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SCHOOL SUSPENSION AND ADOLESCENT FRIENDSHIP NETWORKS: A LONGITUDINAL SOCIAL NETWORK ANALYSIS OF LABELING THEORY

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ABSTRACT

Suspension from school is a relatively common experience for students in the United States, particularly among racial minorities and disadvantaged groups. Prior research examining the effectiveness of suspension in correcting or deterring delinquent behavior finds it associated with increased delinquency and criminal justice involvement, rather than improved behavior. Much of this work relies on labeling theory to explain these effects. Labeling theory suggests an official sanction such as suspension may increase rather than decrease subsequent delinquency if it leads to social exclusion, label internalization, and greater involvement with delinquent peers. These mechanisms are central to labeling theory, but with few exceptions, have rarely been measured in prior research. In this dissertation, I test labeling theory in a sample of sixth to ninth grade students and their same-grade peers. I use a longitudinal peer network approach to measure the mechanisms implied in labeling theory. Results suggest suspension is associated with a loss of friends in school. It is also associated with greater involvement with peers who use substances. Withdrawal from conforming peers and changes in attitudes toward substance use partially explain this association. Finally, I find that students who get suspended are at increased risk of using substances but are at no greater risk of engaging in other delinquent behaviors. Increased involvement with substance-using peers following suspension partially explains this association. Given that racial minority and other disadvantaged youth are more likely to experience suspension, my findings suggest that school policies relying heavily on this form of punishment may be fostering inequality and the perpetuation of adolescent substance use.

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Chapter 1. INTRODUCTION

An extreme emphasis on crime control in the United States has done more than fill our penal institutions; it has also left empty desks in our classrooms. The number of children and adolescents removed from school for disciplinary reasons (suspension or expulsion) each year exceeds the number of incarcerated adults by more than a million (Civil Rights Data Collection 2016; Kaeble et al. 2015). More than a third of young adults in the US were suspended before completing high school (Shollenberger 2015), and risk often begins early. For example, 11% of children born in large cities between 1998 and 2000 were suspended or expelled by age nine (Jacobsen, Pace, and Ramirez 2016). Moreover, racial minorities and children poor children are at disproportionately greater risk (Skiba, Shure, and Williams 2012; Vanderhaar, Petrosko, and Munoz 2015). Two-thirds of African American young adult males were suspended before finishing high school, compared to two-fifths of white males, and disproportionality among females is even greater (Morris and Perry 2017; Shollenberger 2015).

A growing body of research examines the effectiveness of school suspension in correcting or deterring subsequent delinquency, and most finds it associated with increased delinquency and criminal justice involvement, rather than improved behavior (Arum and Beattie 1999; Fabelo et al. 2011; Hemphill et al. 2006; Jacobsen et al. 2016; Kaplan and Johnson 1991; Monahan et al. 2014; Mowen and Brent 2016; Shollenberger 2015; Ramey 2016; Thomas and Bishop 1984). This is alarming because the majority of school sanctions are for minor classroom disruptions and attendance problems (Connecticut State Department of Education 2015; Skiba et al. 2014). This suggests such punishment may facilitate delinquent behavior among students who would have otherwise followed more normative behavioral trajectories. Given that children who are more disadvantaged are at greater risk of being suspended or expelled, school discipline

policies may thus be maintaining or enabling social inequality. School punishment research should seek to understand how suspension influences student behavior and identify the mechanisms of these effects.

Suspension and the Mechanisms of Secondary Deviance

Prior research relies on labeling theory to explain greater delinquency following suspension from school (Children's Defense Fund 1975; Mowen and Brent 2016; Thomas and Bishop 1984). The central hypothesis of labeling theory is that an official sanction may increase rather than decrease an individual's subsequent level of delinquency (Becker 1963; Goffman 1963; Lemert 1951; Tannenbaum 1951). This increase in subsequent delinquency is referred to as "secondary deviance" (Lemert 1967).

Labeling theory lost popularity in the 1980s after harsh criticism for having theoretical constructs that were not well defined and a lack of empirical support (Wellford 1975, Hagan 1974; Hirschi 1980). Paternoster and Iovanni (1989:384) attempted to revitalize the theory by more clearly delineating its basic tenets. They argued that mediating processes implied by labeling theorists are critical and concluded that most prior research had failed "to consider [these] requisite intervening effects [and therefore did] not constitute a valid test of labeling theory." Figure 1.1 presents an adaptation of their conceptual model of secondary deviance. As shown, secondary deviance is contingent on four conditions: (1) the sanction, or labeling event, is made public; (2) the labeled individual is excluded from normal routines and interactions; (3) the labeled individual internalizes the label; and (4) the labeled individual receives support from delinquent others. These conditions, which are the focus of my dissertation, represent key mechanisms of the secondary deviance hypothesis, but they have rarely been measured in prior labeling research. Here, I briefly describe each of these mechanisms as it relates to suspension.

Public Labeling Event. According to Paternoster and Iovanni (1989), the first condition required for secondary deviance to occur is that the labeling event is public. The term "public" implies that people know about it, either because they witnessed it (e.g., a street arrest) or can find information about it (e.g., state criminal records). Unlike criminal justice sanctions, which are specific to a state or other government jurisdiction, suspensions are specific to an institution, and are thus only considered public within the school. Outside of school, a parent or other guardian is generally notified of the suspension, but this is not always the case (Weissman 2015).

Within the school, suspensions always have clear public manifestations, satisfying the requirement of this first condition for secondary deviance. For example, the student may be escorted from class by a school resource officer (Vavrus and Cole 2002). This is followed by a visible absence from the classroom while the student spends a specified period of time (days, weeks, or longer) away from school, in a segregated setting within the school, or at an alternative school. This event marks the student's reputation among teachers, administrators, and peers as one of a "bad kid." In addition, the suspension enters a student's school records and is carried with her from year to year and teacher to teacher, perhaps increasing surveillance over the student and making her behavior more visible to teachers (Ferguson 2001; Weissman 2015). Given the clear public nature of suspension within the school, I consider any suspension as meeting this condition, for the purpose of this dissertation. I focus on variation in the next three mechanisms for explaining secondary deviance following suspension from school.

Exclusion from Normal Routines and Interactions. The second mechanism of secondary deviance is that the labeled individual is excluded from normal routines and interactions. Exclusion may be either institutional or interpersonal. Most prior research has focused on the former, which refers to weakened institutional attachment following an official sanction. For

example, formerly incarcerated individuals often face barriers to employment or housing upon release (Geller and Curtis 2011; Pager 2003; Western 2002). Similarly, suspended students receive a mark on their school records, which may block some opportunities for postsecondary schooling (Balfanz, Byrne, and Fox 2015; Weissman and NaPier 2015).

This institution-focused conceptualization of exclusion is important, but it does not address labeling theorists' heavy emphasis on informal, interpersonal forms of exclusion (Goffman 1963; Link 1987; Link et al. 1989). For example, Lemert (1967:252) describes exclusion following a labeling event as a "process that begins with persistent interpersonal difficulties between the individual and his family, or his work associates and superiors, or neighbors, or other persons in the community." If institutional exclusion refers to a person's weakened or broken bonds to institutions, interpersonal exclusion refers to a person's weakened or broken ties to individuals in her social network. In the case of school suspension, interpersonal exclusion may be most apparent by a loss of friends following punishment. In this dissertation, I examine three processes that labeling theory implies should lead to a smaller social network following punishment: rejection from conforming peers, withdrawal from conforming peers, and separation from school. For labeling theory to be supported, these processes should occur following suspension from school.

Label Internalization. The third condition required for secondary deviance is that the labeled individual internalizes the label. Internalization, or an "alteration of identity" (Paternoster and Iovanni 1989) occurs when an individual who does not self-identify as deviant is consistently confronted with negative stereotypes, increased surveillance, and rejection following a labeling event. The newly labeled individual begins to lose confidence in former self-perceptions, giving place for the label to take hold as a new "negative identity" (Lemert 1967)

and eventually, the leading identity or "master status" (Becker 1963; Schur 1971). Internalization occurs after "confrontation with consistent opinions more numerous and more vocal than [the student's] own" (Paternoster and Iovanni 1989:380). For example, a teacher may lower his expectations or increase surveillance of a student after noticing a suspension on the student's records from a previous year. Classroom peers may follow suit or respond directly to the suspension by avoiding the student or excluding her from friendship circles.

A direct measure of internalization following a formal labeling event would include self-report data on the extent to which the respondent perceives herself as delinquent relative to others (delinquent self-concept) or how she believes she is perceived by others (reflected appraisals) (Ageton and Elliott 1974; Hepburn 1977; Jensen 1972). Other studies measure internalization indirectly, focusing on attitudes toward police or toward delinquent behaviors in general (e.g., how wrong is it for someone to smoke marijuana) (Farrington 1977; Wiley et al. 2013). Ideally, these studies would examine change in an individual's self-concept over time following punishment in order to better capture internalization as a cognitive process, but longitudinal designs are rare. Building on prior labeling research, I examine within-individual change in respondent attitudes toward delinquent behaviors (e.g., how wrong each is for someone of the respondent's age). A labeled adolescent's attitudes should become more accepting of adolescent delinquent behaviors as a consequence of identity change, and this should partially explain the association between suspension and subsequent delinquency.

Supportive Deviant Others. The fourth condition required for secondary deviance is support from deviant others. Paternoster and Iovanni (1989:378) note that following an official sanction, exclusion leads a labeled individual to have weaker ties with non-labeled others and "closer association[s] with supportive deviants." Support from delinquent peers occurs because

the public labeling event signals to others who are involved in delinquency or who are similarly labeled, that the newly labeled individual is now "one of the group." In this way, the label attracts other delinquents seeking inclusion or mutual support in the continuation of their delinquent behavior. A suspension signals to peers at school that the student is a troublemaker. This change in others' perceptions of the student leads to rejection from former non-delinquent friends (as previously described) and new or continued acceptance among delinquent peers. This greater acceptance may be facilitated by removal from the school or placement in a segregated or alternative classroom because it provides greater exposure to other peers who have also been suspended. Consistent with labeling theory, prior research finds juvenile justice labels associated with greater involvement with delinquent peers (Bernburg et al. 2006; Johnson et al. 2004). Furthermore, other research finds that peer delinquency mediates the effect of labeling on subsequent delinquency (Farrington 1977; Wiley et al. 2013).

These prior studies are important for advancing labeling theory but they are limited because they rely on the respondent's perceptions of her peers rather than self-reports of the peers' actual behavior. This approach is widely criticized because it may result in bias due to inaccurate measures of peer behavior (Bauman and Fisher 1986; Haynie, Silver, and Teasdale 2006; Jussim and Osgood 1989; Young et al. 2011). To build on prior labeling research by using measures that are more direct and consistent with the conditions emphasized by labeling scholars, involvement with delinquent peers should be measured directly. For labeling theory to be supported, suspension should lead to greater involvement with delinquent peers and this should partially explain increases in the suspended student's subsequent delinquent behavior.

Objective of This Dissertation

The goal of this dissertation is to build on prior labeling research by testing the secondary deviance hypothesis within the context of school punishment and peer networks. Because expulsion is rare and reserved for the most serious offenses, I focus specifically on suspension, a frequently implemented type of formal social control that deserves greater attention in criminology. I test the secondary deviance hypothesis by (1) examining the association between school punishment and two of the mechanisms of the secondary deviance hypothesis: interpersonal exclusion and involvement with delinquent peers, (2) estimating the effects of school punishment on subsequent delinquent behaviors, and (3) assessing the extent to which these mechanisms, along with outward manifestations of label internalization, explain the association between school punishment and delinquent behavior. In doing so, I advance prior labeling research by relying on a longitudinal social network approach (Wasserman and Faust 1994) for measuring the mechanisms of the secondary deviance hypothesis. This has an important advantage in that it reduces bias by relying on peer self-reports of their own behavior and friendship preferences rather than respondent perceptions of their peers (Young et al. 2011).

Another advantage emerges from the nature of the network data on which I base my analyses. PROSPER is a large-scale longitudinal data set of roughly 11,000 students and their peers in 28 rural communities in Iowa and Pennsylvania, followed from the sixth through the twelfth grades (Spoth et al. 2007). Most of what is known about suspension comes from state-level data or urban school districts (Losen and Martinez 2013). To advance suspension research, I use these rural data and compare my findings of the prevalence of suspension to urban and rural samples from the National Longitudinal Survey of Youth, 1997. I carry out these analyses in

three stand-alone study chapters, each designed to test a component of the secondary deviance hypothesis and together testing the validity of this network approach to labeling theory.

Overview of the Three Studies

Each of my three studies relies on regression techniques for panel data. Where appropriate, I use fixed- and random-effects that allow for examination of within-individual change over time (Allison 2009). This is important for accounting for nonrandom, unobserved differences between students who get suspended and those who don't. In the first study (Chapter 2), I assess the impact of suspension on interpersonal exclusion. I find strong evidence that suspension is associated with a loss of friends in school. Part of this association is explained by lengthy or repeated separations from friends during suspensions, that weaken friendship ties. Beyond separation, this interpersonal exclusion can be explained by withdrawal (discontinuity in the nominations the respondent makes toward peers) and rejection (discontinuity in nominations peers make toward the respondent). In the second study (Chapter 3), I examine the effect of suspension on and involvement with delinquent peers and examine the extent to which exclusion and changes in attitudes toward delinquent behaviors explain this association. I find suspension associated with greater substance use among peers but not delinquency. I also find that withdrawal from conforming peers but not rejection explains a small part of this association. Changes in attitudes toward greater acceptance of delinquent behaviors explain a larger part.

In the third study (Chapter 4), I test the secondary deviance hypothesis by examining the association between suspension and two forms of subsequent delinquent behavior; substance use and delinquency. I then attempt to explain this association with mechanisms of the secondary deviance hypothesis: exclusion from school activities and interactions, changing attitudes toward delinquent behaviors indicative of label internalization, and greater involvement with delinquent

peers. I find strong evidence that suspension is associated with increased substance use but not delinquency. I also find that greater involvement with substance-using peers explains much but not all of this association. Taken together, the three studies suggest partial support for my network approach to labeling theory. My findings are consistent with prior suspension research suggesting suspension may be harmful for youth who experience it. Given that racial minority and other disadvantaged youth are much more likely to experience it, my findings suggest that school policies relying heavily on suspension may be fostering inequality and the perpetuation of delinquent behavior in schools. I conclude in Chapter 5 with a discussion of the implications of my findings for school discipline policy and youth delinquency prevention.

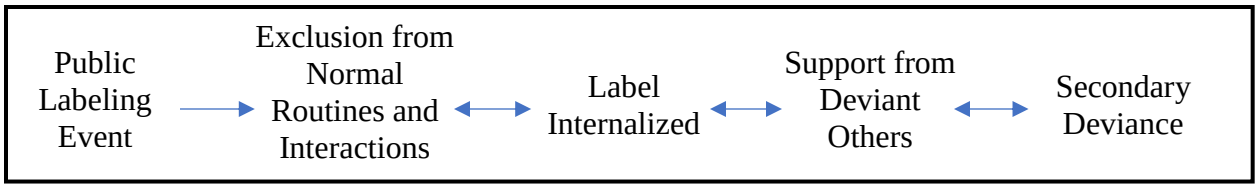

Figure 1.1. Labeling Theory: A Conceptual Model of Secondary Deviance
Source: Adapted from Paternoster and Iovanni (1989:377)

Chapter 2. SUSPENDED NETWORKS: SCHOOL PUNISHMENT AND THE MECHANISMS OF INTERPERSONAL EXCLUSION

An extreme emphasis on crime control in the United States has done more than fill our penal institutions; it has also left empty desks in our classrooms. Over the last four decades out-of-school suspension rates have followed a trend similar to that of adult imprisonment rates (Figure 2.1). While 6.9 million adults live under some type of correctional supervision (Kaeble et al. 2015), each year more than three million children and adolescents are suspended from school, and nearly 3.4 million are suspended in school (removed from class). Recent reform efforts have driven suspension rates downward in some states (Loveless 2017), but overall rates are still often high, particularly for more disadvantaged children.

Heavy reliance on suspension is problematic because it fosters social inequality. It is heavily concentrated among disadvantaged and minority students and involves exclusion from conventional avenues of success and social mobility. Most research on social exclusion has focused on weakened institutional attachment following punishment, but stigmatization theorists also emphasize exclusion that is interpersonal (Becker 1963; Goffman 1963; Lemert 1967). Interpersonal exclusion occurs when punishment severs ties to social support by weakening relationships through long or repeated periods of separation (Massoglia, Remster, and King 2011). It also occurs when individuals stigmatized by prior punishment are rejected by former friends, or withdraw from them out of fear of rejection (Link 1987; Link et al. 1989). Such exclusion limits a student's access to peer support and other benefits of prosocial peers and may even increase the attractiveness of more antisocial peers who have been similarly excluded.

This study is the first to examine whether interpersonal exclusion, defined as weakened or severed ties to friends, occurs following suspension from school. It is also among the first to

empirically assess microlevel changes in individual social networks following any type of official punishment. For this, I use a longitudinal social network approach with a unique dataset of students with self-reported data from their same-grade friends, through middle and early high school. Rejection and withdrawal are each conceptualized as an increased likelihood of losing a friend from the previous year due to suspension in the current year. Rejection is based on changes in friendship preferences of the respondent's peers, and withdrawal is based on changes in the respondent's own friendship preferences. I address concerns with selection and unobserved heterogeneity by using a rich set of control variables and also limiting the sample to students with the highest antisocial behavior and thus greatest risk of suspension. I address potential underreporting of suspension by relying on student- and parent-reports. Results support labeling and other stigmatization theories emphasizing interpersonal exclusion following punishment (Paternoster and Iovanni 1989). Given the benefits of prosocial peers in facilitating positive developmental trajectories (Crosnoe 2000), my findings suggest excessive reliance on suspension may be fostering social inequality.

School Suspension and Social Inequality

Suspension is a common experience for many adolescents. This is not because juvenile crime rates are high, but because suspension is most often in response to minor misbehavior like nonviolent classroom disruptions and attendance problems (Kupchik 2010; Simon 2006; Skiba et al. 2014). Relying on suspension for minor misbehavior is problematic because it may facilitate social inequality. Inequality arises if suspension is both disproportionately concentrated among certain students *and* has harmful effects on their development. Suspension is very unevenly distributed by race and economic disadvantage (Skiba et al. 2012). Before completing high school, nearly 7 in 10 black boys and 5 in 10 black girls are suspended, compared to 4 in 10

white boys and 2 in 10 white girls (Shollenberger 2015). Racial differences appear to be due to structural and school characteristics, more than variation in behavior severity (Skiba et al. 2014).

There is also evidence that suspension is harmful for adolescent development. Although its purpose is to deter future misbehavior by the suspended student and improve the school learning environment, a growing body of research finds just the opposite (Perry and Morris 2014; Way 2011). Students display higher levels of delinquency following suspension and are at increased risk of criminal justice involvement (Mowen and Brent 2016; Ramey 2016; Shollenberger 2015). In addition, lost class time may cause suspended students to fall behind and eventually dropout (Balfanz et al. 2015; Weissman 2015). Given that suspension is most often in response to minor misbehavior, these findings suggest suspension facilitates negative outcomes among youth who may have otherwise followed more normative trajectories.

Suspension and Social Exclusion

Social exclusion, defined as "the structural condition of being shut out from conventional society" (Foster and Hagan 2015:136; Wakefield and Uggen 2010) is generally conceptualized as weakened attachment to important social institutions following criminal justice contact. Often, weakened attachment is due to institutional rejection of those with a criminal history. For example, formerly incarcerated individuals may be barred from housing, legal work, and political participation (Geller and Curtis 2011; Pager 2003; Uggen, Manza, and Thompson 2006). They may also exclude themselves (institutional withdrawal) by avoiding schools, hospitals, or other institutions that keep formal records, out of fear of further apprehension or embarrassment of having their record discovered (Brayne 2014; Lageson 2016).

Suspension also involves institutional exclusion. Not only are students physically removed from their school, they are socially excluded with a mark on their school records.

School personnel who become aware of a student's suspension history may lower their expectations or increase surveillance of the student (Weissman 2015). Sensing or fearing these reactions, previously suspended students may in turn lower their involvement in school activities. These exclusionary processes may be carried on through high school and beyond. For example, many high schools send discipline information to colleges (Weissman and NaPier 2015), and college applications often inquire about suspension history. Indeed, suspension is associated with lower likelihood of school completion or postsecondary enrollment (Balfanz et al. 2015).

Suspension and Interpersonal Exclusion

This institution-focused conceptualization of social exclusion is important for understanding consequences of excessive crime control for social inequality; however, it leaves out another type of exclusion often implied by theorists but rarely examined empirically. Lemert (1967:252) describes exclusion as a "process that begins with persistent interpersonal difficulties between the individual and . . . other persons in the community." Whereas institutional exclusion refers to a person's weakened bonds to institutions following punishment, interpersonal exclusion refers to weakened ties to members of her social network. In the case of school punishment, this may be most apparent by weakened or severed ties to friends in school following suspension. Understanding characteristics of ties that students who are excluded from school have to students who are in school is important because such friends may be important sources of social capital. From them, they may learn such things as appropriate classroom behavior or how to apply to college (Coleman 1988; Stanton-Salazar and Dornbusch 1995). Stigmatization theories suggest three process of peer exclusion may occur following suspension from school: rejection, withdrawal, and physical separation.

Rejection. In stigmatization research, rejection refers to reactions of conforming individuals toward stigmatized others. It occurs when "normals" circumvent encounters with the formerly sanctioned out of uneasiness or to avoid guilt by association (Goffman 1963). It also occurs when interactions with formerly sanctioned persons become less friendly or more restrictive to protect individual or group values (Lemert 1967). Importantly, this rejection is in response to the sanctioned individual and not her behavior (Link et al. 1987). For example, it applies to avoiding interaction with a suspended peer because she is known as a "bad kid," not because her misbehavior is unpleasant or unacceptable. Rejection occurs when a student's friends respond to her suspension by no longer considering themselves to be her friends. Lemert (1951) suggests this loss of friends may be more likely if the suspension is repeated, and other research finds cumulative behavioral effects of suspension over time (Mowen and Brent 2016). Thus, multiple suspensions may lead to an even higher risk of rejection by former friends.

Withdrawal. Withdrawal characterizes the behavior of a stigmatized individual toward others, either out of fear of rejection (Link 1987) or to avoid strained or uncomfortable encounters (Goffman 1963). Generally, people are socialized to have certain expectations about formerly sanctioned individuals, such as that they are dangerous, careless, or lazy (Scheff 1966). These cultural stereotypes take on personal significance when an individual receives a stigmatizing sanction, leading her to anticipate rejection or strained interactions with normative peers. The individual may then withdraw from these networks as a means of defense (Link et al. 1989). Adolescents are socialized by educators and other adults to believe suspension is for troublemakers, and such people do not belong in school (Bowditch 1993). Following suspension, students may withdraw from conforming peers at school, becoming more isolated or seeking new friends more accepting of their stigmatized status. Similar to rejection, withdrawal may be even

more likely after repeated suspensions because multiple sanctions reiterate the "ingrouping and outgrouping" between the suspended student and her normative peers (Lemert 1951).

Separation. Rejection and withdrawal are responses to stigma, but interpersonal exclusion may also occur due to physical separation. Suspension involves removing students from school activities and interactions, or segregating them in an alternative classroom setting. Long or reoccurring separations may weaken relationships with friends at school, independent of the level of stigma. This is because suspended students miss out on shared experiences with other students. In sum, suspension should be associated with a loss of friends from the previous year, and lengthy or repeated separations should each explain part of this effect.

Longitudinal Social Network Approach

To examine processes of interpersonal exclusion, I use a longitudinal social network perspective (Wasserman and Faust 1994). This approach is concerned with change in relationships, or ties, among actors in a network. Ties may represent any kind of interaction or exchange between actors, but my focus is on friendship as the tie most relevant to interpersonal exclusion among adolescents. Using survey data about friendship nominations (e.g., "name your closest friends"), ties may be based on nominations of the respondent toward her peers (outgoing) or nominations of peers toward the respondent (incoming). A critical methodological benefit to this approach is that it provides a more complete picture of student friendship networks by relying on peers' self-reports of friendship preferences rather than respondent preferences only. Virtually all previous work on changes in peers following punishment has relied on respondent perceptions of friendship rather than direct measures (Bernburg et al. 2006; Wiley et al. 2013). Another benefit of my approach the ability to account for other network changes, such

as when students newly enroll, move away, or drop out. This is important because friendship ties may discontinue for reasons other than rejection, withdrawal, or separation.

Study Contributions

My objective is to test whether suspension leads to interpersonal exclusion from normative peers. I do this by examining changes in the likelihood of losing friends following suspension (conceptualized as friendship nominations not repeated the following year). I do not know the reasons for students not repeating a friendship nomination. These changes may occur for many reasons, some of which are likely more common among students at greater risk of suspension. For example, friends may transition schools, drop out, or become involved in an after-school activity that introduces them to new friends. Therefore, it is critical that I account for as many of these other factors as possible. Then, if suspension is still associated with greater risk of losing a friend, interpersonal exclusion may be at play. Some of this exclusion may not be due to processes of stigma—rejection and withdrawal—but may instead by due to long or repeated separations from school that weaken ties to peers. Therefore, I also account for such absences and then cautiously attribute any remaining effect of suspension to rejection and withdrawal.

This work extends prior research on the consequences of excessive crime control for social exclusion and inequality by examining suspension, a type of formal social control that has become a relatively common experience for many adolescents. I also shift the focus dominating prior work from that of diminished institutional attachment, to micro-level processes of interpersonal exclusion. Moreover, I show how longitudinal social network data may be used to observe these processes. The data I use come from PROSPER, a unique dataset of youth living in predominantly rural areas, as they move through middle and high school. Prior research on suspension has focused most heavily on urban areas where students are more racially diverse

(e.g., Losen and Martinez 2013). My rural focus is an important contribution because prior research has produced little knowledge about the distribution or outcomes of suspension among the millions of youth attending school in the rural US. Furthermore, theories of stigmatization may have more relevance in rural areas if students are more sensitive or responsive to suspension because it is less prevalent, or, given the smaller size of rural schools, a larger portion of students are aware of any student's suspension (Hirschfield 2008).

Data and Methods

Data

Data were collected as part of the test of the PROSPER partnership model, a project for delivering community-focused interventions for reducing adolescent substance use and risky behavior (Spoth et al. 2007). The study included all sixth-grade students in 28 predominantly rural public school districts, with 14 each in Iowa and Pennsylvania (about 11,000 students). Two successive cohorts were included, with baseline surveys completed at school, during fall of sixth grade (2002 and 2003). Follow-up surveys were administered in spring the same year and every year after to twelfth grade (eight waves). At each wave, the sample was drawn from the entire student body; thus, students could enter or exit the study at any wave. Students and their parents had the option of opting out at each wave, but participation rates are high (74% at first wave, 79% by twelfth grade). Seventy-three percent of those who participated in the first wave were still participating by ninth grade, and 50% by twelfth grade. Attrition was due more to students leaving the school district than to nonresponse. As part of the in-school survey, students were asked to list the names of their two closest friends and up to five other close friends in their same grade and school. Ninety-six percent of participating students provided nomination data for at least one wave. It total, 82% of nominations were matched successfully to class rosters, with

an average of four names per student-wave. Unsuccessful matches occurred when nominations were not on the class roster or there were multiple plausible names.

Suspension data were collected during additional in-home interviews with a randomly selected subset of the 2003 cohort. These interviews were conducted concurrently with the first five waves of the in-school survey (grades six to nine). Of 2,267 students invited, 980 (43%) participated in at least one wave (about three waves per student). Figure 2.2 shows trends in suspension for these 980 students, relative to a nationally representative sample of rural and urban students in the National Longitudinal Survey of Youth 1997 (NLSY97). Racial minorities (Hispanic or nonwhite) are combined into a single category because there are so few relative to non-Hispanic whites in rural areas (13% in the PROSPER in-home subsample; 17% of rural youth nationally, according to the NLSY97). Prior research has provided little information regarding the prevalence of suspension among rural youth. These data suggest cumulative risk may be about as high among youth in rural areas as it is in urban areas. Also striking is the difference between whites and racial minorities, consistent across samples. About 15% of racial minority youth have already been suspended from school by sixth grade, compared to just over 5% of whites. By about the time they transition into high school, 40% of racial minorities have been suspended, compared to just over 20% of whites.

These 980 in-home participants contributed 6,407 in-school survey observations across eight waves. This excludes follow-up observations of 140 students who continued participating in the in-home survey but moved away from a PROSPER school district. I limit my analytic sample to 2,886 observations in the spring of grades six to nine. I do not include observations from the fall of sixth grade (baseline) because my focus is on a loss of friends from the prior to the current grade. However, data from fall of sixth grade are preserved because explanatory

variables are lagged one year. I exclude 378 cases in which the student did not complete the in-school survey due to absence or refusal. I also drop 164 cases due to nonresponse in the suspension items, resulting in an analytic sample of N=2,373 observations from 766 students. Differences between this sample and other PROSPER participants in their grade are small but suggest more advantage. At baseline, they had attitudes less favorable to substance use, less experience with substances, and lower levels of delinquency than other sixth graders. They were also more likely to make and receive friendship nominations, though they attended somewhat smaller schools. Variables with the most missing data (<14%) represent characteristics of students nominated by the respondent as a friend. I use multiple imputation with chained equations to address missing data. Multivariate analyses rely on 20 multiply imputed datasets.

