ABSTRACT

Title of Thesis: CONTEXTUALIZING STIGMA: THE IMPACT OF SCHOOL CULTURAL AND STRUCTURAL CONTEXTS ON INTERPERSONAL EXCLUSION FOLLOWING CRIMINAL JUSTICE CONTACT

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Criminal justice contact is often associated with weakened social ties, a process referred to as interpersonal exclusion (Jacobsen, 2020). Yet, most existing research assumes that the stigma of such contact is experienced similarly across settings, paying limited attention to contextual conditions that can foster or mitigate stigma. This study argues that context shapes stigma tied to criminal justice contact by influencing its *perceptibility* (i.e., the extent to which the contact is known to others) and *dis-credibility* (i.e., the extent to which the contact harms one's social reputation). To capture both dimensions, the study introduces novel measures of cultural and structural context. Drawing on longitudinal data from a school-based study with rich adolescent peer network information and employing stochastic actor-oriented models, it

examines how the cultural and structural contexts of grade cohorts in middle and high school influence adolescent friendship ties following police contact. It also explores whether the associations between police contact and friendship ties, as well as the moderating role of contextual factors, differ between middle and high school due to broader contextual distinctions. Findings indicate that police contact is associated with weakened adolescent friendship ties in middle school but not in high school. Cultural norms regarding the popularity of delinquent students moderate this association in middle school, whereas structural features of network closure moderate this association in both middle and high school. These findings underscore the contextual nature of stigma, highlight the role of cultural and structural environments in shaping interpersonal consequences of criminal justice contact, and offer implications for promoting the social inclusion of justice-involved youth.

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by

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Chapter 1: Introduction

Involvement in the criminal justice system can weaken a person's social networks; this is a process referred to as *interpersonal exclusion* (Jacobsen, 2020). Interpersonal exclusion, by reducing access to support and resources from social networks, can harm one's psychological well-being (Baumeister & Leary, 1995) and diminish social capital (Coleman, 1988; Daly & Silver, 2008; Putnam, 2000). Given these adverse effects, scholars have long explored the connection between justice involvement and interpersonal exclusion (e.g., Bryan, 2017; Cochran et al., 2018; Jacobsen et al., 2022; Jacobsen & Tinney, 2023; Moore & Tangney, 2017; Rowan et al., 2023; Siennick et al., 2014; Winnick & Bodkin, 2008). Various forms of justice involvement, such as arrest and incarceration, have been found to be associated with weakened social networks, affecting intimate relationships, friendships, and broader community ties. This association is highlighted by the extensive scale of criminal justice contact in the United States. Millions of Americans were under correctional supervision and approximately 10 million arrests were made each year prior to the COVID-19 pandemic (Carson, 2020; Federal Bureau of Investigation, 2021; Oudekerk & Kaeble, 2021). Although these rates have declined in recent years (Motivans, 2024), police contact remains a consequential event in the life course of adolescents in the United States (Bersani et al., 2022) and is disproportionately concentrated among disadvantaged groups (Jahn et al., 2022).

One common explanation for the association between justice involvement and interpersonal exclusion is stigma. Contact with the legal system is perceived as stigmatizing because it is, in general, both perceptible (i.e., known to others) and "deeply discrediting" (i.e., damaging to one's reputation; Goffman, 1963, p. 3). As such, prior research has relied on labeling theory to explain these stigma-related processes (Paternoster & Iovanni, 1989). Labeling

theory posits that exclusion is an outcome of a stigmatizing sanction that may result in harmful or criminogenic rather than reintegrative consequences. However, most studies overlook the contextual conditions that breed stigma. Instead, they tend to assume that the stigma associated with justice involvement is experienced similarly across social settings.

This study seeks to expand on previous research by incorporating the role of social context. Revisiting Goffman (1963), I argue that context matters because it determines the *perceptibility* and *dis-credibility* of criminal justice contact—the two necessary conditions for stigma to arise. Perceptibility refers to the degree to which criminal justice contact can be detected or recognized in social interactions (Goffman, 1963, p. 49), while dis-credibility refers to the extent to which such contact undermines one's reputation and social acceptance (p. 3). If these two conditions vary across contexts, criminal justice contact may be stigmatizing in some settings but not in others. My analysis thus builds on labeling theory by assessing how peer contexts of students attending the same grade and school at the same time (*cohort network* hereafter) may amplify or diminish the stigma tied to police contact and its impact on adolescent friendship ties. I focus on adolescents because they face a relatively high risk of recent police contact (Brame et al., 2012; Jacobsen & Tinney, 2023) and because maintaining normative friendships during this developmental stage is important for their well-being (Bukowski et al., 1998; Crosnoe, 2000).

In this study, I also contribute to labeling theory by introducing contextual measures that capture the perceptibility and dis-credibility of criminal justice contact across different contexts. Specifically, cultural norms within a setting determine whether justice involvement functions as a social scarlet letter or simply another bump in the road (Anderson, 1999; Hirschfield, 2008), and structural features of a setting determine whether such involvement is widely known by

others or remains hidden within the social network (Coleman, 1988). I measure the cultural dimension of cohort networks primarily through the association between popularity and delinquency. In networks where delinquent students are more popular, punishment for such behavior may carry less stigma due to its decreased dis-credibility and thus exert a weaker impact on friendships. I measure the structural dimension of cohort networks using indicators of network closure. In networks with greater network closure (i.e., where students are more interconnected), police contact may elicit greater stigma due to its heightened visibility and thus foster interpersonal exclusion.

I further advance the contextualization of stigma within labeling theory by examining how differences between middle school and high school shape the interpersonal consequences of police contact. These two educational settings differ in meaningful cultural and structural ways that may affect the perceptibility and dis-credibility of police contact. Culturally, students in middle school, compared to those in high school, often exhibit heightened sensitivity to peer acceptance (Berndt, 1979; Brown & Larson, 2009; Erickson et al., 2000; Ragan, 2020; Steinberg & Monahan, 2007) and have less exposure to the justice system (Jacobsen & Tinney, 2023). These conditions contribute to a normative climate in which delinquent behavior and police contact are more likely to be viewed as discrediting (Rulison et al., 2014), potentially amplifying the stigmatizing effects of police contact and cohort cultural norms on friendship ties. Structurally, middle schools tend to have smaller and more tightly clustered cohort networks than high schools (Freelin et al., 2023), in part because students are more likely to be organized into grade-level teams, take most classes together, and spend the school day with a consistent peer group (Eccles & Roeser, 2011; Kinderman, 2007). These conditions may increase the perceptibility of police contact, thereby strengthening the stigmatizing effects of police contact

on friendship ties compared to high school. In light of these differences, I examine the effects of police contact and contextual factors separately for middle and high school.

In this thesis, I have three main objectives. First, I will examine the effect of police contact on adolescent friendship ties. Second, I will assess the extent to which a cohort network's cultural context, measured primarily by the association between popularity and delinquency, amplifies or mitigates this effect. Third, I will assess the extent to which a cohort network's structural context, operationalized through network closure, influences this same dynamic. For each objective, I also separately examine the effects in middle and high school settings. Understanding the role of contextual factors in shaping criminal justice stigma and subsequent interpersonal exclusion advances the recent revitalization of labeling theory and can help rethink intervention programs aimed at changing attitudes toward delinquent behavior or restructuring interpersonal networks in middle and high school. The benefits of some well-intentioned intervention programs may be undermined by their unintended consequences in fostering interpersonal exclusion, depending on the cultural and structural contexts of the grade cohort environment.

Chapter 2: Literature Review

Criminal Justice Contact, Stigma, and Interpersonal Exclusion

Criminal justice contact remains a consequential experience for adolescents in the United States. Despite recent reform efforts to reduce arrest rates (Puzzanchera, 2021), many youth experience various forms of police contact before reaching adulthood. According to the PROSPER (Promoting School-Community-University Partnerships to Enhance Resilience) data—the same data used in this study—more than half of participating sixth graders in 27 school districts in 2002 reported being picked up by police for suspected law violation by their senior year of high school (Jacobsen & Tinney, 2023). Prior research using a narrower definition of police contact (i.e., specifying being "arrested or taken into custody for an illegal or delinquent offense" and excluding "arrests for minor traffic violations") yields a lower estimate of 18% (Brame et al., 2012). While self-reported police contact may not necessarily indicate an officially recorded arrest (Kirk, 2006; Miller, 2014; Sherman & Glick, 1984), studies have shown that both self-reported police contact and official arrests are associated with negative outcomes in adolescence and young adulthood, such as high school dropout, future offending and arrests, and deteriorating mental health (Brame et al., 2005; Hirschfield, 2009; Kirk & Sampson, 2013; Liberman et al., 2014; Sugie & Turney, 2017).

One way that criminal justice contact can be harmful is through interpersonal exclusion, which has been conceptualized as weakened ties to members of one's social network following a sanction (Jacobsen, 2020). An emerging line of research has found that police contact can lead to the reduction of adolescent friendships through two primary pathways: peers' avoidance of youth with police contact due to associated stigma (i.e., rejection) and the youth's self-imposed avoidance of peers due to fear of rejection or uncomfortable encounters (i.e., withdrawal)

(Jacobsen et al., 2022; Jacobsen & Tinney, 2023). Rowan and colleagues (2023) extended this focus from police contact to justice system processing and found similar patterns of withdrawal among both formally and informally processed youth. Some earlier studies have also explored the effects of justice involvement on rejection and withdrawal in other forms of interpersonal relationships. For instance, several studies have demonstrated that stigma tied to parole and incarceration contributes to greater rejection in the romantic relationship market (Evans, 2019; Evans & Blount-Hill, 2022; Monterrosa, 2021). Meanwhile, incarcerated individuals may withdraw themselves from interactions with non-incarcerated people out of fear of being rejected on account of the stigma of incarceration (Moore & Tangney, 2017; Winnick & Bodkin, 2008).

The theoretical basis for understanding how criminal justice contact leads to interpersonal exclusion is grounded in labeling theory. Labeling theory posits that legal sanctions, such as police contact and arrest, attach negative or stigmatizing labels to individuals (Goffman, 1963; Lemert, 1951). These labels do not merely reflect the specific behavior but also contribute to a "spoiled identity," where the individual is viewed as discredited or deviant by others (Becker, 1963; Goffman, 1963). Such labels function as powerful social signals, prompting exclusionary responses, including rejection and avoidance, from conventional others who fear association with perceived deviants or criminals (Link & Phelan, 2001; Paternoster & Iovanni, 1989). In response, some individuals may internalize these external judgments through the process of "reflected appraisals," coming to see themselves as society sees them (Matsueda, 1992). This internalization can lead to self-imposed withdrawal, where the labeled individuals distance themselves from mainstream social interactions (Schur, 1971). Others, however, may not fully internalize the label but still choose to isolate themselves from society to avoid further stigmatization or negative encounters (Goffman, 1963). Following prior research and theoretical

arguments, my first research question thus asks, overall, whether police contact is associated with decreased adolescent friendship ties in middle and high school.

The relationship between legal sanctions and stigmatizing social reactions is not deterministic. Indeed, Goffman (1963) argues that stigma emerges and initiates the labeling process only when a characteristic is both *perceptible* and *deeply discrediting*. In other words, if an individual's criminal justice contact remains unnoticed within their social network (i.e., the characteristic is not *perceptible*), they may avoid the stigma and its adverse consequences (Paternoster & Iovanni, 1989). Similarly, if others do not perceive involvement with the legal system as inherently deviant or disreputable (i.e., the characteristic is not *deeply discrediting*), the stigmatizing effect of a criminal justice record is likely to be weakened (Triplett & Jarjoura, 1994). While previous research generally supports the labeling effects of criminal justice encounters on interpersonal exclusion (e.g., Bryan, 2017; Cochran et al., 2018; Jacobsen et al., 2022; Jacobsen & Tinney, 2023; Moore & Tangney, 2017; Rowan et al., 2023; Winnick & Bodkin, 2008), the consistently missing piece in these analyses is the role of social context. Few studies have examined the preconditions of stigma and how their variations across contexts influence the labeling effects of justice involvement on interpersonal exclusion, as well as on more extensively studied outcomes such as institutional exclusion and secondary deviance. More broadly, the inconsistent empirical support for labeling theory regarding the impact of formal and informal labels on deviant identities or delinquent behavior over the years (Barrick, 2014; Palamara et al., 1986; Paternoster & Iovanni, 1989; Wellford & Triplett, 1993) could partially be attributed to the failure of prior research to account for contextual nuances that can either amplify or mitigate the experience of criminal justice stigma.

Stigma in Context: Culture and Structure

Labeling theory provides a theoretical framework for understanding the socio-cognitive processes through which stigmatizing labels are affixed and internalized by individuals who have experienced criminal justice contact (Matsueda, 2017). However, much of the existing labeling research has placed little emphasis on the broader social contextual factors that provide the backdrop for these immediate social interactions. Yet, as an extension of symbolic interactionism, labeling theory is inherently context-dependent. Symbolic interactionists (e.g., Blumer, 1969; Cooley, 1902; Goffman, 1959; Mead, 1934) believe that social behavior is constructed through ongoing social interactions. They highlight that social behavior should be viewed as "purposive, socially constructed, coordinated social acts informed by preceding events in the context of projected acts that occur" (Katovich et al., 2003, p. 122). Consistent with this view, the meaning and impact of delinquent labels are not fixed but contingent upon the social context in which they are embedded. Indeed, Becker and Arnold (1986) have argued that while stigma is a universal concept, it is also a social and cultural construct. Perceptions of what constitutes stigma can differ markedly from one society to another. In my case, the question then becomes: In which contexts does criminal justice contact constitute a stigmatizing label? Some cultural and labeling theorists have suggested that in certain social environments, behaviors leading to legal sanctions and the sanctions themselves may not be perceived as inherently deviant but rather as adaptive survival strategies, inevitable costs of navigating these environments, or even a badge of honor (Anderson, 1999; Bourgois, 1995; Garfinkel, 1956; Goffman, 1963). In such contexts, contact with the criminal justice system may be regarded as a normative life experience rather than a discrediting characteristic that elicits stigma in ways that result in social exclusion (Hirschfield, 2008; Mahoney, 1974).

The current research takes a step further by arguing that the aspects of social context that influence criminal justice stigma are both cultural and structural. The cultural part aligns with the abovementioned theorists' arguments that community norms, values, and beliefs shape how behaviors leading to legal sanctions, as well as the sanctions themselves, are perceived in a community. More broadly speaking, my emphasis on cultural context has its theoretical ground in cultural sociology, which holds that culture exerts a causal influence on shaping and constraining thoughts and actions (Swidler, 1986). Cultural sociologists view culture as a set of shared values, symbols, narratives, and practices that individuals draw upon to interpret and respond to various situations, including criminal justice involvement. This cultural framework has long been applied in criminology to explain patterns of violence in urban settings. For example, Shaw, McKay, and MacDonald (1938) described the culture in high-crime neighborhoods as "a confusion and wide diversification of its norms or standards" (p. 101). Cohen (1955), Miller (1958), and Wolfgang (1958) spoke to the causal role of oppositional subcultures in fostering violence, highlighting how these subcultures generate alternative norms and values that justify and even encourage violent behavior. Anderson (1999) expanded on these ideas by introducing the "code of the street," a unique cultural orientation "allowing those who are inclined to aggression to precipitate violent encounters in an approved way" (p. 33).

