor ceremony or science fair where YOU participated

Code	#	%	Description
▪ 1	7256	59.7	yes
▪ 2	3642	30.0	no
▪ 3	317	2.6	don't know
▪ 6	1	0.0	{multiple respnse}
▪ 8	168	1.4	{missing}
▪ 9	760	6.3	{legitimate skip/not in wave}

Parental involvement in school activities was measured using the BYS37A, BYS37B, BYS37C, and BYS37D items from the base year. These items measured whether the respondent's parents had participated in a variety of school activities since the start of the school year; they also asked respondents if their parents had attended school meetings, spoken to school counselors, or visited classes. BYS37A, BYS37B, BYS37C, and BYS37D were all recoded so that previous values of 2 were given the new value of 0. BYS37A, BYS37B, BYS37C, and BYS37D were combined into a new, index variable called pinvsum. A respondent's score in pinvsum is calculated as the sum of their legitimate scores from BYS37A, BYS37B, BYS37C, and BYS37D. For the sake this variable, responses of "DON'T KNOW" were counted as illegitimate, much like missing or skipped indicator values. pinvsum has a maximum value of 4 and a minimum value of 0. If two or more items were missing from the index, pinvsum was set to NA.

Parental Structure

- How often do your parents or guardians do the following? (MARK ONE EACH)
  - BYS38A: Check on whether you have done your homework

Code	#	%	Description
▪ 1	4944	40.7	often
▪ 2	3314	27.3	sometimes
▪ 3	1974	16.3	rarely
▪ 4	1087	9.0	never
▪ 6	1	0.0	{multiple respnse}
▪ 8	64	0.5	{missing}
▪ 9	760	6.3	{legitimate skip/not in wave}

  - BYS38B: Require you to do work or chores around the home

Code	#	%	Description

1	7432	61.2	often
2	2734	22.5	sometimes
3	905	7.5	rarely
4	243	2.0	never
6	5	0.0	{multiple respnse}
8	65	0.5	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS38C: Limit the amount of time you can spend watching TV

Code	#	%	Description
1	1661	13.7	often
2	2769	22.8	sometimes
3	2967	24.4	rarely
4	3899	32.1	never
6	1	0.0	{multiple respnse}
8	87	0.7	{missing}
9	760	6.3	{legitimate skip/not in wave}

- BYS38D: Limit the amount of time for going out with friends on school nights

Code	#	%	Description
1	4787	39.4	often
2	3489	28.7	sometimes
3	1812	14.9	rarely
4	1194	9.8	never
8	102	0.8	{missing}
9	760	6.3	{legitimate skip/not in wave}

Parental discipline was measured using the BYS38A, BYS38B, BYS38C, and BYS38D items from the base year. These items asked respondents how often their parents checked on their schoolwork, required them to do chores, limited their screen time, and limited the amount of time they could spend with friends on school nights. BYS38A, BYS38B, BYS38C, and BYS38D were recoded significantly: Scores of 4 were given a new value of 4; scores of 3 were given a new value of 1; and scores of 1 were given a new value of 3. Scores of 2 and all illegitimate scores were left unaltered. Using these recodes, a new variable, called pstruc, was created to measure the amount of oversight that parents had over respondents. A respondent's score in pstruc is calculated as the sum of their legitimate scores from BYS38A, BYS38B, BYS38C, and BYS38D divided by the total number of legitimate values (values other than missing, skipped items, etc.). If two or more items from the scale were illegitimate, pstruc was set to NA.

APPENDIX B: Boy Scout Oath, Law, Motto, and Slogan

Obtained from the *Boy Scout Handbook, Eleventh Edition* (1998).

Oath: On my honor, I will do my best to do my duty to God and my country and to obey the Scout law. To help other people at all times, to keep myself physically strong, mentally awake, and morally straight.

Law: A Scout is trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean, and reverent.

Motto: Be prepared.

Slogan: Do a good turn daily.

APPENDIX C: Girl Scout Promise, Family Promise, Law, Motto, and Slogan.

Obtained from girlscouts.org and my.girlscouts.org (GSUSA, 2021B and 2021C).

Promise: On my honor, I will try: To serve God and my country, To help people at all times, And to live by the Girl Scout Law.

Law: I will do my best to be honest and fair, friendly and helpful, considerate and caring, courageous and strong, and responsible for what I say and do, and to respect myself and others, respect authority, use resources wisely, make the world a better place, and be a sister to every Girl Scout.

Motto: Be prepared.

Slogan: Do a good turn daily.