Variables

Outcome Variables. My outcome of interest is a within-individual discontinuity in friendship nominations from one grade to the next. Friends are defined by respondent nominations of peers (maximum of seven) or peer nominations of the respondent (could be nominated by anyone in grade). I define nomination discontinuity, or friendship loss, in two ways. The first represents the number of friendship nominations the respondent received in the previous grade but not again in the current grade. The second represents the number of friendship nominations the respondent made in the previous grade but not again in the current grade.

Figure 2.3 shows how friendship nominations in my sample change over time. As students advance from sixth to ninth grade, the number of nominations they make or receive in their own grade tends to decline. Students who have been suspended make and receive fewer same-grade nominations than other students. For added insight into how these networks might be changing, Figure 2.3 also includes the number of other-grade and other-school friends students

report to have. Surveys did not begin to collect this information until eighth grade, but these data are nevertheless informative. Although suspended students have fewer friends in their grade, they have more friends out of their grade and in other schools than never-suspended students.

It is also important to note that some students did not nominate anyone in their grade or receive nominations from any peers, or both. Behavioral and health outcomes associated with such isolation is an important topic of prior research (Bearman and Moody 2004; Kreager 2004), but I exclude these cases from multivariate models when necessary because predicting a loss of friendship nominations requires that the respondent had nominations to lose. In models of nominations the respondent makes, I exclude 351 observations from 288 students. In models of nominations the respondent receives, I exclude 217 observations from 147 students (68 observations from 57 students overlap). Importantly, suspended students are more likely to have not made or received nominations. Therefore, my results may not be generalizable to broad populations of suspended students and may instead be limited to suspended students who have friends in school (80% made nominations and 88% received nominations in preceding year).

Ever Suspended. Suspension is indicative of a label carried with the student across years in school. This label should become more salient the more times a student is suspended. In my analytic sample, 155 students or 20% reported experiencing at least one suspension between sixth and ninth grade. Of these, a little more than half reported being suspended more than once, and one-third reported being suspended at least three times. Eight percent were suspended ten or more times, or an average of two or more times per grade (Figure 2.4). Among students who were ever suspended, the median number of suspensions experienced by ninth grade was 2, but rates vary across gender and racial minority status. The rate for females was about 3 suspensions per person between the sixth and ninth grades, compared to 3.8 per person for males, or about

one suspension per male, per year. Nonwhites received 4.2 suspensions per person (more than one per person, per year), compared to 3.4 among whites.

For my multivariate analyses, I collapse these counts into a set of three dummy variables. The first represents the reference category and includes students who have never been suspended by the current grade. The second represents students who have ever been suspended once by the current grade. The third represents students who have ever been suspended more than once by the current grade. I do not have data on whether the student had ever been suspended at the first wave, so analyses assume suspensions in fifth-grade are first-time suspensions. This is a safe assumption given the trends shown in Figure 2.2 (NLSY97 collected retrospectively back to first grade). My measure is also limited because it does not allow me to examine other heterogeneity in suspension experiences (in-school versus out-of-school, length of time, etc.) or other forms of exclusionary school discipline such as expulsion. Some forms may be more or less impactful than others, but few large-scale datasets distinguish between types.

Separation from Friends. Separation is defined as having ever missed seven or more days of school in a single year by the current grade, as reported in the in-school survey. PROSPER lacks data on the length of each suspension or reasons for each absence. I use seven days as an arbitrary cutoff because it is more than would be expected for natural reasons like illness or travel. It also has a stronger correlation with suspension and friendship ties than cutoffs based on other response options (1 or 2 days; 3 to 6 days). Of those who ever missed seven days in a single year, 41% did this at more than one year. These may be at greater risk of weakened ties among school peers. Therefore, I rely on a set of dummy variables. The first group represent the reference category and include those who have never missed seven or more days as the reference

category. The second group represents students who have ever missed seven or more days in a year, and the third group include those who have done this more than once.

Control Variables. To address concerns with selection on observed characteristics, I include a rich set of controls from both the in-school and in-home surveys (full list in Table 2.1). Among these are low school attachment and poor grades, which capture the weakened institutional attachment that may occur simultaneously with interpersonal exclusion. I also include antecedents to suspension, each measured in the year prior to the current grade (one-year lags). These include behavioral characteristics such as past-year delinquency, past-month substance use, risk-seeking behavior, and internalizing behavior problems to ensure that the loss of friends I am capturing is in response to the suspension itself, and not due to the respondent's antisocial behavior. In addition, by controlling for antisocial behaviors that increase risk of suspension, I minimize concerns about reverse causality because effects of a reduction in school friends on suspension would primarily operate through the respondent's own behavior. Other controls include indicators of economic disadvantage, family instability, parenting behaviors, out-of-school social activities, and other reasons for friendship changes in school such as when friends drop out, move away from the participating school district, or choose not to participate in the survey (coding information in Appendix A).

Analytic Strategy

To estimate risk of losing a friend, I rely on generalized estimating equations (Liang and Zeger 1986), an extension of generalized linear models that provides a semiparametric approach to analysis of panel data with a categorical outcome variable. I use a logit link function and binomial probability distribution to estimate change in the odds of losing a friend from one grade to the next. This approach is similar to random-effects logistic regression but estimates a

population-averaged effect rather than the effect of a change in suspension status. A benefit of this approach is that I can account for variation in the number of "trials" (possible friends lost) across multiple student observations.

My analyses examine between-individual differences by suspension status, but they focus on within-individual change in friendship nominations. This should partially address issues with unobserved heterogeneity that may arise in standard regression techniques. To further address concerns with unobserved heterogeneity between ever- and never-suspended students, I re-specify my models among a subsample of observations in which students reported high levels of delinquency or substance use (above the median in their grade) or low achievement (below 25th percentile in their grade). With this approach, I continue to rely on the population-averaged estimates from the generalized estimating equations, but I minimize differences between ever-suspended and never-suspended students by limiting the sample to students with similar propensities for suspension. Therefore, results should more closely approximate effects of a change in suspension status among ever-suspended students.

After estimating the overall association between suspension and the odds of losing a friend, I add all of my control variables to the model to account for selection on observed characteristics. I then add measures of separation to the model to estimate the approximate proportion of the association explained by lengthy or repeated separations due to suspension. Finding suspension associated with a loss of school friends, beyond that due to other factors, would support theories of stigmatization and interpersonal exclusion. Given that suspension is more heavily concentrated among racial minority and other disadvantaged youth, such a finding would support prior research suggesting harsh school discipline policies foster social inequality.

Results

Descriptive Statistics

Table 2.1 presents descriptive statistics for sixth-grade observations. Descriptives are presented for the full sample and by three categories of suspension: never suspended, suspended in sixth grade, and suspended after sixth grade. Independent samples t-tests compare means between ever-suspended and never-suspended students in seventh-grade (i.e., combining the two subgroups of ever-suspended students). Descriptives of the full sample suggest my analytic sample may be more representative of non-Hispanic white and rural Hispanic youth than of other racial minorities. Eighty-eight percent are non-Hispanic white, and of the remaining 12%, about half are Hispanic and only 15% are black. As I have already shown, even in this rural sample, suspension is a relatively common experience, especially for these racial-minority students. Splitting the sample by suspension status reveals additional correlates of suspension.

Students who get suspended have fewer friends on average and are more likely to lose the friends they had in the preceding year. In analyses not shown, I find the likelihood of losing a friend increases in later waves (42% of nominations made in eighth grade are not repeated in ninth grade; 49% for nominations received), but differences between ever- and never-suspended students remain fairly stable. Table 2.1 descriptives suggest ever-suspended students come from more socioeconomically disadvantaged families than never-suspended students. They also display higher levels of delinquency and have friends more involved in antisocial behaviors. Suspended students are clearly more likely to lose friends, but given these differences in behavior and background characteristics even prior to suspension, estimating how much of this difference is due to suspension requires methods for addressing selection influences.

Suspension and Interpersonal Exclusion

I now turn to multivariate results presented in Table 2.2, which begins with results for discontinuity in nominations the respondent makes and then moves to discontinuity in nominations the respondent receives from same-grade peers (full models with controls are presented in Appendix B). The first column on the left represents models that include suspension variables without controls. Moving right, the second column presents models that include all 30 control variables, and models in the third column add variables that capture separation from friends. Finally, the fifth column limits the analytic sample to observations with the most antisocial behavior.

I begin at the top panel of Table 2.2 by examining the association and the respondent's likelihood of discontinuing a friendship nomination *made* in the previous year. Results suggest that in grades when students carry the suspension label, their odds of discontinuing a friendship nomination are, on average, 31% greater [$(e^{0.27}) - 1 \cdot 100$] than the odds among never-suspended students ($p<.01$). This association is stronger among students who have experienced multiple suspensions. Among these, the odds of discontinuing a friendship nomination are 47% greater [$(e^{0.39}) - 1 \cdot 100$] than the odds among never-suspended students ($p<.001$). When control variables are added, the associations for both of these groups remain positive and statistically significant. Among students with one suspension, the odds of discontinuing a friendship nomination are 23% greater [$(e^{0.21}) - 1 \cdot 100$] than the odds among never-suspended students, and among those with multiple suspensions, the odds are 35% greater [$(e^{0.30}) - 1 \cdot 100$].

Next, I add indicators of separation to the model, and the effects of suspension decline only slightly, by 5% for students with one suspension and 9% among students with multiple suspensions. Students who have missed seven or more days of school in a year are no more

likely to discontinue a friendship nomination from the previous year than those who have never had this degree of lengthy or repeated absences. However, among students who have accumulated more than one year of such absences, the odds of discontinuing a friendship nomination are 25% greater [$(e^{0.22}) - 1 \cdot 100$] than the odds for students who have missed fewer than seven days of school per year. Finally, I re-specify these models after retaining only the observations that were most antisocial in the preceding year (n=909). If results to this point have been biased by unobserved differences between ever- and never-suspended students, I would expect the effects of suspension to be rendered null. However, results in the final column of Table 2.2, suggest the opposite—effect sizes increase slightly and remain statistically significant.

I move now to the bottom panel of Table 2.2 to examine the association between suspension and the respondent's likelihood of losing a friendship nomination *received* in the previous year. Without accounting for control variables, the odds of a once-suspended student losing a friendship nomination are 27% greater [$(e^{0.24}) - 1 \cdot 100$] than the odds among never suspended students ($p<.05$). This association is much larger for students carrying the stigma of multiple suspensions: 58% greater than the odds of never-suspended students ($p<.001$). When control variables are added to this model, the effect sizes decline substantially (by 61 % for students suspended once, 43% for students suspended more than once), suggesting that much of this association was driven by selection on observed characteristics. The log odds coefficient for students suspended only once approaches zero, but coefficient for the group carrying multiple suspensions remains positive and statistically significant. Among these students, the odds of losing a friendship nomination are 29% greater [$(e^{0.26}) - 1 \cdot 100$] than the odds among never-suspended students ($p<.05$).

Next, I add indicators of separation to this model. Again, lengthy or repeated separation from friends explains only a small part (8%) of the association between suspension—focusing now only on students with multiple suspensions—and the odds of losing a friendship nomination. For students who have accumulated multiple years of long or repeated periods absence, the odds of losing a friendship nomination are 17% greater [$(e^{0.15}) - 1 \cdot 100$] than the odds among students who have never missed seven or more days in a year or who have only done so once ($p<.05$). Finally, I check the robustness of these results when limiting the analytic sample to student observations with the highest antisocial behavior in the preceding grade (n=947). Again, rather than decreasing in size or statistical significance, the log odds coefficient for students with multiple suspensions increases in size and remains statistically significant.

Additional Sensitivity Analyses

The analyses described thus far have treated suspension as indicative of a label carried with students over time. Given the overall relative rarity of a single suspension event, this approach has also helped to increase the statistical power in my models; however, it is unclear whether this average effect is representative of what occurs in the year a student is first suspended, or if effects diminish over time. Therefore, in supplemental analyses, I re-specify each of the models (one for nominations made, the other for nominations received) that include all controls variables after first removing subsequent observations of suspended students. With these cases removed, my models estimate the association between first-reported suspension (or suspensions, if the respondent was suspended multiple times in the first year she was suspended) and change in the odds of losing a friendship nomination.

Results are presented in Appendix C, for nominations made and nominations received. Due to the loss of statistical power, none of these coefficients is statistically significant, but each

is comparable in size to its corresponding coefficient in Table 2.2. Compared to these earlier results, they show little change in effect size for the once-suspended group (b = 0.19 for nominations made, b = 0.00 for nominations received). They also show little change in effect size for students with multiple suspensions, but only in regards to discontinuity in friendship nominations made by the respondent (b = 0.32). With regards to losing a nomination received, the coefficient for students with multiple suspensions (b = 0.36) is 28% larger than the comparable coefficient presented in Table 2.2 (b = 0.26). Taken together, these results support those presented in Table 2.2. They also suggest the effects of suspension diminish over time for nominations received by the respondent but not for nominations made by the respondent.

As a final set of sensitivity checks, I explore variation in effects of suspension by gender and racial minority status. In these results, which are not shown for reasons of parsimony, I find no statistically significant differences in effects for males relative to females or for racial minorities relative to whites. This suggests effects in my analytic sample are equal across groups.

Discussion

I have sought to empirically examine processes of interpersonal exclusion following punishment. I focus specifically on school suspension, a type of formal social control for children and adolescents that deserves greater attention among social scientists. Suspension is important because it is widely used, heavily concentrated among minority and disadvantaged students, and associated with negative rather than positive behavioral outcomes (Mowen and Brent 2016; Perry and Morris 2014; Ramey 2016). Like criminal justice sanctions (Foster and Hagan 2015; Wakefield and Uggen 2010), one way suspension may foster inequality is by facilitating social exclusion, or weakened attachment to institutions like high school or college. This institutional focus is important, but punishment should also weaken ties to individuals, who

may be important sources of social capital and support. In this paper, I have focused on another form of exclusion often implied by stigmatization theorists (Becker 1963; Goffman 1963; Lemert 1967). What I refer to as interpersonal exclusion involves a severing of interpersonal ties following punishment. This occurs through physical separation, withdrawal, and rejection.

I focus on interpersonal ties most relevant to youth in school by estimating the likelihood of losing a school friend from one grade to the next. I use a longitudinal social network approach, which carries the advantage of more accurate measurement of friendship preferences by relying not only on respondent friendship nominations of peers but on peer nominations toward the respondent as well. I use PROSPER, a unique dataset of school friendship networks in rural communities of Iowa and Pennsylvania. Suspension in this rural sample and among rural youth more broadly is about as prevalent as it is among urban youth nationally.

Several findings emerge that are important for advancing stigmatization research and informing school discipline policy and practice. Students who have been suspended are more likely to discontinue a close friendship with a friend in their grade and school. Converting the results in Table 2.2 to predicted probabilities {exp(logit)/[1 + exp(logit)]} and holding all other control variables at the means, I expect students who have been suspended once to discontinue 46% of their friendship nominations from the preceding grade. I also expect students with multiple suspensions to discontinue 48% of their friendship nominations, relative to 41% among never-suspended students. Furthermore, the respondent's friends in her grade and school are more likely to discontinue a close friendship with her if she has been suspended multiple times. Again, converting my regression results to predicted probabilities, I expect students with multiple suspensions to lose 45% of the friendship nominations they received in the preceding grade, compared to 39% among never-suspended students. These associations are not large but

they are robust to a long list of controls for the student's antisocial and delinquent behavior, family demographics, and other factors that might lead to alterations in friendship preferences. Moreover, they hold up even among the most antisocial youth in my sample, easing concerns with bias due to unobserved differences between ever- and never-suspended students. They also appear to be equal for males and females, and for whites and racial minorities in my sample.

Taken together, these findings suggest that a middle school student with six close friends in his grade can expect to lose two of them by the following year, but if he has been suspended he can expect to lose three. In these analyses, I have not addressed whether these lost students are replaced by new friendships or if the student instead becomes more isolated among peers in school. It may be that rejection by and withdrawal from friends in a student's grade, leads them to develop new friendships with students in other grades or outside their school. This may be especially likely during an in-school suspension, when suspended students from all grades in the school are segregated together, giving students there an opportunity to develop friendships. This is an important avenue for future research. Stigmatization theories suggest that as students are excluded from prosocial peers they may find greater support among antisocial or similarly excluded peers, such as those they meet in an in-school suspension. This may in turn increase their involvement in delinquent peers and facilitate their own delinquent behavior. This would be consistent with prior suspension research finding suspension associated with increased delinquency and criminal justice involvement (Mowen and Brent 2016; Ramey 2016; Shollenberger 2015).

Another important finding is that only a small part of these associations (between 5% and 9%) was due to weakened relationships following lengthy or repeated separations from school. Suspension involves temporarily removing a student from school activities and interactions.

Therefore, suspensions that are long or repeated likely limit shared experiences among friends in school and weaken their relationships. This would be consistent with prior research on another type of official sanction, incarceration (Massoglia et al. 2011). However, incarceration is very different from suspension. It is geared toward adults, involves physical confinement, and may last for months or years. Therefore, my findings offer an important contribution to prior research by examining the role of separation in interpersonal exclusion following suspension. They also provide a model for how future research on incarceration and other forms of punishment may using longitudinal network analysis to examine individual-level responses to stigma. Assuming all selection has been accounted for in my models, I have estimated effects of suspension on peer rejection and withdrawal, processes that stigmatization theorists often imply (Goffman 1963; Lemert 1951, 1967) but which have been rarely measured in observational studies.

These findings are important but are not without limitations. First, although prior research suggests the overwhelming majority of suspensions are for minor classroom misbehavior and attendance problems (Skiba et al. 2014), I do not have information on specific incidents that led to suspensions in my sample. This information is often lacking from large-scale surveys but is important for suspension research, particularly in rural areas where it has rarely been examined. Second, I have focused on suspension because this is the only type of school punishment that respondents were asked about in PROSPER. Another form of exclusionary school discipline that may also lead to exclusion from peers is expulsion. This is a rare event and generally reserved for more serious offenses but deserves greater attention in future research. In addition, the questionnaire wording which refers to suspension as a whole prevents me from examining heterogeneity in suspension experiences. Perhaps in-school suspension is less impactful for peer networks than out-of-school suspension, but few large-scale surveys distinguish between types.

Finally, although my focus on suspension among rural youth is an important contribution to prior research, it also means my results may not generalize to adolescents more broadly. Given the racial composition of my sample, results may be more generalizable to non-Hispanic white students and rural Hispanics than to other racial minorities. Perhaps suspension is more stigmatizing in rural areas where schools are smaller and discipline more visible (Hirschfield 2008). Future work should build on these analyses among youth in urban areas.

In conclusion, my findings suggest suspended students may be at greater risk of losing friends in school. Friends in school may be sources of social capital and emotional support, important for healthy development and success, especially for more disadvantaged students who have limited access to such support elsewhere. Given that racial minority students are at much greater risk of experiencing suspension than other students, this suggests that punitive school discipline policies may be fostering adolescent social inequality. As some states have begun reforming discipline policies and many schools seek alternative methods, they may find greater success focusing on evidence-based methods of inclusion, such as school substance use interventions or restorative justice programs (Owen et al. 2015), rather than exclusion.

Table 2.1. Descriptive Statistics by Suspension in Sixth Grade for Variables Used in Analyses

Explanatory Variable	Never Suspended			Ever Suspended by Ninth Grade				Full Sample	
				Suspended in Sixth Grade		Suspended after Sixth Grade			
	M	*SD*		*M*	*SD*	*M*	*SD*	*M*	*SD*
Friendship nominations lost since last year									
Number of nominations made last year (0 to 7)	3.69	2.57	*	3.44	2.62	2.83	2.41	3.58	2.57
Proportion lost since last year	0.28	0.28	*	0.38	0.31	0.31	0.33	0.29	0.29
Number of noninations received last year (0 to 16)	3.47	2.72	***	2.62	2.40	2.42	2.65	3.29	2.71
Proportion lost since last year	0.38	0.31	***	0.58	0.31	0.42	0.34	0.40	0.32
School suspension (ref: Never suspended)									
Suspended since 6th grade	0.00	0.00	***	0.60	0.49	0.00	0.00	0.05	0.21
Suspended more than once since 6th grade	0.00	0.00	***	0.40	0.49	0.00	0.00	0.03	0.18
Separation from Friends (ref: Never missed 7+ days)									
Missed 7+ days of school per year since 6th grade	0.20	0.40		0.25	0.44	0.22	0.42	0.20	0.40
Missed 7+ days of school more than once since 6th grade	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Male (ref: Female)	0.43	0.50	***	0.76	0.43	0.57	0.50	0.47	0.50
Nonwhite (ref: Non-Hispanic white)	0.10	0.30	**	0.20	0.40	0.21	0.41	0.12	0.33
Weakened institutional attachment									
Low school attachment this year (z-score)	-0.16	0.98	**	0.23	0.97	0.06	1.12	-0.10	1.00
Low academic achievement this year (z-score)	-0.22	0.81	***	0.35	0.88	0.19	0.95	-0.14	0.85
Other controls									
Last yr's outgoing nominations not participating/not in school (log)	0.17	0.34		0.26	0.41	0.20	0.38	0.18	0.35
Last yr's incoming nominations not participating/not in school (log)	0.22	0.36	*	0.11	0.27	0.17	0.35	0.21	0.36
Racial composition of last year's outgoing nominations (z-score)	0.01	1.01	**	-0.26	1.20	-0.34	1.17	-0.05	1.05
Racial composition of last year's incoming nominations (z-score)	0.14	0.80	**	-0.11	1.04	-0.07	0.99	0.10	0.85
School-grade network size last year (6 to 464)	162.52	104.26		172.38	125.56	157.99	98.79	162.83	105.44
Attending new school last year	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Miles to school last year (log)	1.23	0.62		1.19	0.60	1.09	0.54	1.21	0.61
Structured activities after school last year (z-score)	-0.09	1.02		-0.08	0.85	-0.29	0.78	-0.11	0.98
Unstructured socializing after school last year (z-score)	-0.11	0.99	***	0.31	1.13	0.23	1.20	-0.04	1.03
Substance use last year (z-score)	-0.21	0.63	**	0.00	0.90	-0.06	0.80	-0.17	0.68
Delinquency last year (z-score)	-0.15	0.84	***	0.71	1.19	0.27	1.08	-0.03	0.93
Risk-seeking behavior last year (z-score)	-0.04	0.91	***	0.65	1.02	0.12	1.06	0.03	0.95
Internalizing behavior problems last year (log)	0.18	0.19		0.20	0.23	0.20	0.21	0.19	0.19
Parental discipline last year (z-score)	0.01	0.94	***	-0.68	1.20	-0.17	1.01	-0.07	0.99
Parental monitoring last year (z-score)	0.14	0.86	***	-0.43	1.09	-0.03	0.82	0.07	0.89
Parent education last year (z-score)	-0.01	1.02	***	-0.31	1.14	-0.44	0.79	-0.08	1.02
Household income last year (log)	10.77	0.80	***	10.45	0.88	10.34	0.83	10.70	0.82
Parent unemployment last year	0.11	0.31	***	0.18	0.39	0.26	0.44	0.13	0.34
Mother relationship transitions last year (z-score)	-0.02	0.98	*	0.21	1.18	0.16	0.96	0.02	1.00
Children in household last year (0 to 8)	2.44	1.03		2.75	1.32	2.32	0.87	2.45	1.04
Mother depression last year	0.23	0.42	***	0.40	0.49	0.39	0.49	0.26	0.44
Religiosity last year (z-score)	0.08	1.01	***	-0.14	1.04	-0.37	1.02	0.02	1.02
Years in current residence last year (z-score)	-0.15	0.91	***	-0.42	0.87	-0.47	0.81	-0.21	0.90
Community cohesion last year (z-score)	0.01	1.04	**	0.21	1.14	0.39	1.11	0.07	1.06
Students	561			55		72		688	

Notes: PROSPER. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in the in-school survey, valid data on suspension, no suspension reported at baseline (fall of sixth grade). Results are based on the first of 20 multiply imputed datasets. Independent samples t-tests compare ever- to never-suspended students. ***p<.001; **p<.01; *p<.05 (two-tailed)

Table 2.2. Change in Log Odds of Losing a Friendship Nomination Associated with Suspenison: Logistic Coefficients from Binomial Generalized Estimating Equation Analyses

Model	Suspension		Add Control Variables		Add Separation from Friends		High Antisocial Observations	
	Logit	*SE*	*Logit*	*SE*	*Logit*	*SE*	*Logit*	*SE*
Friendship Nomination Made								
School suspension (ref: Never suspended)								
Suspended since 6th grade	0.27	(0.09) **	0.21	(0.09) *	0.20	(0.09) *	0.25	(0.11) *
Suspended more than once since 6th grade	0.39	(0.09) ***	0.30	(0.10) **	0.28	(0.10) **	0.33	(0.11) **
Separation from friends (ref: Never missed 7+ days)								
Missed 7+ days of school per year since 6th grade					0.05	(0.07)	0.01	(0.09)
Missed 7+ days of school more than once since 6th grade					0.22	(0.07) **	0.28	(0.09) **
Observations	2,022		2,022		2,022		909	
Students	697		697		697		442	
Friendship Nomination Received								
School suspension (ref: Never suspended)								
Suspended since 6th grade	0.24	(0.09) *	0.09	(0.10)	0.09	(0.10)	0.18	(0.11)
Suspended more than once since 6th grade	0.46	(0.10) ***	0.26	(0.11) *	0.24	(0.11) *	0.31	(0.12) *
Separation from friends (ref: Never missed 7+ days)								
Missed 7+ days of school per year since 6th grade					0.08	(0.06)	0.09	(0.10)
Missed 7+ days of school more than once since 6th grade					0.15	(0.08) *	0.17	(0.10)
Observations	2,156		2,156		2,156		947	
Students	735		735		735		465	

Notes : PROSPER. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in the in-school survey, valid data on suspension, no suspension reported at baseline (fall of 6th grade). Models of friendship nominations made exclude 351 observations of students that did not make a nomination last year. Models of friendship nominations recevied exclude 217 observations of students that did not receive a nomination last year. Control variables not shown include current grade, gender, race, low school attachment, low academic achievement, number of friends last year, last year's friends not participating in survey or not in school, racial composition of last year's friends, school-grade network size last year, attending new school last year, miles to school last year, structured activities after school last year, unstructured socializing last year, substance use last year, delinquency last year, risk-seeking behavior last year, internalizing behavior problems last year, parental discipline last year, parental monitoring last year, parent education last year, household income last year, parent unemployment last year, mother relationship transitions last year, children in household last year, mother depression last year, religiosity last year, years in current residence last year, and community cohesion last year. High antisocial observations include those with higher than median levels of substance use or delinquency or school grades in the bottom quartile last year. Results are combined across 20 multiply imputed datasets.
***p<.001; **p<.01; *p<.05 (two-tailed)

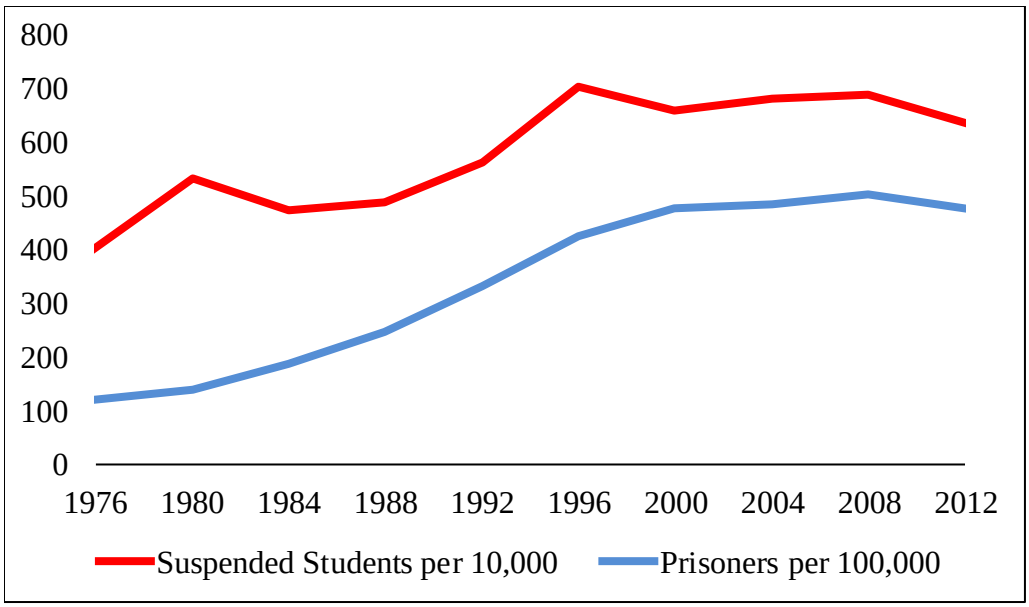

Figure 2.1. Out-of-School Suspension and Adult Imprisonment

Notes : Suspension data based on author's estimation using data from the Civil Rights Data Collection; Imprisonment data from the Bureau of Justice Statistics

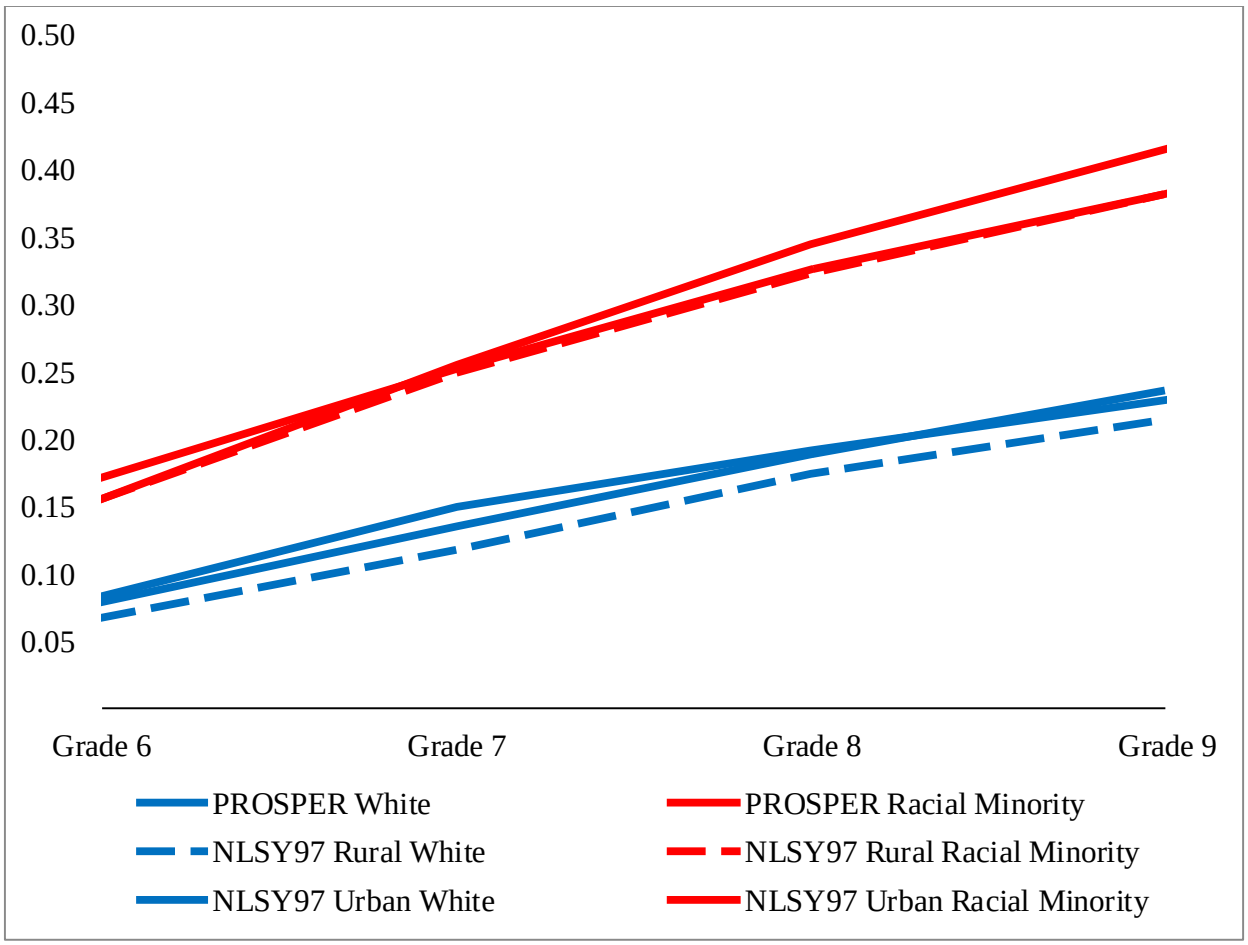

Figure 2.2. Cumulative Risk of Suspension by Racial Minority Status in PROSPER and the National Longitudinal Survey of Youth, 1997 Cohort.