These studies imply that within certain cultural settings, crime and delinquency may not only avoid stigmatization but may even be seen as rewarding. More recently, Kubrin and Weitzer (2003) found that cultural codes in some neighborhoods support retaliatory violence. Wright and Fagan (2013) found that neighborhood cultural norms that are more tolerant of youth delinquency are associated with an increased individual propensity for violence. Hirschfield (2008) directly investigated the declining significance of delinquent labels in disadvantaged

urban areas and found that the impact of justice involvement on an adolescent's reputation and social inclusion is diminished due to the normalization of legal encounters in those areas. Research on public culture has also demonstrated that media representations and public discourse can shape societal perceptions of crime and punishment, influencing the extent to which justice involvement is stigmatized in a society (Dowler et al., 2006; Fox et al., 2001; Valier, 2005; Wykes, 2001). Together, these studies highlight the potential variability of criminal justice sigma across cultural contexts and underscore the importance of examining the labeling effects of criminal justice contact on interpersonal exclusion by cultural contexts. Yet, despite some acknowledgments of cultural influences on criminal justice stigma, much of the existing research either ignores or only pays lip service to the importance of cultural context without further detailing its measure and testing its role. This study, instead, places cultural context at the center and extends beyond prior qualitative analyses of urban areas to explore cultural variations across rural communities by introducing quantitative measures of community cultural orientation toward delinquency and criminal justice contact.

Before delving further into the cultural dimension, it is crucial to emphasize that, in addition to cultural context, social structural context also has the potential to influence criminal justice stigma. Social structure, in its simplest and most general form, can be defined as "a configuration of social relations and positions, i.e., as a set of actors diversely linked into networks" (Cook & Whitmeyer, 1992, p. 109). Much like culture, social structure has a causal effect on shaping and constraining individual thoughts and actions. This is because, individuals always act within structured situations where their agency is influenced by broader relational patterns beyond their control (Collins, 1988). For long, scholars have extensively explored how social structure, understood as patterned or nonrandom social relations in a network, facilitates or

constrains individual behavior (e.g., Burt, 2005; Granovetter, 1973; Giddens, 2004; Lin, 2002; Wellman, 1988). Aligned with this perspective, social structure may determine the extent to which criminal justice contact is perceived as a stigmatizing label in a community and can potentially promote exclusionary interpersonal responses in that community.

The one aspect of social structure most relevant to understanding criminal justice stigma is the degree of familiarity or interconnectedness among individuals within a community. Recall the two necessary conditions for stigma formation proposed by Goffman (1963): *perceptibility* and *dis-credibility*. While researchers have suggested that cultural norms can determine the extent to which criminal justice contact is considered *discreditable* in a community, almost no scholarly attention has been placed on contextual factors that can affect the *perceptibility* of criminal justice contact. As the first empirical attempt in this area, I argue that just as the protection of juvenile court records prevents adolescents from some harsh consequences of negative labeling (Coleman, 2020), social structure can influence the perceptibility of one's legal contact record and help some adolescents escape stigma. Specifically, community interconnectedness acts as a social structural factor that influences how perceptible this contact record becomes. In communities where individuals know each other well, criminal justice involvement is more likely to be observed or heard about, increasing the chances for stigma and exclusionary reactions to take hold. Therefore, this study further extends previous literature by incorporating the role of structural context in affecting interpersonal exclusion followed by criminal justice contact.

Building on these propositions, in this study, I examine the role of peer contexts within cohort networks in the creation of criminal justice stigma and its subsequent influence on friendship ties among adolescents. In my analysis, I distinguish contextual features of a cohort

network into two distinct dimensions: *network norms*, the cultural aspect that has received relatively more attention in labeling research, and *network closure*, or network interconnectedness, the structural factor that has rarely been examined empirically within this field. As a brief recap, the former reflects the dis-credibility of criminal justice contact, and the latter indicates the perceptibility of criminal justice contact.

Cultural Context: Network Norms and Dis-Credibility of Police Contact

As stated above, my second research question asks whether cultural norms within cohort networks influence the reduction in adolescent friendship ties following contact with the criminal justice system. Norms, according to Durkheim (1951 [1897]), are properties of groups, and the implications of individual behaviors vary depending on the social normative context in which they occur. When examining normative influences within schools, previous studies have considered norms at multiple levels, ranging from broad, district- or school-wide norms to those specific to grades or even classrooms. Across these different levels, the cultural context within schools consistently exerts a substantial impact on many aspects of adolescent development (for a comprehensive review, see Eccles & Roeser, 2011). Among these levels, school-level norms have attracted more scholarly attention than grade- or classroom-level norms. Positive school norms, such as high regard for learning, strong emphasis on inclusion, and pursuit of shared goals, are associated with reduced problematic behaviors, enhanced academic performance, and improved peer relationships among students (e.g., Battistich & Hom, 1997; Bishop et al., 2004; Bryk & Driscoll, 1988; Nesdale & Lawson, 2011; Payne, 2008; Tropp et al., 2016). In contrast, unfavorable school norms, such as collective attitudes that favor or endorse deviant and risky behaviors like bullying, teen pregnancy, or heavy drinking, are associated with higher levels of

problematic behaviors among students (Coleman, 1961; Mollborn et al., 2014; Neighbors et al., 2007; Pozzoli et al., 2012).

While this body of research has underscored the importance of school-level norms in shaping adolescent development, a more immediate and salient influence of cultural norms may be observed at the grade cohort level. A grade cohort, consisting of students who progress through the same grade of the same school at the same time, forms a distinct community within the larger school environment. These students share substantial time in common settings, engage in extensive social interactions with one another, and develop a peer network that serves both as a source of potential friendships and as an audience for individual behaviors and experiences (Osgood et al., 2022; Osgood, 2023). Within such grade cohorts, collective attitudes toward behaviors and experiences such as delinquency and criminal justice contact can emerge and evolve. These shared perspectives influence how individuals within the network perceive and respond to such behaviors and experiences, both in themselves and their peers. Therefore, I narrow my focus from school-wide norms to those specific to grade cohorts, aiming to better capture norms that are more immediate, directly relevant to adolescent experiences, and potentially more influential on individual behavior.

Of the many norms, I focus on the association between popularity and delinquency as a reflection of the cohort network's collective attitudes toward delinquent behavior and its associated legal sanctions. The popularity-delinquency association refers to the extent to which adolescents who engage in delinquent behaviors are popular (i.e., more or less likely to be nominated as friends by others) within the cohort network. Although no prior research has explicitly used the popularity-delinquency association as an indicator of cultural norms toward or

against delinquency and legal contact, its relevance can be substantiated by existing studies examining how delinquency relates to popularity among peer networks.

First, considerable evidence demonstrates that adolescents who engage in delinquent behaviors often enjoy greater popularity than their non-delinquent peers (Allen et al., 2005; Dijkstra et al., 2010; Haynie, 2001; Young, 2014). Explanations for this phenomenon often point to youth subcultures that ascribe value to delinquent acts (Coleman, 1961; Eckert, 1989; Matza, 1964). This implies the existence of peer norms that, to varying degrees, valorize or at least tolerate rule-breaking behaviors. Consistent with this perspective, Osgood (2023) proposes that a teen culture of independence, where adolescents view themselves as a distinct group with unique tastes and activities, could help explain patterns of youth delinquency. Second, research indicates that the positive effect of delinquent behavior on an adolescent's peer status is more pronounced among peers who also engage in delinquent acts (e.g., Hawley, 2007; Henry et al., 2006). This finding further suggests that in peer networks where deviant behavior is more accepted or commonplace, a stronger positive association between delinquency and popularity is likely to emerge. Third, more direct evidence has shown that schools with a higher proportion of adolescents who are both highly popular and highly delinquent tend to exhibit higher overall levels of school delinquency (Gallupe, 2017). This finding underscores the potential for the popularity-delinquency association to reflect or determine broader cultural norms toward or against delinquent behavior within a school environment. Collectively, building on these observations, we can infer that the strength of the popularity and delinquency association within a cohort network may serve as a reliable indicator of the prevailing attitudes toward delinquent behaviors in this network. In cohort networks where this association is positive or less negative, it suggests a normative climate that is more permissive or even supportive of delinquency.

Conversely, a more negative association might indicate a peer culture that disapproves of such behaviors.

As a reflection of collective attitudes toward delinquent behaviors, the popularity-delinquency association can thus reflect the *dis-credibility* of police contact within a cohort network. This is because police contact and arrest have become common institutional responses to adolescents engaging in delinquent behaviors in recent decades (Geller, 2021). In cohort networks where delinquency is positively or weakly negatively associated with popularity, we may infer a collective attitude that downplays the seriousness of police contact or even frames it as a badge of honor, which makes police contact less stigmatized and less likely to result in interpersonal exclusion. By contrast, in cohort networks where the popularity-delinquency association is strongly negative, we would expect a peer culture that views police contact—often the extension of delinquent behavior—as a mark of deviance, leading to heightened stigma and increased interpersonal exclusion. In a word, the popularity-delinquency association is an important aspect of the cultural context of cohort networks that may influence the association between police contact and peer relationships by altering the degree to which police contact is viewed as discrediting. Therefore, I expect patterns in friendship networks that are consistent with rejection and withdrawal processes to be less common among youth with police contact experiences from cohort networks with a positive or weakly negative popularity-delinquency association than in those where this association is strongly negative.

Despite these theoretical arguments, it is important to recognize that while the popularity-delinquency association directly measures collective attitudes toward delinquent behavior, it serves only as an indirect proxy for collective attitudes toward police contact. One caveat is that collective attitudes toward delinquent behavior may not necessarily align with collective

attitudes toward police contact. Although delinquent behavior and police contact are often linked (Geller, 2021), the way a cohort network views these experiences may differ. For instance, a cohort network may tolerate or even celebrate minor delinquent behavior while still perceiving police contact as a serious or discrediting event. To address this concern, I also include the popularity-police-contact association as another cultural contextual measure in my analyses to directly assess how peer networks perceive and respond to justice involvement. However, this is not my primary measure of network norms because police contact is a relatively less common experience, particularly in the earlier years of adolescence, and thus, the measurement of popularity-police-contact association may be less reliable in smaller cohort networks. Nonetheless, this additional measure provides a more nuanced understanding of the role of cultural norms in shaping the impact of police contact on adolescent peer relationships.

Structural Context: Network Closure and Perceptibility of Police Contact

My third research question asks whether the structural closure of cohort networks influences the reduction in adolescent friendship ties following contact with the criminal justice system. The role of social structure in shaping individual outcomes cannot be overemphasized (e.g., Burt, 2005; Granovetter, 1973; Giddens, 1984; Lin, 2002; Wellman, 1988). Research on school context has not neglected the impact of structural factors on adolescent development. Numerous studies have examined how various aspects of school structural organization and composition influence student outcomes, such as academic achievements, behavioral patterns, and social-emotional development (e.g., Lee & Burkam, 2003; Payne, 2008, 2012; Payne et al., 2003; Stewart, 2008).

However, two main limitations exist in their approaches to measuring structural context. First, most of the literature assesses school structure through either objective measures of school

composition, such as school size and teacher-student ratio (e.g., Gottfredson & DiPietro, 2011; Lee & Burkam, 2003), or subjective measures that reflect students' perceptions of interpersonal relationships within the school as a whole (e.g., Bryk & Driscoll, 1988; Newmann et al., 1989; Payne, 2012; Payne et al., 2003). Few studies, however, employ objective network indicators of social relations—specifically, those based on actual social ties between students—to capture the structural context. Social structure, as we have defined it, broadly refers to patterned or nonrandom social relations within a network (Cook & Whitmeyer, 1992). This is where objective network metrics can come into play, as they provide a direct operationalization of this definition, revealing the specific connections and interactions that can shape information flow (Coleman, 1988; Granovetter, 1973), direct peer influence within close relationships (Haynie, 2001; McGloin & Piquero, 2010; McGloin et al., 2014), and broader spread of behaviors across the network (Centola, 2010). In contrast, broad measures of school composition, such as school size and teacher-student ratio, though capturing general organizational characteristics, do not account for the specific relational ties among students. Likewise, measures of subjective perceptions of relationships, often impressions and evaluations of relationships in school as a whole (e.g., Payne, 2012; Payne et al., 2003), fail to indicate whether actual social ties exist between any two students. In my study, measuring the actual interconnectedness among students as friends is especially informative for understanding the potential *perceptibility* of criminal justice contact—not because students in an interconnected network are aware of others' police contact for sure, but because the interconnectedness of a network creates the conditions under which such awareness is more or less likely to emerge.

Second, most studies measure the structural context at the school level. However, as with my rationale for measuring cultural norms at the grade cohort level, the cohort network serves as

the primary setting where students engage in daily interactions, share information about one another, and develop friendship ties (Osgood et al., 2022). The structure of the cohort network, in contrast to broad school-level structural measures, might offer a more precise reflection of the channels through which information flows, thereby capturing the extent to which police contact may become perceptible within this immediate social context.

Among the various structural features of social networks, I focus on network closure as a proxy for the perceptibility of criminal justice contact within cohort networks. Network closure refers to the extent to which individuals are interconnected in a social network (Burt, 2005, 2017). It has been established as a strong predictor of community cohesion (Grosser et al., 2023; Lutter, 2015; Martí et al., 2017; Quintane et al., 2013). This interconnectedness may influence the relationship between police contact and subsequent reduction in friendship ties by shaping the likelihood that such contact is perceptible among peers. As Goffman (1963) explains, there is no room for stigmatization if one's "stigma" remains unknown to others. Network closure affects the ease with which legal contact becomes known to others in two primary ways. First, a higher level of network closure facilitates more direct contact among students within the cohort network. In tightly knit networks, each student is more likely to be "known to the others as a 'unique' person" (Goffman, 1963, p. 56). This means that students are not merely schoolmates but are familiar with each other's distinct characteristics and personal experiences. Consequently, information about criminal justice contact is more likely to be obtained through direct interactions with sanctioned peers. Second, a higher level of network closure increases the likelihood of indirect information flow within the network. In tightly connected cohort networks, students often share mutual friends, which allows information to circulate beyond direct interactions. Even if someone does not interact directly with a sanctioned student, they may still

learn about that person's criminal justice contact through shared friends. In other words, high network closure creates information channels through which news spreads and gossip travels quickly (Coleman, 1988; Granovetter, 1973).