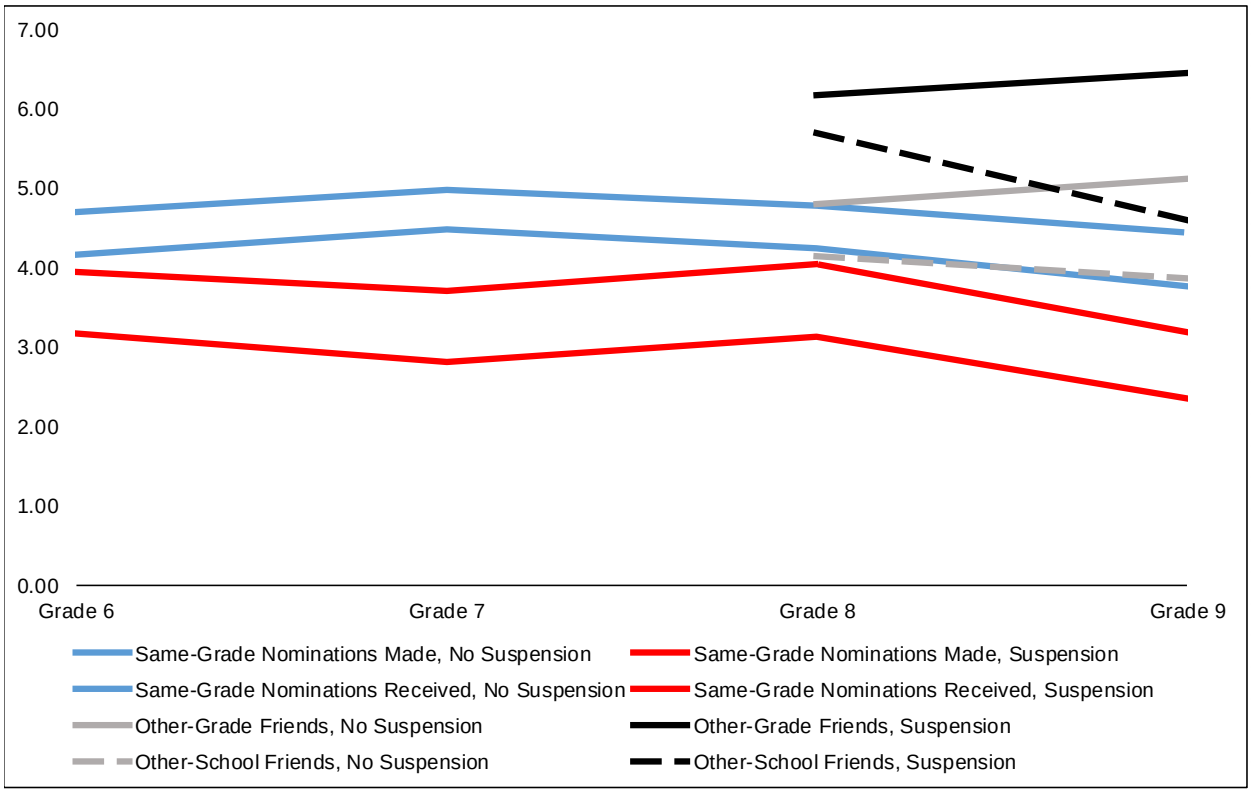

Figure 2.3 Friendship Nominations Made and Received by Respondent, Grades Six to Nine

Notes: PROSPER. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in the in-school survey, valid data on suspension, no suspension reported at baseline (fall of sixth grade). N=2,373 student-grade observations.

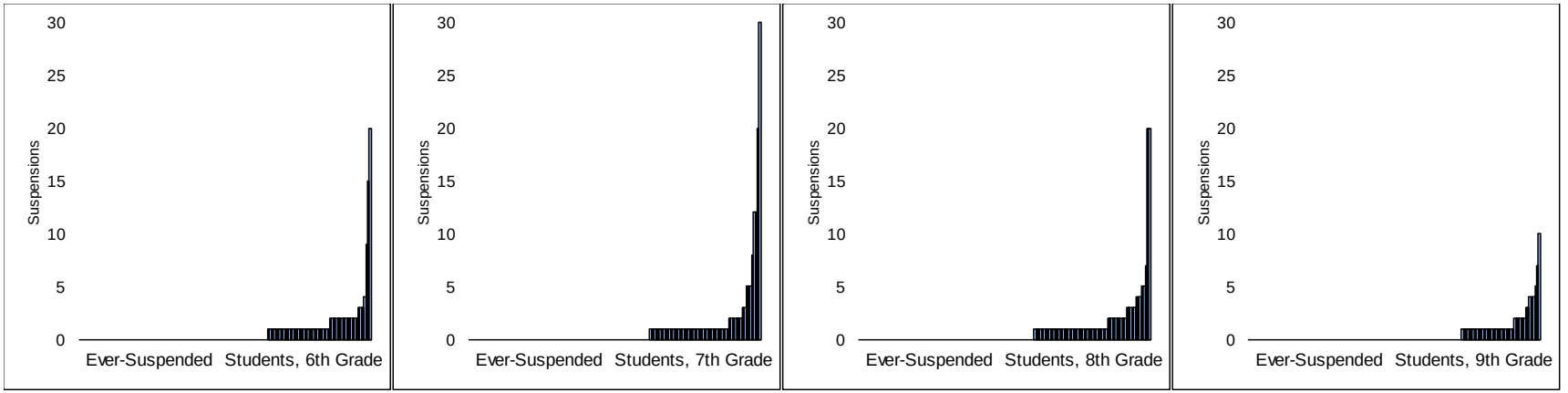

Figure 2.4. Friequency of Suspensions among Ever-Suspended Students, by Grade

Notes : Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in in-school survey, valid data on suspension, no suspension reported at baseline. Only n=155 ever-suspended students are shown here.

Chapter 3. PUNISHMENT AND PEERS: ESTIMATING AND EXPLAINING THE ASSOCIATION BETWEEN SCHOOL SUSPENSION AND INVOLVEMENT WITH DELINQUENT PEERS

Criminological research has produced strong and consistent evidence that peers influence adolescent delinquent behaviors (Giordano 2003; Haynie 2001, 2002; McGloin 2009; Osgood and Anderson 2004; Osgood et al. 2013; Thornberry et al. 1994; Warr and Stafford 1991). Thus, a critical task for researchers is to identify factors leading to greater involvement with delinquent peers (Dishion et al. 1991; Siennick, Widdowson, and Ragan In press). Schools structure adolescent interactions and relationships through classroom assignment, extracurricular activities, and opportunities for friendships that would not develop otherwise. One school experience that may be especially relevant is suspension. More than a third of young adults in the United States were suspended by the time they finished high school, and rates are particularly high among disadvantaged and racial minority youth (Losen 2015).

To understand the association between suspension and involvement with delinquent peers, I draw on competing hypotheses from labeling, deterrence, and selection perspectives. The "supportive deviant others" hypothesis of labeling theory suggests suspension may increase involvement with delinquent peers if it leads to rejection or withdrawal from normative peers and the internalization of a deviant label (Paternoster and Iovanni 1989). On the other hand, from deterrence theory, one might surmise that suspension reduces peer delinquency. In line with this perspective, qualitative research finds sanctioned adolescents using "selective involvement" with old friends in order to avoid another apprehension (Abrams 2006). In contrast to both these views is a perspective that emphasizes selection, or nonrandom differences between students who experience suspension and those who don't. Forces leading to involvement with delinquent

peers prior to suspension likely operate after suspension as well. Thus, the association between suspension and involvement with delinquent peers should be rendered null when accounting for these other student characteristics.

In testing these three competing hypotheses, I build on prior punishment research by steering away from analyses of secondary deviance to perform one of the first empirical assessments of the association between school suspension and peer delinquency. I use PROSPER, a longitudinal dataset of same-grade friendship networks in rural schools. These network data allow me to avoid bias that would be introduced by relying on respondent perceptions of peer behavior rather than self-reports (Bauman and Fisher 1986; Young et al. 2011). In support of labeling theory and the "supportive deviant others" hypothesis, my findings suggest that by relying on suspension, schools may be facilitating students' greater involvement with substance-using peers, an important predictor of their own behavioral trajectories.

Antecedents of Peer Delinquency

Undeniably, peers play a role in shaping adolescent trajectories of crime and delinquency. They facilitate opportunities for such behaviors (Osgood et al. 1996) and have direct influences through association and learning processes (Burgess and Akers 1966; Sutherland 1947).

Given strong and consistent support for these effects (Dishion, Andrews, and Crosby 1995; Haynie 2001; McGloin 2009; Osgood et al. 2013), other research aims to identify antecedents of peer delinquency. Much of what explains greater involvement among delinquent peers is selection; delinquent adolescents choose friends who are also delinquent or who are similar in terms race, gender, and other attributes correlated with delinquency (McPherson, Smith-Lovin, and Cook 2001; Shrum, Cheek, and Hunter 1988). Other characteristics shape adolescent relationships and interactions. In particular, schools structure peer interactions and

friendships through features like geographic boundaries, classroom assignment, and activities, with impacts that may be beneficial or harmful (Dishion et al. 1991; Kreager 2007; Siennick et al. In press; Tropp and Prenovost 2008). One feature of schools that may influence adolescent peer interactions is their methods for formally addressing student misbehavior. I focus on suspension which has become a common experience, particularly for disadvantaged and minority youth growing up in the US.

School Suspension in the United States

School suspension rates have paralleled adult imprisonment rates since the 1970s (Figure 3.1). Even though reform efforts appear to be driving rates down in recent years (Loveless 2017), 35% of adults born in the early 1980s were suspended by the end of high school. Rates are particularly high among racial minority and disadvantaged youth. Two-thirds of black males in this same cohort were suspended, compared to 2 in 5 white males (Shollenberger 2015).

Suspension is a type of formal social control that temporarily removes a student from school interactions and activities. Similar to criminal justice involvement, it may include police contact, a disciplinary hearing, and administrative decisions about the length and degree of sanction to be administered (Bowditch 1993; Vavrus and Cole 2002; Weissman 2015). This includes in-school suspension (segregated setting within school) or out-of-school suspension (removal from school). Suspension marks a student's school records, signaling to educators that the student is a troublemaker. This may increase surveillance over the student, augmenting risk of further apprehension (Weissman 2015) or blocking opportunities to postsecondary education (Balfanz, Byrnes, and Fox 2015; Weissman and NaPier 2015).

Perhaps for these reasons, suspension is associated with subsequent delinquency and criminal justice involvement (Fabelo et al. 2011; Monahan et al. 2015; Mowen and Brent 2016;

Ramey 2016; Shollenberger 2015). These findings are troubling because state-level data suggest the overwhelming majority of suspensions are for minor classroom disruptions and attendance problems, rather than violence or substance use (Skiba et al. 2014). This implies suspension may foster delinquency among students who would have otherwise followed more normative behavioral trajectories. Especially given that disadvantaged youth are at greater risk, these findings imply a clear need for investigation of the causal pathways of these criminogenic effects (Sampson 2011). Such pathways may be better understood with information on how suspension affects school interactions, such as involvement with delinquent peers. To understand the association between suspension and delinquent peers, I draw on competing hypotheses from labeling, deterrence, and selection perspectives.

Three Competing Hypotheses

Labeling: Supportive Deviant Others

In criminology, labeling theory is most often applied to analyses of criminal behavior following an official sanction (Chiricos et al. 2007; Thomas and Bishop 1994). The theory responds to deterrence perspectives (Pratt et al. 2006) by suggesting some forms of punishment may amplify rather than reduce criminal behavior. However, "secondary deviance" (Lemert 1967) is not the only hypothesis that emerges from labeling theory. In particular, the "supportive deviant others" hypothesis suggests that punishment may lead to increased involvement with delinquent peers, due to exclusion from normative peers and internalization of the delinquent label. Prior research finds evidence that involvement with delinquent peers mediates the effect of an official sanction on subsequent delinquency (Bernberg et al. 2006; Wiley et al. 2013). I build on these studies by steering away from the secondary deviance hypothesis to examine the association between punishment and involvement with delinquent peers. I also explore the

mechanisms of this association implied by labeling theorists. These include exclusion from normative peers and a shift in values due to label internalization.

Exclusion from Normative Peers. Labeling theorists describe two major processes of interpersonal exclusion following punishment: withdrawal and rejection. Withdrawal characterizes the behavior of a suspended student toward normative peers, out of fear of rejection (Link 1987) or to avoid uncomfortable encounters. Rejection takes place when normative peers avoid or become less friendly with suspended students out of uneasiness, to avoid guilt by association (Goffman 1963), or to protect their own values. Children are socialized to believe suspension is for troublemakers who don't belong in school (Bowditch 1993). As a result, they may withdraw from or be rejected by conforming peers, becoming more isolated or seeking friends more accepting of their new label (Dishion et al. 1991), such as those the student meets in an in-school suspension or on the street during out-of-school suspension.

Label Internalization. Internalization occurs when a student who does not identify as delinquent is consistently confronted with negative stereotypes and exclusion, so much so that she loses confidence in how she perceives herself, giving place for a new delinquent identity to take hold (Lemert 1967). Most suspended students do not likely consider themselves delinquent prior to their suspension because most suspensions are for classroom disruptions rather than delinquent behavior (Connecticut Department of Education 2012; Skiba et al. 2014). However, a teacher may lower his expectations or increase surveillance of a student after noticing a suspension on file from a previous year. Classroom peers may follow suit or respond directly, by avoiding the student or excluding her from friendship circles. The student may at first resist seeing herself as delinquent, but after consistent confrontation, begin to perceive herself as she believes others perceive her (Matsueda 1992). In doing so, she may discover "there are rewards

as well as penalties deriving from such [an identity]" (Lemert 1951:77) and may take on more deviant attitudes, viewing delinquent behaviors as justified or rewarding (Wiley et al. 2013).

Deterrence: Selective Involvement

In contrast to labeling theory, deterrence theory suggests a student experiencing harsh punishment may refrain from deviant behavior to avoid another apprehension (Pratt et al. 2006; Stafford and Warr 1993). An extension of this idea is that harsh punishment also deters an individual from involvement with delinquent peers to avoid another sanction. Suspension is a harsh form of punishment because, even though it is used primarily for minor infractions, it excludes students from classroom activities, with potentially serious academic and social consequences (Bowditch 1993; Balfanz et al. 2015; Mowen and Brent 2016; Weissman 2015; Weissan and NaPeir 2015). Suspension may be severe enough to deter students from maintaining relationships with former friends in order to avoid another punishment. Qualitative findings suggest one strategy juvenile offenders use to avoid recidivism is "selective involvement" with old friends (Abrams 2006). Selective involvement refers to adolescent efforts to avoid further apprehension by cutting ties with old friends involved in delinquent behavior, especially if being involved with those friends is part of what led to the initial sanction. If suspension leads to selective involvement, it should be associated with subsequent declines in involvement with delinquent peers, and withdrawal from former friends should explain this association.

Selection: Continuation of Peer Selection Influences

My third hypothesis is that suspension has no effect on a student's involvement with delinquent peers, and that any association is due to preexisting characteristics (observed or unobserved) that lead some students to become friends with more delinquent peers. These may be genetic traits, personality characteristics, or indicators of low self-control that are correlated

with suspension (Beaver, Wright, and DeLisi 2008; Gottfredson and Hirschi 1990; Moffitt 1993). Thus, inclinations to become involved with delinquent peers prior to suspension may operate equally after suspension as well, resulting in null effects on peer delinquency after accounting for selection influences.

Longitudinal Social Network Approach

I use a longitudinal social network approach to examine the association between punishment and peers (Wasserman and Faust 1994). This approach is concerned with change in ties among actors. In particular, I focus on friendship ties, which are defined by preferences of the respondent toward peers (outgoing ties) or by preferences of peers toward the respondent (incoming ties). This approach is ideal because it minimizes potential measurement bias by relying on self-reports of peer behaviors and friendship preferences at each observation, rather than actors' perceptions of their peers (Young et al. 2011). Relying on peer self-reports allows researchers to differentiate the behaviors and attitudes of specific friends.

Most previous work on labeling and peers has relied on respondent perceptions rather than direct measures of peer delinquency (e.g., Bernberg et al. 2006). A network approach allows for operationalization of the mechanisms of labeling theory that have been difficult to measure historically. Withdrawal and rejection from normative peers may be measured by a loss of friendship nominations from the previous year. Specifically, withdrawal would occur when a suspended student no longer nominates normative peers she nominated as a friend in the previous year. Rejection would be just the reverse—normative peers from the previous year no longer nominating the respondent as a friend now that she has been suspended.

Study Contributions and Hypotheses

Peers play a critical role in adolescent behavioral outcomes, and involvement with delinquent peers is a strong correlate of adolescent delinquent behavior (Giordano 2003; Haynie 2001; McGloin 2009; Osgood et al. 2013). With these findings in the foreground, I move beyond an examination of adolescent delinquency to assess an important but understudied antecedent of involvement with delinquent peers. In particular, school suspension has emerged as a common form of punishment among adolescents in US, particularly among minorities and the disadvantaged (Perry and Morris 2014; Shollenberger 2015; Skiba et al. 2014). I test three competing hypotheses about the impact of such punishment on involvement with delinquent peers. First, the "supportive deviant others" hypothesis predicts a positive association between suspension and involvement with delinquent peers that is explained by exclusion from normative peers and internalization of the ascribed label. Second, the "selective involvement" hypothesis predicts a negative association between suspension and involvement with delinquent peers that is explained by withdrawal from prior delinquent peers. Third, the selection hypothesis predicts a positive association between suspension and delinquent peers that is due to differences in the student's own behavior or other correlates of suspension, either observed or unobserved.

To test these hypotheses, I rely on PROSPER, a unique dataset of same-grade friendship networks as they are tracked through middle and high school. I make an important contribution to prior labeling research through my operationalization of changes in interpersonal interactions and relationships following punishment. A peer network approach enables the capturing of such "requisite intervening effects" that are often overlooked in research examining criminogenic effects of punishment (Paternoster and Iovanni 1989:384; Sampson 2011). Furthermore, my examination of school suspension among rural students is an important contribution beyond prior

research on school punishment because most studies focus on students in urban areas where there is often more variation in race and socioeconomic status.

Data and Methods

PROSPER Data and Suspension in Rural Schools

PROSPER is a longitudinal survey dataset collected from two successive cohorts (2002 and 2003) of all sixth-grade students (about 11,000) in 28 rural public school districts in Iowa and Pennsylvania (see Spoth et al. 2007 for sampling information). The sample was drawn from the entire student body at each wave, so that incoming students entered and departing students exited the study at each wave. Students completed baseline surveys in school during fall of sixth grade. The completed follow-up surveys in spring of the same year and every year after to twelfth grade, for a total of eight waves. Students or their parents could opt out at any wave, but participation was high. Most attrition was due to students leaving the school district, rather than refusal (Appendix D). The school survey asked students to list the names of up two of their best friends at their school and in their same grade and up to five other close friends, also in their grade and school. All but 4% made at least one nomination, and 82% were matched to a name on the school rosters.

Interviewers collected suspension data as part of a longer interview at each of the first five waves of the study (grades six to nine). These took place in the homes of 2,267 randomly selected students in the 2003 cohort. Forty-three percent (980 students) participated in this in-home survey in at least one wave (about three waves per student). By spring of sixth grade, 8% of whites and 16% of racial minorities had been suspended, but by ninth grade, this jumps to more than 20% of whites and more than 40% of racial minorities. Figure 3.2 shows the percent of students ever suspended by ninth grade, and how these figures compare to those of rural and

urban youth of the National Longitudinal Survey of Youth 1997 (NLSY97). Risk of suspension among PROSPER youth in rural Iowa and Pennsylvania appears to be about has high as it is among rural students in a national cohort about a decade older (weighted to account for the oversampling of racial minorities). Strikingly, suspension rates in both rural samples are about as high as urban rates in the NLYSY97, suggesting risk of suspension by ninth grade in PROSPER is broadly representative of rates in the US.

Analytic Sample

To control for characteristics associated with suspension and preserve the appropriate temporal ordering among my variables, I lag control variables one year prior to suspension and thus limit my analyses to in-home survey observations collected after the baseline wave. This includes 2,819[1] observations in the spring of grades six, seven, eight, and nine. From these, I exclude 259 observations of students who did not participate due to absence, refusal, or incapacity. To ensure appropriate temporal ordering, I exclude an additional 104 observations from 36 students who were suspended in the year leading up to the baseline survey. Finally, I remove 180 observations due to nonresponse in the suspension items, resulting in an analytic sample of N=2,276 cases (72% of in-home follow-up survey observations) from 730 students (about three waves per student). Students in this analytic sample have fewer behavioral problems than those of the larger PROSPER project, which disproportionately excludes suspended students from my multivariate results. Limiting the sample in this way is necessary because an adequate test of my three hypotheses requires a strong research design (temporal ordering, adequate controls, etc.). I therefore, maximize internal validity at some cost to external validity.

[1] This includes 15 cases from students who did not participate in the in-home survey at a given wave but had suspension data carried over from a previous wave.

Despite the removal of these suspended students, for some students suspension remains a relatively frequent experience.

Measures

Outcome Variables. I examine two major delinquent behaviors of the respondent's friends: past-month substance use and past-year delinquency. Each is based on the mean self-reported behavior across friends. Substance use is based on responses to four items about the frequency of use in the past month: smoking cigarettes, drinking alcohol, getting drunk, and smoking marijuana. Responses range from 1 = not at all to 5 = more than once per week. Delinquency is based on responses to 12 items about the frequency of specific acts in the past 12 months. These acts are of varying degrees of severity, such as theft, vandalism, fighting, skipping school, running away from home, and getting picked up by police. Responses range from 1 = never to 5 = five or more times. Items for each scale are combined using item response theory (IRT) to avoid skewness. This IRT method transforms discrete items into an equal-interval scale approaching a normal distribution (Osgood, McMorris, and Potenza 2002). Each measure of friends' behavior is based on the mean IRT across friends. For ease of comparison, I standardize each mean IRT measure (z-scores) across waves, within the analytic sample.

Friendship ties that contribute to these measures are current friends at the time of the survey. These ties are undirected, meaning they are based on either incoming or outgoing nominations (friend to respondent or respondent to friend), with reciprocated ties counted only once. Figure 3.3 presents average levels of peer substance use and delinquency from sixth to ninth grade. As shown, students who get suspended have friends who are more involved in substance use and delinquency. Moreover, involvement with such peers increases for all students over time, but more rapidly for ever-suspended, so that ever- and never-suspended students

diverge in involvement with delinquent peers over time. The choice for delinquent friends may be driven by preferences of the respondent or the peers. Thus, I supplement these measures with separate measures for outgoing and incoming ties in my analytic models.

Explanatory Variable. Suspension is a stigmatizing experience and may be subject to underreporting. To address this concern, I rely on in-home survey reports from the youth and their participating parents about whether the youth was suspended in the past 12 months and the number of times. Any report of a suspension, consistent or not with other reporters, is counted in the affirmative. In addition, I use the highest number of suspensions reported by any single reporter as the number of suspensions the respondent experienced in a given year. Overall, 155 students (20% of analytic sample) reported to have experienced 502 suspensions between the sixth and ninth grades (nearly one per person, per year), with the highest rates in seventh grade. Just over half were suspended more than once, and one-third were suspended more than twice. I also find considerable variation by gender and racial minority status (see Appendix E). Consistent with prior research on suspension among girls (Morris and Perry 2017), nonwhite females received the highest suspension rate by far: 7 suspensions per person, compared to 2 per white female, and 3 per white male and nonwhite male.

These differences in the frequency of suspension are important, but I use a binary measure of suspension in my multivariate models in order to capture average effects over time. Conceptualizing suspension as an indicator of a label that is carried with the student, this variable is coded 1 at the wave in which it is observed and every wave after. Despite the benefit of having data from multiple reporters, my measure of whether the respondent was ever suspended is limited because it does not allow for an examination of heterogeneity in suspension other or school punishment experiences. For example, like most large-scale studies of students,

PROSPER does not include information on the type (in-school versus out-of-school) or length of each suspension experience. Suspension may be more likely to lead to withdrawal or rejection from normative peers if it involves removal from school grounds or is especially lengthy because it limits the potential to develop or strengthen friendships through shared experiences with conforming students who are in school. I also lack data on expulsion from school, which is generally reserved for more serious offenses and would involve longer a longer period of separation from school activities and interactions.

Mediating Variables

Exclusion from Normative Peers. Taking advantage of the benefits of a network approach for measuring changes in peer relationships, I include two measures of exclusion from normative peers: withdrawal and rejection. Each is a proportion representing change in the count of specific friendship nominations over time. Withdrawal represents the proportion of normative friends whom the respondent nominated in the prior year (outgoing ties) but did not nominate again in the current year. Rejection represents the proportion of normative friends who nominated the respondent in the preceding year (incoming ties) but not again in the current year. I include two versions of each measure: one that defines "normative" as abstinence from substance use in the past month (respondent's friend reported "not at all" to all four substance use items) and another defining normative as having avoided any delinquent behavior in the past 12 months (respondent's friend reported "never" to all 12 delinquency items). However, the two resulting proportions for withdrawal are highly correlated (r=.80), as are the two for rejection (r=.81). Therefore, I standardize each proportion measure and sum those representing each type of exclusion, resulting in two final measures, one for withdrawal and another for rejection. Because

these measures focus on a loss of friends, cases in which students had no nominations in the preceding wave are excluded from mediation analyses (details reported with results).

Attitudes Toward Adolescent Delinquent Behaviors. An ideal measure of label internalization would capture change in reflected appraisals or a deviant self-concept (Matsueda 1992; Thomas and Bishop 1994). PROSPER does not include items for such measures, but it includes rich indicators of deviant attitudes, similar to those used in prior labeling research (Farrington 1977; Wiley et al. 2013). These measures are limited because they do not measure a delinquent self-concept directly, but they have an important advantage over most prior studies by focusing on within-individual change. This is important because internalization implies a change in identity status from conforming to delinquent.