It is important to clarify that the networks analyzed in this study refer specifically to friendship networks, but I do not claim that information or gossip about police contact spreads exclusively through direct and indirect friendship ties. Prior research has shown that in school settings, gossip, rumors, and reputational information frequently circulate beyond friendship boundaries, spreading through acquaintances, adversaries, and broader peer audiences (Estévez et al., 2022; Juvonen et al., 2013; Merten, 1997). These findings are echoed in social network research demonstrating that weak ties and structural bridges can facilitate the diffusion of both factual and reputational information (Granovetter, 1973; Burt, 2005). Thus, friendship networks do not represent a complete map of all possible information pathways, and adolescents may become aware of a peer's police contact through a variety of social routes. However, the use of friendship networks to measure network closure in this study remains appropriate. Although information can diffuse through non-friendship ties, friendship ties remain the primary context in which adolescents receive and exchange information. As Giordano (2003) highlights, interactions with non-friend peers are, almost by definition, less frequent, less emotionally intimate, and less socially influential than interactions with close friends. Supporting this, McAndrew and colleagues (2007) find that both male and female students are more likely to share gossip with their allies (i.e., friends and romantic partners) than with non-allies. The network closure of a cohort friendship network, therefore, provides a reasonable approximation of the perceptibility of police contact within that network. High friendship network closure

represents information channels formed through both direct and indirect friendship ties, thereby increasing the perceptibility of police contact among peers.

This argument aligns with previous empirical evidence on network closure. Research has shown that closed, dense network structures offer redundant and detailed information that is easier to interpret and enhances the capacity for information transmission (Reagans & McEvily, 2003; Uzzi, 1996). According to Fleming and colleagues (2007), the increased transmission capacity enables the flow of sensitive and complex information, including potentially stigmatizing experiences. As a result, these information channels can heighten the social visibility of police contact and allow for greater social sanctions from friends (Coleman, 1994).

Some studies, while not explicitly applying the concept of network closure, have identified more salient labeling effects in more closed communities. For example, suicide research indicates that individuals in closed, cohesive networks may face heightened vulnerability to suicide due to increased exposure and social monitoring (Mueller & Abrutyn, 2016; Varia et al., 2014). These scholars suggest that cohesive social networks promote the spread of information, increase the visibility of individuals' actions, and amplify the likelihood of swift sanctions (Mueller & Abrutyn, 2016; Varia et al., 2014). Similarly, other studies found that social norms are more uniformly enforced and effectively maintained in more cohesive communities (e.g., Hechter, 1987; Hechter & Kanazawa, 1993). In these environments, community members are prepared to intervene in situations that threaten the social order of the community and impose sanctions against those who engage in deviant behavior (Horne, 2001; Sampson et al., 1997). Therefore, I hypothesize that a higher level of cohort network closure is associated with a greater likelihood of stigmatizing responses following police contact,

manifested as patterns in friendship networks that are consistent with rejection and withdrawal processes, due to the increased perceptibility of a criminal justice contact in the network.

However, it is important to acknowledge that the perceptibility of police contact is not uniformly distributed across students within the same cohort network because adolescents vary in their embeddedness within the network. Those on the social periphery may remain relatively insulated from peer surveillance, even in highly closed cohort networks, while the behaviors of more centrally positioned youth are more likely to be visible and subject to increased reputational scrutiny. Despite these variations in individual embeddedness, the overall interconnectedness of the cohort friendship network should still shape the baseline conditions for how readily information can circulate. A more interconnected cohort network increases the collective likelihood that police contact becomes perceptible and, in turn, raises the risk of interpersonal exclusion for those who experience it.

In network structure studies, various metrics have been used to operationalize network closure (e.g., Allcott et al., 2007; Bixler et al., 2020; Gargiulo et al., 2009). As the first empirical attempt to use network closure to reflect the perceptibility of criminal justice contact within adolescent cohort networks, I choose metrics that are both methodologically straightforward and theoretically suited to capture information flow, including *transitivity*, *density*, and *average path length*. Transitivity refers to the likelihood that two friends of a given individual are also friends with each other, forming a triangle of connections. It captures the degree to which relationships are clustered locally within the network. However, transitivity may sometimes overestimate the degree of network closure (Snijders, 2012). In some circumstances, high transitivity can indicate that local clusters—small, tightly connected peer groups—are well-connected internally, even if the overall network lacks broader interconnectedness across these closed peer groups. Thus, I

opted to also include metrics of density and average path length, which, together with transitivity, offers a broader view of overall network connectedness and the potential for information perceptibility at the cohort network level. Density is defined as the ratio of actual ties in the network to the maximum possible number of ties. Generally, density reflects the overall connectedness of the network (Burt, 2017). Higher density indicates a more interconnected network where information on events, such as police contact, can spread more swiftly. Average path length refers to the average number of steps needed to connect any two individuals in the network via the shortest possible route. For example, if Student A is friends with Student B, who is friends with Student C, and Student A is not friends with Student C, then the path length between Student A and Student C is two steps. In a cohort network with a shorter average path length, individuals are only a few connections away from one another. This shorter path length facilitates the rapid spread of information, such as news of a friend's criminal justice contact, as it can reach individuals through fewer intermediaries.

In sum, both network norms, measured by the popularity-delinquency association and the popularity-police-contact association, and network closure, measured by transitivity, density, and average path length, may condition the association between police contact and decreased friendship ties among adolescents from the same cohort network.

More About Context: Differences Between Middle School and High School

Granted, cohort-level cultural and structural contexts matter, but to better understand the association between police contact and friendship ties—and how this association varies by cohort network context—it is crucial to consider broader differences between school environments. Middle school and high school represent two distinct educational settings that differ in

meaningful cultural and structural ways, all of which may influence both the direct effect of police contact on peer relationships and the moderating roles of contextual factors.

Above all, I expect the overall impact of police contact on the reduction of adolescent friendship ties to be more pronounced in middle school than in high school. First, middle school corresponds to early adolescence, a developmental stage marked by heightened sensitivity to peer evaluation, strong conformity to peer-group norms, and an intensified need for peer acceptance (Berndt, 1979; Brown & Larson, 2009; Steinberg & Monahan, 2007). Prior research consistently finds that susceptibility to peer influence, particularly with respect to antisocial or delinquent behavior, declines as adolescents mature (Berndt, 1979; Erickson et al., 2000; Ragan, 2020; Steinberg & Monahan, 2007). Meanwhile, friendships tend to become more stable and less reactive to external disruptions from early to middle and late adolescence, even though the number of close friendships typically decreases during this period (see Poulin & Chan, 2010 for a comprehensive review). These developmental patterns help shape a cultural climate in middle school that is especially sensitive to norm violations and intolerant of persistently delinquent peers (Rulison et al., 2014). As a result, younger adolescents in middle school may be more reactive to behaviors or events, such as police contact, that could threaten their social standing or peer group status within the cohort network. When a student in this age group experiences police contact, both the individual and their peers may be more likely to disengage from the relationship to avoid the stigma associated with the event.

Second, police contact may be more discrediting in middle school because it is a less common experience at this stage than in high school. In middle school, most students have had little to no exposure to the justice system (Brame et al., 2012; Jacobsen & Tinney, 2023). As a result, contact with police may be perceived as a serious deviation from normative behavior.

Youth who experience police contact in this context are more likely to stand out and be viewed as violating group norms. This is further reinforced by school environments in middle school that often emphasize order, behavioral compliance, and adult supervision (McDaniel et al., 2024; Way et al., 2007). By high school, however, justice system involvement becomes more common, both through personal experience and as something observed among peers (Geller & Fagan, 2019; Turney, 2022). With this increased exposure, police contact may be seen as less shocking and less indicative of deep deviance. Thus, the combination of event rarity and sensitivity to norm violation in middle school likely enhances the discrediting power of police contact and intensifies its social consequences, including the risk of friendship loss.

Third, structural features of middle school environments may further contribute to interpersonal exclusion following police contact by increasing its perceptibility. Compared to high school, middle schools typically have smaller grade cohorts than high schools (Freelin et al., 2023). Meanwhile, students are more likely to be organized into grade-level teams, take most classes together, and spend the school day with a consistent peer group (Eccles & Roeser, 2011; Kinderman, 2007). These factors may contribute to more dense and cohesive cohort networks in middle school, which not only heighten students' familiarity with one another but also increase the likelihood that behaviors and reputational events such as police contact become widely known within the cohort network. High schools, in contrast, tend to be larger and more socially fragmented, with students having fewer number of friends than in middle school (Poulin & Chan, 2010). Research has also shown that academic tracks, elective choices, and extracurricular involvement, many of which cut across grade levels, contribute to the formation of high school friendships more than those in middle school (Lee & Bryk, 1988; Schaefer et al., 2011). As a result, the primary interactions of high school students may frequently extend beyond grade-level

boundaries, making the grade cohort a less cohesive and socially meaningful unit in high school than in middle school (Crosnoe, 2011). This structural complexity creates more opportunities for anonymity and reduces the likelihood that stigmatizing information is known across the entire cohort network in high school. Consequently, the perceptibility of police contact and its potential to trigger rejection or withdrawal may be stronger in middle school than in high school.

In addition to differences in the overall association between police contact and friendship ties, the influence of cohort-level cultural context may also vary between middle and high school. While the measures of cultural norms (i.e., popularity-delinquency association and popularity-police-contact association) should capture the same underlying construct across school levels, the broader school environments may shape how much these factors matter in shaping peer responses to police contact. Specifically, I expect the moderating effect of cultural norms to be stronger in middle school than in high school. As mentioned above, middle school is characterized by heightened sensitivity to peer approval, stronger enforcement of behavioral norms, and less exposure to the legal system (Eccles & Roeser, 2011; Kindermann, 2007; Jacobsen & Tinney, 2023), which makes adolescents more responsive to the collective cultural norms against delinquency of their cohort network. When delinquent behavior is associated with low popularity in this setting, police contact is more likely to be interpreted as a serious status threat, intensifying the risk of interpersonal exclusion. However, I do not expect the overall moderating effect of network closure to differ substantially across middle and high schools because greater interconnectedness should increase the perceptibility of police contact regardless of school level.

Study Contributions

In this work, I build on previous research exploring the consequences of criminal justice contact for interpersonal exclusion by incorporating the role of social context, which potentially affects whether criminal justice contact is perceptible and discrediting (Goffman, 1963). I provide an important contribution to labeling theory by introducing propositions about the cultural and structural aspects of social context that may influence the salience of criminal justice stigma among peer relationships. My cultural focus draws a link between network norms of popularity-delinquency association and the dis-credibility of criminal justice contact in that environment. It enriches previous research that only recognized the role of social norms in the formation of stigma that affects friendship networks and other outcomes (e.g., Jacobsen, 2020; Jacobsen et al., 2022; Rowan et al., 2023; Tinney, 2023), relied on qualitative interviews to understand social norms' impact on the stigma process (Hirschfield, 2008), or examined contextual variations without extending their analysis to interpersonal exclusion (Hirschfield & Piquero, 2010; Sugie & Turney, 2017). My structural focus connects network closure to the perceptibility of criminal justice contact within cohort networks, which holds theoretical importance but has rarely been examined. These effects of cultural and structural contextual factors add to our understanding of the complex ways that context shapes the stigmatizing responses to criminal justice contact, particularly responses in terms of peer relationships.

I further contribute to the contextualization of stigma in labeling theory by considering broader contextual differences between school environments. By examining whether the association between police contact and friendship ties and the effect of network context on this association differ between middle school and high school, I capture the implications of criminal justice contact and social context for interpersonal exclusion across distinct institutional settings.

Chapter 3: Data and Methods

Data

Data for this study come from the in-school evaluation of PROSPER, a project aimed at reducing adolescent risky behaviors through community-supported intervention programs (Spoth et al., 2004; Spoth et al., 2007). The PROSPER study included all students of two successive grade cohorts from 28 public school districts located in rural communities across Iowa and Pennsylvania. To qualify for participation, districts were required to have an enrollment size between 1,300 and 5,200 students, with at least 15% of the student body eligible for free or reduced-price lunch. Half of the participating districts were assigned to the experimental group, and the other half to the control group. Data collection for Cohort 1 began in the 2002–2003 academic year and for Cohort 2 in the 2003–2004 academic year. For each cohort, eight waves of data were collected through self-administered surveys: the first during the fall of 6th grade (Wave 1), followed by each spring from 6th through 12th grade (Waves 2 to 8). Students entered and exited the study as they transferred into or out of the school district.

This dataset is appropriate for the current research for several reasons. First, it is one of the few datasets that all students within the same grade cohort complete the survey, which enables us to create complete friendship network data for each grade cohort. This complete friendship network data not only allows for an examination of friendship changes following police contact while accounting for network structural parameters but also enables the generation of network-level contextual factors that are of particular interest to this study. Second, the longitudinal nature of this dataset makes it possible to assess whether the association between police contact and friendship ties, as well as the effects of contextual factors, differ between middle school and high school, two distinct educational settings. Third, the dataset includes

information on police contact along with a broad range of background, demographic, and behavioral variables that can be included as control variables.

In the current study, I use six waves of data, from Wave 2 (spring of 7th grade) to Wave 7 (spring of 11th grade). The first wave of data is excluded because the prevalence of police contact is low (less than 3%) and it was collected during the same grade as Wave 2. The last wave of data is also excluded due to its notably lower participation rates in a few school districts. The response rates for the included waves are relatively high, ranging from 80% to 89%. In addition, I dropped one school district because they refused to participate in the collection of network data. I dropped another school district because they experienced a fire that caused many students to be reassigned to different schools. Following these omissions, the full sample of Waves 2 to 7 data consists of 14,515 students[1], or an average of 11,119 students per wave, from 52 cohort networks across 26 school districts. I also conduct separate subsample analyses for middle school (i.e., Waves 2 to 4) and high school (i.e., Waves 5 to 7). The middle school sample consists of 12,622 students, or an average of 11,093 students per wave, from the same 52 cohort networks. The high school sample consists of 11,915 students, or an average of 10,522 students per wave, from those 52 cohort networks.

Measures

Dependent Variable: Friendship

The friendship network data for this study were derived from questions that asked students to list the names of their two closest friends and up to five additional close friends in the

[1] A small number of students in Cohort 1 who were retained in grade reappeared in Cohort 2 (n = 124). These students were retained in the sample because their reappearance reflects a natural part of school progression and their inclusion contributes to the completeness of the grade cohort's friendship network, even though their prior grade retention may indicate that they themselves have more cross-grade friends. All observations are treated according to their wave and cohort membership at the time of data collection.

same grade and school (i.e., from their grade cohort). Coders then matched these names to those on the school rosters. The matching rate ranges from 71% to 85% from Waves 2 to 7. Unsuccessful matches occurred when students nominated a name not found on the roster, when multiple plausible matches existed, or when nominations were inappropriate (e.g., jokes, celebrities). I refer to respondent nominations of peers as outgoing ties and peer nominations of the respondent as incoming ties.