I include two measures of attitudinal change. The first captures attitudes toward adolescent substance use. It is based on combining three subscales: morality of use, expectations about use, and intentions to refuse opportunities for use. Morality of use is based on the question, "How wrong do you think it is for someone your age to do any of the following things?" Items include smoking cigarettes, drinking alcohol, and using marijuana (1 = not at all wrong to 4 = very wrong) (alpha=.87). Expectations about use is based on the respondent's level of agreement with each of 11 statements about perceived benefits of smoking, drinking, and using marijuana. Examples include "makes you look cool," "lets you have more fun," "a good way of dealing with your problems" (1 = strongly agree to 5 = strongly disagree) (alpha=.95). Refusal intentions is based on responses to, "How likely are you to say 'no' when someone tries to get you to . . ." Items include smoke cigarettes, drink alcohol, use marijuana, use hard drugs, and sniffing paint or glue (1 = Definitely would not say "no" to 5 = Definitely would say "no") (alpha=.84). Each of the subscales is standardized around the mean for the first cohort of the larger PROSPER

sample in seventh grade. The mean of the resulting scales (alpha=.81) is then standardized using z-scores, and reverse-coded to indicate greater acceptance of substance use behaviors.

The second measure captures attitudes toward other adolescent delinquent behaviors. It is based on the mean of 18 items referring to the question, "How wrong do you think it is for someone your age to do the following things?" (1 = not at all wrong to 4 = very wrong). Examples include general delinquent acts of varying severity such as skipping school, stealing, hitting someone with the intent to hurt them, using a weapon to take something by force, doing things at school to get into trouble, and lying to teachers. Items are standardized (z-scores), combined into a mean composite (alpha=.91), and then reverse-coded to represent a single scale with higher values indicating greater acceptance of delinquent behaviors.

Control Variables

To account for selection into suspension on observed characteristics, I include a long list of time-varying control variables. These include measures of the student's socioeconomic status and family background, parenting behaviors and monitoring, school engagement and other activities, as well as characteristics of the respondent's friends and the larger school-grade network. Most importantly, I include several controls for the respondent's prior behavior. These include self-reports of delinquency in the past 12 months (IRT scale described previously), substance use in the past month (IRT scale described previously), and a measure of risk-seeking behavior. All control variables are lagged one-year to account for selection into suspension. A full list with descriptive statistics is presented in Table 3.1 (coding details in Appendix F)

Analytic Strategy

To test my three competing hypotheses about the association between suspension and involvement with delinquent peers, my analyses proceed in three stages. In the first stage, I

examine descriptive statistics by suspension status to examine differences in student characteristics prior to and after the first reported suspension.

In the second stage, I use a series of random-effects linear regression models to assess the size and direction of the association between suspension and involvement with delinquent peers, adjusting for heterogeneity between observations of ever-suspended and never-suspended students. To enrich these analyses, I examine this association in six ways: across two measures of delinquent behavior (past-month substance use and past-year delinquency) and three definitions of peer involvement (undirected ties, outgoing ties, incoming ties). I begin by testing the bivariate association and then control for differences across grades to account for overall time trends in involvement with delinquent peers. Next, I account for individual-level characteristics, using a fixed-effects hybrid method (Allison 2009). This involves replacing the suspension variable in the random-effects models with one that is centered on the individual-level means and also controlling for individual-level means. Then, I add a long list of time-varying controls with one-year lags to assess whether differences by suspension are due to observed characteristics. I supplement these results with a series of tests of robustness and heterogeneity of my results. These include (1) testing the sensitivity of my findings among a subsample of the most antisocial youth, (2) assessing the extent to which average effects are reduced by declining impact of suspension over time, and (3) exploring differences by gender and racial minority status.

In the third stage, I examine the extent to which two measures of exclusion from normative peers (withdrawal and rejection) and two measures of within-individual change in attitudes toward delinquent behaviors (substance use and delinquency) explain this association. Because exclusion by definition assumes that the student had friends to begin with, this stage of the analysis is limited to students who made or received nominations in the preceding grade. A

positive association between suspension and involvement with delinquent peers that is explained by exclusion from normative peers and attitudinal change toward greater acceptance of delinquent behaviors would support the "supportive deviant others" hypothesis of labeling theory. On the other hand, a negative association between suspension and involvement with delinquent peers explained by withdrawal from prior delinquent peers would give credence to the "selective involvement" hypothesis informed by deterrence theory. Finally, a positive association due to the student's own behavior or other correlates would back the selection hypothesis.

Results

Sample Description

Table 3.1 presents descriptive statistics in the spring of sixth grade for variables used in the analyses. Descriptives for the full sample are presented on the far right. Slightly less than half the sample is male, and 88% are non-Hispanic white. Of racial minorities, roughly half are Hispanic, suggesting that my results may be more generalizable to rural white and Hispanic youth than to adolescents more broadly. Descriptives by suspension status are presented on the left side of Table 3.1. These include three groups: students who never report a suspension, those who haven't yet reported a suspension by sixth grade but will by the end of ninth grade, and those who are already suspended in sixth grade. Independent samples t-tests refer to differences in the means between ever-suspended and never-suspended students. Splitting the sample this way shows a clear pattern of greater involvement with delinquent peers among suspended students, as indicated by higher levels of substance use and delinquency among outgoing and incoming friendship nominations. Students who are suspended early on have the greatest involvement with delinquent peers. They also experience greater levels of withdrawal and

rejection from normative peers, and they have attitudes that are more accepting of substance use and delinquent behaviors among people their age.

It is important to note that these differences in involvement with delinquent peers exist even prior to suspension, evident by comparisons between never-suspended students and those who will be suspended after sixth grade. They are also accompanied by differences in indicators of socioeconomic disadvantage and, perhaps more importantly, the respondent's behavior. Control variables are lagged one-year (spring of sixth grade) in order to be measured prior to suspension. They indicate that suspended students are more likely to be racial minority, have parents with less education and a greater likelihood of unemployment. They also have higher levels of delinquency, substance use, and risk seeking behavior. These findings imply that differences in involvement with delinquent peers could reflect selection rather than effects of suspension. Therefore, it is important to control for these differences and examine within-individual change to address concerns with preexisting differences.

Regression Results

Table 3.2 presents models of the association between suspension and involvement with delinquent peers. Results are shown for six outcomes, including two type of peer delinquent behavior (substance use and delinquency) for each definition of friendship: undirected, outgoing, and incoming ties. For each outcome, I limit the sample to relevant respondents. Models of the behavior of outgoing ties exclude n=122 observations of students who did not nominate any students in their grade as friends. Models of behavior of incoming ties exclude n=183 observations of students who were not nominated at a given wave. Models of behavior of undirected ties exclude 39 observations of students who were complete isolates within their grade at a given wave.

Random-effects linear regression coefficients in Table 3.2 (full model with all controls presented in Appendix G) represent a standard-deviation unit change in friends' behavior due to having ever been suspended. Bivariate results in the first column suggest that in years when students carry the suspension label, substance use among their friends is .74 units higher than in years before they were suspended. The association with friends' delinquency is comparable in size, direction, and statistical significance ($b=.74$; $p<.001$). It also does not appear driven by an effect that is greater for friendship nominations in one direction than for nominations in the other; coefficients for outgoing nominations are only slightly larger than those for incoming nominations. Based on the results presented previously in Figure 3.2, some of this bivariate association is likely due to changes in involvement with delinquent peers that are already occurring for all students as they get older. Thus, in the next column of Table 3.2, I control for the student's current grade to account for these changes. When grade is taken into account, the association declines by 20% to 35% across models, but remains large, positive, and statistically significant. In the third and fourth columns, I examine within-individual change, accounting for all time-stable characteristics. In doing so, coefficients for friends' substance use decline only slightly, remaining positive and statistically significant ($b=0.49$; $p<.01$), but they decline by half for friends' delinquency, and by more than 80% when referring to friends who nominate the respondent ($b=0.09$), leaving an association that is not statistically significant. This suggests the positive association between suspension and involvement with friends engaged in delinquency is largely driven by unmeasured stable individual-level differences between ever-suspended and never-suspended students. Lastly, I include a set of time-varying controls. Results suggest students who have been suspended experience more than a third of a standard-deviation increase in friends' substance use ($b=.35$; $p<.05$). This effect is due more to an association with the

behavior of peers whom the respondent nominates as a friend (b=.44; p<.01) and somewhat less to the behavior of those who nominate the respondent (b=.27; p<.10).

Sensitivity and Heterogeneity of Effects

I now turn to a set of supplementary analyses to test the sensitivity of results in Table 3.2 and explore heterogeneity across race and gender. First, I repeat the full models (final models of Table 3.2) among a subsample of observations with similar risk of suspension in order to further minimize selection influences. This subsample includes cases with higher levels of delinquency or substance use (above median at wave) or low achievement (below twenty-fifth percentile at each wave). Results, presented in Appendix H, show small overall declines in the size of the coefficients for friends' substance use and small increases in the size of the coefficients for friends' delinquency. The coefficient for substance use among outgoing nominations remains stable and statistically significant (b=.44; p<.05), supporting patterns in Table 3.2 that suspension is associated with friends' substance use, and that this occurs more among peers whom the respondent nominates as a friend rather than those who nominate the respondent as a friend. The coefficient for delinquency among outgoing ties also reaches statistical significance (b=0.39; p<.05), suggesting that, unlike effects on friends' substance use, effects on friends' delinquency may be concentrated among the most antisocial students.

Second, I assess the extent to which average effects of suspension reported in Table 3.2 are underestimated by a potentially declining impact of suspension over time. Labeling theory suggests exclusion and internalization process reinforce one another through reciprocating effects leading to greater involvement with delinquent peers (Paternoster and Iovanni 1989). This suggests the effects of suspension are likely stable or increasing rather than declining over time. To test this, I repeat the full models again after removing all observations following the wave of

a student's first reported suspension. Results in Appendix I for models of friends' substance use show standard errors remain stable but coefficients decline somewhat, minimizing concerns that results in Table 3.2 are underestimated by declining effects of suspension.

Third, I explore differences in effects by racial minority status and gender. Some labeling scholars suggest an official sanction may be most stigmatizing for those least likely to experience it (Chiricos et al. 2007). Thus, effects on involvement with delinquent peers may be strongest for females and whites. To test this, I examine full models[2] separately for males and females and for white and racial minorities. I find no statistically significant differences in the size of the effects of suspension on any of my six outcome measures, suggesting the impact of suspension on involvement with delinquent peers is similar for boys and girls and for whites and minorities.

Testing Mechanisms of the Association

Having found strong evidence of an increase in involvement with substance using peers following suspension, consistent with the "supportive deviant others" hypothesis of labeling theory, I now examine the mechanisms of this hypothesis. Table 3.3 presents results of changes in the association between suspension and involvement with substance using peers after accounting for withdrawal from normative peers, rejection from normative peers, changes in attitudes toward adolescent substance use, and changes in attitudes toward adolescent delinquency. For these analyses, I limit the sample to students who had an incoming nomination in the preceding wave (for analyses of behavior of incoming nominations), an outgoing nomination in the preceding wave (for analyses of outgoing nominations), or either nomination

[2] To compare coefficients across models, I rely on Stata's "suest" command for seemingly unrelated regression. However, "suest" is not compatible with random-effects models, so I rely on pooled OLS models with standard errors clustered at the individual level.

in the preceding wave (for undirected nominations). Because rejection and withdrawal represent a loss of nominations from the previous year, I also include an additional control here for the number of nominations lost for reasons other than rejection or withdrawal, such as the friend having dropped out of school or moved away. Because my attitudinal measures focus on within-individual change, I also include controls for individual-level means in attitudes toward substance use and delinquency.

Results in Table 3.3 include a new version of my full models that incorporates these changes, with little impact on the regression coefficients. Suspension is associated with a .41 standard deviation unit increase in involvement with substance using peers ($p<.01$), and this fairly consistent for separate models of outgoing and incoming ties. Adding withdrawal from normative peers to the model causes the size of this coefficient to decline only slightly, suggesting withdrawal from normative peers explains between 3% and 7% of the association between suspension and involvement with substance-using peers. Though this indirect effect approaches statistical significance ($p<.10$), it is small in size due it its small impact on peer substance use. A unit increase in withdrawal from normative peers is associated with less than one-tenth of a unit increase in involvement with substance using peers (.04 for undirected ties, .06 for outgoing, .03 for incoming; $p<.001$). The association between rejection from normative peers and involvement with substance using peers is even smaller (ranging from .02 to .04), though still statistically significant. Adding rejection to the models leaves the coefficients for suspension unchanged, suggesting it does not explain any of the increase in involvement with substance using peers following suspension.

Next, I add within-individual changes in attitudes toward adolescent substance use to the model. A one unit increase toward greater acceptance of adolescent substance use is associated

with a nearly one-third unit increase in involvement with substance using peers ($p<.001$), an effect that is consistent in size across the direction of the nominations. These attitudinal changes account for a large (between 24% and 39%) and statistically significant ($p<.01$) portion of the association between suspension and involvement with substance-using peers. Much less of the association (between 6% and 9%) is explained by attitudes toward adolescent delinquency. Though small, this indirect effect is statistically significant for the model of substance use among undirected ties ($p<.05$). A one unit increase toward greater acceptance of adolescent delinquent delinquency is associated with a .13-unit increase in involvement with substance-using peers. Finally, I combine all mechanisms into a single model. Together, they explain a large and statistically significant ($p<.001$) portion of the association between suspension and involvement with substance-using peers (33% for undirected ties, 31% for outgoing ties, and 41% for incoming ties). The coefficient for suspension is brought closer to zero but is still moderately sized and statistically significant for the outgoing ties model, suggesting there are still mechanisms underlying the effect of suspension for which I have not accounted in these models.

Discussion

Given strong and consistent evidence that peers influence adolescent involvement in delinquency and criminal behavior (Giordano 2003; Haynie 2001; McGloin 2009; Osgood et al. 2013), I have examined the impact of a potential antecedent to involvement with delinquent peers. School suspension is a common method for formally addressing student misbehavior, but it is disproportionately concentrated among racial minority and disadvantaged students (Losen 2015) and it is associated with increased delinquency and criminal justice involvement (Mowen and Brent 2016; Ramey 2016; Shollenberger 2015). I test three competing hypotheses from criminological theory regarding the association between suspension and involvement with

delinquent peers. First, the "supportive deviant others" hypothesis suggests involvement with delinquent peers should increase following suspension due to exclusion from normative peers and internalization of a delinquent label. Second, the "selective involvement" hypothesis informed by deterrence theory suggests involvement with delinquent peers should decline following suspension because students avoid old delinquent friends in order to avoid another apprehension. Third, the selection hypothesis predicts a positive association between suspension and involvement with delinquent peers that is due to differences in the student's own behavior or other correlates of suspension, either observed or unobserved. I have tested these hypotheses using a peer network approach, which is ideal because it minimizes measurement error by relying on peer self-reports rather than respondent perceptions of peers. It also allows for empirical observation of processes of interpersonal exclusion—rejection and withdrawal—that are often implied by labeling theorists (Goffman 1963; Lemert 1967; Link 1987) but rarely measured. I use data from PROSPER, a longitudinal dataset of students and their peers attending rural schools where suspension rates are as high and disproportionately distributed as rural and urban samples in the NLSY97.

Four important findings emerge from these analyses. First, consistent with the "supportive deviant others" hypothesis of labeling theory (Paternoster and Iovanni 1989) and in contrast to the "selective involvement" hypotheses informed by deterrence theory, I find a moderate within-individual increase in involvement with substance-using friends following suspension. In grades when students have ever been suspended, their involvement with substance-using peers increases by more than a third of a standard deviation unit, and this association is even stronger for substance use among peers whom the respondent nominates as a friend, suggesting it is driven more by changes in the preferences of the respondent than by

changes in the preferences of peers. This association is robust to controls for the respondent's own behavior and other covariates of suspension. It also holds up when limiting the sample to antisocial students with a more similar risk of suspension and when subsequent observations following a first-time suspension are excluded. In contrast to prior work on conviction as a formal label (Chiricos et al., 2007), I find no variation in this association by gender or racial minority status. However, most racial minorities in PROSPER are Hispanic, so there may be black-white differences here that I am unable to capture.

Second, I find that most of the association between suspension and involvement with delinquent (as opposed to substance-using) friends is driven by selection influences. I found some evidence of greater involvement with delinquent friends when limiting the sample to antisocial students, but overall the effects were small. In labeling theory, research has given little attention to how official labels may differentially impact varying types of deviant behaviors (Farrington 1977), and even less attention to how they might affect involvement with peers engaged in different types of behaviors. Therefore, it is unclear why suspension would have a positive and robust association with involvement with substance using peers but not so with involvement with delinquent peers. One explanation could be that the norms in these rural, mostly white communities that define what a "bad kid" or troublemaker look like—thus influencing the types of peers that students who take on these identities feel they belong with—have more to do with drug use and drinking than with crimes more common in urban areas. Future research should examine the association between suspension and involvement with delinquent peers in urban areas to address these important questions.

Third, I find evidence that withdrawal from normative peers (on the part of the respondent) explains a small part of this association (7% at most), but rejection (on the part of

the normative peers) does not. These findings are only partially supportive of labeling theory, which suggests that interpersonal exclusion from normative peers is a major driver of increased involvement with delinquent peers. Nevertheless, they are consistent with other research suggesting that exclusion from prosocial peers explains very little of the association between criminal justice contact and subsequent delinquency (Wiley et al. 2013). My findings suggest that any exclusion from peers that leads to greater involvement with delinquent peers is due to changes in the suspended student's friendship preferences, rather than rejection by former conforming friends. These findings are somewhat inconsistent with what labeling theory (Paternoster and Iovanni 1989) and warrant further investigation in future research. Perhaps suspension increases involvement with delinquent peers primarily through institutional exclusion (diminished school attachment, lower grades) rather than through changes in friendship.

Fourth, I find that within-individual changes in attitudes toward substance use explain about 25% of the association between suspension and involvement with substance-using peers. This finding is consistent with prior labeling research (Wiley et al. 2013) and supportive of labeling theory. It suggests that changes in student attitudes toward delinquent behaviors following an official sanction may lead to increased involvement with delinquent peers. Given that suspensions are primarily in response to minor classroom misbehavior and attendance problems (Skiba et al. 2014), it may be that suspended students originally consider themselves conforming but are pressured to adopt more deviant attitudes and preferences for friends involved in more deviant behavior. In-school and out-of-school suspension, which involve separation from conforming students who are in school and segregation with deviant students may provide an avenue for developing such friendships.

Several limitations of my analyses should be reiterated. First, though rates of suspension in my sample are comparable to national rates from an earlier cohort of students, my findings may not be generalizable beyond rural students. Future research should employ a peer network approach to examine the impact of suspension on involvement with delinquent peers in other communities, including urban areas with more racial-ethnic heterogeneity. Second, although labeling research emphasizes the importance of changes in deviant attitudes as indicative of alterations in deviant identity (Wiley et al. 2013), I am unable to directly measure a deviant identity or label internalization process. It may be that the attitudes I have captured are more indicative of changes in behavior following suspension from school.

Third, even though my findings are informative about the impact of harsh, formal discipline among adolescents attending school, they do not provide information on heterogeneity of suspension experiences. School discipline policies vary considerably across states and school districts, and even in how they are implemented in classrooms. In-school suspensions and may be less impactful than out-of-school suspensions because they do not involve removal from school grounds, but few large-scale surveys ask respondents to distinguish between the two. Similarly, suspensions that are shorter in duration may have less impact because they provide fewer opportunities for suspended students to build relationships with delinquent peers. Longer suspensions or expulsion (permanent removal from school grounds) may facilitate involvement with delinquent peers by keeping suspended students out of school and often unmonitored. Therefore, future research on school punishment would benefit greatly by asking about such varying experiences, rather than relying on binary indicators.

Finally, like most prior work using large-scale survey data rather than administrative records to study suspension, I do not have information about the specific causes of each

suspension that took in my sample. If suspensions in my sample were generally administered in response to minor classroom misbehavior and attendance problems, like those consistently reported in prior research (Connecticut Department of Education 2010; Skiba et al. 2014), then students likely considered themselves to be conforming prior to their initial suspension. Following their suspension, and especially if they were suspended multiple times, they may have felt pressured to adopt more deviant attitudes and preferences for friends involved in more deviant behavior. In these rural, mostly white communities, this image of deviance may concern drug use and drinking rather than crimes such as theft and assault, prompting them to find friendship among peers who are involved in delinquent behavior. In-school and out-of-school suspension, which involve separation from conforming students who are in school and segregation with deviant students may provide an avenue for developing such friendships. Therefore, having information on specific causes of suspension and the type of suspension administered would greatly benefit future research and the advancement of understanding of how school punishment influences adolescent peer networks.

Table 3.1. Descriptive Statistics in Sixth Grade, by Suspension Status

Variable	Never Suspended			Ever Suspended: Suspended after Sixth Grade		Ever Suspended: Suspended in Sixth Grade		Full Sample	
	m	*sd*		*m*	*sd*	*m*	*sd*	*m*	*sd*
Outcome Variables									
Friends' past-month substance use									
Among undirected ties	-0.47	0.49	*	-0.39	0.68	-0.20	0.60	-0.45	0.53
Among outgoing ties	-0.43	0.50	*	-0.30	0.79	-0.23	0.56	-0.41	0.54
Among incoming ties	-0.37	0.53		-0.34	0.65	-0.06	0.83	-0.35	0.56
Friends' past-year delinquency									
Among undirected ties	-0.31	0.80	***	-0.05	0.65	0.37	1.15	-0.25	0.84
Among outgoing ties	-0.27	0.81	**	-0.09	0.65	0.31	1.11	-0.23	0.84
Among incoming ties	-0.28	0.79	***	0.11	0.65	0.57	1.31	-0.20	0.87
Mediating Variables									
Withdrawal from normative peers	-0.48	1.82	*	-0.18	0.65	0.31	1.88	-0.42	1.85
Rejection from normative peers	-0.58	1.88	*	-0.34	0.65	0.33	1.94	-0.52	1.90
Attitudes against adolescent substance use	-0.62	0.44	***	-0.48	0.65	-0.29	0.65	-0.59	0.47
Attitudes against adolescent delinquency	-0.37	0.70	***	-0.22	0.65	0.29	1.25	-0.32	0.76
Control Variable									
Male	0.43	0.50	***	0.57	0.50	0.75	0.44	0.46	0.50
Nonwhite	0.10	0.30	**	0.21	0.41	0.25	0.44	0.12	0.33
Parent education (z-score)	-0.02	1.04	**	-0.46	0.65	-0.19	0.71	-0.08	1.01
Household income (log)	10.77	0.81	***	10.36	0.65	10.33	0.99	10.70	0.84
Parent unemployment (0 to 1)	0.11		***	0.29		0.21		0.13	
Mother relationship transitions (z-score)	0.01	1.00		0.17	0.65	-0.03	1.38	0.03	1.01
Children in household (0 to 8)	2.44	1.03		2.35	0.65	2.68	1.28	2.44	1.03
Past month substance use, IRT (z-score)	-0.18	0.65	*	-0.04	0.65	0.02	0.91	-0.15	0.68
Past year delinquency, IRT (z-score)	-0.11	0.86	***	0.32	0.65	0.66	1.26	-0.03	0.93
Risk-seeking behavior (z-score)	-0.08	0.92	***	0.14	0.65	0.62	1.14	-0.02	0.97
Parental discipline (z-score)	-0.03	0.94	*	-0.27	0.65	-0.28	1.03	-0.06	0.96
Parental monitoring (z-score)	0.12	0.87	**	-0.08	0.65	-0.42	1.10	0.08	0.89
Mother depression (0 to 1)	0.23		**	0.39		0.32		0.25	
Internalizing behavior problems (log)	0.18	0.19		0.20	0.65	0.16	0.16	0.19	0.19
Academic achievement (z-score)	0.16	0.84	***	-0.28	0.65	-0.31	0.88	0.09	0.88
School attachment (z-score)	0.17	0.93		0.03	0.65	-0.06	0.86	0.14	0.94
Racial composition of undirected ties (z-score)	0.17	0.72	**	-0.08	0.65	-0.10	0.83	0.13	0.75
Racial composition of incoming ties (z-score)	0.16	0.78	**	-0.12	0.65	-0.13	0.92	0.12	0.82
Racial composition of outgoing ties (z-score)	-0.03	1.02	*	-0.33	0.65	-0.11	0.95	-0.07	1.05
Number of undirected ties (0 to 17)	6.82	3.03	*	6.01	0.65	5.96	2.91	6.70	3.05
Number of outgoing ties (0 to 7)	4.76	2.19	*	4.28	0.65	4.00	2.37	4.67	2.21
Number of incoming ties (0 to 15)	4.29	2.85	***	3.24	0.65	3.36	2.63	4.13	2.83
Number of students in school-grade (6 to 452)	162.52	104.26		157.99	0.65	166.89	118.74	162.21	104.18
Changed school since last year (0 to 1)	0.00			0.00		0.00		0.00	
Community cohesion (z-score)	0.01	1.03	**	0.49	0.65	0.05	1.14	0.07	1.05
Years in current residence (z-score)	-0.16	0.90	**	-0.49	0.65	-0.33	0.89	-0.21	0.89
Miles from school (log)	1.23	0.62		1.10	0.65	1.19	0.56	1.22	0.61
Structured time outside school (z-score)	-0.09	1.01		-0.29	0.65	-0.05	0.84	-0.11	0.99
Religious attendance (z-score)	0.07	1.01	***	-0.44	0.65	-0.22	0.93	0.00	1.02
N	561			72		28		661	

Notes: PROSPER. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in in-school survey, valid data on suspension, no suspension reported at baseline. All outcome and mediating variables are standardized across waves (z-scores). All control variables except for gender and race are lagged one-year. Results based on first of 20 multiply imputed datasets. Independent samples t-tests compare ever-suspended to never-suspended students. *p<.05; **p<.01; ***p<.001

Table 3.2. Random-Effects Linear Regression Models of Association between Respondent Suspension and Friends' Behavior

Outcome	Ever Suspended		Add Grade Fixed Effects		Add Individual Fixed Effects		Add Additional Controls		Obs.	Students
	b	*se*	*b*	*se*	*b*	*se*	*b*	*se*		
Undirected Ties										
Friends' substance use	0.74	(0.10) ***	0.51	(0.09) ***	0.49	(0.15) **	0.35	(0.15) *	2,237	724
Friends' delinquency	0.74	(0.09) ***	0.59	(0.09) ***	0.30	(0.15) #	0.19	(0.15)	2,237	724
Outgoing Ties										
Friends' substance use	0.73	(0.11) ***	0.53	(0.10) ***	0.55	(0.16) **	0.44	(0.15) **	2,154	712
Friends' delinquency	0.67	(0.10) ***	0.52	(0.10) ***	0.29	(0.16) #	0.22	(0.16)	2,154	712
Incoming Ties										
Friends' substance use	0.63	(0.10) ***	0.43	(0.10) ***	0.35	(0.15) *	0.27	(0.15) #	2,093	712
Friends' delinquency	0.65	(0.10) ***	0.53	(0.10) ***	0.09	(0.17)	-0.01	(0.17)	2,093	712

Notes : PROSPER. Standard errors clustered at individual level. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in in-school survey, valid data on suspension, no suspension reported at baseline. Additional controls include parent education, household income, parent unemployment, mother relationship transitions, number of children in household, past-month substance use, past-year delinquency, risk seeking behavior, parental discipline, parental monitoring, mother depression, internalizing behavior problems, academic achievement, school attachment, racial composition of friends, number of ties, size of school-grade network, changed schools, community cohesion, years in residence, miles from school, structured activities outside school, religious attendance. Results combined across 20 multiply imputed datasets. ***p<.001; **p<.01; *p<.05; #p<.10 (two-tailed)

Table 3.3. Random-Effects Linear Regression Models Examining Extent to Which Exclusion from Normative Peers and Changes in Attitudes Toward Delinquent Behaviors Explain Association between Respondent Suspension and Friends' Behavior

Explanatory Variable	No Mechanisms	Withdrawal from Normative Peers	Rejection from Normative Peers	Change in Attitudes Toward Substance Use	Change in Attitudes Toward Delinquency	All Mechanisms Together
	b *se*	*b* *se*	*b* *se*	*b* *se*	*b* *se*	*b* *se*
Substance Use of Undirected Ties						
Ever Suspended	0.41 (0.15) **	0.39 (0.15) *	0.41 (0.15) **	0.30 (0.14) *	0.37 (0.15) *	0.27 (0.15) #
Withdrawal from Normative Peers		0.04 (0.01) ***				0.04 (0.01) **
Rejection from Normative Peers			0.03 (0.01) **			0.02 (0.01) *
Change in Attitudes toward Substance Use				0.29 (0.05) ***		0.26 (0.05) ***
Change in Attitudes toward Delinquency					0.13 (0.03) ***	0.06 (0.03) #
Substance Use of Outgoing Ties						
Ever Suspended	0.48 (0.16) **	0.45 (0.16) **	0.48 (0.16) **	0.37 (0.15) *	0.45 (0.16) **	0.33 (0.15) *
Withdrawal from Normative Peers		0.06 (0.01) ***				0.05 (0.01) ***
Rejection from Normative Peers			0.02 (0.01) #			0.01 (0.01)
Change in Attitudes toward Substance Use				0.29 (0.06) ***		0.26 (0.06) ***
Change in Attitudes toward Delinquency					0.12 (0.04) **	0.06 (0.04)
Substance Use of Incoming Ties						
Ever Suspended	0.32 (0.16) *	0.31 (0.16) *	0.32 (0.16) *	0.20 (0.15)	0.30 (0.16) #	0.19 (0.15)
Withdrawal from Normative Peers		0.03 (0.01) **				0.02 (0.01) #
Rejection from Normative Peers			0.04 (0.01) **			0.03 (0.01) **
Change in Attitudes toward Substance Use				0.32 (0.05) ***		0.32 (0.05) ***
Change in Attitudes toward Delinquency					0.07 (0.04) #	-0.01 (0.04)

Notes : PROSPER. Standard errors clustered at individual level. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in in-school survey, valid data on suspension, no suspension reported at baseline, made or received friendship nomination in preceding year (2,212 observations, 721 students for models of behavior of undirected ties; 2,087 observations, 699 students for models of behavior of outgoing ties; 1,970 observations, 675 students for models of behavior of incoming ties). Additional controls in all models include parent education, household income, parent unemployment, mother relationship transitions, number of children in household, past-month substance use, past-year delinquency, risk seeking behavior, parental discipline, parental monitoring, mother depression, internalizing behavior problems, academic achievement, school attachment, racial composition of friends, number of ties, size of school-grade network, changed schools, community cohesion, years in residence, miles from school, structured activities outside school, religious attendance, number of last year's ties lost due to friend not participating or exiting study, and individual-level means of suspension, and attiudes toward delinquent behaviors. Results combined across 20 multiply imputed datasets. ***p<.001; **p<.01; *p<.05; #p<.10 (two-tailed)

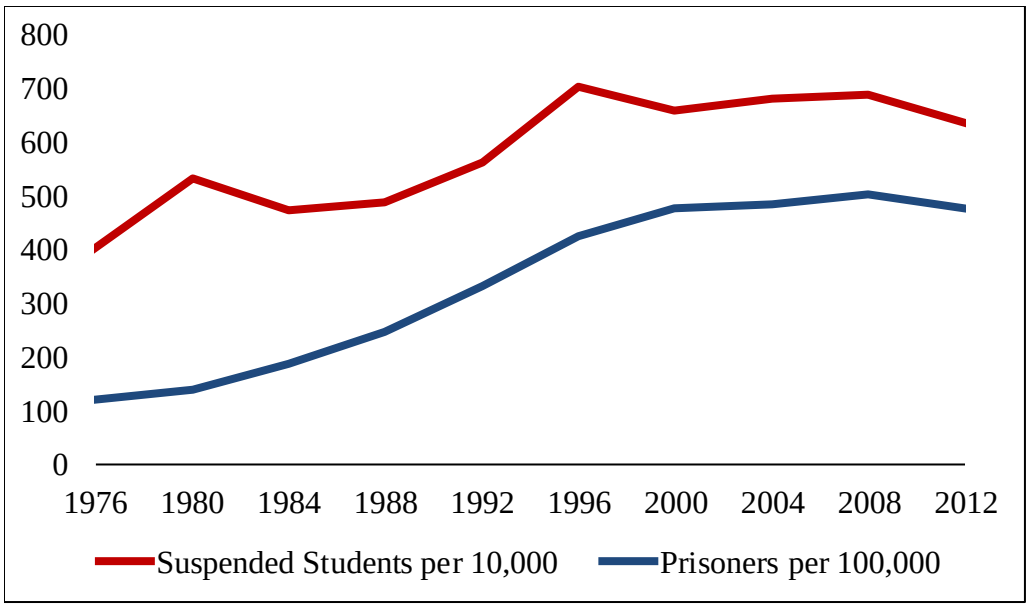

Figure 3.1. Out-of-School Suspension and Adult Imprisonment

Notes : Suspension data based on author's estimation using data from the Civil Rights Data Collection; Imprisonment data from the Bureau of Justice Statistics

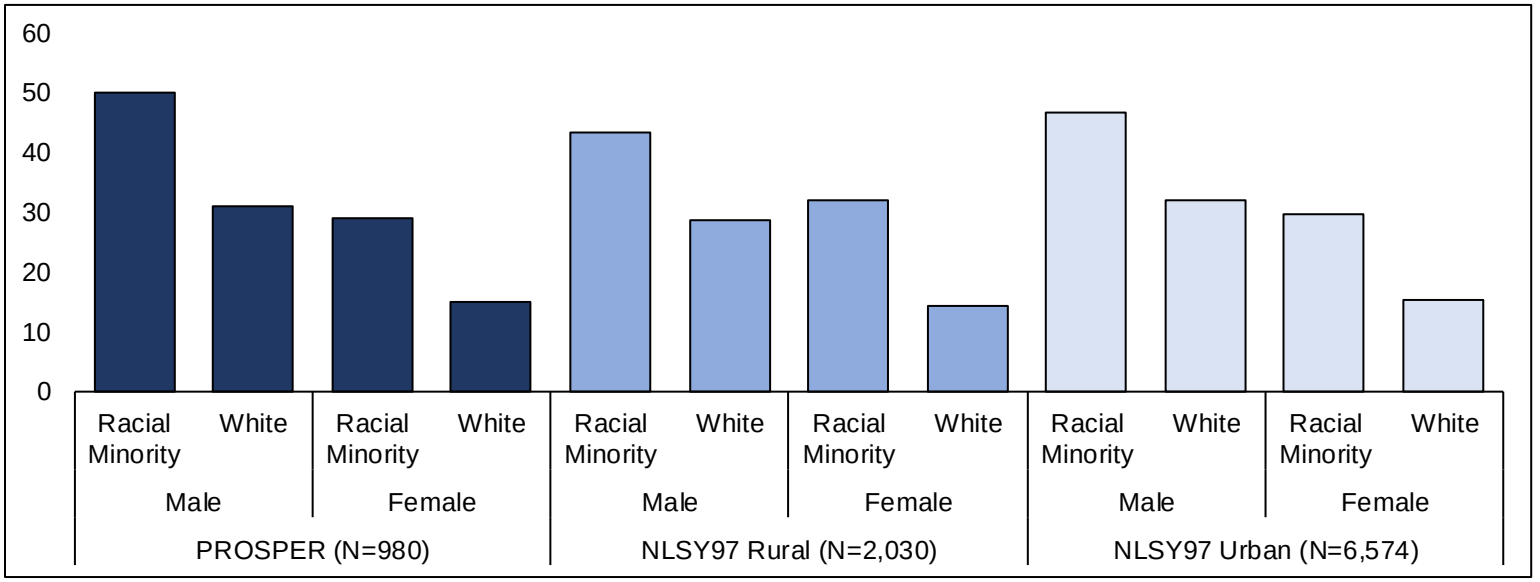

Figure 3.2. Percent Ever Suspended by Ningth Grade, PROSPER and the National Longitudinal Survey of Youth, 1997 Cohor

Notes : PROSPER N=980 students with some variation across waves. NLSY97 N=8,984 youth, but 380 excluded due to unknown urban/rural status. Urban/rural defined by Census, based on respondent's 1997 residence. PROSPER includes

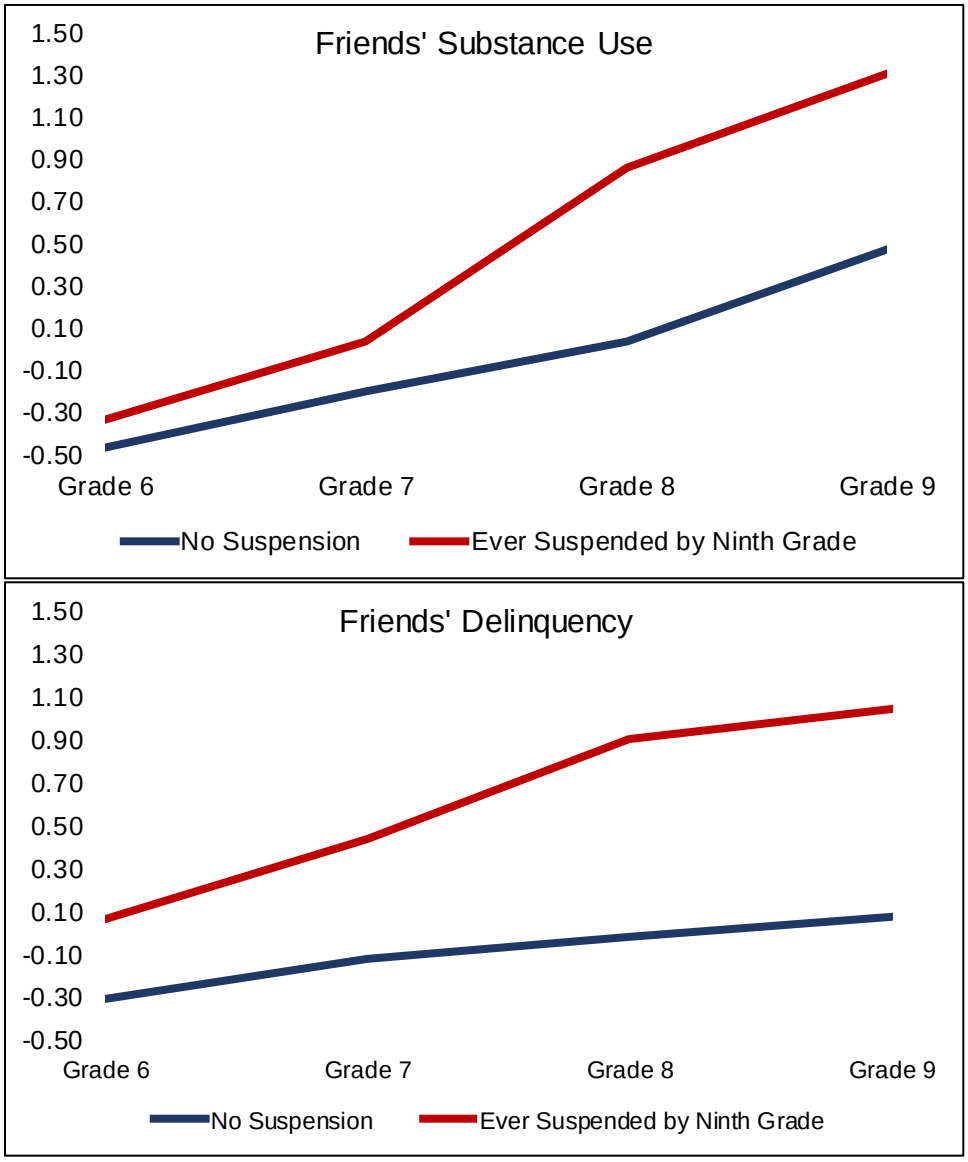

Figure 3.3. Means of Self-Reported Behavior of Friends (Undirected Ties)
Notes : PROSPER. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in in-school survey, valid data on suspension, no suspension reported at baseline. Variables are in standard deviation units.

Chapter 4. SCHOOL PUNISHMENT AND THE MECHANISMS OF SECONDARY DEVIANCE: A PEER NETWORK APPROACH TO LABELING THEORY

As prison and jail populations reached unprecedented levels in recent decades, so did the number of students removed from school for disciplinary reasons. Roughly 3 million students have been suspended from school every year since the mid-1990s, despite declining levels of juvenile crime over the same time period (Civil Rights Data Collection 2016; Kupchik 2010). Suspension rates are especially high among disadvantaged and minority students (Losen 2015). Two-thirds of African American males born in the early 1980s were suspend before completing high school, compared less than to two-fifths of their white counterparts (Shollenberger 2015), and racial disproportionality among females is even greater (Morris and Perry 2017).

Suspension is a type of formal social control designed to deter students from future classroom misbehavior, but a growing number of studies suggest it has just the opposite effect: suspension fosters delinquent behavior among students who would have otherwise followed more normative trajectories. Even though the overwhelming majority of suspensions are for minor classroom disruptions and attendance problems, rather than violent behavior or substance use (Connecticut State Department of Education 2015; Skiba et al. 2014), students who have experienced suspension are more likely to become involved in the criminal justice system (Arum and Beattie 1999; Monahan et al. 2014; Mowen and Brent 2016; Ramey 2016). Although these studies imply an increase in delinquent behavior following suspension, most focus on criminal justice involvement without examining effects on behavior directly.

Labeling theory suggests suspension should increase delinquent behavior if it triggers exclusion from school activities and interactions, the internalization of a delinquent label, and greater involvement with delinquent peers (Becker 1963; Goffman 1963; Lemert 1951, 1967;

Tannenbaum 1951). The theory has gained renewed attention since the 1970s, as criminal justice and school sanctions have become more common experiences (Adams 1996; Bernburg and Krohn 2003; Bernburg, Krohn, and Rivera 2006; Chiricos et al. 2007; Liberman, Kirk, and Kim 2014; Link 1987; Link et al. 1989; Matsueda 1992; Paternoster and Iovanni 1989; Wiley, Slocum, and Esbensen 2013). Meanwhile, longitudinal data collection and methodological advancements provide new ways for operationalizing key constructs of labeling theory, like exclusion and peer involvement. One approach that may be especially useful is longitudinal social network analysis because it relies on peer self-reports for capturing changes in peer behavior and friendship preferences.

In this paper, I build on prior suspension research by moving away from analyses of criminal justice involvement to assess the impact of suspension on secondary deviance (Lemert 1967). Specifically, I examine the association between suspension and two types of adolescent delinquent behavior: substance use and delinquency. In doing so, I focus on within-individual change and establish the appropriate temporal order between suspension and delinquent behaviors. I also use a longitudinal peer network approach to attempt to explain this association using mechanisms implied in labeling theory: rejection and withdrawal from conforming peers, weakened attachment to school, an increase in delinquent attitudes, and greater involvement with delinquent peers. My findings provide partial support for labeling theory and suggest that substance use but not delinquency increases following suspension from school. They also build on prior suspension research by suggesting much of this association is due to mechanisms of secondary deviance, especially greater involvement with delinquent peers.

School Suspension in the United States

School suspension, which includes temporarily removing a student from class (in-school suspension) or from school grounds (out-of-school suspension) for disciplinary reasons, has become a common experience for many United States adolescents. Roughly 3 million students experience each type of suspension annually, and this number has remained fairly stable over much of the past three decades, despite declining levels of school violence and victimization (Kupchik 2010; but see Loveless 2017 on recent declines in suspension). Moreover, there is extreme racial disproportionality in who experiences suspension. Among young adult males who grew up in the US, the proportion of blacks ever suspended is 72% higher than that of whites and 37% higher than that of Hispanics. For females, disparities are even larger: 125% greater for blacks than whites and 45% greater for blacks than Hispanics (Shollenberger 2015). Given such large disparities in the prevalence of suspension, it is important to consider how it impacts behavioral trajectories of those who experience it, particularly as they make their way through middle and high school, and the implications this may have for subsequent institutional involvement over the life course.

Suspension is an official sanction, similar to those implemented by the criminal justice system. How it is administered varies considerably between and within states and school districts, but in general, it may include being escorted from the classroom by security or police, a formal hearing, and a decision about the type and length of suspension to be administered (Bowditch 1993; Raffaele Mendez et al. 2002; Vavrus and Cole 2002; Wallace et al. 2008; Weissman 2015). Even though suspensions are aimed at improving school safety by removing students involved in violence or drug use, the majority are in response to nonviolent classroom disruptions and attendance problems (Connecticut State Department of Education 2015; Skiba et

al. 2014). If suspension deters students from such minor misbehavior, it may also keep them from more serious delinquent acts and criminal justice involvement.

Although it is reasonable to assume that addressing minor misbehavior would prevent more serious infractions, if suspension is not an effective deterrent, it would not have such an effect. Indeed, a growing number of studies finds levels of arrest and incarceration among students who have been suspended to be greater, not less, relative to other students (Arum and Beattie 1999; Monahan et al. 2014; Mowen and Brent 2016; Ramey 2016). These studies might imply suspension leads to increased involvement in delinquent behavior, or that suspension facilitates such behavior among students who would have otherwise followed more normative behavioral trajectories. However, most of these studies examine the association between suspension and justice system involvement; few assess the impact on actual behavior. It is possible that suspension increases the former without increasing the latter. For example, if formerly suspended students experience greater surveillance or police contact (Furguson 2001; Weissman 2015), it may place students at greater risk of arrest without increasing their delinquent behavior (Liberman et al. 2014). Given strong evidence that suspension is associated with subsequent criminal justice involvement, I move away from such outcomes to try to understand its impact on changes in delinquent behaviors. For this, I rely on labeling theory.

School Suspension and Secondary Deviance

According to labeling theory, an official sanction may lead to increased delinquent behavior, or "secondary deviance" (Lemert 1967) if it triggers exclusion from normal routines and interactions, internalization of a deviant label, and greater involvement with delinquent others (Becker 1963; Goffman 1963; Lemert 1951; Tannenbaum 1951). These three "requisite intervening effects" (Paternoster and Iovanni 1989:384) are key mechanisms of the secondary

deviance hypothesis, but they need further consideration in suspension research. Hemphill and colleagues (2006) find suspension associated with increased delinquent behavior. They speculate that these mechanisms may explain this association, but do not test them. Thomas and Bishop (1984) also find increased delinquent behavior following suspension. They suggest this association could be due to label internalization as indicated by a deviant self-concept, but find no evidence for this. In contrast, Kaplan and Johnson (1991) test all of these mechanisms and find they partially mediate the association between youth sanctions and subsequent delinquency, but their measure of suspension is combined with juvenile justice sanctions, precluding strong inferences about the impact of suspension. With these findings as a foundation, I revisit each mechanism of the secondary deviance hypothesis in the context of school discipline.

Exclusion. Exclusion may be either institutional or interpersonal. Most prior research focuses on the former by examining weakened attachment to schools, employment, or housing following criminal justice involvement. This may be due to restrictions on the part of the institution (Geller and Curtis 2011; Pager 2003; Western 2002) or fear and avoidance on the part of the sanctioned individual (Brayne 2014; Haskins and Jacobsen in press; Lageson 2016). In the context of suspension, institutional exclusion occurs when students are restricted from school activities and either segregated in an alternative classroom or removed from the school entirely. This may lead the student to withdrawal from school activities, particularly if the suspension causes them to fall behind in schoolwork, lowering their grades and increasing risk of dropout (Balfanz, Byrnes, and Fox 2015; Bowditch 1993; Weissman 2015). In support of this theory, low school commitment, poor grades, and other indicators of weakened institutional attachment explain a small portion of the association between arrest and subsequent criminal or delinquent behavior (Bernburg and Krohn 2003; Wiley et al. 2013).

Labeling theorists also emphasize interpersonal exclusion, which refers to weakened ties to others in a person's social network. It may occur in three ways: rejection, withdrawal, and separation. Rejection characterizes reactions of non-labeled others toward the suspended student to avoid guilt by association or to protect their own values (Goffman 1963; Lemert 1967). It would occur if conforming school peers who were friends with a student prior to her suspension, no longer consider her a friend now that she has been labeled a troublemaker by the suspension. Withdrawal characterizes the behavior of the labeled individual toward conforming others to avoid uncomfortable interactions or rejection (Link 1987; Link et al. 1989). Students are socialized to believe suspension is for troublemakers, and may thus withdraw from conforming peers at school, seeking new friends more accepting of their new label. Separation is third type of interpersonal exclusion. During suspension, students are restricted from interactions with conforming peers. Thus, longer or repeated suspensions may lead to a deterioration of such friendships due to fewer shared experiences. Few prior studies have assessed the extent to which interpersonal exclusion mediates an association between an official sanction and subsequent delinquency. In one exception, Wiley and colleagues (2013) find little evidence that the number of friends the respondent perceives are involved in prosocial behaviors mediates the association between arrest and subsequent delinquency. They do not examine separate effects for rejection, withdrawal, and separation.

Internalization. Internalization occurs when an individual who does not self-identify as deviant begins to take on a deviant identity after being consistently confronted with negative stereotypes and rejection (Becker 1963; Lemert 1967; Schur 1971). Because the majority of suspensions are for minor disruptions and attendance problems rather than more serious delinquent behavior, the majority of suspended students likely do not initially perceive

themselves to be delinquent. Furthermore, their attitudes and beliefs about delinquent behaviors are likely normative. However, suspension may lead them to begin to entertain a more delinquent identity, especially if they are excluded from conforming peers and become disengaged from school activities and relationships with educators. As suggested in prior studies, this may be reflected in deviant attitudes and orientations (Ageton and Elliott 1974; Farrington 1977; Kaplan and Johnson 1991; Wiley and Esbensen 2013). In order to cope with the dissonance between how students initially perceive themselves and their reflected appraisals from peers and adults (Matsueda 1992), they may change their beliefs in ways that justify delinquent behaviors. Consistent with this theory, prior research finds less anticipated guilt and neutralization techniques (e.g., "It's okay to steal something if it's the only way to get it.") partially mediate the effect of arrest on delinquency (Wiley et al. 2013).

Involvement with Delinquent Others. Labeling theory implies official sanctions trigger forces that push and pull individuals toward greater embeddedness in delinquent networks. Interpersonal and institutional exclusion push students away from conforming peers and increase the attractiveness or pull of peers involved in delinquency or similarly excluded. Suspension may also signal to these delinquent peers, that the suspended student is now "one of the group," thus, attracting others seeking inclusion or mutual support in the continuation of their delinquent behavior. As the suspended student begins to accept her new delinquent identity, she may choose friends she feels are more accepting of her new identity, increasing her "commitment to delinquent others" (Hepburn 1977). This embeddedness is facilitated by opportunities suspension provides for developing friendships with peers involved in delinquency. In-school suspension increases shared experiences with other suspended students, and out-of-school suspension provides opportunities to interact with youth who are older or have already dropped out.

Several studies have assessed the extent to which involvement with delinquent peers explains the association between formal or informal labeling and subsequent delinquency. Some suggest peer delinquency mediates this association (Adams 1996; Bernburg et al. 2006; Kaplan and Johnson 1991; Wiley et al. 2013), but others find results that are weak or inconclusive. For example, Farrington (1977) finds no evidence of an increase in involvement with delinquent peers among youth with a criminal record. Johnson, Simons, and Conger (2004) find justice system involvement associated with greater peer delinquency but do not find the latter associated with subsequent delinquent behavior. One reason for these inconsistencies may be in how involvement with delinquent peers is measured. Nearly all prior labeling research relies on respondent perceptions of peer delinquency, rather than self-reports of peers. The use of respondent reports about peer behavior is widely criticized because it is subject to same-source bias. Respondent reports about their peers are more strongly correlated with respondent self-reports than they are with peer self-reports (Bauman and Fisher 1986; Haynie, Silver, and Teasdale 2006; Jussim and Osgood 1989). An alternative approach that may be especially useful is longitudinal peer network analysis because it relies on peer self-reports for capturing changes in peer behavior and friendship preferences.

Longitudinal Peer Network Approach

Longitudinal social network analysis is concerned with changes in network ties, which represent any type of interaction or exchange between actors in a network (Wasserman and Faust 1994). In line with labeling theory's emphasis on the responses of others toward a sanctioned individual, I focus on the network of friendship ties among school peers. Outgoing friendship ties are defined by preferences of the respondent toward peers (e.g., "name your closest friends in your grade and school"), and incoming ties are defined by preferences of peers toward the

respondent. This approach is well-suited for analyses of labeling theory because it allows for direct measurement of interpersonal processes and behavioral changes that labeling theory implies. Specifically, withdrawal from conforming peers can be measured by changes in friendship nominations by the respondent, and rejection by changes in peers nominating the respondent. Furthermore, peer delinquency can be measured based on peer self-reports. This has an important advantage over prior labeling research because it minimizes bias introduced by relying instead on respondent perceptions of peer behavior (Young et al. 2011).

Study Contributions

My objective is to estimate and explain the association between suspension and changes in delinquent behaviors. Although designed to deter students from subsequent misbehavior, prior research finds suspension associated with increased criminal justice involvement (Arum and Beattie 1999; Fabelo et al. 2011; Monahan et al. 2014; Mowen and Brent 2016; Ramey 2016; Shollenberger 2015). These studies may imply an increase in delinquency following suspension, but few studies have examined the association between suspension and changes in delinquent behaviors, directly. Those that do provide a strong starting point for this work but they rely on only two time-points, with concurrent measures of suspension and delinquency (Hemphill et al. 2006; Thomas and Bishop 1984).

In this study, I make three important contributions to prior suspension research. First, I rely on four waves of data, which allows me to establish the appropriate temporal order between variables and also to test mechanisms. Second, I broaden the scope of potential effects by examining associations with two adolescent outcomes: substance use and delinquency. Third, the peer network data I use come from predominantly rural schools. Much of what is known about the prevalence and behavioral effects of school suspension are based on data from urban schools

and adolescents (e.g., Losen and Martinez 2013). Labeling theory may be more relevant in rural areas if suspension is less, or, due to smaller school sizes, it is more stigmatizing because a larger portion of the students are aware of it (Hirschfield 2008).

I also make an important contribution to labeling theory. Some labeling studies find evidence that exclusion, label internalization, and peer delinquency mediate the association between an official sanction and subsequent delinquency, but overall findings have been mixed (Bernburg et al. 2006; Johnson et al. 2004; Wiley et al. 2013). I advance labeling research by using a longitudinal peer network approach to examine the extent to which (1) interpersonal and institutional exclusion, (2) within-individual changes in delinquent attitudes, and (3) within-individual increases involvement with delinquent peers explain secondary deviance following suspension. This approach should reduce measurement bias due to reliance on perceptions of peer behaviors and friendship preferences.

Data and Methods

PROSPER Data

The target sample for the PROSPER dataset was all sixth-grade students in two grade-cohorts of 28 predominantly rural public school districts in Iowa and Pennsylvania (Spoth et al. 2007). Investigators limited data collection to districts with between 1,300 and 5,200 students enrolled and no less than 15% meeting criteria for free or reduced-price lunch (14 districts in each state, about 11,000 students). They drew the sample from the entire student body at each wave, giving students the opportunity to enter or exit at any wave. Interviewers administered baseline surveys to two consecutive cohorts of students in their schools during fall of sixth grade (2002 and 2003). They also conducted follow-up surveys that spring and every spring after through twelfth grade (8 waves total). Seventy-four percent of students participated at baseline,

and 79% at the final wave. Seventy-three percent of students who participated at baseline also participated in ninth grade, and 50% in twelfth grade. Nearly all reduction was due to students exiting the study rather than refusing to participate.

The last section of the in-school survey asked students to list the names of their two closest friends and up to five other close friends in their same grade and school. Ninety-three percent of participants nominated someone in at least one wave, 79% in at least two waves. One district (3% of cases) opted out of these nomination questions after the second wave, and these are excluded from the current analyses. Researchers successfully matched 84% of nominations to names on class rosters (about 4 names per student-wave).

Interviewers administered additional surveys in the homes of a subsample of students from the 2003 cohort. They conducted these surveys concurrently with the first five waves of the in-school survey (up through ninth grade). Of 2,267 randomly selected students, 980 (43%) participated in this in-home survey at least one wave (about 3 waves per student). Questionnaires were also administered to up to two parents in the household. Of observations from participating youth, 96% had a participating mother and 67% had a participating father. Suspension data come from in-home survey youth, mother, and father reports about whether the youth was suspended in the past 12 months. I count cases as having been suspended if any of the three possible reporters indicated that the youth was suspended in the past year.

Figure 4.1 presents suspension rates for the 980 students, by gender and racial minority status, compared to rural and urban samples from the National Longitudinal Survey of Youth (NLSY97). NLSY97 data are weighted to represent youth ages 12 to 18 in 1997, roughly ten years earlier than PROSPER youth. Results for PROSPER should be interpreted with caution because the sample is much smaller, particularly when divided by race and gender at each wave.

PROPSER also includes disproportionately more Hispanics and fewer blacks than the NLSY97. Furthermore, whereas NLSY97 captures suspensions in any grade, PROSPER does not account for suspensions that occurred prior to the year leading up to the baseline survey (fifth grade), which were likely rare. Despite these differences, PROSPER suspension rates appear comparable to those in the rural and even urban subsamples of the NLSY97, and they remain so through ninth grade. The proportion of racial minorities suspended is twice as high as that of whites and remains so through ninth grade. Most striking are rates for racial minority males. In both samples, nearly half have been suspended by ninth grade.

Analytic Sample

I limit my sample to observations from students who participated in the in-home survey and were eligible to participate in the in-school survey at the same wave. In order to establish the appropriate temporal ordering among my variables, I lag explanatory variables one-year and therefore limit my analyses to 2,809 observations from follow-up waves in grades six to nine. I also drop all 107 observations of 36 students who were suspended in the year leading up to baseline. In addition, I exclude 207 observations from students who participated in the in-home survey but did not provide valid suspension data. I also remove 248 observations from students who did not participate in the in-school survey due to absence or refusal, and 17 cases from students who participated but did not provide valid data on my outcome variables. This results in an analytic sample of N=2,230 observations from 732 students. Slightly over half the sample is female, and 88% is non-Hispanic white. About half the racial minorities in my sample are Hispanic (see Table 4.1). Therefore, results of my analyses may be most representative of white and Hispanic youth attending school in rural communities.

Compared to students in the same cohort of the larger PROSPER sample, students in this analytic sample are more advantaged in ways that are correlated with delinquent behaviors. In particular, they are slightly more likely to be female and white, though no less likely to have free or reduced-price lunch status. They report less substance use in the past month and less delinquency in the past year. Because of these differences, suspended students are disproportionately excluded from my analytic sample. Indeed, by ninth grade, 15% of students have been suspended, compared to 29% of the larger in-home sample depicted in Figure 4.1. Defining the sample in this way limits the generalizability of my multivariate analyses but is necessary for a strong research design with appropriate temporal ordering and sufficient controls. Even with these sample restrictions, suspension in my analytic sample is a relatively frequent occurrence. In total, 107 students experienced 326 suspensions between the sixth and ninth grades (average of 3 suspensions per person). The rate per person among racial minorities was slightly higher than for whites (3.3 compared to 3.0), and the rate for males was higher than that for females (3.4 compared to 2.5). Most suspensions (63%) were split between the seventh and eight grades.