Independent Variable(s): Police Contact

I define police contact as being picked up by the police for any illegal behavior. In each wave, students were asked how many times they had been picked up by the police for breaking the law during the past 12 months. Response options were: 1 = *never*, 2 = *once*, 3 = *twice*, 4 = *three or four times*, and 5 = *five or more times*. It is important to acknowledge that my definition of police contact is much more conservative than those used in prior research because it specifically asked about "being picked up" by the police "for breaking the law," excluding other police interactions such as those only being stopped by the police and those not involving law violations. This is also important because not every contact with the police could lead to stigma. However, my measure of police contact is more inclusive than typical measures of arrest because it captures instances of being picked up by police for breaking the law, regardless of whether such contact results in formal charges or official records (Kirk, 2006; Miller, 2014; Sherman & Glick, 1984). This distinction is significant because stigma among peers does not necessarily depend on formal documentation but often stems from visible police contact within social networks (Jacobsen et al., 2022; Jacobsen & Tinney, 2023; Tinney, 2023).

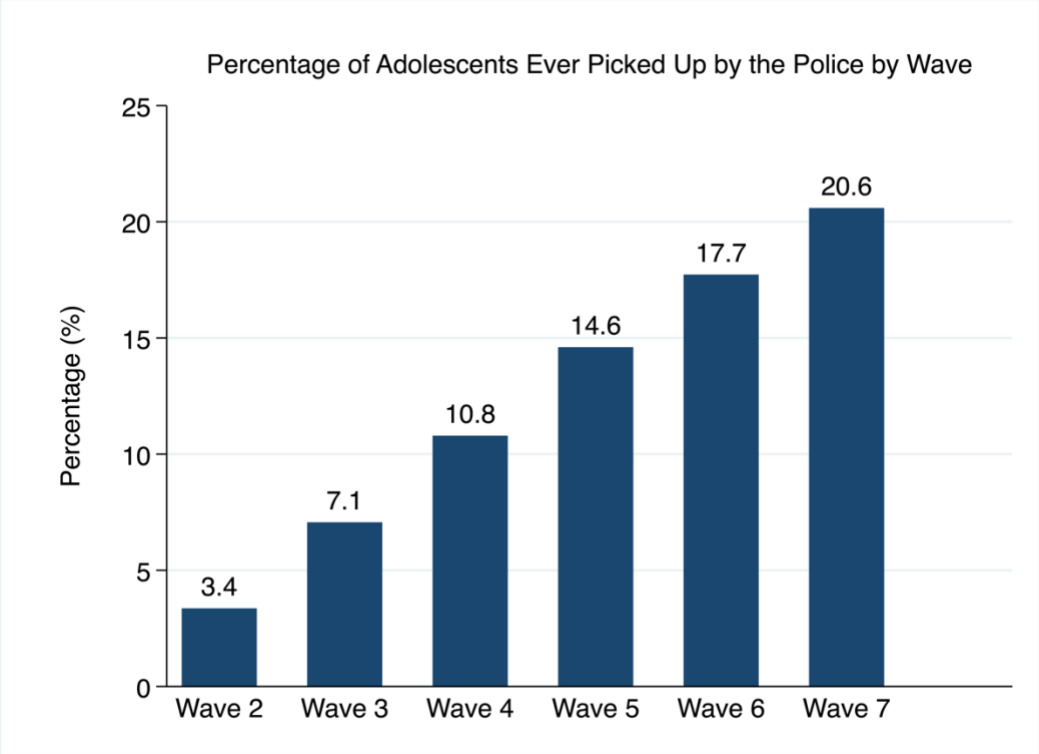
Although students could experience multiple instances of police contact, I created binary variables to indicate whether the student had ever reported being picked up by the police for

breaking the law by a given wave. I measure police contact in this binary way for two primary reasons. First, police contact is a potential marker that students carry with them as they advance from grade to grade (Jacobsen et al., 2022). A binary indicator of whether a student has ever been picked up by the police allows for comparisons of friendship changes between those who may carry the stigma of police contact and those who do not. Second, while the stigmatizing effects of police contact may increase with the frequency of such experiences (Compton et al., 2022), fewer than 5% of adolescents in my sample reported multiple instances of police contact in any given wave. Cumulatively, less than 8% of adolescents had experienced more than one police contact by Wave 7. This skewed distribution limits the viability of using police contact frequency as an independent variable, as the lack of variability could lead to unstable estimates or convergence issues in the analysis. By opting for a binary measure, I can still capture the key distinction between adolescents who have experienced any police contact as I have defined it and those who have not.

I use two versions of police contact in this study. For the full sample (Waves 2 to 7) and middle school sample (Waves 2 to 4), police contact refers to whether a student had ever been picked up by the police up to the given wave, *starting from Wave 2*. This cumulative percentage of adolescents who had ever been picked up by the police by each wave since Wave 2 in the full sample is presented in Figure 1. For the high school sample (Waves 5 to 7), police contact refers to whether a student had ever been picked up by the police up to the given wave, *starting from Wave 5*. I use police contact starting from Wave 5 in the high school sample analysis because earlier incidents of police contact before high school may be less known among peers in high school due to school transitions. If this is the case, including earlier police contact could cause my estimates of the association between police contact and friendship ties in high school to be

conservative. Nevertheless, I control for police contact prior to Wave 5 in the analysis of the high school sample to account for any lasting effects of earlier police contact that may still influence friendship dynamics in high school.

Figure 1. Percentage of Adolescents Ever Picked Up by the Police by Wave (*N* = 14,515)



Note. PROSPER Study. Results are based on the full sample of 14,515 students across 52 cohort networks.

Network-Level Moderating Variables

Popularity-Delinquency Association. I primarily use network-level popularity-delinquency association to measure the extent to which police contact is discrediting in a cohort network. Delinquency is measured using an 11-item scale in which students report whether they have engaged in any delinquent behavior during the past 12 months. Response options are coded as *0 = none* and *1 = at least once*. For each student-wave observation, I take the mean of all available items and multiply that mean by 11. This approach allows for partial responses to be

retained and reflects the estimated number of delinquent behaviors a student engaged in over the past year. Approximately 84% of student-wave observations have complete data on all 11 items, 14% are missing on all 11 items, and the remaining 2% have partially missing data and are assigned estimated scores based on this method. A detailed description of the 11 items can be found in Appendix I. Popularity is measured as the number of incoming ties a student receives. This is a common approach taken in network analysis (Li et al., 2019; Macdonald-Wallis et al., 2012). The popularity score ranged from 0 to 20 in my data, which aligns with "Dunbar's number" that the cognitive limit of the number of close friends that a person can maintain is around 15 to 20 (Dunbar, 1992; Hill & Dunbar, 2003). This suggests that the range of popularity scores observed in the data is realistic and reflects natural social constraints on friendship formation.

I measure the popularity-delinquency association by performing a linear regression of popularity on delinquency for each wave of each cohort network. To generate the network-level popularity-delinquency association for the full sample, I calculate the average of the delinquency coefficient from Wave 2 to Wave 7 for each cohort network. For middle schools, I calculate the average of the delinquency coefficient from Wave 2 to Wave 4 for each cohort network. For high schools, I calculate the average of the delinquency coefficient from Wave 5 to Wave 7 for each cohort network. In other words, the popularity-delinquency association score reflects the overall cultural norm toward delinquency of each cohort network during the middle and/or high school period. A higher score indicates that, with the cohort network, students with higher levels of delinquency are overall more popular.

Although the popularity-delinquency association directly measures collective attitudes toward delinquent behavior, it remains an indirect proxy for collective attitudes toward police

contact. I thus use the popularity-police-contact association as a supplementary measure to assess the extent to which police contact is discrediting in a cohort network. Popularity is measured as described above. For this measure, police contact is based on the original frequency variable, which captures how many times students reported being picked up by the police for breaking the law during the past 12 months in each wave, with response options ranging from 1 = *never* to 5 = *five or more times*. Using a continuous measure of police contact to generate the popularity-police-contact association enables a more precise assessment of the relationship between varying levels of police contact and popularity within each cohort network. To calculate the popularity-police-contact association, I perform a linear regression of popularity on police contact for each wave of each cohort network and then generate average values for each cohort network, separately for the full sample, the middle school sample, and the high school sample. In other words, the popularity-police-contact association score reflects the overall cultural norms against police contact of each cohort network during the middle and/or high school period. A higher score indicates that, with the cohort network, students with higher levels of police contact are overall more popular.

Network Closure. Three indicators are used to represent network closure, including transitivity, density, and average path length. I generate these indicators using the "sna" package in R. Transitivity measures the likelihood that individuals' friends are also friends with one another. Density reflects the proportion of actual connections relative to all possible connections within the network. Average path length represents the average number of steps needed to connect any two individuals in the network. For transitivity and density, a higher score indicates a higher level of network closure. For average path length, a lower score indicates greater network closure. To represent the general structural context that students experience, I calculate

these measures at the cohort network level for each wave and take the average values from Waves 2 to 7 for each cohort network in the full sample, Waves 2 to 4 for each middle school cohort network, and Waves 5 to 7 for each high school cohort network. In other words, the transitivity, density, and average path length scores reflect the structural closure of each cohort network during the middle and/or high school period. Because indicators of network closure are sensitive to network size (Allcott et al., 2007), I control for network size in all models involving network closure.

Control Variables

I include a series of individual-level control variables that are known to influence both the likelihood of police contact and friendship patterns among adolescents (Jacobsen et al., 2022; McMillan & Freelin, 2024). All models control for demographic characteristics of gender (0 = *girl*, 1 = *boy*), race (0 = *nonwhite*, 1 = *white*), and free or reduced-price lunch (a time-stable continuous variable as an indicator of socioeconomic status, with a higher score indicating more consistency in receiving free or reduced-price lunch across waves). In addition, I control for four time-varying indicators of adolescent risky behavior: marijuana use in the past month (0 = *none*, 1 = *at least once*), alcohol use in the past month (0 = *none*, 1 = *at least once*), delinquency in the past year (a continuous variable ranging from 0 to 11, with a higher score indicating more delinquent behavior), and sensation-seeking tendency (a continuous variable ranging from 1 to 5, with a higher score indicating a greater tendency for risky taking). I also account for a few other factors that might influence adolescent police contact and friendship dynamics, including school absence in the past year (0 = *6 days or less*, 1 = *7 days or more*), school attachment (a continuous variable from 1 to 5, with higher scores indicating stronger school attachment), and family relations (a continuous variable from 1 to 5, with higher scores indicating better family

relationships). Lastly, as mentioned earlier, in the models for the high school sample, I control for prior police contact, specifically whether students had any police contact before high school (0 = *no police contact before Wave 5*, 1 = *any police contact before Wave 5*). A detailed description of the control variables is provided in Appendix I.

Analytic Strategy

The current study proceeds in two stages. First, to test the association between police contact and friendship ties, I employ longitudinal social network analysis to analyze the full sample, the middle school sample, and the high school sample, respectively. Within each sample, I conduct separate analyses for each cohort network across multiple waves and then use meta-analyses to summarize the results across networks. Second, to test whether the association between police contact and friendship ties varies across cohort networks, I introduce network-level variables into the meta-analyses. I describe each stage in detail below.

Stochastic Actor-Oriented Models

In the first stage of the analysis, I apply stochastic actor-oriented models (SAOMs) (Snijders et al., 2010). SAOMs represent a simulation-based method designed to estimate the coevolution of individual characteristics and network processes. Conceptually, SAOMs model how individuals in a social network make decisions over time about changing their network ties and/or behavior based on personal characteristics and the inherent tendencies within the network. Technically, this modeling is achieved through a series of simulations. SAOMs use data from the initial wave as the starting point. From there, the models simulate possible changes in network ties (or individual behavior) to find changes that best fit the observed data in the second wave through hundreds of iterations. This process continues for each subsequent wave, with the model using the data from the current wave to predict how network ties (or individual behavior) will

change in the next one. To simulate changes in network ties, SAOMs estimate the *network evolution* function, which reflects whether individuals add, drop, or maintain relationships based on individual characteristics and network tendencies. To simulate changes in individual behavior, SAOMs estimate the *behavior evolution* function, which reflects whether individuals increase, decrease, or maintain their level of a certain behavior based on individual characteristics and their position in the network.

Noteworthy, the current study focuses on the evolution of friendship ties in relation to police contact and thus only estimates the network evolution function. There are several reasons for excluding the behavior evolution function in the analysis. First, the behavior evolution function is typically estimated only when the model has one or more dependent behavioral variables (Ripley et al., 2024). In this study, the dependent variable is friendship ties rather than a specific behavior. My primary interest lies in how police contact influences friendships rather than how friendships might affect one's police contact or other behavior. Second, one might argue that it would be ideal to include the behavior evolution function to "control for" the reciprocal effect of friendship networks on police contact, especially given that existing research has shown the spread of police contact across friends (Tinney, 2023). However, because police contact is a relatively less common experience in middle school, incorporating the behavior function to model changes in police contact could introduce methodological challenges such as convergence issues. Furthermore, in SAOMs, while simultaneously estimating both the network and behavior evolution functions allows for the assessment of bidirectional relationships (e.g., how friendships affect police contact and how police contact affects friendships), prior research by Ragan and colleagues (2022) has demonstrated that leaving out one function does not meaningfully impact the results of the other in a way that one function "controls for" the other.

Effects of Interest. To estimate the network evolution function, I then specify the effects to be included in the function that influence actors' decisions to change their network ties (i.e., add a friend, drop a friend, or make no change to outgoing ties from wave to wave). In network analysis, alter refers to the individual receiving the incoming tie, and ego refers to the individual sending the outgoing tie. In this study, I focus on two key effects of interest. First, I include *police contact alter* effects to evaluate whether students who have ever been picked up by the police receive fewer friendship nominations relative to their peers (i.e., consistent with rejection). Second, I include *police contact ego* effects to assess whether students who have ever been picked up by the police make fewer friendship nominations relative to their peers (i.e., consistent with withdrawal). As previously mentioned, for the analysis of the full sample and the middle school sample, police contact refers to being picked up by the police by a given wave since Wave 2; for the analysis of the high school sample, police contact refers to being picked up by the police since by a given wave since Wave 5.

Control Effects. Given that many effects are known to influence adolescent friendship networks, I control for them in the network evolution function. First, in addition to the processes of rejection and withdrawal, the tendency toward homophily following police contact may exist. Homophily refers to the process of students who have experienced police contact selecting other students with similar experiences as friends. I account for the tendency toward homophily by including *police contact similarity* effects. Second, in addition to police contact, other individual characteristics, including demographic and behavior variables, might be associated with adolescent friendship patterns. For example, individuals who share the same gender, race, or socioeconomic status are more likely to form friendships with each other (McPherson et al., 2001). I account for these individual characteristics by incorporating *ego*, *alter*, and *similarity*

effects for each control variable, including gender, race, free or reduced-price lunch, marijuana use, alcohol use, delinquency, sensation-seeking tendency, school absence, school attachment, and family relations. For the high school sample analysis, I additionally include the *ego*, *alter*, and *similarity* effects of prior police contact.