Variables

Outcome Variables. To capture a broader scope of the types of adolescent delinquent behaviors that suspension may impact, I build on prior research which has focused primarily on past-year delinquency by including a measure of past-month substance use as an additional outcome. Both are based on items in the in-school survey. Substance use is constructed from responses to four items about the frequency of four activities in the past month: smoking cigarettes, drinking alcohol, getting drunk, and smoking marijuana. Response options range from 1 = not at all to 5 = more than once per week. Similar to those used in prior suspension research

(Hemphill et al. 2006; Thomas and Bishop 1984), delinquency is constructed from responses to 12 items about the frequency of specific delinquent behaviors in the past 12 months. These behaviors are of varying degrees of severity and include such acts as theft, fighting, skipping school, and getting picked up by police. Response options range from 1 = never to 5 = five or more times. To avoid issues with skewness in combining items for both of these measures, they are constructed using the graded response model from item response theory (Samejima 1969). This transforms discrete items into a scale with a mean of 0 and standard deviation of 1 (Osgood, McMorris, and Potenza 2002). Descriptives are presented in Table 4.1 and show levels of substance use and delinquency increasing as students move from grade to grade.

Main Explanatory Variable. Suspension is a stigmatizing event that may be subject to underreporting. I minimize this by relying on data from multiple reporters to construct a single binary measure. Survey items asked students and up to two participating parents about whether the student was suspended in the past 12 months. Information about the length of suspension or whether it was in-school or out-of-school was not collected, precluding me from examining such heterogeneity in suspension experiences. Any response indicating that the student was suspended, whether consistent with other reporters or not, is coded as 1. Because suspension is indicative of a delinquent label carried with the student throughout school, I also code any observations that follow the first-reported suspension as 1. The resulting construct measures whether the student has ever been suspended by a given wave.

This binary measure allows me to estimate average effects over time but it may also be problematic for two reasons. First, in the year it occurs, suspension is measured concurrently with my two outcome measures. This is particularly a problem with past-year delinquency and less so with past-month substance use. Second, the delinquent label marked by suspension is

carried over across years, complicating efforts to establish the appropriate temporal ordering between suspension and the two outcomes. To address these issues, I employ two alternative measures of suspension in addition to the one already described. The first is a one-year lag, allowing me to examine the association of suspension occurring between 12 and 24 months ago with (1) delinquency in the past 12 months and (2) substance use in the past 1 month. The second alternative measure is also a one-year lag but it drops all subsequent observations from suspended students. Thus, it measures the first-reported suspension only.

Mediating Variables. The mechanisms of secondary deviance are exclusion, label internalization, and involvement with delinquent others. Exclusion is divided into separate measures of institutional and interpersonal exclusion. To capture institutional exclusion, I focus on within-individual change in two measures: school attachment and school grades. *School attachment* is represented by a mean composite of five items in the in-home survey about how the respondent feels about her current school. Examples include "I like being in my school" and "I would be much happier if I could go to a different school" (reverse coded). Response options range from 1 = not at all true to 5 = really true (alpha=0.83). *School grades* is based on responses to the in-home survey question, "Which of the following best describes the grades you usually get in school?" Response options range from 1=mostly F's to 9=mostly A's. Participating parents responded to a similarly worded question about the youth's grades. To improve measurement reliability, I average across responses of all participating reporters (alpha=0.91). Table 4.1 shows little change in school attachment over time apart from a small dip in ninth grade. On the other hand, grades show a steady decline as students move from grade to grade.

To capture interpersonal exclusion from conforming peers, I include three measures: separation, rejection, and withdrawal. *Separation from conforming peers* is meant to capture the

length of separation from peers in school due to suspension. PROSPER does not include data on the length of each suspension, but it does include information on absences. Using data on school absence captures out-of-school suspensions but not in-school suspensions. The in-school survey asked, "About how many days were you absent from school last year?" Responses range from 1 = none to 5 = sixteen or more days. From these, I construct a binary measure using 4 = seven to fifteen days as a cutoff, so that the final measure is coded 1 if the student missed 7 or more days. This cutoff is arbitrary but is more than would be expected for illness or other reasons. It also has a stronger correlation with suspension than cutoffs from other categories. *Rejection from conforming peers* represents the proportion of conforming peers who nominated the respondent as a friend in the preceding but not again in the current year. *Withdrawal from conforming peers* is measured in the same way but opposite direction. It is the proportion of conforming peers whom the respondent nominated last year but not again in the current year. I construct two measures each for rejection and withdrawal, based on two definitions of conforming peers: those who abstain from using substances and those who do not engage in delinquency. However, the two measures for each construct are highly correlated (r=.80), so I standardize them and combine them into sum composites. This results in a single measure each for rejection and withdrawal.

To capture attitudinal changes indicative of label internalization, I focus on within-individual change in two measures: moral acceptance of delinquent behaviors and willingness to accept invitations to engage in delinquent behaviors. *Moral acceptance of delinquent behaviors* is based on responses to in-home survey question, "How wrong do you think it is for someone your age to do the following things?" Items related to substance use are similar to items used in the substance use outcome measure (8 items, alpha=0.90), and items related to delinquency are similar to items in the delinquency outcome measure (10 items, alpha=0.82). Responses are

coded 1 = not at all wrong to 4 = very wrong. Items are reverse coded and then summed into two scales, one for substance use and the other for delinquency. The scales are then transformed using their natural log to avoid issues with skewness. *Willingness to accept invitations for delinquent behaviors* is available for substance use only. It is based on responses to in-home survey question, "If you were at a party and one of your friends offered you an alcoholic drink, how likely would you be to do each of these things?" Examples of six items include "drink it" (reverse coded) and "stop being friends with that person." Responses range from 1 = very likely to 5 = very unlikely. Items are combined into a single sum composite (alpha=0.84).

To capture involvement with delinquent peers, I include two measures based on peer self-reports for substance use and delinquency. Items include the same items used to construct my two outcome measures and are transformed into equal-interval scales using item response theory, as explained previously in the description of my outcome variables. For each delinquent behavior variable, I compute the mean across the respondent's friends. Friends may be defined by incoming ties, outgoing ties, or undirected ties. I focus on *delinquent behaviors among undirected ties* because this captures behavior of all friends. Those with reciprocated ties are only counted once. However, to determine whether peers who nominate the respondent as a friends or peers whom the respondent nominates as a friend have greater influence in explaining the association between suspension and delinquent behaviors, I also explore the impact of comparable measures for incoming and outgoing ties separately. As shown in Table 4.1, substance use and delinquency among incoming and outgoing ties increase as advance in grade.

Control Variables. To minimize differences between suspended and never-suspended students, I include a long list of control variables. These are lagged one year to account for differences prior to suspension. Controls include characteristics of the student's family and home

environment, socioeconomic status, and parenting behaviors. I also include such characteristics as risk-seeking behavior and bully victimization that are likely correlated with suspension and delinquent behaviors. In addition, I include characteristics of the respondent's school grade, community, structured and unstructured activities, and friends. A list of these variables is included in Table 4.1 and complete coding information is presented in Appendix J.

Analytic Strategy

My two primary objectives are to (1) estimate the associations between suspension and two delinquent behavior outcomes: past-month substance use and past-year delinquency and (2) attempt to explain these associations using the mechanisms I draw from labeling theory. To meet the first objective, I must adjust for nonrandom differences between suspended students and never-suspended students while ensuring that suspension is observed prior to outcome variables. For this, I begin with a series of random-effects linear regression models. Each consecutive model builds on the last by adding a set of controls or constraints.

In the first stage, I examine the within-individual association between suspension and each of my outcomes. These within-individual comparisons correspond to a hybrid approach to fixed-effects analysis (Allison 2009). They involve centering suspension on its individual-level means and including the individual-level means as an additional control. I then add time-varying controls to account for other time-varying characteristics that may make the association spurious. Results should be similar to those in prior research because suspension is measured concurrently with the outcome variables (Hemphill et al. 2006; Thomas and Bishop 1984).

To advance this earlier work by establishing the appropriate temporal ordering between suspension and my delinquent outcomes, I extend these analyses with two variations of the analysis strategy. The first variation is a one-year lag, so that suspension is observed in the year

prior to delinquency and substance use. This addresses issues with temporal ordering but assumes the effect is constant across subsequent years. Thus, in the second variation I retain the one-year lag and drop all subsequent observations of suspended students (n=55), so that suspension represents first-reported suspensions only. This measure minimizes issues with temporal ordering even further, and comparing the results provides information about the duration of effects over time. If delinquent behavior leads to subsequent suspensions that increase the total effect, then the difference between suspended and non-suspended students would grow over time. On the other hand, it is plausible that the impact of suspension weakens over time. Omitting subsequent observations of suspended students from the analysis will avoid the assumption of a constant effect, although at the cost of reduction in statistical power.

Finally, with the one-year suspension lag and subsequent observations of suspended students removed, I make one last attempt to adjust for selection. I do this by further limiting the sample to observations in which students may be at greater risk of suspension. I define greater risk as having (1) delinquency levels in the preceding grade that were higher than the median at that wave, (2) substance use in the previous grade that was higher than the median at that wave, or (3) school grades in the preceding grade that were in the lowest quartile at that wave. Removing observations that do not meet this criterion bolsters my analyses by increasing similarity between observations in which students are suspended and cases in which they are not. Therefore, if selection is still an issue in my results up to this point, effect sizes in this last set of models should shrink. On the other hand, an effect size that remains stable would provide greater confidence in my results.

In the second stage of my analyses, I attempt to explain the association between suspension and each of my delinquent behavior outcomes using the mechanisms described

previously: institutional and interpersonal exclusion, changes in attitudes toward delinquent behaviors, and changes in involvement with delinquent peers based on peer self-reports. I estimate the percent of the association explained by each mediating variable separately and then together. For labeling theory to receive full support, I should find that all mechanisms together explain a large portion of the association between suspension and my delinquent behavior outcomes, bringing regression coefficients for suspension close to 0 and rendering them statistically nonsignificant.

Results

Estimating the Association between Suspension and Delinquent Behaviors

Table 4.2 presents results for the first stage of my analyses in which I estimate the association between suspension and each delinquent behavior outcome. The left column refers to the association with past-month substance use, and the right column to past-year delinquency. Results for each delinquent behavior outcome are divided into three sections corresponding to the three variations of my analytic strategy described previously.

In the first section of Table 4.2, I measure suspension concurrently with the outcome variables, as has been the approach in prior research (Hemphill et al. 2006; Thomas and Bishop 1984). Before time-varying controls are added, suspension is associated with a 0.39 standard-deviation unit increase in substance use and a 0.22-unit increase in delinquency. Adding time-varying controls to the models reduces the size of the suspension coefficient in the substance use model by roughly 15% and in the delinquency model by about 26%, but both remain statistically significant (full models with all controls presented in Appendix K). These findings are consistent with earlier work suggesting suspension is associated with increased delinquent behavior. However, measuring suspension concurrently with my outcome measures limits what I can infer

from my results because I do not have information on the timing of suspension relative to involvement in substance use or delinquency within the same year. This may be less of a concern with substance use because it is observed in the past month, but it would still bolster my models and advance research in this area to verify whether theses associations remain when suspension is observed in the year prior to these delinquent behaviors.

To address this concern, I lag suspension one year in the second section of Table 4.2. The coefficient in the substance use model declines some but remains statistically significant. In years when students have been suspended, their past-month substance use is 0.25 standard deviation units higher on average than it was prior to their first-reported suspension. In contrast, the coefficient in the delinquency model drops to just below zero and becomes statistically nonsignificant when suspension is lagged one year. Substance use increases following suspension but delinquency does not. Measuring suspension in this way captures the average effect over time but still assumes a constant effect over time. Effects may increase or weaken over time depending on the continuation of labeling processes. Therefore, I supplement these results with effects for first-reported suspension.

In the third section of Table 4.2, I retain the one-year lag but remove subsequent observations of suspended students. The suspension coefficient in the substance use model remains positive and statistically significant ($b=0.22$; $p<.05$). It does not increase, meaning effects do not weaken by ninth grade. Results for delinquency remain close to zero and statistically nonsignificant. Finally, using this third measure of suspension, I make one last attempt to adjust for unobserved heterogeneity in my models. I do this by limiting the sample to observations when students are at greatest risk of suspension, which I define as having above-median levels of substance use or delinquency or having very low grades (lowest quartile) in the

preceding year. The suspension coefficient dips just below statistical significance because of the substantial decrease in sample size, but the size of the coefficient remains stable, even increasing slightly, bolstering confidence in my estimates. The coefficient in the delinquency model increases even more, and in the opposite direction, but is accompanied by a larger standard error as well, so that results remain statistically nonsignificant.

Explaining the Association between Suspension and Substance Use

I now move to the second stage of my analyses, in which I attempt to explain the association between suspension and delinquent behavior. I focus on substance use here because I find no evidence of an association between suspension and subsequent delinquency. To begin, I drop n=250 student observations with no incoming or outgoing nominations in the preceding grade (complete isolates). This is necessary because some of my major mediating variables, such as interpersonal exclusion and involvement with delinquent peers, have to do with changes in friendships over time. With this smaller sample (N=1,941 observations, 689 students), I rerun the first model in Section 3 of Table 4.2 that includes all time-varying controls and for which suspension is lagged one year and excludes subsequent observations of suspended students. I use this model as a baseline because it most clearly establishes the appropriate timing among my variables and leaves an 11-month gap between the year in which suspension is observed and the month in which substance use is observed. This nearly year-long gap is important because it allows me to measure within-individual change in the mediating variables that occurs after suspension and almost completely before substance use is observed. To capture within-individual change, I include individual-level means for relevant mediating variables as additional controls in this baseline model, and I focus on change in the suspension coefficient when wave-specific deviations from those means for each variable are added to the model.

Results of this baseline model are consistent with those presented in Table 4.2. Substance use increases by an average of 0.33 units by the last month of the year following their first reported suspension ($p<.05$). Changes to these results, representing the indirect effects of suspension on substance use are presented in Figure 4.2. Each mediating variable is included separately and then as a group representing its respective mechanism. In describing these results, I begin with exclusion and move upward in the figure toward involvement with delinquent peers. Within-individual increases in separation from conforming peers explain 6% of the association between suspension and substance use, but this change is not statistically significant. Other forms of interpersonal exclusion, including rejection and withdrawal explain none of the association. In regards to institutional exclusion, declining school grades explain 9% of the association with substance use ($p<.05$), but reductions in school attachment explain none. Together, lower grades and separation explain 12% of the increase in substance use following suspension ($p<.05$).

Changes in attitudes toward substances, and involvement with delinquent peers explain much more of the association with substance use. Beginning with attitudes, greater moral acceptance of substance use and greater willingness to accept invitations to use substances each explain just over one-tenth of the increase in substance use following suspension. Together, these attitudinal changes explain nearly a fifth of the association ($p<.10$). Changes in substance use among friends explains the largest portion (31%) of the association between suspension and substance use ($p<.01$). The influence of friends appears to be due more to changes in the composition of peers whom the respondent nominates as a friend (28%) more than the composition of peers who nominate the respondent (22%), but changes in both types of friends appear to be influential ($p<.05$). Finally, I include all mediating variables into a single model.

These mechanisms together explain 43% of the increase in substance use following suspension ($p<.01$), leaving just over half of the association still unexplained.

Discussion

In this paper, I have sought to build on prior school suspension research while advancing labeling theory. I do this by testing labeling theory in the context of suspension, a type of formal social control designed to deter students from subsequent misbehavior. Suspension is a common experience for adolescents in the US, particularly racial minority youth. Indeed, data in my rural sample, which are consistent with urban and rural samples in the NLSY97, suggest that in a classroom of 20 white males, 6 have been suspended by ninth grade, compared to 10 in a classroom of black males (respectively 3 and 6 in classrooms of females) (also see Skiba et al. 2012; Morris and Perry 2017). A growing number of studies suggest such disparities are problematic because suspension is associated with increased criminal justice contact (Arum and Beattie 1999; Monahan et al. 2014; Mowen and Brent 2016; Ramey 2016), even though it is administered primarily in response to minor classroom misbehavior (Skiba et al. 2014).

These prior findings are consistent with labeling theory (Becker 1963; Lemert 1951, 1967; Tennenbaum 1951), which suggests delinquency may increase following suspension from school, but few studies have examined behavioral outcomes of suspension directly (Hemphill et al. 2006; Kaplan and Johnson 1991; Thomas and Bishop 1994). Furthermore, the extent to which the mechanisms of secondary deviance explain the association between suspension and subsequent delinquent behavior has not yet been adequately established. I have sought to advance labeling theory by applying a peer network approach. Social network data allow for direct examination of mechanisms of secondary deviance that have largely been excluded from prior research. Moreover, a longitudinal design improves upon these methods even more by

allowing for the estimation of within-individual effects and the extent to which within-individual changes in mechanisms mediate these effects. The mechanisms I have examined, as implied in labeling theory, are institutional and interpersonal exclusion, attitudes toward delinquent behaviors indicative of label internalization, and involvement with delinquent peers.

I find strong evidence that adolescent substance use increases following suspension from school. Suspension appears to increase substance use by about one quarter of a standard deviation. This association is within-individual, meaning it compares the behavior of suspended students to their own behavior prior to their suspension. This finding is robust to controls for the increasing risk of substance use and suspension over time, as well as a long list of time-varying controls. The association also holds when limiting the sample to observations when students are at greatest risk of suspension. This finding is consistent with labeling theory and builds on prior research documenting greater risk of criminal justice involvement following suspension by suggesting one avenue for this may be through increased substance use.

Suspension is associated with secondary deviance, but it does not appear related to all types of secondary deviance. Farrington (1977:123) called for labeling research that examines "whether deviance amplification occurs with all kinds of deviant behavior." In the context of suspension in rural schools, my findings suggest it does not. In particular, although I find strong evidence for an increase in substance use following suspension, the association with subsequent delinquency appears almost completely due to nonrandom differences between students who get suspended and those who don't, or to reverse causality. Students who get suspended become more involved in substance use, but are just as involved in delinquency as they were prior to their suspension. Reasons for these differential effects are unclear but may have to do with the ways in which suspended students are perceived in these rural communities. Suspension may be

especially stigmatizing in these smaller communities where it is more visible given fewer students (Hirschfield 2008). Suspension marks a student as a delinquent youth, the image of which may have more to do with drug use and drinking than it has to do with other delinquent behaviors. This may be especially true if different communities define delinquent youth by acts that are most visible or most prevalent in the community. Indeed, several studies find youth substance use more common in rural samples (Atav and Spencer 2002; Califano 2000; Gfroerer, Larson, and Colliver 2007) and in recent years drug use has been a topic of much public concern in rural communities, including where these data were collected. If students in my sample were most often suspended for using substances, they may be labeled as substance users and subsequently more likely to use drugs and alcohol as result. PROSPER, like most large-scale surveys, lacks information about specific incidents that resulted in each suspension. Therefore, future research should attempt to test these ideas using data from administrative records.

Consistent with labeling theory, I find greater involvement with delinquent peers explains a large portion (nearly a third) of the increase in substance use due to suspension. This finding is consistent with prior school punishment research (Kaplan and Johnson 1991) and other labeling studies. In examining the effects of criminal justice contact on subsequent delinquency, Bernburg and colleagues (2006) find peer delinquency explains 17% of the association between justice system involvement and subsequent delinquency.[3] Wiley and colleagues (2013) estimate it at about 26%. I build on these studies by improving the measurement of involvement with

[3] Bernburg and colleagues (2006) find that peer delinquency explains 17% of the association between juvenile justice intervention and delinquency. They also find that gang membership explains 22% of this association and that together, peer delinquency and gang membership explain 46% of the association. Gang membership may be another type of involvement with delinquent peers, but I have not measured it here.

delinquent peers using a peer network approach. Instead of relying on respondent perceptions of peer behavior, which may introduce bias (Bauman and Fisher 1986; Young et al. 2011), I rely on peer self-reports. Finding that peer substance use mediated 31% of the effect of suspension suggests the mediating effects of peer behavior may be larger than estimated in previous studies. These findings stress the importance of relying on peer self-reports of involvement in delinquent behaviors and friendship preference, rather than on respondent perceptions.

Due to the large effect of involvement with delinquent peers in explaining secondary deviance, Adams (1996) suggested that labeling theory be integrated with differential association theory, which emphasizes the role of certain peer interactions in causes of delinquency (Sutherland 1947). I argue that such an approach should only be considered if the other mechanisms implied in labeling theory, including exclusion and label internalization, are inconsequential. My findings here suggest they are not as impactful as involvement with delinquent peers, but the extent to which they explain increases in substance use is not inconsequential. The changes in attitudes toward adolescent substance use that I have measured explain nearly 20% of the association between suspension and subsequent substance use. This finding is very consistent with Wiley and colleagues (2013) who found similar measures of changes in attitudes toward delinquent behaviors explain about 20% of the association between police contact and subsequent delinquency. My analyses build on these earlier studies by examining within-individual change in such indicators, subsequent to rather than concurrent with years in which suspension and delinquency are observed. Nevertheless, they are limited in that they do not capture label internalization directly. A more ideal measure would be reflected appraisals (Matsueda 1992) or a delinquent self-concept, but Thomas and Bishop (1984) find little evidence that the latter would mediate the association between suspension and subsequent

delinquency. Inconsistent with labeling theory, I find that more than half of the association with substance use is left unexplained. It is possible that a more direct measure of label internalization would have explained more of the association between suspension and subsequent substance use.

Also inconsistent with labeling theory, I find that institutional and interpersonal exclusion explain only a small part of the association with substance use. Labeling theory suggests that label internalization and involvement with delinquent peers are often triggered by weakened attachment to conventional means of success such as school, and by rejection and withdrawal from conforming others. Much prior research suggests official sanctions lead to social exclusion in terms of weakened attachment to institutions (Brayne 2014; Pager 2003; Lageson 2016), but few studies have examined exclusion that is interpersonal (Lemert 1967).[4] One relevant exception is Wiley and colleagues (2013) who examine the role of various indicators of institutional and interpersonal exclusion in explaining the impact of police contact on subsequent delinquency. Consistent with their results, I find most of what is explained by exclusion is due to declining school grades. I also find a small amount of this association may be due to separation from conforming school peers, but none is due to rejection or withdrawal from conforming peers. Even though my measures have an important advantage in that they are based on peer self-reports of behavior and friendship preferences, they are consistent with findings by Wiley and colleagues (2013), which were based on respondent perceptions. These results stand in contrast to important propositions in labeling research (Lemert 1967; Link 1987; Link et al. 1989) and warrant further investigation in future research.

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[4] An exception may be the work on the impact of incarceration on marriage and cohabitation relationships (Lopoo and Western 2005; Massoglia, Remster, and King 2011; Siennick, Staff, and Stewart 2014).

Conclusion

Overall my findings provide partial support for labeling theory and strong evidence that substance use increases following suspension from school. Suspension is most commonly administered for minor classroom disruptions and attendance problems (Connecticut State Department of Education 2015; Skiba et al. 2014), and it may provide an avenue for otherwise conforming students to meet and develop friendships with peers who use drugs or alcohol. This could occur either out of school (out-of-school suspension) or in a segregated setting within school (in-school suspension). I am unable to distinguish between the two sanctions in my dataset. Regardless, schools seeking to address classroom misbehavior should consider alternative methods that do not facilitate such changes in peer networks or in accompanying changes in attitudes toward substance use. Some research suggests that school-based substance use intervention programs, particularly those targeting the influence potential of school peers, may be an effective alternative (Osgood et al. 2013; Owen, Wettach, and Hoffman 2015).

Table 4.1. Sample Descriptives by Grade

	6th Grade		7th Grade		8th Grade		9th Grade	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Outcome Variables								
Past-month substance use (IRT)	0.03	0.36	0.10	0.48	0.28	0.71	0.47	0.90
Past-year delinquency (IRT)	-0.07	0.52	-0.04	0.54	0.04	0.63	0.06	0.69
Main Explanatory Variable								
Ever suspended	0.04	0.20	0.09	0.29	0.15	0.35	0.15	0.35
Mediating Variables								
School attachment (z-score)	0.10	1.01	-0.02	1.03	-0.02	0.98	-0.09	0.97
School grades (z-score)	0.13	0.88	0.02	1.04	0.01	1.08	-0.21	1.13
Separation from normative peers (absent 7+ days)	0.20	0.40	0.20	0.40	0.25	0.43	0.26	0.44
Rejection from normative peers (z-score)	-0.51	1.81	0.40	1.69	0.31	1.84	-0.06	1.82
Withdrawal from normative peers (z-score)	-0.36	1.64	0.52	1.66	0.49	1.83	0.23	1.84
Moral acceptance of delinquency (z-score)	-0.34	0.77	0.01	0.99	0.30	1.06	0.65	1.09
Moral acceptance of substance use (z-score)	-0.31	0.56	-0.06	0.94	0.20	1.17	0.59	1.34
Willingness to accept invitation for substance use (z-score)	-0.26	0.86	-0.03	1.01	0.17	1.01	0.53	1.15
Substance use among incoming ties (z-score)	-0.54	0.38	-0.38	0.55	-0.22	0.68	0.06	0.91
Substance use among outgoing ties (z-score)	-0.57	0.41	-0.39	0.58	-0.14	0.75	0.13	1.06
Delinquency among incoming ties (z-score)	-0.35	0.72	-0.25	0.75	-0.11	0.86	-0.03	0.96
Delinquency among outgoing ties (z-score)	-0.35	0.75	-0.18	0.81	-0.04	0.97	0.04	1.04
Control Variables (Lagged One Year if Time Varying)								
Male	0.46	0.50	0.46	0.50	0.46	0.50	0.46	0.50
Nonwhite	0.12	0.33	0.11	0.31	0.12	0.32	0.12	0.32
Mother relationship transitions (z-score)	0.03	0.98	-0.05	0.94	-0.05	0.96	0.00	1.05
Number of children in household (0 to 8)	2.44	1.02	2.42	1.06	2.38	1.04	2.32	1.02
Mother has depressive symptoms	0.26	0.44	0.20	0.40	0.20	0.40	0.18	0.39
Parent education (z-score)	-0.02	0.87	0.05	0.82	0.06	0.87	0.08	0.86
Household income (log)	10.69	0.83	10.76	0.87	10.79	0.73	10.84	0.72
Parent unemployed	0.13	0.34	0.14	0.35	0.24	0.43	0.23	0.42
Harsh/inconsistent parental discipline (z-score)	0.14	0.93	0.26	0.98	0.19	1.04	0.22	0.98
Parental monitoring (z-score)	0.46	0.66	0.44	0.70	0.37	0.73	0.33	0.87
Internalizing behavior problems (z-score)	0.19	0.19	0.14	0.19	0.16	0.20	0.17	0.21
Risk-seeking behavior (z-score)	-0.32	0.91	-0.37	0.91	-0.27	0.90	-0.21	0.96
Community cohesion (z-score)	0.02	1.03	-0.05	0.93	-0.09	0.95	-0.07	0.99
Years in residence (z-score)	-0.20	0.90	-0.12	0.90	0.03	0.97	0.21	1.03
Miles from school (log)	1.22	0.61	1.24	0.62	1.26	0.64	1.30	0.68
Religiosity (z-score)	-0.14	0.94	-0.16	0.91	0.06	0.95	0.14	1.01
Unstructured socializing (z-score)	0.09	1.00	0.10	0.95	0.07	0.99	0.07	0.99
Structured activities outside school (z-score)	-0.04	0.99	0.03	0.98	0.03	0.97	0.00	0.93
Bully victimization (z-score)	0.01	1.04	0.02	1.02	0.06	1.06	-0.04	0.92
Attending new school	0.00	0.00	0.00	0.04	0.35	0.48	0.02	0.12
Number of students in school-grade (6 to 493)	162.14	104.15	161.16	101.40	192.22	101.07	190.53	92.54
Number of undirected ties (0 to 20)	5.94	2.89	6.79	3.04	6.92	2.96	6.71	2.99
Racial composition of undirected ties (z-score)	0.12	0.75	0.17	0.73	0.20	0.64	0.22	0.69
N	659		591		527		455	

Notes: PROPSER. Sample limited to follow-up observations of in-home study participants meeting the following criteria: participated in in-school survey, not suspended by fall of sixth grade, provided valid data on suspension and outcomes. N=2,232 observations; 723 students. IRT = item response theory scale. Results based on first of 20 multiply imputed datasets.