Third, friendship patterns are shaped not only by individual demographic and behavioral characteristics but also by fundamental network features that reflect the natural tendencies for friendships to develop within each network. I control for seven of these network structural effects, including *density*, *reciprocity*, *transitive triplets*, *reciprocated transitive triplets*, *square root of the in-degree popularity*, *in-in degree assortative*, and *truncated outdegree* effects, following prior research using the PROSPER data (Jacobsen et al., 2022; McMillan & Freelin, 2024; Ragan, 2020). The *density* effect accounts for the tendency for friendship nominations to occur within a network. The *reciprocity* effect accounts for the tendency for friendship ties to be mutual in a network. The *transitive triplets* effect accounts for the tendency for adolescents to choose friends of their friends as friends. The *reciprocated transitive triplets* effect refers to an interaction between transitive triplets and reciprocity. It accounts for the tendency for adolescents to form a mutual friendship tie that completes a friendship triad between three people. The *square root of the in-degree popularity* effect accounts for the tendency for adolescents who have been nominated as friends to continue receiving more nominations. The *in-in degree assortative* effect accounts for the tendency for adolescents who are frequently nominated as friends to name others who are also frequently nominated. The *truncated outdegree* effect accounts for the tendency of some adolescents to make no friendship nominations at all. In addition to inherent network features, school transitions and mergers influence friendship ties.

Hence, I control for two additional network structural effects: the *transition to a higher-level school* and the *merging of smaller schools into a larger one*.

Model Estimation. With all the effects in the network evolution function specified, I estimate SAOMs for each of the 52 cohort networks across the three samples (i.e., the full sample, the middle school sample, and the high school sample). For each cohort network in each sample, I estimate two models: one without control effects (except for the tendency toward homophily, which is often examined simultaneously with patterns consistent with rejection and withdrawal, and density, which is required to be included in all SAOMs and comparable to an intercept in a traditional linear regression model; see Ripley et al., 2024; referred to as the model *without control effects* hereafter), and one with all control effects. In total, 312 separate SAOMs are estimated, based on 52 cohort networks × 2 models (with and without control effects) × 3 samples (full sample, middle school sample, and high school sample). I conduct all the analysis using the "RSiena" package in R, a package specifically designed to estimate SAOMs[2]. The effect coefficients represent the average level of change across all waves of the cohort network in the sample and can be interpreted as log odds ratios.

Meta-Analyses

To report the association between police contact and friendship ties, I aggregate the SAOM findings across the 52 cohort networks for each sample. Only models that meet the recommended standards of convergence[3] are included to generate the aggregated results[4]. This

[2] All models include five phase-2 subphases and 4,000 iterations during phase 3 to ensure robust estimation and convergence of parameters in the simulations.

[3] Recommended convergence standards, as suggested by Ripley et al. (2024), require that convergence *t* values, which indicate the extent to which the simulated data differ from the observed data, are less than ± 0.10 for all parameters, and that the overall maximum *t* ratio for convergence is below 0.25.

[4] I also conducted a series of goodness-of-fit tests on a random subset of 52 models from the total of 305 estimated models that meet the recommended standards of convergence. These tests assess whether the simulated networks produced by the SAOM adequately reproduce key structural features of the observed networks. Specifically, I compare the observed distributions of indegree, outdegree, triads, and geodesic distances to simulated networks

yields 52 models without control effects and 52 models with all control effects for the full sample, 51 without control effects and 46 models with all control effects for the middle school sample, and 52 models without control effects and 52 models with all control effects for the high school sample. To combine estimates from separate models, I perform several multilevel random effects meta-analyses, with Level 1 consisting of network coefficients from each cohort network and Level 2 representing the cohort network itself. I conduct these meta-analyses using the "metafor" package in R. This technique averages each SAOM coefficient across models while assigning greater weight to more precise estimates (Viechtbauer, 2010). The results from these meta-analyses address the first research question, which examines whether police contact influences adolescent friendship ties.

In the second stage of the analysis, I include network-level moderating variables into the meta-analyses to evaluate whether the association between police contact and friendship ties varies across different contexts. This moderation analysis is conducted separately for the full sample, the middle school sample, and the high school sample to capture potential differences across school levels. I assess the impact of network-level contextual factors by including them (i.e., popularity-delinquency association, popularity-police-contact association, and measures of network closure) as Level 2 moderators. Specifically, network-level moderating factors will interact with police contact alter or police contact ego effects. In the model results, the intercept estimate represents the average association between police contact and friendship ties across all cohort networks when the moderators are at their mean value. The estimates for the moderators indicate the extent to which they influence the relationship between police contact and friendship

estimated by the SAOM. Across the tested models, the SAOM simulations showed good fit to the observed networks.

ties. The results from these moderation analyses address the second and third research questions, which examine whether contextual factors, including network cultural norms and network structural closure, moderate the relationship between police contact and adolescent friendship ties.

Chapter 4: Results

Descriptive Statistics

Table 1 presents the descriptive statistics for all individual-level time-stable variables across the 52 cohort networks in the full sample (N = 14,515). About half of the participants are male. The sample includes a high proportion of White students, making up approximately 81% of the sample. Table 2 shows the descriptive statistics for individual-level time-varying variables by wave across the 52 cohort networks in the full sample (N = 14,515). The number of friendship nominations overall increases during middle school and decreases during high school. This pattern aligns with prior research that the number of close friendships declines from early to late adolescence, while those friendships that do persist tend to become more stable (Poulin & Chan, 2010). Regarding police contact, 3.4% of students in the full sample reported having been picked up by the police during the past 12 months in Wave 2. The cumulative percentage of students who reported having ever been picked up by the police increased to 7.2% by Wave 3, 11.0% by Wave 4, 15.0% by Wave 5, 18.4% by Wave 6, and 21.5% by Wave 7.

Table 1. Descriptive Statistics for Individual-Level Time-Stable Variables

Variable	Mean	SD	Min	Max
Male	0.497	—	0	1
White	0.813	—	0	1
Free or Reduced-Price Lunch	−0.020	1.605	−1.758	3.435

Note. PROSPER Study. Descriptive statistics are based on the full sample of 14,515 students across 52 cohort networks. SD = Standard Deviation.

Table 2. Descriptive Statistics for Individual-Level Time-Varying Variables

Variable	Mean (SD)					
	W2	W3	W4	W5	W6	W7
Friendship Nominations						
Made (outgoing ties)	3.843 (2.694)	4.029 (2.644)	3.985 (2.599)	3.543 (2.570)	2.766 (2.478)	2.357 (2.384)
Received (incoming ties)	3.653 (2.817)	3.863 (2.956)	4.008 (2.958)	3.438 (2.684)	2.872 (2.447)	2.454 (2.258)
Ever Picked Up by the Police since Wave 2	0.034	0.072	0.110	0.150	0.184	0.215
Marijuana Use in the Past Month	0.014	0.035	0.071	0.120	0.141	0.177
Alcohol Use in the Past Month	0.112	0.171	0.260	0.358	0.399	0.439
Delinquency in the Past Year	0.937 (1.772)	1.240 (2.126)	1.543 (2.361)	1.730 (2.545)	1.762 (2.588)	1.693 (2.542)
Sensation Seeking Tendency	1.993 (0.982)	2.123 (1.001)	2.266 (1.021)	2.322 (1.018)	2.342 (1.012)	2.277 (0.991)
7+ Days of School Absence in the Past Year	0.237	0.270	0.316	0.323	0.318	0.341
School Attachment	3.931 (0.746)	3.743 (0.769)	3.640 (0.773)	3.574 (0.741)	3.576 (0.719)	3.585 (0.700)
Family Relations	0.098 (0.387)	−0.001 (0.418)	−0.087 (0.423)	−0.157 (0.419)	−0.178 (0.413)	−0.175 (0.420)

Note. PROSPER Study. Descriptive statistics are based on the full sample of 14,515 students across 52 cohort networks. SD = Standard Deviation.

Table 3 displays the descriptive statistics for network-level moderating variables for the full sample, middle school sample, and high school sample. In terms of network cultural norms, the popularity-delinquency association, is, on average, slightly less negative in middle school (*Mean* = −0.058, *SD* = 0.110) compared to high school (*Mean* = −0.081, *SD* = 0.082). However, a dependent samples t-test indicates that the difference in cultural orientation toward delinquency between middle and high school is not statistically different ($t(51) = 1.504$, $p = .139$). Overall, the association between popularity and police contact is more negative compared to the association between popularity and delinquency, and this association is more negative in middle school (*Mean* = −0.365, *SD* = 0.541) than in high school (*Mean* = −0.209, *SD* = 0.344). This

implies that police contact may be more discrediting during middle school than in high school, which is consistent with my expectation, though the difference is not statistically significant at the 0.05 level ($t(51) = -1.809$, $p = .076$). In terms of network structural closure indicators, middle school cohort networks exhibit higher overall density (*Mean* = 0.031, *SD* = 0.014) compared to high school cohort networks (*Mean* = 0.021, *SD* = 0.011), and shorter average path length (Middle School: *Mean* = 5.030, *SD* = 0.659; High School: *Mean* = 5.709, *SD* = 0.885). However, transitivity, on average, is higher in high school cohort networks (*Mean* = 0.329, *SD* = 0.062) than in middle school cohort networks (*Mean* = 0.302, *SD* = 0.048). Dependent samples t-tests indicate that the differences in network structural closure indicators between middle and high school are statistically different (transitivity: $t(51) = -3.717$, $p < .001$; density: $t(51) = 8.119$, $p < .001$; average path length: $t(51) = -8.322$, $p < .001$). These findings are consistent with prior research suggesting that high school students tend to form more loosely connected cohort-wide networks, while simultaneously clustering within distinct peer groups (Poulin & Chan, 2010; Schaefer et al., 2011). The former pattern is better captured by density and average path length, and the latter pattern is better captured by transitivity.

Table 3. Descriptive Statistics for Network-Level Variables

	Mean	SD	Min	Max
Full Sample				
Network Cultural Norms				
Popularity-Delinquency Association	−0.070	0.080	−0.288	0.051
Popularity-Police-Contact Association	−0.287	0.326	−1.303	0.600
Network Structural Closure				
Transitivity	0.317	0.054	0.211	0.430
Density	0.027	0.012	0.008	0.055
Average Path Length	5.340	0.734	4.044	7.001
Middle School Sample				
Network Cultural Norms				
Popularity-Delinquency Association	−0.058	0.110	−0.356	0.154
Popularity-Police-Contact Association	−0.365	0.537	−2.144	1.010
Network Structural Closure				

Transitivity	0.302	0.048	0.216	0.421
Density	0.031	0.014	0.009	0.074
Average Path Length	5.030	0.659	3.697	6.269
High School Sample				
Network Cultural Norms				
Popularity-Delinquency Association	−0.081	0.082	−0.303	0.064
Popularity-Police-Contact Association	−0.209	0.344	−1.046	1.043
Network Structural Closure				
Transitivity	0.329	0.062	0.207	0.477
Density	0.021	0.011	0.007	0.044
Average Path Length	5.709	0.885	3.895	7.761

Note. PROSPER Study. Descriptive statistics are based on the full sample of 52 cohort networks. Statistics for the full sample are averages across Waves 2 to 7, statistics for the middle school sample are averages across Waves 2 to 4, and statistics for the high school sample are averages across Waves 5 to 7, all across the same 52 cohort networks. SD = Standard Deviation.

Overall Association between Police Contact and Friendship Ties

Model 1 and Model 2 in Table 4 present the meta-analysis results of the overall association between police contact and adolescent friendship ties using the full sample (*N* of networks = 52). The effect coefficients represent the average level of change across Waves 2 to 7 and can be interpreted as log odds ratios. Model 1 estimates the relationship between police contact and friendship ties, controlling only for police contact similarity and density effects. Regarding friendship patterns consistent with rejection, the findings reveal that students are less likely to extend friendship ties to cohort peers who have been picked up by the police than those who have not ($\beta = -0.118$, SE = 0.025, $p < .001$). This means that for adolescents who experienced police contact, the odds of receiving friendship nominations from peers in the same cohort network are 11.1% lower than those without such experiences [$(e^{-0.118}–1) \cdot 100$]. Regarding friendship patterns consistent with withdrawal, the results indicate that for adolescents who have had police contact, the odds of sending friendship nominations to peers in the same cohort network are 20.4% lower than those without such experiences ($\beta = -0.228$, SE = 0.026, $p < .001$). Model 2 assesses the same relationships while incorporating all control effects. The

results remain consistent, despite an increase in the estimate for friendship change consistent with rejection and a decrease in the estimate for friendship change consistent with withdrawal. Consistent with rejection, having police contact experience is associated with a 12.3% reduction in the odds of receiving friendship nominations from cohort peers compared to those with no police contact experience ($\beta = -0.131$, SE = 0.024, $p < .001$). Consistent with withdrawal, having police contact experience is associated with a 14.9% reduction in the odds of extending friendship nominations to cohort peers compared to those with no police contact experience ($\beta = -0.162$, SE = 0.025, $p < .001$). Overall, these findings suggest that police contact is associated with a reduction in adolescent friendship ties in the full sample. Noteworthy, this reflects the average effect across Wave 2 to Wave 7, spanning both middle school and high school periods.

Table 4. Meta-Analysis Results for the Association Between Police Contact and Friendship Ties

	Full Sample		**Middle School**		**High School**	
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Ever Police Contact Alter (Rejection)	−0.118*** (0.025)	−0.131*** (0.024)	−0.135*** (0.035)	−0.105** (0.035)	0.033 (0.022)	−0.043 (0.032)
Ever Police Contact Ego (Withdrawal)	−0.228*** (0.026)	−0.162*** (0.025)	−0.280*** (0.041)	−0.209*** (0.046)	−0.040 (0.035)	−0.054 (0.034)
Same Police Contact (Homophily)	0.123*** (0.021)	−0.142*** (0.020)	−0.033 (0.034)	−0.188*** (0.034)	0.242*** (0.030)	−0.040 (0.034)
Demographic Characteristics						
Male Alter		0.091*** (0.010)		0.074*** (0.013)		0.145*** (0.014)
Male Ego		−0.155*** (0.014)		−0.209*** (0.019)		−0.137*** (0.018)
Same Male		0.586*** (0.017)		0.732*** (0.026)		0.569*** (0.022)
White Alter		−0.077*** (0.017)		−0.098*** (0.017)		−0.073** (0.023)
White Ego		−0.005 (0.019)		−0.067* (0.032)		0.024 (0.021)
Same White		0.096*** (0.025)		0.167*** (0.023)		0.057 (0.041)

FRL Alter	0.004	−0.0004	0.013*
	(0.003)	(0.004)	(0.005)
FRL Ego	0.003	−0.009*	0.004
	(0.003)	(0.004)	(0.004)
Similar FRL	0.348***	0.346***	0.387***
	(0.015)	(0.022)	(0.027)
Behavioral Characteristics			
Marijuana Use Alter	−0.101***	−0.088*	−0.022
	(0.022)	(0.035)	(0.027)
Marijuana Use Ego	−0.209***	−0.249***	−0.114***
	(0.021)	(0.046)	(0.025)
Same Marijuana Use	−0.179***	−0.308***	−0.117***
	(0.016)	(0.027)	(0.022)
Alcohol Use Alter	−0.011	−0.0006	−0.017
	(0.007)	(0.018)	(0.015)
Alcohol Use Ego	−0.032	0.030	0.011
	(0.012)	(0.020)	(0.016)
Same Alcohol Use	0.033***	0.015	0.059***
	(0.010)	(0.017)	(0.014)
Delinquency Alter	0.018***	0.025***	0.015***
	(0.003)	(0.005)	(0.005)
Delinquency Ego	0.020***	0.022***	0.013**
	(0.003)	(0.004)	(0.004)
Similar Delinquency	0.264***	0.400***	0.246***
	(0.029)	(0.046)	(0.053)
Sensation Seeking Alter	0.022***	0.024***	0.016*
	(0.004)	(0.007)	(0.007)
Sensation Seeking Ego	0.009^	0.016*	0.008
	(0.005)	(0.008)	(0.008)
Similar Sensation Seeking	0.105***	0.088**	0.169***
	(0.018)	(0.027)	(0.028)
7+ Days of Absence Alter	−0.029***	−0.018	−0.049***
	(0.007)	(0.013)	(0.015)
7+ Days of Absence Ego	−0.013	−0.018	−0.025
	(0.012)	(0.016)	(0.017)
Same 7+ Days of Absence	0.011^	0.012	0.011
	(0.007)	(0.011)	(0.015)
School Attachment Alter	−0.049***	−0.050***	−0.056***
	(0.006)	(0.008)	(0.013)
School Attachment Ego	0.049***	0.030***	0.048***
	(0.006)	(0.008)	(0.011)
Similar School Attachment	0.188***	0.199***	0.277***
	(0.026)	(0.034)	(0.052)
Family Relations Alter	0.006	−0.019	0.015
	(0.011)	(0.016)	(0.016)

Family Relations Ego		0.067^{***} (0.014)		0.030 (0.018)		0.025 (0.020)
Similar Family Relations		0.043^{*} (0.018)		0.106^{***} (0.030)		$0.058^{\wedge}$ (0.033)
Prior Police Contact Alter						0.059^{*} (0.025)
Prior Police Contact Ego						0.009 (0.029)
Same Prior Police Contact						0.081^{***} (0.022)
Network Structural Effects						
Density	-1.878^{***} (0.049)	-2.874^{***} (0.055)	-1.591^{***} (0.063)	-2.804^{***} (0.079)	-2.244^{***} (0.052)	-3.136^{***} (0.071)
Reciprocity		2.508^{***} (0.033)		2.453^{***} (0.038)		2.816^{***} (0.044)
Transitive Triplets		0.761^{***} (0.013)		0.749^{***} (0.014)		0.089^{***} (0.018)
Reciprocated Transitive Triplets		-0.546^{***} (0.015)		-0.522^{***} (0.018)		-0.651^{***} (0.023)
In-Degree Popularity (Square Root)		0.391^{***} (0.019)		0.437^{***} (0.021)		0.450^{***} (0.021)
In-In Degree Assortative		-0.193^{***} (0.009)		0.437^{***} (0.021)		-0.322^{***} (0.017)
Truncated Outdegree		-2.863^{***} (0.085)		-2.737^{***} (0.161)		-2.704^{***} (0.079)
Transition		-0.057^{***} (0.013)		0.024 (0.043)		-0.077^{**} (0.029)
Merging		-0.258^{***} (0.041)		-0.352^{***} (0.103)		—
N of Networks	52	52	51	46	52	52

Note. PROSPER Study. $^{\wedge}$ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$. Coefficients stand for log odds ratios. Standard errors in parentheses. FRL = Free or Reduced-Price Lunch.

Subsample Analyses: Differences Between Middle School and High School

To account for broader contextual differences, I examine how the association between police contact and friendship ties differs between middle school and high school. Models 3 to 6 in Table 4 present the meta-analysis results for these subsample analyses.

Model 3 and Model 4 present the meta-analysis results for the middle school sample. The findings align with the overall association observed in the full sample: students who have ever

been picked up by the police are less likely to both receive and extend friendship nominations compared to their peers with no police contact experience. This association holds in both models, regardless of whether control effects are included. In Model 4 (*N* of networks = 46), which incorporates all control effects, having police contact experience is associated with a 10.0% reduction in the odds of receiving friendship nominations from cohort peers ($\beta = -0.105$, SE = 0.035, $p < .001$) and an 18.9% reduction in the odds of extending friendship nominations to cohort peers ($\beta = -0.209$, SE = 0.046, $p < .001$).

Model 5 and Model 6 show the meta-analysis results for the high school sample. In contrast to the patterns observed in the middle school sample, the results for high school indicate no statistically significant association between police contact and friendship ties in this period for both patterns of rejection and withdrawal. This lack of significance persists regardless of whether control effects are included. This is consistent with my hypothesis that the labeling effect of police contact on the reduction in friendship ties is more pronounced during middle school and diminishes as adolescents transition into high school. Interestingly, in Model 6, which includes all control effects, students who have been picked up by the police before high school are more likely to receive friendship nominations in high school ($\beta = 0.059$, SE = 0.025, $p < .05$) and select cohort peers with the same police contact experience as friends in high school ($\beta = 0.081$, SE = 0.022, $p < .001$). This suggests a long-lasting effect of early arrest on adolescent friendship networks, which may further influence individual offending trajectories (Bersani et al., 2022).

I further examine whether the association between police contact and friendship ties differs statistically significantly between middle school and high school. To do so, I construct a dataset combining meta-analysis estimates from middle school and high school SAOMs that include control effects (*N* of networks = 98). School level is included as a moderator (1 = *high*

school, 0 = *middle school*) to assess whether the association between police contact and friendship ties varies between middle school and high school. Because the effect estimates for both school levels are derived from the same cohort networks, I employ the multilevel meta-analytic models using the "metafor" package to account for the non-independence of observations by clustering estimates within cohort networks (Viechtbauer, 2010). Results indicate that for friendship reception (i.e., consistent with rejection), the difference in the effect of police contact between middle school and high school is not statistically significant at the 0.05 level ($\beta = 0.058$, SE = 0.034, $p = .095$), suggesting little meaningful variation across school levels in this dimension of interpersonal exclusion. In contrast, for friendship extension (i.e., consistent with withdrawal), the difference is statistically significant ($\beta = 0.127$, SE = 0.038, $p < .001$), indicating that the negative effect of police contact on initiating friendships is significantly stronger in middle school than in high school.

Moderating Effect of Network Cultural Norms

Significant and interesting patterns emerge when examining how the association between police contact and friendship ties differs across networks with varying levels of cultural norms regarding police contact, as measured by the network-level popularity-delinquency association and popularity-police-contact association. The results are presented in Table 5.

Regarding the popularity-delinquency association, no significant moderating effects show up in the full sample; however, significant patterns are observed within the middle school subsample. Contrary to my hypothesis, during middle school, in cohort networks where the association between delinquency and popularity is higher, the negative effect of police contact on adolescent friendship ties is amplified. Specifically, for students with police contact experience, a 0.1 unit increase in the network-level popularity-delinquency association corresponds to a 5.7%

reduction in the odds of receiving friendship nominations from cohort peers ($\beta = -0.591$, SE = 0.291, $p < .05$) and a 7.2% reduction in the odds of extending friendship nominations to cohort peers ($\beta = -0.750$, SE = 0.379, $p < .05$).

Table 5. Moderation Analysis Results for Network Cultural Norms

	Full Sample		Middle School		High School	
	β	**SE**	***β***	**SE**	***β***	**SE**
Popularity-Delinquency Association						
Police Contact Alter	−0.112***	0.029	−0.079*	0.036	−0.045	0.032
Police Contact Alter × Popularity-Delinquency Association	−0.266	0.240	−0.591*	0.291	−0.027	0.403
Police Contact Ego	−0.137***	0.030	−0.177***	0.049	−0.056	0.035
Police Contact Ego × Popularity-Delinquency Association	−0.365	0.248	−0.750*	0.379	−0.165	0.425
Popularity-Police-Contact Association						
Police Contact Alter	−0.090***	0.026	−0.095**	0.036	−0.042	0.033
Police Contact Alter × Popularity-Police-Contact Association	−0.101**	0.036	−0.061	0.064	−0.020	0.065
Police Contact Ego	−0.137***	0.029	−0.198***	0.048	−0.051	0.035
Police Contact Ego × Popularity-Police-Contact Association	−0.066	0.041	−0.067	0.078	−0.036	0.071
N of Networks	52		46		52	

Note. PROSPER Study. ^ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$. Coefficients stand for log odds ratios. SE = Standard Error.

However, when using the association between popularity and police contact as a direct measure of network cultural norms toward police contact, the results show a significant moderating effect of the popularity-police-contact association on the relationship between police contact and friendship ties in the full sample, but only for friendship reception. Still contrary to my hypothesis, in the full sample, for students with police contact experience, a 0.1 unit increase in the network-level popularity-police-contact association corresponds to a 1.0% reduction in the

odds of receiving friendship nominations from cohort peers ($\beta = -0.101$, SE = 0.0.036, $p < .01$). No such effect is observed in the middle school subsample (police contact alter × popularity-police-contact association: $\beta = -0.061$, SE = 0.064, $p > .1$; police contact ego × popularity-police-contact association: $\beta = -0.067$, SE = 0.078, $p > .1$).

For high school, the association between police contact and friendship nominations during high school is not significantly moderated by both the popularity-delinquency association (police contact alter × popularity-delinquency association: $\beta = -0.027$, SE = 0.403, $p > .1$; police contact ego × popularity-delinquency association: $\beta = -0.165$, SE = 0.425, $p > .1$) and the popularity-police-contact association (police contact alter × popularity-police-contact association: $\beta = -0.020$, SE = 0.065, $p > .1$; police contact ego × popularity-police-contact association: $\beta = -0.036$, SE = 0.071, $p > .1$).

To compare whether the moderating effects of network cultural norms differ statistically significantly between middle school and high school, I conduct follow-up moderation analyses using multilevel meta-analytic models based on the previously constructed dataset that combines meta-analysis estimates from middle school and high school SAOMs (*N* of networks = 98). Results indicate that the moderating effects of network norms, whether measured by popularity-delinquency association or popularity-police-contact association, do not differ significantly between middle school and high school.

Moderating Effect of Network Structural Closure

Table 6 presents the results for the moderating effect of network closure on the association between police contact and friendship ties. Nearly all interaction terms for each indicator of network closure are in the hypothesized direction. In the full sample, among the three indicators of network closure, only average path length significantly moderates the

association between police contact and friendship reception. For each one-unit increase in network average path length, the odds of receiving friendship nominations from cohort peers increase by 6.9% among individuals with police contact ($\beta = 0.067$, SE = 0.033, $p < .05$). In addition, for each 0.01 unit increase in network density, the odds of receiving friendship nominations from cohort peers decrease by 3.8%, but the association is not statistically significant at the 0.05 level ($\beta = -3.861$, SE = 2.033, $p < .1$).

In middle school, when transitivity is used as a measure of network closure, coming from cohort networks that have a 0.1 unit higher network transitivity is associated with a 13.7% lower odds of receiving friendship nominations from cohort peers ($\beta = -1.478$, SE = 0.736, $p < .05$) and a 17.9% lower odds of extending friendship nominations to cohort peers ($\beta = -1.977$, SE = 0.933, $p < .05$) for adolescents who have experienced police contact. When density serves as a measure of network closure, consistent with withdrawal, a 0.01 unit increase in network density corresponds to a 3.9% reduction in the odds of extending friendship nominations to cohort peers ($\beta = -3.945$, SE = 3.204, $p < .05$) for adolescents with police contact experience. For friendship patterns associated with rejection, the interaction term is not statistically significant, but the coefficient is in the expected direction ($\beta = -6.425$, SE = 3.204, $p > .1$). Finally, average path length does not significantly moderate the association between police contact and interpersonal exclusion in middle school (police contact alter × average path length: $\beta = 0.058$, SE = 0.054, $p > .1$; police contact ego × average path length: $\beta = 0.74$, SE = 0.069, $p > .1$).

In high school, however, average path length becomes the only statistically significant moderating factor. For students with police contact experience, a 1 unit increase in network average path length is associated with an 8.3% increase in the odds of receiving friendship nominations from cohort peers ($\beta = 0.080$, SE = 0.037, $p < .05$) and a 9.6% increase in the odds

of extending friendship nominations to cohort peers ($\beta = 0.092$, SE = 0.040, $p < .05$). While the coefficients of density effects in high school are comparable to those in middle school, they are not statistically significant at the 0.05 level (police contact alter × density: $\beta = -4.539$, SE = 3.323, $p > .1$; police contact ego × density: $\beta = -5.989$, SE = 3.542, $p < .1$), and no significant variation is observed in the association between police contact and friendship ties across networks with different levels of transitivity (police contact alter × transitivity: $\beta = -0.204$, SE = 0.605, $p > .1$; police contact ego × transitivity: $\beta = 0.113$, SE = 0.639, $p > .1$).

In sum, network closure appears to be associated with reductions in the association between police contact and friendship ties, with transitivity and density having statistically significant effects in middle school and average path length in high school. Again, to assess whether the moderating effects of network structural closure differ statistically significantly between middle school and high school, I perform follow-up moderation analyses using multilevel meta-analytic models based on the previously constructed dataset that combines meta-analysis estimates from middle school and high school SAOMs (*N* of networks = 98). Findings show that the moderating effects of network closure, when measured by density and average path length, do not differ significantly between middle school and high school. However, when network closure is measured by transitivity, its moderating effect on the association between police contact and friendship ties differs significantly across school levels (police contact alter × network transitivity × high school: $\beta = 1.548$, SE = 0.748, $p < .05$; police contact ego × network transitivity × high school: $\beta = 2.150$, SE = 0.827, $p < .01$). That is, the negative impact of police contact on both initiating and receiving friendship ties is amplified in more transitive networks during middle school, but this amplifying effect diminishes significantly in high school.

Table 6. Moderation Analysis Results for Network Structural Closure

	Full Sample		Middle School		High School	
	β	**SE**	***β***	**SE**	***β***	**SE**
Transitivity						
Police Contact Alter	0.086	0.147	0.328	0.217	0.020	0.194
Police Contact Alter × Transitivity	−0.699	0.468	−1.478*	0.736	−0.204	0.605
Police Contact Ego	−0.018	0.154	0.373	0.276	−0.090	0.204
Police Contact Ego × Transitivity	−0.464	0.491	−1.977*	0.933	0.113	0.639
Density						
Police Contact Alter	−0.035	0.055	0.003	0.079	0.037	0.067
Police Contact Alter × Density	−3.861^	2.033	−3.945	2.611	−4.539	3.323
Police Contact Ego	−0.090	0.058	−0.026	0.099	0.053	0.071
Police Contact Ego × Density	−2.902	2.141	−6.425*	3.204	−5.989^	3.542
Average Path Length						
Police Contact Alter	−0.495**	0.181	−0.404	0.284	−0.526*	0.226
Police Contact Alter × Average Path Length	0.067*	0.033	0.058	0.054	0.080*	0.037
Police Contact Ego	−0.368^	0.191	−0.591^	0.357	−0.603*	0.243
Police Contact Ego × Average Path Length	0.038	0.035	0.074	0.069	0.092*	0.040
N of Networks	52		46		52	

Note. PROSPER Study. ^ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$. Network size is controlled for in each model, but the coefficient is consistently low and not statistically significant. SE = Standard Error.