Table 4.2. Random-Effects Linear Regression Models of Association between Suspension and Delinquent Behaviors

Model	Past-Month Substance Use		Past-Year Delinquency		Obs.	Students
	b	*se*	*b*	*se*		
1. Suspension Measured Concurrently with Outcome						
Ever Suspended	0.39	(0.11) ***	0.22	(0.08) **	2,232	723
Add Time-Varying Controls	0.32	(0.11) **	0.17	(0.08) *	2,232	723
2. Lag Suspension One Year						
Ever Suspended, Time-Varying Controls Added	0.25	(0.10) *	-0.03	(0.08)	2,232	723
3. Lag Susepnsion One Year, First-Reported Suspension Only						
Suspended, Time-Varying Controls Added	0.22	(0.11) *	-0.06	(0.09)	2,177	723
Limit to Observations with Antisocial Behavior in Last Wave	0.27	(0.14) #	-0.14	(0.13)	928	466

Notes : PROSPER. Sample limited to follow-up observations of in-home study participants meeting the following criteria: participated in in-school survey, not suspended by fall of sixth grade, provided valid data on suspension and outcomes. Substance use and delinquency are scaled using item response theory. Time-varying controls include current grade, mother relationship transitions, number of children in household, mother depression, parent education, household income, parent unemployed, parental discipline, parental monitoring, internalizing behavior problems, risk-seeking behavior, community cohesion, years in residence, miles to school, structured activities outside school, unstructured socializing, religiosity, bully victimization, attending new school, size of school-grade, number of undirected friendship nominations, racial composition of undirected friendship nominations. Standard errors clustered at individual level. Results combined across 20 multiply imputed datasets. ***p<.001; **p<.01; *p<.05; #p<.10

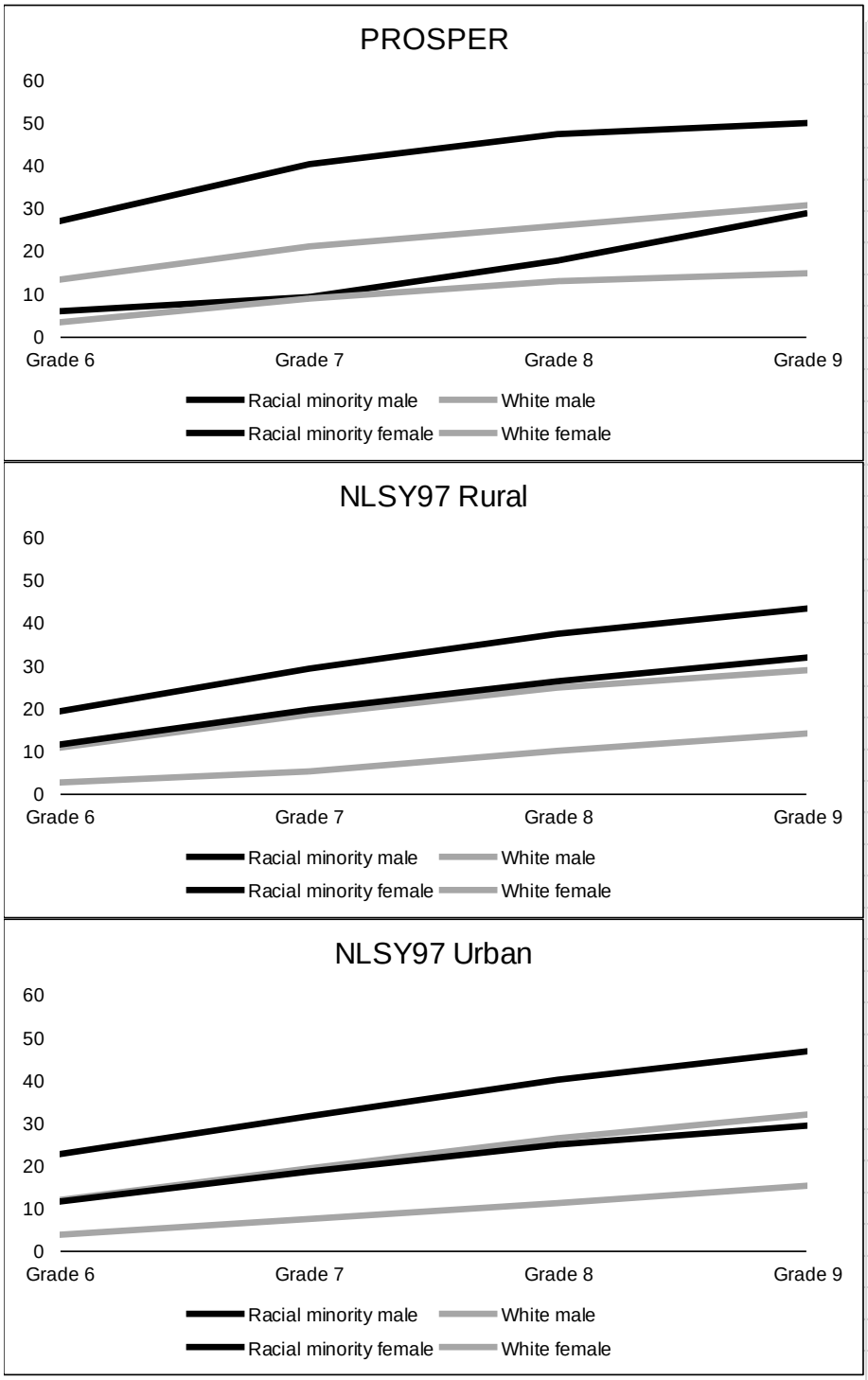


Figure 4.1. Porportion Ever Suspended, PROSPER and the National Longitudinal Survey of Youth, 1997 Cohort

Notes : PROSPER. N=980 students with some variation across waves. NLSY97 data weighted to account for oversampling of racial minorities; N=8,984 youth, but 380 excluded due to unknown urban/rural status. Urban/rural defined by Census, based on respondent's 1997 residence. PROSPER includes disproportionately more Hispanics and fewer blacks than NLSY97.

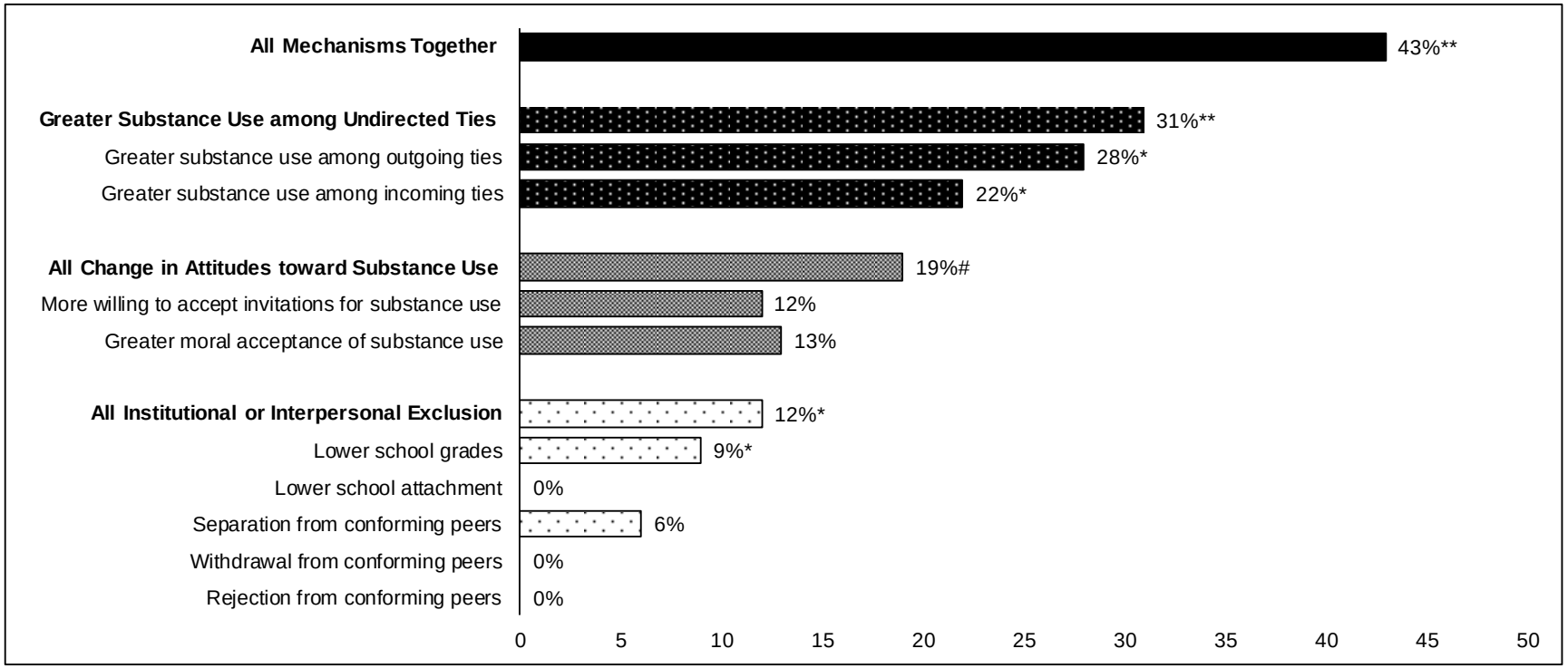


Figure 4.2. Percent Decline in Size of Within-Individual Coefficient for Suspension Due to Mediating Variables in Random-Effects Linear Regression Models of Past-Month Substance Use

Notes: PROSPER. Sample limited to follow-up observations of in-home study participants meeting the following criteria: participated in in-school survey, not suspended by fall of sixth grade, provided valid data on suspension and outcomes. Observations without friendship nominations in the preceding wave are also excluded. Time-varying controls in all models include current grade, mother relationship transitions, number of children in household, mother depression, parent education, household income, parent unemployed, parental discipline, parental monitoring, internalizing behavior problems, risk-seeking behavior, community cohesion, years in residence, miles to school, structured activities outside school, unstructured socializing, religiosity, bully victimization, attending new school, size of school-grade, number of undirected friendship nominations, racial composition of undirected friendship nominations. Results combined across 20 multiply imputed datasets. **p<.01; *p<.05; #p<.10

Chapter 5. CONCLUSION

School suspension is a common occurrence in the lives of youth growing up in the United States, particularly for racial minorities and others who are disadvantaged (Losen 2015). Although designed as other formal sanctions, with the intent to deter students from future misbehavior (Pratt et al. 2006; Stafford and Warr 1993), nearly all studies find suspension associated with increased levels of delinquency and greater risk of criminal justice involvement (Hemphill et al. 2006; Mowen and Brent 2016; Ramey 2016). Labeling theory suggests formal sanctions like suspension may increase subsequent delinquent behavior if they lead to social exclusion, the internalization of a delinquent label, and greater involvement with delinquent peers (Becker 1963; Goffman 1963; Lemert 1951, 1967; Paternoster and Iovanni 1989). Labeling theory may explain these apparent criminogenic effects of suspension, but few studies have examined these mechanisms empirically, particularly in the context of school suspension.

In this dissertation, I have sought to advance knowledge on school punishment while building on prior research on labeling theory. I have done this by testing the secondary deviance hypothesis within the context of suspension. To improve upon prior measurement of the mechanisms of secondary deviance, I have adopted a longitudinal social network approach (Wasserman and Faust 1994). This approach relies on peer self-reports of their own behavior rather than respondent perceptions, which are subject to bias (Bauman and Fisher 1986; Young et al. 2011). I have used data from PROSPER, a large data set of students in rural communities and their same-grade peers, surveyed annually from sixth to twelfth grade. Suspension among these students appears about as prevalent as it is in national samples.

Overall, I find partial support for labeling theory that is consistent with prior research on other types of official sanctions (Wiley et al. 2013). I find strong evidence that suspension is

associated with increased substance use but not delinquency. I also find that greater involvement with substance-using peers and changes in attitudes toward substance use explain a substantial portion of this association. Less is explained by exclusion. My findings are consistent with other research suggesting suspension may be harmful for youth who experience it (Hemphill et al. 2006; Jacobsen, Pace and Ramirez 2016). Given that racial minority and other disadvantaged youth are much more likely to be suspended, my results suggest that school policies relying heavily on suspension may be fostering inequality and the perpetuation of delinquent behavior in schools. Here I review my most important findings regarding suspension and each of the three mechanisms of secondary deviance I have examined. I conclude with a discussion of implications for school policy and intervention strategies.

Exclusion from Normal Routines and Interactions

In Chapter 2 I found strong evidence that suspension weakens ties to friends in school. This effect is small but consistent across outgoing and incoming ties. It is partly due to lengthy or repeated separations from school that often accompany suspension. Remaining effects may be driven by stigma through processes of rejection and withdrawal from former friends. These findings are consistent with labeling theory and contribute to a host of other studies documenting severed ties and institutional exclusion following official sanctions, most of which has focused on criminal justice involvement (Brayne 2014; Foster and Hagan 2015; Geller and Curtis 2011; Haskins and Jacobsen in press; Lageson 2016; Lopoo and Western 2005; Massoglia, Remster, and King 2011; Pager 2003; Uggen, Manza, and Thompson 2006; Wakefield and Uggen 2010). Friends in school are important sources of social capital that may facilitate healthy adolescent development (Crosnoe 2000; Giordano 2003). Given that suspension is disproportionately

concentrated among the more disadvantaged students, these findings imply that suspension may foster inequality by reducing social capital among youth who need it most.

Even though my findings suggest suspension severs ties to conforming peers, I find little evidence in Chapter 4 that this effect translates into higher levels of delinquent behavior following suspension. I find evidence that suspension increases substance use, but neither interpersonal nor institutional exclusion explain much of this association. Furthermore, although some of the association between suspension and involvement with delinquent peers found in Chapter 3 was explained by withdrawal from conforming peers, none of the effect of suspension on subsequent substance use was explained by withdrawal from or rejection by conforming peers. These findings warrant further investigation in future research because they are inconsistent with labeling theory. However other labeling research has found similar results (Wiley et al. 2013). It may be that weakened school attachment and exclusion from school peers following suspension lead to other types of deviant behaviors that I have not examined, such as cheating or dropping out. Indeed, future labeling research should examine differential effects of official sanctions like suspension for different types of deviant behavior (Farrington 1977).

Label Internalization

In this dissertation, I have not attempted to measure label internalization directly. A more adequate measure would have relied on respondent self-reports of their delinquent self-concept or reflected appraisals (Matsueda 1992; Thomas and Bishop 1984). Instead, I have relied on measures of respondent attitudes toward delinquency and substance use because attitudes should become more accepting of such behaviors as the label is internalized (Wiley et al. 2013). Consistent with these ideas and in support of labeling theory, in Chapter 3 I found within-individual changes in attitudes toward substance-use partially explain the association between

suspension and greater involvement with substance using peers. Moreover, in further support of labeling theory and the secondary deviance hypothesis, in Chapter 4, I found that such changes also partially explain increasing levels of substance use following suspension.

A major strength of my dissertation has been on my measures of change in peer behavior and relationships in relation to suspension, but a more thorough test of the secondary deviance hypothesis is limited by my use of attitudinal changes as an indicator of label internalization. Future research should attempt to replicate these findings using more sophisticated measures of this concept, such as self-reports of a delinquent self-concept or peer reflected appraisals, similar to measures in prior research on informal labeling (Matsueda 1992).

Support from Deviant Others

In Chapter 3, I found evidence that students become more involved with substance-using but not delinquent peers following suspension from school. I also found the association with substance-using peers partially explained by withdrawal from conforming friends and attitudinal changes toward greater acceptance of substance use following suspension. These findings provide little support that suspension acts as a deterrent (Pratt et al. 2006; Stafford and Warr 1993), leading youth to cut ties with old friends involved in delinquent behavior, in order to avoid another offense or apprehension (Abrams 2006). Instead, my results are consistent with the "supportive deviant others" hypothesis of labeling theory (Paternoster and Iovanni 1989). Furthermore, in Chapter 4, I found that this association with substance-using peers translates into greater substance use for the suspended student. Labeling research places less emphasis on the mechanisms of the impact of support from deviant others on secondary deviance than it does on the impact of punishment on support from deviant others. Other theories suggest such peers may provide opportunities for future delinquent behavior (Osgood et al. 1996), or suspended students

may learn such behaviors through greater exposure to youth involved in such behavior (Burgess and Akers 1966; Sutherland 1947). Future research should continue to explore these mechanisms in the context of punishment and official labeling (Adams 1996).

Even though I found support for labeling in regards to substance use and substance-using peers in Chapters 3 and 4, I did not find these same associations for delinquency. This may suggest that suspension has differential effects on peers involved in different types of behaviors, which may have to do with the nature of my sample. Perhaps the delinquent identity acquired by a suspension has more to do with drugs and drinking than with other types of delinquent behaviors. Future research should seek to replicate these results in other samples, including those from more urban schools, which may also allow for more detailed examinations of differential effects across race and ethnicity.

Implications for School Policy and Intervention Strategies

In January 2014, the United States Department of Education in collaboration with the US Department of Justice released a guidance package for assisting states and school districts in improving the safety and learning environment of their schools. In announcing the release, Secretary of State Arne Duncan advised:

> [S]chools and districts should take deliberate steps to build positive school climates to prevent misbehavior and target student supports to children to help them address underlying causes of misbehavior. . . Schools should be training staff, engaging families and community partners, and deploying real resources to help students develop the resolution skills they need to avoid or de-escalate problems.

The findings I have discussed here have important implications for states and districts seeking to follow this counsel. Here, I discuss five major findings that should be considered.

Suspension Does Not Appear to Reduce a Student's Delinquent Behavior

My most obvious finding is a lack of evidence that suspension reduces student misbehavior. This is important because suspension has high social and economic costs, in part due to its association with risk of student dropout (Balfanz, Byrne, and Fox 2015). One recent study places the cost of suspensions among tenth-grade students in the 2001-2002 school year alone at upwards of $35 billion (Rumberger and Losen 2016). This estimate is conservative because it does not include costs of juvenile justice involvement, to which a large portion of referrals come from schools, or costs associated with staffing an in-school suspension program, or having a parent miss work to attend disciplinary hearings or stay home with the student. For taxpayers at the local level, there may be benefits to not having a student in school, but the long-term social costs are sure to far outweigh these savings.

Given strong evidence that suspension has no effect on delinquent behavior, states and districts should be dissuaded from relying heavily on this costly method. Suspension involves separating a student from school or classroom interactions and activities, and may therefore be better reserved for violent offenses that place others in the school at risk. Former Secretary of Education Arne Duncan counseled, "Schools should remove students from the classroom as a last resort, and only for appropriately serious infractions, like endangering the safety of other students, teachers, or themselves." Undoubtedly, students and teachers have a right to feel safe at school, but currently, the most common reasons for suspension are attendance problems and other minor disruptions not including vandalism, substance use, weapons, physical fighting, or other forms of violence (Skiba and Rausch 2006; Skiba et al. 2014).

Suspension May Weaken a Student's Ties to Conforming Friends in School

A second finding with important implications for states and districts using suspension is that this form of discipline may weaken or sever ties to friends in school. This finding warrants further investigation about the outcomes of weakened relationships with peers in school, but it may imply that students who get suspended may be left with less social capital (Coleman 1988; Stanton-Salazar and Dornbusch 1995), or resources acquired through friends that are helpful or achieving success in school. This may be especially true if the students who are at greatest risk of suspension may are also the most marginalized and could therefore benefit most from these connections. For example, students from disadvantaged backgrounds may not be strongly encouraged by parents or other adults in their life to graduate from school or prepare for college. Even if they are, they may not learn how to do it. However, friends in school may encourage such behavior, particularly if they have connections to other successful adults.

States and districts should consider alternatives to suspension that do not limit student's access to positive influences from prosocial peers, but that instead build social capital. One alternative to suspension with potential for this is a community-school partnership (Owen, Wettach, and Hoffman 2015). Such partnerships could replace a heavy reliance on suspension and other exclusionary forms of punishment with greater emphasis on inclusion in a community. These may provide mentors to students, opportunities to give back to peers, and resources for connecting students and their families to services that can help address physical and mental health needs. Community-school partnerships require collaborative efforts from multiple organizations. Although more research is needed in this area, such programs may have the potential to address some of the underlying causes of student misbehavior.

Suspension May Increase a Student's Substance Use

A third finding that states and districts should consider is that suspension may increase adolescent substance use. To my knowledge, this is the first study to document this association. It adds to a growing body of research documenting negative behavioral effects of suspension for students who experience it directly (Hemphill et al. 2006; Monahan et al. 2014; Mowen and Brent 2016; Ramey 2016; Thomas and Bishop 1984) and a lower-quality learning environment for the school overall (Kupchik 2010; Morris and Perry 2016; Perry and Morris 2014). This finding is important because substance use is one of the most serious health problems in the US. One estimate places social costs at $192 billion for alcohol abuse, $168 billion for tobacco use, and $151 billion for drug abuse (Harwood 2000). Adolescents account for a larger portion of people engaged in substance abuse in the US (Miller and Hendrie 2008). Therefore, preventing and reducing adolescent substance use has been a major focus of many states and districts over the past several decades (Ennett et al. 2003; Hansen and McNeal 1997; Osgood et al. 2013). Schools relying heavily on suspension may be facilitating the very problems they aim to address.

Given that school efforts and resources devoted to reducing adolescent substance use may be counteracted by suspension, states and districts should consider evidence-based alternatives for addressing student misbehavior. Alternative strategies that prior research suggests may be effective at reducing individual student misbehavior include restorative justice practices and substance abuse interventions (Owen et al. 2015). Restorative justice programs in schools emphasize changing students' behavior while holding them accountable for their actions, often by facing those whom they have harmed. One such technique is a peer jury initiative in which a panel of students in collaboration with the school discipline office is specially trained to listen to the student and consider underlying causes of her misbehavior. They then decide on

positive solutions, focusing on repairing wrongs and linking the student to helpful community resources (Illinois Attorney General 2010). Restorative justice programs vary from school to school, and more research is needed to establish their effectiveness; however, a number of studies suggest they reduce student misbehavior (Schiff 2013). Substance abuse interventions place greater emphasis on treating adolescents with substance use problems rather than removing them from school. These may involve counselling services as well as education courses for students and their families. Programs vary, but research suggests they may be more effective than suspension for reducing adolescent substance use (e.g., Spoth et al. 2007).

Suspension May Increase a Student's Involvement with Peers Who Use Substances

A fourth finding that should be considered is that adolescent substance use following suspension may be due in large part to greater involvement with peers who use substances. This finding is consistent with prior research suggesting juvenile justice sanctions foster delinquent behavior by embedding the offending adolescent in a network of peers who are more involved in such behavior (Bernburg, Krohn, and Rivera 2006; Wiley, Slocum, and Esbensen 2013). Suspension is designed to separate a misbehaving student from her conforming peers in order to improve the learning environment in the classroom and deter her future misbehavior. In doing so, it excludes the student from classroom learning opportunities and positive influences from conforming peers, while increasing her exposure to other misbehaving or delinquent students. Prior research consistently suggests that greater involvement with such peers increases an adolescent's risk of engaging in delinquent behavior (Haynie 2001; McGloin 2009).

States and districts should consider using suspension alternatives that influence students toward less involvement with delinquent peers. Some alternative strategies involve segregating misbehaving students in alternative schools (Owen et al. 2015). Some research suggests

alternative schools may be beneficial for participating students, particularly if they are staffed with well-trained teachers, have few students per classroom, and promote a positive learning environment (Quinn and Poirier 2006). Other research describes such schools as "prison-like" institutions characterized by high surveillance and poor-quality curricula (Weissman 2015). If placement in an alternative school facilitates friendship with delinquent youth, it may increase student delinquent behavior. In contrast, effective school-based substance use interventions may decrease the potential for substance using peers to influence other students, without removing anyone from school. For example, Osgood and colleagues (2013) found that participation in the PROSPER substance use intervention reduced the potential for antisocial peers relative to conforming peers, to influence other students in their grade. Such interventions may be most effectively implemented in schools that do not rely on suspension for substance use. This is because suspended students would not be able to benefit from the program while out of school.

Changes in the Student's Attitudes Following Punishment May be Important

The last major finding that states and districts should consider is that the association between suspension and substance use is also partially due to alterations in student attitudes toward substance use. Some changes in attitudes and beliefs about delinquent behavior are likely learned from peers involved in such behaviors (Sutherland 1947). However, I found these attitudinal changes to be associated with respondent substance use, even when controlling for involvement with substance using peers. This suggests that at least some of the influence of attitudinal changes on substance use occurs independently from socialization from peers (Akers et al. 1979). Indeed, such attitudinal changes following suspension may instead represent the internalization of a delinquent label. Such would be consistent with prior research finding attitudinal changes partially explain an increase in delinquency following juvenile justice

sanctions (Wiley et al. 2013). Importantly, I do not examine label internalization directly or how an adolescent perceives herself or believes she is perceived by others. Therefore, I focus only on implications that have to do with changes in attitudes toward delinquent behaviors here.

States and districts should consider implementing suspension alternatives that promote attitudes and beliefs less favorable to delinquent behavior. Some suspension alternatives focus more on filling adolescent time use with structured activities and less on cognitive changes through education about risks of delinquent behavior. For example, community service programs are sometimes used in combination with suspension to limit the amount of unstructured time suspended students spend out of school. In support of such programs, community service sanctions are associated with lower risk of recidivism than short-term imprisonment (Wermink et al. 2010). Community service programs in conjunction with suspension may therefore reduce misbehavior more than suspension alone. Moreover, such programs can incorporate additional services such as counselling and mentoring (Owen et al. 2015). Given that suspension does not appear to have reduce delinquent behavior and may increase substance use, such programs may be more effective by used as replacement for rather than in combination with suspension. They may also benefit from greater emphasis on cognitive changes through education about the health and social risks of delinquent behavior. Much more research is needed in each of these areas.

Summary

Although suspension is widely used to address individual student misbehavior, especially among racial minority and other disadvantaged students, I find no evidence that it reduces the likelihood a student will become involved in delinquent behavior. Given that most suspensions are for minor misbehavior, this finding suggests states and districts should reserve suspension for more serious infractions that place others at risk. Furthermore, I find strong evidence that

suspension increases student substance use. This implies that schools continuing to rely on suspension may inadvertently facilitate negative behavior they aim to prevent, and that states and districts should devote costs to more effective alternatives that minimize unintended consequences. Suspension may increase substance use in large part by facilitating involvement among substance using peers. To reduce delinquent behavior, states and districts should focus on suspension alternatives that limit involvement with delinquent peers. Attitudinal changes toward greater acceptance of adolescent substance use also partially explain the association between suspension and substance use. To reduce delinquent behavior, states and districts may benefit from using suspension alternatives that promote attitudes and beliefs less favorable to substance use. Research on alternative strategies is limited but some findings suggest restorative justice programs or substance use interventions may be more effective alternatives.