Robustness Checks

To verify the consistency of the main results, I conduct three sets of robustness checks. First, although network size has been controlled in models examining the moderating role of network closure to minimize the concern that network closure indicators are sensitive to network size (Allcott et al., 2007), other network-level factors may also influence the relationships between police contact, network contexts, and friendship ties. To address this concern, I include two additional network-level control variables at Level 2 of the meta-analyses: treatment/control condition and cohort. The treatment/control condition refers to whether a cohort network was

assigned to the intervention or control group as part of the PROSPER project (Spoth et al., 2004; Spoth et al., 2007). Because these interventions may have influenced school environments and peer dynamics, adjusting for treatment status helps to better isolate the effects of police contact and network characteristics. I also control for cohort (i.e., whether a cohort network was part of Cohort 1 or Cohort 2) to account for potential differences in peer relationships or institutional conditions that may vary across cohorts. Results from these adjusted models remain consistent with the main findings.

Second, a potential concern arises from including the density and transitive triplets effects in the SAOMs. Given that one of my research questions examines whether the effect of police contact on interpersonal ties varies by network closure, which includes density and transitivity, it may seem problematic to control for structural tendencies toward network closure in the very models from which moderation by network closure is later assessed. However, it is important to clarify that in each network, controlling for endogenous structural tendencies, such as the propensity for forming general ties (density) or closing triads (transitive triplets), ensures that the estimated effects of police contact on friendship ties are not conflated with baseline patterns of network formation. Meanwhile, in SAOMs, the coefficients for the density and transitive triplets effects are not direct measures of observed network density and transitivity. Instead, they reflect the strength of the behavioral tendency for actors to form general or transitive ties, estimated conditional on other network structural effects in the model. These coefficients, however, in principle, can be compared across networks that share the same model specifications. Therefore, I re-estimate the meta-analyses using interactions between police contact and the SAOM-estimated density or transitive triplets coefficients, rather than the previously used descriptive network metrics. For the interaction between police contact and

density effect coefficients, results indicate that, in the full sample, a 0.1 unit increase in network density effect coefficient (*Mean* = −2.860, *SD* = 0.391, *Min* = −3.650, *Max* = −2.073) corresponds to a 2.0% reduction in the odds of receiving friendship nominations from cohort peers ($\beta = -0.203$, SE = 0.055, $p < .001$) and 1.9% reduction in the odds of extending friendship nominations to cohort peers ($\beta = -0.217$, SE = 0.055, $p < .001$) for adolescents with police contact experience. Similar patterns are found in the middle school sample (police contact alter × density: $\beta = -0.195$, SE = 0.044, $p < .001$; police contact ego × density: $\beta = -0.345$, SE = 0.058, $p < .001$) and the high school sample (police contact alter × density: $\beta = -0.199$, SE = 0.062, $p < .01$; police contact ego × density: $\beta = -0.270$, SE = 0.059, $p < .001$). The interaction between police contact and transitive triplets effect coefficients, however, remains non-significant for all three samples, probably because these coefficients are estimated conditionally on other structural effects such as density in the SAOMs.

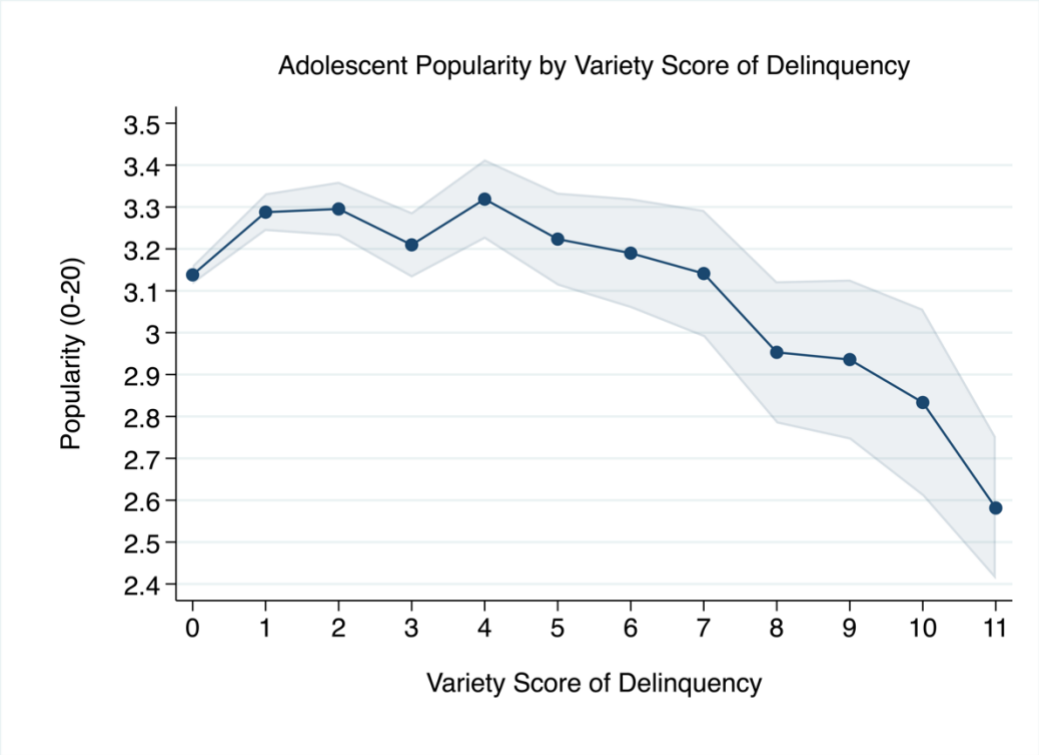
Third, I conduct additional meta-analyses including the interaction term between network cultural norms (i.e., popularity-delinquency association and popularity-police contact association) and network structural closure (i.e., transitivity, density, and average path length). The results indicate that the coefficients and significance levels for indicators of network cultural norms and structural closure remain almost unchanged when these interactions are included. This consistency suggests that network cultural and structural contexts exert independent and additive influences on the association between police contact and friendship ties.

Supplementary Analyses

As mentioned previously, popularity-delinquency association is an indirect measure of collective attitudes toward police contact. While minor delinquent behaviors can enhance peer acceptance, police contact might signal a level of deviance that exceeds what is socially

acceptable. To explore this curvilinear relationship preliminarily, I conducted a supplementary analysis examining the association between adolescent popularity and the variety score of delinquency in the full sample (*N* of students = 14,515). Figure 2 shows that popularity increases with a low to moderate variety score of delinquent behaviors but declines as the variety score increases further. This curvilinear pattern is consistent with prior research suggesting that while popularity is positively associated with higher levels of risky behavior (Mayeux et al., 2008; Prinstein et al., 2011), adolescents who are persistently involved in violent behavior have lower average levels of popularity (Rulison et al., 2014; Young, 2014). In other words, although low delinquency may confer social acceptance, excessive delinquency leads to interpersonal exclusion. Given that police contact is more likely to occur among students with higher delinquency variety scores, as popularity decreases at higher levels of variety scores, popularity should also decrease when police contact occurs. Extrapolating to the network level, this pattern implies that in networks with weakly positive popularity-delinquency association, delinquent behavior may enhance popularity up to a certain point—until police contact occurs, after which police contact could trigger a shift toward social exclusion.

Figure 2. Adolescent Popularity by Variety Score of Delinquency (*N* = 14,515)



Note. PROSPER Study. Results are based on the full sample of 14,515 students across 52 cohort networks.

Chapter 5: Discussion and Conclusion

The effect of police contact on stigma and subsequent interpersonal exclusion cannot be taken for granted without considering the context in which stigma is experienced (Goffman, 1963; Hirschfield, 2008). The purpose of this study has been to examine how contextual characteristics of adolescent friendship networks shape interpersonal exclusion following police contact. Recognizing that the association between police contact and adolescent friendship ties—and the variability of this association across contexts—may differ by broader contextual differences across school levels, I started with the overall association between police contact and friendship ties along with the moderating role of contextual factors in the full sample and then explored these associations separately for middle school and high school students.

Results from the first sets of analyses confirm that police contact is associated with a decrease in the number of friendship ties, manifested as both a lower likelihood of receiving friendship ties from peers in the same cohort network (i.e., consistent with rejection) and a lower likelihood of extending friendship ties to cohort peers (i.e., consistent with withdrawal). This finding is consistent with prior research on interpersonal exclusion (e.g., Jacobsen et al., 2022), supporting the hypothesis that police contact, in general, marks adolescents with a stigma that disrupts their social connections. However, it is important to note that while I find that police contact predicts reductions in friendship ties, I cannot be certain that this association is due to rejection from peers based on criminal justice stigma or self-imposed withdrawal from peers based on fear of rejection or uncomfortable encounters. It is also possible that external forces, such as parental restrictions, prevent students from continuing to socialize with peers with police contact experience (Keijsers et al., 2012).

Extending this analysis of the full sample, my subsequent subsample analyses reveal that police contact significantly impacts adolescent friendship ties only during middle school, with no substantial effect observed in high school, and this difference between middle school and high school is statistically significant for friendship change associated with withdrawal. This finding contributes to the labeling literature by highlighting the role of the broader school context in which the labeling effect of criminal justice contact unfolds. It aligns with prior studies suggesting that susceptibility to peer influence tends to decline as adolescents transition from early to middle and late adolescence (Berndt, 1979; Erickson et al., 2000; Ragan, 2020; Steinberg & Monahan, 2007) and that the cultural climate in middle school is especially sensitive to norm violations and intolerant of persistently delinquent peers (Rulison et al., 2014).

Results from the second sets of analyses underscore the importance of both network cultural and structural contexts in shaping interpersonal exclusion following adolescent police contact. Network cultural norms, measured by popularity-delinquency association, moderate the effect of police contact on interpersonal exclusion in the full sample and the middle school sample but not in the high school sample, whereas network structural closure moderates this effect to some extent in both middle and high school. The significant moderating effect of network cultural norms observed in only middle school aligns with the notion that middle school is characterized by heightened sensitivity to peer approval, stronger enforcement of behavioral norms, and less exposure to the legal system (Eccles & Roeser, 2011; Kindermann, 2007; Jacobsen & Tinney, 2023), which may contributes to an environment that is more reactive to deviance and legal contact. However, follow-up tests show that the moderating effects of network norms on the association between police contact and friendship ties are not statistically different between middle and high school. Network structural closure, measured by transitivity,

density, and average path length, moderates the effect of police contact on interpersonal exclusion in middle and high school, albeit to varying extents. Follow-up tests show that the moderating effects of network closure on the association between police contact and friendship ties, when measured by density and average path length, are not statistically different between middle and high school. These findings are largely consistent with my expectation that network closure, as a structural characteristic determining the perceptibility of police contact, should exert a similar influence regardless of school level.

Regarding network cultural norms, contrary to the hypothesis that police contact is less discrediting and thus less stigmatizing in cohort networks where delinquent students are more popular, I find the opposite that the negative effect of police contact on interpersonal exclusion is amplified in such cohort networks. One possible explanation is that, in cohort networks where delinquent behavior is positively associated with popularity, the stakes for maintaining an acceptable image among peers may be particularly high. While minor delinquent behaviors might enhance peer acceptance, an encounter with the police could signal a level of deviance that exceeds the "acceptable" threshold (Mayeux et al., 2008; Prinstein et al., 2011; Young, 2014), creating a stigma that discourages peers from associating with the affected student. Peers may also distance themselves from the affected student to avoid any potential negative impact on their own status or to prevent unwanted scrutiny (Tinney, 2023), especially if they, too, engage in delinquent behavior. Thus, within an environment that generally tolerates or even rewards low-level delinquency, police contact could paradoxically lead to social isolation for the students involved.

The validity of this explanation can be preliminarily supported by patterns in my data. First, across all cohort networks in my sample, the maximum value of the popularity-

delinquency association is only a weak positive value of 0.154, which may not represent true social acceptance of police contact. This aligns with the contextual background that all participating school districts in the sample are located in rural areas of Iowa and Pennsylvania, where local norms tend to be conservative, and social cohesion can pressure individuals to adhere to local norms. Prior research has indicated that conservatives are more likely to hold stigmatizing views toward individuals with criminal justice involvement (Hirschfield & Piquero, 2010), and that deviating from these conservative norms often results in stigma and reduced social support from social networks (Sherman, 2006). In such settings, even a weakly positive popularity-delinquency association among peers may not translate into true social acceptance of police contact and could lead to amplified interpersonal exclusion. However, in urban school districts, where stronger positive popularity-delinquency associations are more likely (Becker & Luthar, 2007; Henneberger et al., 2013), students with police contact may experience less interpersonal exclusion. This potential urban/rural divide suggests that the relationship between the popularity-delinquency association and friendship ties following police contact could follow a curvilinear pattern: initially increasing exclusion, then diminishing as acceptance of delinquency reaches a threshold that weakens the stigmatizing effect of police contact. My data may represent the left tail of this curve, where police contact continues to reduce friendship ties in networks with negative or only weakly positive delinquency-popularity association.

Second, supplementary analyses examining the association between adolescent delinquency and popularity show that while low levels of delinquency may promote social acceptance (i.e., increased level of popularity), high levels of delinquency could contribute to interpersonal exclusion (i.e., decreased level of popularity). Since students with higher delinquency variety scores may be more likely to have police contact, and popularity tends to

decline at these higher levels, it follows that police contact may further reduce popularity. At the network level, this suggests that in contexts where delinquency slightly boosts popularity, such effects may reverse after police contact, marking a shift from social inclusion to exclusion.

Nevertheless, this explanation remains speculative and relies on the popularity-delinquency association as an indirect measure of collective attitudes toward police contact. To address this limitation, I include the popularity-police-contact association as a more direct measure of collective attitudes toward police contact. Theoretically, in cohort networks where students with police contact are more popular, the negative effect of police contact on friendship ties should be diminished. However, my analysis did not find a significant moderating effect of this measure in middle school and high school. A plausible reason is the relatively rare occurrence of police contact, particularly in earlier waves and in some cohort networks, could bias the estimates. When police contact is infrequent, the popularity-police-contact association may not provide a reliable reflection of the network's cultural norms, because there are not enough cases of police contact to accurately capture how peers react to it.