Appendix A. Coding Information for Control Variables

Control Variable	**Description**	**Survey**
Low school attachment this year	Mean of five items about how student feels about current school (alpha=0.83). Responses range from 1=not at all to 5=really true. Resulting scale standardized across waves within analytic sample and then reverse coded.	In-home
Low academic achievement this year	Mean composite of mother, father, and student reports about student's school grades (alpha=0.91). Responses range from 1=mostly F's to 9=mostly A's. Scale is standaridized across waves within analytic sample and then reverse coded.	In-home
Last yr's outgoing nominations not participating/not in school	Number of nominations respondent made last year for friends who are no longer in the study or did not participate in the current year.	In-school
Last yr's incoming nominations not participating/not in school	Number of nominations respondent received last year for friends who are no longer in the study or did not participate in the current year.	In-school
Racial composition of last year's outgoing nominations	Proportion of friends nominated by the respondent who are white based on self-reports. Standardized across waves within analytic sample.	In-school
Racial composition of last year's incoming nominations	Proportion of friends who nominated the respondent who are white based on self-reports. Standardized across waves within analytic sample.	In-school
School-grade network size last year	Count of number of students on roster in grade at school.	NA
Attending new school last year	Student on rosters of new school since previous year.	NA
Miles to school last year	Parent reports of number of miles from home to youth's school (transformed using natural log).	In-home
Structured activities after school last year	Item response theory scale from four items about frequency of smoking, drinking, getting drunk, and marijuana use in past month. Responses range from 1=not at all to 5=more than 1xweek.	In-school
Unstructured socializing after school last year	Combination of mother, father, and student reports about frequency at which student spends free time after school hanging out with friends (alpha=0.59). Response options range from 1=never to 5=always. Scale is standardized across waves within the analytic sample.	In-home
Substance use last year	Item response theory scale from four items about frequency of smoking, drinking, getting drunk, and marijuana use in past month. Responses range from 1=not at all to 5=more than 1xweek.	In-school
Delinquency last year	Item response theory scale from 12 items about frequency of various delinquent behaviors in past year. Responses range from 1=never to 5=five or more times.	In-school
Risk-seeking behavior last year	Mean of three items about student's tendency to engage in risky behaviors for fun (alpha=0.79). Responses range from 1=never to 5=always. Resulting scale standardized across waves within analytic sample.	In-school
Internalizing behavior problems last year	Mean of 14 student self-reported internalizing behavior items from Child Behavior Checklist (transformed using natural log). Standardized across waves within analytic sample.	In-home
Parental discipline last year	Parent reports of highest grade of school completed. Items for each parent are standardized and then averaged together (alpha=0.66). The resulting scale is standardized across waves within analytic sample.	In-home
Parental monitoring last year	Parent reports of highest grade of school completed. Items for each parent are standardized and then averaged together (alpha=0.66). The resulting scale is standardized across waves within analytic sample.	In-home
Parent education last year	Parent reports of highest grade of school completed. Items for each parent are standardized and then averaged together (alpha=0.66). The resulting scale is standardized across waves within analytic sample.	In-home
Household income last year	Mean of mother-reported total household income and father-reported total household income, each adjusted for inflation (combined measure transformed using natural log).	In-home
Parent unemployment last year	Either parent reports being currently unemployed or temporarily laid off, or unemployed in past year.	In-home
Mother relationship transitions last year	Count of number of times mother has ever married, cohabited, or divorced. Standardized across waves within analytic sample.	In-home
Children in household last year	Parent reports of number of children living in household more than half the time.	In-home
Mother depression last year	Mother reports of whether she experienced any symptoms of depression (feeling sad, blue, depressed, losing interest) for two continuous weeks or more in past 12 months.	In-home
Religiosity last year	Student self-reports of frequency of attendance at religious services (1=never to 6=more than 1xweek).	In-home
Years in current residence last year	Parent reports of number of years youth as lived in current residence.	In-home
Community cohesion last year	Mean of parent reports to 10 items about community cohesion. Separate scales for fathers (alpha=0.85) and mothers (alpha=0.88) are averaged together (alpha=0.56), and the resulting scale is standardized across waves within analytic sample.	In-home

Appendix B. Change in Log Odds of Losing a Friendship Nomination Associated with Suspenison: Logistic Coefficients from Binomial Generalized Estimating Equation Analyses

Explanatory Variable	Friendship Nomination Made			Friendship Nomination Received		
	Bivariate	Add Control Variables	Add Separation from Friends	Bivariate	Add Control Variables	Add Separation from Friends
	Logit SE	*Logit SE*	*Logit SE*	*Logit SE*	*Logit SE*	*Logit SE*
School suspension (ref: Never suspended)						
Suspended since 6th grade	0.27 (0.09) **	0.21 (0.09) *	0.20 (0.09) *	0.24 (0.09) *	0.09 (0.10)	0.09 (0.10)
Suspended more than once since 6th grade	0.39 (0.09) ***	0.30 (0.10) **	0.28 (0.10) **	0.46 (0.10) ***	0.26 (0.11) *	0.24 (0.11) *
Current grade (ref: 6th)						
7th		0.58 (0.06) ***	0.55 (0.06) ***		0.74 (0.06) ***	0.72 (0.06) ***
8th		0.35 (0.07) ***	0.31 (0.07) ***		0.54 (0.07) ***	0.51 (0.07) ***
9th		0.36 (0.07) ***	0.32 (0.07) ***		0.50 (0.07) ***	0.47 (0.07) ***
Male (ref: Female)		0.00 (0.06)	0.01 (0.06)		0.09 (0.05)	0.10 (0.05)
Nonwhite (ref: Non-Hispanic white)		0.17 (0.08) *	0.18 (0.08) *		0.05 (0.08)	0.06 (0.08)
Weakened institutional attachment						
Low school attachment this year		0.07 (0.03) **	0.07 (0.03) *		-0.03 (0.03)	-0.03 (0.03)
Low academic achievement this year		0.03 (0.03)	0.02 (0.03)		0.05 (0.03)	0.05 (0.03)
Other controls						
Number of friends last year		0.13 (0.02) ***	0.13 (0.02) ***		0.04 (0.01) ***	0.04 (0.01) ***
Last year's friends not participating or not in school		-0.66 (0.05) ***	-0.67 (0.05) ***		-0.69 (0.05) ***	-0.69 (0.05) ***
Racial composition of last year's friends		0.00 (0.03)	0.00 (0.03)		-0.04 (0.04)	-0.04 (0.04)
School-grade network size last year		0.00 (0.00) ***	0.00 (0.00) ***		0.00 (0.00) ***	0.00 (0.00) ***
Attending new school last year		0.18 (0.08) *	0.19 (0.08) *		0.05 (0.08)	0.06 (0.08)
Miles to school last year		-0.01 (0.04)	-0.02 (0.04)		0.04 (0.04)	0.04 (0.04)
Structured activities after school last year		-0.01 (0.02)	-0.01 (0.02)		0.00 (0.02)	0.00 (0.02)
Unstructured socializing after school last year		-0.01 (0.03)	-0.01 (0.03)		-0.01 (0.03)	-0.01 (0.03)
Substance use last year		-0.01 (0.02)	-0.01 (0.02)		0.04 (0.03)	0.04 (0.03)
Delinquency last year		0.06 (0.03) *	0.06 (0.03) *		0.03 (0.03)	0.03 (0.03)
Risk-seeking behavior last year		-0.02 (0.03)	-0.02 (0.03)		0.01 (0.03)	0.01 (0.03)
Internalizing behavior problems last year		-0.21 (0.13)	-0.21 (0.13)		-0.02 (0.14)	-0.02 (0.14)
Parental discipline last year		-0.06 (0.03) *	-0.07 (0.03) *		-0.04 (0.03)	-0.04 (0.03)
Parental monitoring last year		-0.02 (0.03)	-0.02 (0.03)		-0.01 (0.03)	-0.01 (0.03)
Parent education last year		-0.04 (0.03)	-0.05 (0.03)		-0.02 (0.03)	-0.03 (0.03)
Household income last year		-0.09 (0.04) *	-0.08 (0.04) *		-0.04 (0.04)	-0.04 (0.04)
Parent unemployment last year		0.01 (0.06)	0.00 (0.06)		-0.05 (0.07)	-0.05 (0.07)
Mother relationship transitions last year		0.05 (0.03) *	0.05 (0.03) *		0.03 (0.03)	0.03 (0.03)
Children in household last year		0.02 (0.02)	0.02 (0.02)		0.04 (0.02)	0.04 (0.02)
Mother depression last year		-0.03 (0.06)	-0.05 (0.06)		-0.01 (0.06)	-0.02 (0.06)
Religiosity last year		-0.02 (0.03)	-0.01 (0.03)		-0.01 (0.03)	0.00 (0.03)
Years in current residence last year		0.05 (0.03)	0.05 (0.03)		-0.04 (0.03)	-0.03 (0.03)
Community cohesion last year		0.01 (0.03)	0.01 (0.03)		0.00 (0.03)	-0.01 (0.03)
Separation from Friends (ref: Never missed 7+ days)						
Missed 7+ days of school per year since 6th grade			0.05 (0.07)			0.08 (0.06)
Missed 7+ days of school more than once since 6th grade			0.22 (0.07) **			0.15 (0.08) *
Constant	-0.26 (0.03) ***	-0.38 (0.42)	-0.44 (0.42)	-0.11 (0.03) ***	-0.46 (0.42)	-0.49 (0.42)
Students	697	697	697	735	735	735
Observations	2,022	2,022	2,022	2,156	2,156	2,156

Notes : PROSPER. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in the in-school survey, valid data on suspension, no suspension reported at baseline. Models of friendship nominations made exclude 351 observations of students that did not make a nomination last year. Models of friendship nominations recevied exclude 217 observations of students that did not receive a nomination last year. Results are combined across 20 multiply imputed datasets. ***p<.001; **p<.01; *p<.05 (two-tailed)

Appendix C. Change in Log Odds of Losing a Friendship Nomination Associated with Suspension, Subsequent Observations of Suspended Students Removed: Logistic Coefficients from Binomial Generalized Estimating Equation Analyses

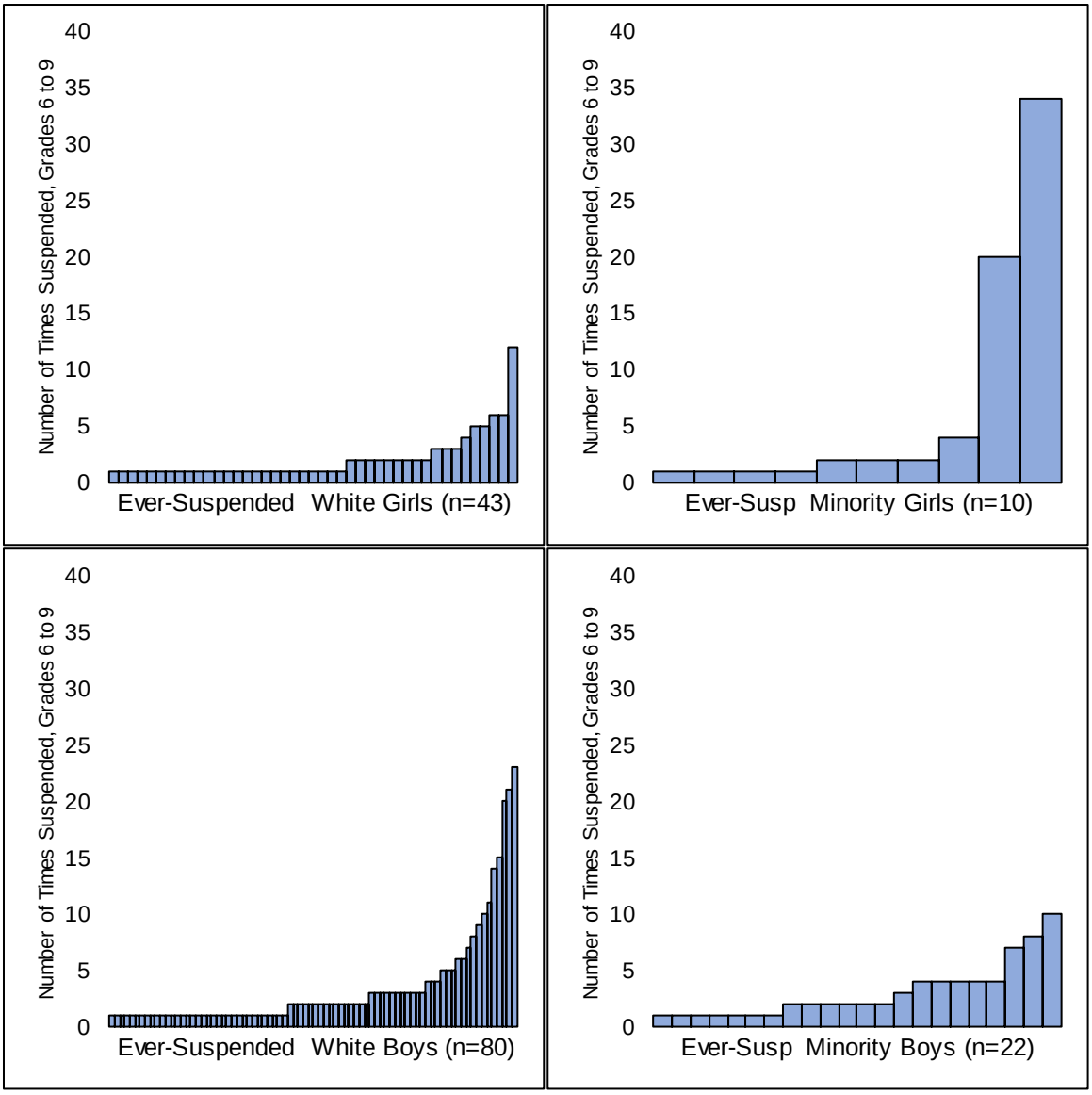
Explanatory Variable	Friendship Nomination Made			Friendship Nomination Received		
	Logit	*SE*		*Logit*	*SE*	
School suspension (ref: Never suspended)						
Suspended since 6th grade	0.19	(0.11)		0.00	(0.13)	
Suspended more than once since 6th grade	0.32	(0.21)		0.36	(0.21)	
Current grade (ref: 6th)						
7th	0.58	(0.06)	***	0.73	(0.06)	***
8th	0.36	(0.07)	***	0.52	(0.07)	***
9th	0.36	(0.07)	***	0.49	(0.08)	***
Male (ref: Female)	0.01	(0.06)		0.09	(0.06)	
Nonwhite (ref: Non-Hispanic white)	0.17	(0.09)	*	0.06	(0.09)	
Weakened institutional attachment						
Low school attachment this year	0.07	(0.03)	*	-0.03	(0.03)	
Low academic achievement this year	0.04	(0.03)		0.05	(0.03)	
Other controls						
Number of friends last year	0.14	(0.02)	***	0.04	(0.01)	***
Last year's friends not participating or not in school	-0.65	(0.05)	***	-0.67	(0.06)	***
Racial composition of last year's friends	0.01	(0.03)		-0.05	(0.04)	
School-grade network size last year	0.00	(0.00)	***	0.00	(0.00)	***
Attending new school last year	0.18	(0.09)	*	0.07	(0.09)	
Miles to school last year	-0.01	(0.05)		0.05	(0.04)	
Structured activities after school last year	-0.02	(0.02)		0.00	(0.02)	
Unstructured socializing after school last year	-0.01	(0.03)		0.00	(0.03)	
Substance use last year	-0.02	(0.03)		0.03	(0.03)	
Delinquency last year	0.06	(0.03)	*	0.01	(0.03)	
Risk-seeking behavior last year	-0.04	(0.03)		0.01	(0.03)	
Internalizing behavior problems last year	-0.18	(0.14)		0.01	(0.15)	
Parental discipline last year	-0.06	(0.03)	*	-0.06	(0.03)	
Parental monitoring last year	-0.01	(0.03)		-0.02	(0.03)	
Parent education last year	-0.03	(0.03)		-0.03	(0.03)	
Household income last year	-0.10	(0.04)	**	-0.05	(0.04)	
Parent unemployment last year	-0.04	(0.07)		-0.06	(0.07)	
Mother relationship transitions last year	0.05	(0.03)		0.03	(0.03)	
Children in household last year	0.03	(0.03)		0.04	(0.03)	
Mother depression last year	-0.04	(0.06)		-0.05	(0.06)	
Religiosity last year	-0.02	(0.03)		0.00	(0.03)	
Years in current residence last year	0.05	(0.03)		-0.03	(0.03)	
Community cohesion last year	0.03	(0.03)		0.00	(0.03)	
Constant	-0.30	(0.44)		-0.36	(0.44)	
Students	679			722		
Observations	1,850			1,980		

Notes: PROSPER. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in the in-school survey, valid data on suspension, no suspension reported at baseline. Models of friendship nominations made exclude 351 observations of students that did not make a nomination last year and 172 subsequent observations of suspended students. Models of friendship nominations recevied exclude 217 observations of students that did not receive a nomination last year and 176 subsequent observations of suspended students. Results are combined across 20 multiply imputed datasets. ***p<.001; **p<.01; *p<.05 (two-tailed)

Appendix D. PROSPER In-School Survey Participation by Wave

Wave, Grade		Percent Participated	Percent of Baseline Participants
W1, Fall Grade 6	C1	80	100
	C2	69	100
	Total	74	100
W2, Spg. Grade 6	C1	80	81
	C2	81	88
	Total	81	84
W3, Spg. Grade 7	C1	83	80
	C2	84	81
	Total	83	80
W4, Spg. Grade 8	C1	84	76
	C2	87	79
	Total	85	77
W5, Spg. Grade 9	C1	86	73
	C2	86	72
	Total	86	73
W6, Spg. Grade 10	C1	82	65
	C2	82	65
	Total	82	65
W7, Spg. Grade 11	C1	78	58
	C2	76	57
	Total	77	57
W8, Spg. Grade 12	C1	74	47
	C2	85	53
	Total	79	50

Notes: Data collection began in 2002 for Cohort 1, 2003 for Cohort 2.



Appendix E. Frequency of Suspension between Grades 6 and 9

Notes: PROSPER. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in in-school survey, valid data on suspension, no suspension reported at baseline. Only ever-suspended students are shown here.

Appendix F. Coding Information for Control Variables

Control Variable	Description	Survey
Parent education	Parent reports of highest grade of school completed. Items for each parent are standardized and then averaged together (alpha=0.66). The resulting scale is standardized across waves within analytic sample.	In-home
Household income	Mean of mother-reported total household income and father-reported total household income, each adjusted for inflation (combined measure transformed using natural log).	In-home
Parent unemployment	Either parent reports being currently unemployed or temporarily laid off, or unemployed in past year.	In-home
Mother relationship transitions	Count of number of times mother has ever married, cohabited, or divorced. Standardized across waves within analytic sample.	In-home
Children in household	Parent reports of number of children living in household more than half the time.	In-home
Past month substance use	Item response theory scale from four items about frequency of smoking, drinking, getting drunk, and marijuana use in past month. Responses range from 1=not at all to 5=more than 1xweek.	In-school
Past year delinquency	Item response theory scale from 12 items about frequency of various delinquent behaviors in past year. Responses range from 1=never to 5=five or more times.	In-school
Risk-seeking behavior	Mean of three items about student's tendency to engage in risky behaviors for fun (alpha=0.79). Responses range from 1=never to 5=always. Resulting scale standardized across waves within analytic sample.	In-school
Parental discipline	Mean of student reports to five items about more consistent and less harsh discipline parental discipline (alpha=0.83). Response options range from 1=always to 5=never. Resulting scale standardized across waves within analytic sample.	In-school
Parental monitoring	Mean of five items about frequency of parental monitoring (alpha=0.85). Response options range from 1=always to 5=never. Resulting scale standardized across waves within analytic sample.	In-school
Mother depression	Mother reports of whether she experienced any symptoms of depression (feeling sad, blue, depressed, losing interest) for two continuous weeks or more in past 12 months.	In-home
Internalizing behavior problems	Mean of 14 student self-reported internalizing behavior items from Child Behavior Checklist (transformed using natural log). Standardized across waves within analytic sample.	In-home
Academic achievement	Mean composite of mother, father, and student reports about student's school grades (alpha=0.91). Responses range from 1=mostly F's to 9=mostly A's. Scale is standaridized across waves within analytic sample.	In-home
School attachment	Mean of five items about how student feels about current school (alpha=0.83). Responses range from 1=not at all to 5=really true. Resulting scale standardized acroos waves within analytic sample.	In-home
Racial composition of friends	Proportion of undirected, incoming, or outgiong ties that is white based on self-reports. Standardized across waves within analytic sample.	In-school
Number of friendship ties	Count of undirected, incoming, or outgiong friendship nominations associated with the respondent.	In-school
Number of students in school-grade	Count of number of students on roster in grade at school.	NA
Changed school since last year	Student on rosters of new school since previous year.	NA
Community cohesion	Mean of parent reports to 10 items about community cohesion. Separate scales for fathers (alpha=0.85) and mothers (alpha=0.88) are averaged together (alpha=0.56), and the resulting scale is standardized across waves within analytic sample.	In-home
Years in current residence	Parent reports of number of years youth as lived in current residence.	In-home
Miles from school	Parent reports of number of miles from home to youth's school (transformed using natural log).	In-home
Structured time outside school	Combination of two scales: (1) structured after-school activities and (2) part-time work. Structured after-school activites based on combined reports of mothers, fathers, and student about student's frequency of programs, lessons, practices, after school (alpha=0.63). Part-time work based on combined reports of mothers, fathers, and student about student's frequency of work after school (alpha=0.61). Response options for both scales range from 1=never to 5=always. Each is standardized and then the two are summed.	In-home
Religious attendance	Student self-reports of frequency of attendance at religious services (1=never to 6=more than 1xweek).	In-home

Appendix G. Random-Effects Linear Regression Models of Association between Respondent Suspension and Friends' Substance Use

Outcome	Ever Suspended		Add Grade Fixed Effects		Add Individual Fixed Effects		Add Additional Controls	
	b	*se*	*b*	*se*	*b*	*se*	*b*	*se*
Ever Suspended by Current Grade								
Within-Individual	0.74	(0.10) ***	0.51	(0.09) ***	0.49	(0.15) **	0.35	(0.15) *
Between-Individual					0.53	(0.10) ***	0.29	(0.09) **
Current Grade (ref: 6th)								
7th			0.26	(0.03) ***	0.26	(0.03) ***	0.27	(0.04) ***
8th			0.58	(0.04) ***	0.59	(0.05) ***	0.59	(0.06) ***
9th			1.00	(0.06) ***	1.00	(0.06) ***	0.94	(0.06) ***
Control Variables (lagged one year)								
Parent education							-0.08	(0.03) **
Household income							-0.02	(0.03)
Parent unemployment							0.00	(0.06)
Mother relationship transitions							0.03	(0.02)
Children in household							-0.02	(0.02)
Past month substance use							0.16	(0.03) ***
Past year delinquency							0.03	(0.03)
Risk-seeking behavior							0.01	(0.03)
Parental discipline							-0.03	(0.02)
Parental monitoring							-0.06	(0.03) *
Mother depression							-0.03	(0.05)
Internalizing behavior problems							0.03	(0.10)
Academic achievement							-0.06	(0.02) *
School attachment							0.00	(0.02)
Racial composition of undirected ties							0.08	(0.03) **
Number of undirected ties							0.02	(0.01) **
Number of students in school-grade							0.00	(0.00)
Changed school since last year							-0.05	(0.08)
Community cohesion							-0.04	(0.02)
Years in current residence							-0.02	(0.02)
Miles from school							-0.01	(0.04)
Structured time outside school							-0.01	(0.02)
Religious attendance							-0.05	(0.02) *
Constant	-0.09	(0.02) ***	-0.47	(0.02) ***	-0.47	(0.02) ***	-0.29	(0.33)

Notes : PROSPER. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in in-school survey, valid data on suspension, no suspension reported at baseline. N=2,237 observations from 724 students. Friendship based on undirected ties (incoming or outgoing nominations). Results combined across 20 multiply imputed datasets. Standard errors clustered at individual level. ***p<.001; **p<.01; *p<.05; #p<.10 (two-tailed)

Appendix H. Random-Effects Linear Regression Models of Association between Respondent Suspension and Friends' Behavior

Outcome	Add Additional Controls		Obs.	Students
	b	*se*		
Undirected Ties				
Friends' substance use	0.28	(0.21)	983	469
Friends' delinquency	0.27	(0.19)	983	469
Outgoing Ties				
Friends' substance use	0.44	(0.22) *	939	457
Friends' delinquency	0.39	(0.19) *	939	457
Incoming Ties				
Friends' substance use	0.19	(0.20)	903	450
Friends' delinquency	0.06	(0.22)	903	450

Notes : PROSPER. Standard errors clustered at individual level. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in in-school survey, valid data on suspension, no suspension reported at baseline. Observations with normative levels of substance use, delinquency, and academic achievement are also excluded. Additional controls include parent education, household income, parent unemployment, mother relationship transitions, number of children in household, past-month substance use, past-year delinquency, risk seeking behavior, parental discipline, parental monitoring, mother depression, internalizing behavior problems, academic achievement, school attachment, racial composition of friends, number of ties, size of school-grade network, changed schools, community cohesion, years in residence, miles from school, structured activities outside school, religious attendance. Results combined across 20 multiply imputed datasets. *p<.05

Appendix I. Random-Effects Linear Regression Models of Association between Respondent First Reported Suspension and Friends' Behavior

Outcome	Add Additional Controls		Obs.	Students
	b	*se*		
Undirected Ties				
Friends' substance use	0.24	(0.13) #	2,104	724
Friends' delinquency	0.16	(0.16)	2,104	724
Outgoing Ties				
Friends' substance use	0.30	(0.13) *	2,032	710
Friends' delinquency	0.30	(0.17) #	2,032	710
Incoming Ties				
Friends' substance use	0.20	(0.15)	1,979	709
Friends' delinquency	-0.12	(0.17)	1,979	709

Notes : PROSPER. Standard errors clustered at individual level. Sample limited to observations of in-home survey participants meeting the following criteria: attending participating school district, participated in in-school survey, valid data on suspension, no suspension reported at baseline. Subsequent waves of suspended students are also excluded. Additional controls include parent education, household income, parent unemployment, mother relationship transitions, number of children in household, past-month substance use, past-year delinquency, risk seeking behavior, parental discipline, parental monitoring, mother depression, internalizing behavior problems, academic achievement, school attachment, racial composition of friends, number of ties, size of school-grade network, changed schools, community cohesion, years in residence, miles from school, structured activities outside school, religious attendance. Results combined across 20 multiply imputed datasets. *p<.05

Appendix J. Coding Information for Control Variables

Control Variable	Description	Survey
Male	Binary measure based on respondent self-reports.	In-school
Nonwhite	Binary measure based on respondent self-reports of race and ethnicity. 0=Non-Hispanic white, 1=Anything else.	In-school
Mother relationship transitions	Count of number of times mother has ever married, cohabited, or divorced. Standardized across waves within analytic sample.	In-home
Number of children in household	Parent reports of number of children living in household more than half the time.	In-home
Mother has depressive symptoms	Mother reports of whether she experienced any symptoms of depression (feeling sad, blue, depressed, losing interest) for two continuous weeks or more in past 12 months.	In-home
Parent education	Parent reports of highest grade of school completed. Items for each parent are standardized and then averaged together (alpha=0.66). The resulting scale is standardized across waves within analytic sample.	In-home
Household income	Mean of mother-reported total household income and father-reported total household income, each adjusted for inflation (combined measure transformed using natural log).	In-home
Parent unemployed	Either parent reports being currently unemployed or temporarily laid off, or unemployed in past year.	In-home
Harsh/inconsistent parental discipline	Mean of student reports to five items about more consistent and less harsh discipline parental discipline (alpha=0.83). Response options range from 1=always to 5=never. Resulting scale standardized across waves within analytic sample.	In-school
Parental monitoring	Mean of five items about frequency of parental monitoring (alpha=0.85). Response options range from 1=always to 5=never. Resulting scale standardized across waves within analytic sample.	In-school
Internalizing behavior problems	Mean of 14 student self-reported internalizing behavior items from Child Behavior Checklist (transformed using natural log). Standardized across waves within analytic sample.	In-home
Risk-seeking behavior	Mean of three items about student's tendency to engage in risky behaviors for fun (alpha=0.79). Responses range from 1=never to 5=always. Resulting scale standardized across waves within analytic sample.	In-school
Community cohesion	Mean of parent reports to 10 items about community cohesion. Separate scales for fathers (alpha=0.85) and mothers (alpha=0.88) are averaged together (alpha=0.56), and the resulting scale is standardized across waves within analytic sample.	In-home
Years in residence	Parent reports of number of years youth as lived in current residence.	In-home
Miles from school	Parent reports of number of miles from home to youth's school (transformed using natural log).	In-home
Religiosity	Student self-reports of frequency of attendance at religious services (1=never to 6=more than 1xweek).	In-home
Unstructured socializing	Combination of mother, father, and student reports about frequency at which student spends free time after school hanging out with friends (alpha=0.59). Response options range from 1=never to 5=always. Scale is standardized across waves within the analytic sample.	In-home
Structured activities outside school	Combination of two scales: (1) structured after-school activities and (2) part-time work. Structured after-school activites based on combined reports of mothers, fathers, and student about student's frequency of programs, lessons, practices, after school (alpha=0.63). Part-time work based on combined reports of mothers, fathers, and student about student's frequency of work after school (alpha=0.61). Response options for both scales range from 1=never to 5=always. Each is standardized and then the two are summed.	In-home
Bully victimization	Mean of five student self-reported items about frequency of bully victimization in past 2 months (alpha=0.79). Response options range from 1=never to 4=always. Resulting scale is standardized across waves within analytic sample.	In-home
Attending new school	Student on rosters of new school since previous year.	NA
Number of students in school-grade	Count of number of students on roster in grade at school.	NA
Number of undirected ties	Count of undirected friendship nominations (incoming or outgoing) associated with resondent at wave.	In-school
Racial composition of undirected ties	Proportion of undirected friendship nominations of non-Hispanic white peers, based on self-reports. Standardized across waves within analytic sample.	In-school

Appendix K. Random-Effects Linear Regression Models of Association between Suspension and Delinquent Behaviors

Variable	Past-Month Substance Use		Past-Year Delinquency	
	b	*se*	*b*	*se*
Ever Suspended by Current Grade				
Within-Individual	0.32	(0.11) **	0.17	(0.08) *
Between-Individual	0.30	(0.08) ***	0.43	(0.08) ***
Current Grade (ref: 6th)				
7th	0.03	(0.02)	0.01	(0.02)
8th	0.17	(0.04) ***	0.09	(0.03) **
9th	0.35	(0.04) ***	0.09	(0.03) **
Control Variables (lagged one year)				
Mother relationship transitions	0.03	(0.02)	0.01	(0.01)
Number of children in household	0.00	(0.01)	0.00	(0.01)
Mother has depressive symptoms	-0.06	(0.03) *	0.06	(0.03)
Parent education	-0.01	(0.02)	-0.01	(0.02)
Household income	-0.02	(0.02)	0.01	(0.02)
Parent unemployed	0.00	(0.04)	0.06	(0.03)
Harsh/inconsistent parental discipline	-0.03	(0.02)	0.00	(0.01)
Parental monitoring	-0.10	(0.03) ***	-0.15	(0.02) ***
Internalizing behavior problems	0.05	(0.08)	0.16	(0.07) *
Risk-seeking behavior	0.07	(0.02) ***	0.07	(0.02) ***
Community cohesion	-0.02	(0.02)	0.00	(0.01)
Years in residence	0.02	(0.02)	-0.02	(0.02)
Miles from school	0.05	(0.02)	0.02	(0.02)
Religiosity	0.00	(0.01) *	-0.01	(0.01) *
Unstructured socializing	-0.04	(0.02) ***	-0.03	(0.01) ***
Structured activities outside school	0.06	(0.01)	0.04	(0.01) *
Bully victimization	0.01	(0.01)	0.03	(0.01)
Attending new school	0.03	(0.06)	-0.04	(0.04)
Number of students in school-grade	0.00	(0.00)	0.00	(0.00)
Number of undirected ties	0.01	(0.01) **	0.00	(0.00)
Racial composition of undirected ties	-0.01	(0.02)	0.00	(0.02)
Constant	0.22	(0.23)	-0.17	(0.19)

Notes : PROSPER. Sample limited to follow-up observations of in-home study participants meeting the following criteria: participated in in-school survey, not suspended by fall of sixth grade, provided valid data on suspension and outcomes. N=2,232 observations from 723 students. Substance use and delinquency are scaled using item response theory. Standard errors clustered at individual level. Results combined across 20 multiply imputed datasets.
***p<.001; **p<.01; *p<.05

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PEER REVIEWED ARTICLES

Haskins, Anna R. and Wade C. Jacobsen. "Schools as Surveilling Institutions? Paternal Incarceration, System Avoidance and Parental Involvement in Schooling." *American Sociological Review* (Forthcoming).

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