Overall, these findings expand on the current literature by showing the nuanced role of collective attitudes toward delinquency or criminal justice contact in affecting interpersonal exclusion following criminal justice contact. Previous research conducted in urban areas suggests great social acceptance of police contact (Anderson, 1999; Hirschfield, 2008). However, my findings indicate that their conclusions may not generalize to rural contexts, where attitudes toward police contact are likely more conservative and justice-involved individuals may face lower levels of tolerance. This underscores the need for further research to better understand how contextual differences, including urban and rural social contexts, influence the social consequences of criminal justice contact.

Regarding network structural closure, I found support for my hypothesis, though the effect varies contingent on how network closure is operationalized. In middle school cohort networks, higher levels of transitivity and density appear to intensify the exclusionary impact of police contact, probably because tightly interconnected networks increase the perceptibility of such contact. These findings align with previous research suggesting that denser and more clustered networks amplify the social visibility and social consequences of stigmatizing events (e.g., Mueller & Abrutyn, 2016; Varia et al., 2014). In high school, however, average path length emerges as a more critical factor in shaping interpersonal exclusion after police contact. Nevertheless, follow-up tests indicate that the interactions between police contact and density or average path length do not differ significantly between middle and high school. Likewise, robustness checks that interact police contact coefficients with density coefficients derived from the SAOMs show that adolescents with police contact experience face greater interpersonal exclusion in networks with higher levels of density across both school levels. This suggests that network closure can affect the extent to which police contact becomes perceptible in a cohort network, thereby shaping subsequent interpersonal exclusion, regardless of the school level. The only exception is the interaction between police contact and transitivity, for which higher transitivity is associated with a greater reduction in friendship ties in middle school than in high school. This may be due to the fact that high school students tend to form small friendship circles (Poulin & Chan, 2010), which makes cohort-level transitivity a less socially meaningful indicator of network-level closure and the perceptibility of police contact at the network level.

This study makes several key theoretical contributions. First, it advances labeling theory by demonstrating that the impact of criminal justice contact on friendship ties is not uniform but varies based on the cultural and structural characteristics of the community context. Second, it

identifies specific mechanisms through which context can influence stigma and subsequent interpersonal exclusion following criminal justice contact: namely, by shaping the *perceptibility* (i.e., how visible the contact is) and *dis-credibility* (i.e., how damaging it is to one's reputation) of criminal justice contact. Third, it introduces contextual measures that capture the perceptibility and dis-credibility of criminal justice contact, enabling a quantitative examination of mechanisms that have been largely overlooked or previously explored mostly through qualitative research. In addition, this study sheds light on the darker side of network closure. While network closure is often seen as beneficial for fostering social cohesion (Coleman, 1988), the findings show that it can also intensify the negative effects of stigmatizing experiences. In tightly-knit networks, police contact becomes more visible, leading to greater social exclusion.

Limitations and Future Research

Despite these contributions, this study has several limitations. First, it is important to acknowledge that this study does not establish a causal relationship between police contact and decreased friendship ties. The conclusion we can draw from the SAOM approach is that students with police contact, compared to those without, are significantly less likely to receive and send friendship nominations. Nonetheless, these findings align with labeling research using similar and different methods. For instance, Jacobsen and colleagues (2022) employ the same SAOM approach and report similar results of interpersonal exclusion following police contact. Kirk and Sampson (2013) as well as Wiley and colleagues (2013) use propensity score matching and find evidence for the labeling effect of criminal justice contact on institutional exclusion and secondary deviance. Jacobsen and Tinney (2023) apply random-effects hybrid models and demonstrate the labeling effect of criminal justice contact on interpersonal exclusion. These

alignments strengthen confidence in the observed patterns despite the methodological limitations.

Second, while I found that students with police contact are less likely to both receive and extend friendship ties compared to their peers with no police contact, consistent with rejection and withdrawal processes, my research did not measure rejection and withdrawal directly. Ideally, measures of rejection and withdrawal would capture the underlying reasons for friendship changes by asking students directly about their attitudes and behaviors. For example, Moore and Tangney (2017) use measures of anticipated stigma and social withdrawal from non-stigmatized others to capture the withdrawal process. Moreover, in addition to rejection and withdrawal, external forces, such as parental restrictions, may prevent students from continuing to socialize with peers who have had police contact experience, even if there is no stigma around police contact among peers themselves (Keijsers et al., 2012). Future research should build on current research by incorporating direct measures of rejection, withdrawal, and external forces to better understand the mechanisms driving interpersonal exclusion after adolescent police contact.

Third, while this study represents the first quantitative attempt to capture cultural and structural factors related to the dis-credibility and perceptibility of police contact within adolescent networks, the contextual measures used may not fully capture these two necessary conditions for stigma. For network cultural norms, the popularity-delinquency association serves as an indirect measure of collective attitudes toward police contact, yet attitudes toward delinquent behavior and police contact may diverge. Although little research has explored this topic, it is possible that in some communities, delinquent behavior might enhance popularity only until an individual experiences criminal justice contact. The popularity-police-contact association, despite being a relatively direct measure of cultural norms regarding police contact,

also suffers from measurement deficiencies. In networks where police contact is infrequent, the popularity-police-contact association may not provide a reliable reflection of the network's cultural norms against criminal justice contact, because there are not enough cases of police contact to accurately capture how peers would react to it. A more direct assessment of students' attitudes toward criminal justice contact, aggregated to the network level, would provide a better understanding of cultural norms concerning the dis-credibility of police contact.

For network structural closure, this study includes only indicators that are both theoretically relevant and methodologically straightforward. However, there are numerous means to measure network closure, and alternative measures using more complex algorithms could potentially better capture the perceptibility of police contact within a community. Future studies may benefit from exploring additional indicators of network closure to determine whether they more accurately reflect network structures that influence the visibility of criminal justice contact. In addition, the measures of network structural closure in this study are generated based on cohort friendship networks. However, adolescents may become aware of a peer's police contact through a variety of social routes beyond friendship boundaries, especially in the contemporary era where online interpersonal connections have been common. Prior research has shown that gossip, rumors, and reputational information frequently spread through acquaintances, adversaries, and broader peer audiences (Estévez et al., 2022; Juvonen et al., 2013; Merten, 1997). Therefore, future research should explore the potential to capture the perceptibility of police contact by measuring different kinds of peer interactions beyond friendships and school settings.

Fourth, the sample is limited to school districts in rural contexts, which may differ from urban areas in both cultural norms and network structures. In disadvantaged urban communities,

prior research suggests that there may be greater acceptance or normalization of police contact (Anderson, 1999; Hirschfield, 2008), whereas rural contexts often exhibit more conservative cultural norms that may impose informal social sanctions on youth with police contact (Hirschfield & Piquero, 2010; Sherman, 2006). Rural contexts may also tend to have higher levels of network closure, driven by smaller and more tightly knit communities (Hofferth & Iceland, 1998), which can increase the perceptibility of police contact. Future studies could expand this research to include both urban and rural populations to better understand how variations in network cultural norms and structural characteristics influence interpersonal exclusion among justice-involved youth.

Last, this study relied on network measures averaged across waves in middle and high school. While this approach provides a broad view of effects over time and allows for comparisons between school levels, it may mask grade-to-grade variations that could yield additional insights. Recent methodological advances in SAOMs enable researchers to transform standard, wave-averaged SAOM effects into time-varying estimates (Lospinoso et al., 2011) and have been applied in studies using the same PROSPER dataset (McMillan & Freelin, 2024; Ragan, 2020). Future research could leverage these time-varying methods to examine how the effects of police contact and contextual factors evolve across adolescence.

Conclusion

In closing, this thesis advances labeling theory by highlighting the critical role of both cultural and structural contexts in shaping the labeling effects of criminal justice contact. My findings demonstrate that cultural norms surrounding delinquency and police contact, as well as structural features of peer networks, such as network closure, can influence the relationship between police contact and adolescent friendship ties in different ways. By bridging contextual

factors with individual experiences, this research sheds light on the often-unseen forces that either amplify or mitigate the influences of a "stigmatizing" event. This study invites a deeper reflection on how social settings mold the impacts of different labels, urging future inquiry to consider social context not as a backdrop but as an active element that reframes what it means to be stigmatized and labeled.

If future research consistently finds support for the findings of this study, targeted policies and programs should aim to reshape the grade cohort context in school to reduce the stigma experienced by justice-involved youth. Efforts to shift cultural norms could focus on promoting empathy through programs that raise students' awareness about the challenges faced by their peers who have encountered the criminal justice system. To address the side effects of network closure on interpersonal exclusion following criminal justice contact, schools could implement structured peer mentorship programs or inclusive extracurricular activities that encourage positive interactions among all students while retaining the beneficial aspects of network closure in promoting social cohesion. These efforts should be prioritized in middle schools due to the findings that the cultural climate in middle school is more sensitive to norm violations and less tolerant of persistent deviance compared to high school (Rulison et al., 2014), and that the exclusionary impacts of stigmatizing events on adolescents' friendship networks are more salient at this school level.

Appendices

Appendix I: Detailed Description of Control Variables

Variable	Survey Questions and Notes
Gender	"Are you…? (1 = *male* and 2 = *female*)" I recoded the options into 0 = *girl* and 1 = *boy*.
Race	"Choose the category which best describes you (1 = *Latino/Hispanic*, 2 = *Black/African-American*, 3 = *Asian*, 4 = *Native American/American Indigenous*, 5 = *White*, 6 = *Other*)." I combined and recoded the options into 0 = *nonwhite* and 1 = *white*.
Free or Reduced-Price Lunch	"What do you usually do for lunch on school days? (1 = *I bring my lunch from home*, 2 = *I go home for lunch*, 3 = *I receive free lunch from school*, 4 = *I buy my lunch at school at a reduced price*, 5 = *I buy my lunch at school for the full price*, 6 = *I buy my lunch outside of school*, 7 = *I don't eat lunch*)" I constructed a binary variable in which 0 = *no free or reduced-price lunch* and 1 = *free or reduced-price lunch*. Since eligible students may not apply for subsidized meals in every wave due to concerns about being stigmatized by peers, I use a cross-wave measure of free or reduced-price lunch following previous research (Jacobsen et al., 2022; Tinney, 2023). This measure represents the empirical Bayesian estimates of the log odds of receiving free or reduced-price lunch across waves, which accounts for variability in application possibilities. Higher scores reflect greater consistency in receiving free or reduced-price lunch.
Marijuana Use in the Past Month	"During the past month, how many times have you smoked marijuana (pot, reefer, weed, blunts)? (1 = *not at all*, 2 = *one time*, 3 = *a few times*, 4 = *about once a week*, 5 = *more than once a week*)" I combined and recoded the options into 0 = *none* and 1 = *at least once*.
Alcohol Use in the Past Month	"During the past month, how many times have you had beer, wine, wine coolers, or other liquor? (1 = *not at all*, 2 = *one time*, 3 = *a few times*, 4 = *about once a week*, 5 = *more than once a week*)" I combined and recoded the options into 0 = *none* and 1 = *at least once*.
Delinquency in the Past Year	"During the past 12 months, how many times have you…? (1 = *never*, 2 = *once*, 3 = *twice*, 4 = *three or four times*, 5 = *five or more times*)" Items include "taken something worth less than $25 that didn't belong to you," "taken something worth $25 or more that didn't belong to you," "beat up someone or physically fought with someone because they made you angry (other than just playing around)," "purposely damaged or destroyed property that did not belong to you," "broken into or tried to break into a building just for fun or to look around," "thrown objects such as rocks or

	bottles at people to hurt or scare them," "run away from home," "skipped school or classes without an excuse," "carried a hidden weapon," "avoided paying for things such as movies, rides, food, or computer services," and "taken something from a store that you did not pay for" (Cronbach's alpha = 0.850). I recoded the options into 0 = *none* and 1 = *at least once*, took the average across available items, and then multiplied it by 11 to account for missing items.
Sensation-Seeking Tendency	"How often do you do the following things? (1 = *never*, 2 = *occasionally*, 3 = *sometimes*, 4 = *usually*, 5 = *always*)" Items include "do what feels good, regardless of the consequences," "do something dangerous because someone dared you to do it," and "do crazy things just to see the effect on others" (Cronbach's alpha = 0.785). I took the average across available items to generate the score of sensation-seeking tendency.
School Absence in the Past Year	"About how many days were you absent from school last year? (1 = *none*, 2 = *1-2 days*, 3 = *3-6 days*, 4 = *7-15 days*, 5 = *16 or more days*)" I combined and recoded the options into 0 = *6 days or less* and 1 = *7 days or more*.
School Attachment	"How true is each of the following statements for you? (1 = *never true*, 2 = *seldom true*, 3 = *sometimes true*, 4 = *usually true*, 5 = *always true*)" Items include "I like school a lot," "I try hard at school," "Grades are very important to me," "School bores me (reverse coded)," "I don't feel like I really belong at school (reverse coded)," "I feel very close to at least one of my teachers," "I get along well with my teachers," and "I feel that teachers are picking on me (reverse coded)" (Cronbach's alpha = 0.798). I took the average across available items to generate the score of school attachment.
Family Relations	I measure family relations using the average standardized answers to items covering three dimensions of family relations. The first dimension is affective qualities. "During the past month, when you and your [parent] have spent time talking or doing things together, how often…?" (1= *always or almost always*, 2 = *often*, 3 = *about half the time*, 4 = *not very often*, 5 *never or almost never*, 6 = *I don't live with my mother or other father guardian*). The 12 items include: "did [she/he/you] let [you/her/him] know [she/he/you] really [care/cares] about [you/her/him]," did [she/he/you] act loving and affectionate towards [you/her/him]," and "did [she/he/you] let [you/her/him] know that [she/he/you] [appreciate/appreciates] [you/her/him], [your/her/his] ideas, or the things [you/she/he] [do/does]." Items cover each parent's behaviors toward the child and the child's behaviors toward each parent. The second dimension is activities with child. "During the past month, how often did you do these things with your mom or dad? (1 = *every day*, 2 = *a few times a week*, 3 = *about once a week*, 4 = *two or three times*

	during the past month, 5 = *once during the past month*, 6 = *not during the past month*)" Items include "work on homework or a school project together," "do something active together, like playing sports, bike riding, exercising, or going for a walk," "talk about what's going on at school," "work on something together around the house," "discuss what you want to do in the future," and "do some other fun activity that you both enjoy." All the items were reverse coded. The third dimension is inductive reasoning. "Thinking about the parents or guardians you live with now, how often do each of the following things happen? (1 = *always*, 2 = *almost always*, 3 = *about half the time*, 4 = *almost never*, 5 = *never*)" Items include "my parents give me reasons for their decisions;" "my parents ask me what I think before making a decision that affects me;" and "when I don't understand why my parents make a rule for me, they explain the reason." All the items were reverse coded. The value of Cronbach's alpha for all the items is 0.944.
Any Police Contact before High School	"During the past 12 months, how many times have you been picked up by the police for breaking a law? (1 = *never*, 2 = *once*, 3 = *twice*, 4 = *three or four times*, 5 = *five or more times*)" I coded any police contact before high school as 0 if they were not picked up by the police before Wave 5 and as 1 if they had been picked up by the police before Wave 5.

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