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Thick as thieves: Homophily and trust among deviants

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Abstract

Individuals who engage in deviant behaviors are more likely to be friends with other deviants compared to non-deviants. This pattern has been observed across different types of deviant activities and among different age groups. In question, however, is the mechanism that underlies this pattern. In this article we develop and test a new theory to explain homophily among deviants. Deviance makes one vulnerable to the risk of being caught and sanctioned. This vulnerability imposes a stringent constraint on deviants' choice of friends. Following Thomas Schelling, we conjecture that a way to establish trust consists of making oneself "blackmailable" by disclosing compromising information on one's misdeeds, or sharing compromising secrets (SCS). If two individuals share their illicit behaviors with one another, *both* are made vulnerable and a friendship can be established. We propose a series of hypotheses derived from SCS comparing levels of homophily in deviant and non-deviant behaviors. Using data from the National Longitudinal Study of Adolescent Health we estimate adolescents' preferences for deviant and non-deviant friends, within and across types of activities, and across different social contexts. Together, these tests allow us to distinguish between the theory we develop, SCS, and alternatives.

Keywords

Adolescence, deviance, friendship, homophily, trust

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The propensity of deviants to be friends with other deviants is pervasive across time and place, and particularly among adolescents (Hirschi, 1969; Warr, 2002). Several studies have found that homophily occurs among delinquents generally (Haynie, 2001; Knecht et al., 2010) as well as among those who participate in particular illicit behaviors—such as drinking and smoking (Cleveland and Wiebe, 2003; Fisher and Bauman, 1988; Urberg et al., 1997), drug use (Asteline, 1995), and violence (Dijkstra et al., 2010). The primary concern of these studies is whether homophily is the result of selection or influence. Do bad kids choose other bad kids as friends or do bad kids influence their friends to behave badly? Overlooked are the mechanisms that *lead* to selection or influence processes. Selection or influence themselves are not mechanisms for homophily but rather manifestations of mechanisms. Why would deviants select deviants over non-deviants? Why would deviants influence the behaviors of non-deviants rather than the other way around? Why would there be any desire to influence others' behaviors at all? These are the questions we aim to answer. In this article we develop and test a new theory to explain homophily among deviants: one that is indifferent to whether homophily occurs as the result of influence or selection, one that gets at the underlying mechanisms that may drive either process to generate homophily.

Norm violations make one vulnerable to the risk of being caught and sanctioned. This vulnerability imposes a stringent constraint on deviants' choice of friends. They need to rely on their friends not to inform on them and, if rational, will be very selective in choosing whom they associate with. Following Thomas Schelling, we conjecture that a way to establish trust consists of making oneself "blackmailable" by disclosing compromising information on one's misdeeds or, in other words, sharing compromising secrets (SCS). If two individuals share their illicit behaviors with one another, *both* are made mutually vulnerable and a friendship can be established.

We propose and test a series of hypotheses derived from SCS. Fundamentally, each hypothesis is concerned with the comparison of levels of homophily on deviant and non-deviant behaviors. If SCS is at work, homophily should be stronger among those who participate in deviant activities than among those who participate in non-deviant activities. While these hypotheses do not *prove* conclusively that SCS is the only mechanism at work—these hypotheses are consistent with at least one alternative explanation (see the third section)—we argue that SCS is the most parsimonious explanation for the set of results presented.

The contribution of this article is twofold. First we focus on a mechanism that explains homophily resulting from *both* selection and influence. This

theory has not been proposed or tested elsewhere. Second, empirically we focus on comparisons of levels of homophily *between* different types of activities, both across the deviant/non-deviant divide and within the group of deviant activities. To our knowledge, deviant and non-deviant activities have not been studied together.

We begin by presenting, in the first and second sections, the hypothesis and its theoretical parents. In the third section we consider three theories that provide alternative mechanisms to explain homophily among deviants, and give a summary of the literature that addresses empirically related questions. We then present a series of tests using data from the National Longitudinal Study of Adolescent Health (Add Health). These data, described in the fourth section, provide a wealth of information, including linked friendship nominations and self-reported licit and illicit activities from all respondents, for a representative sample of schools across the United States. In the fifth section, we estimate adolescents' predilection for friends who participate in licit (exercise, sports teams, music, clubs) and illicit (smoking, drinking, fighting, and truancy) activities, taking into account the shorter supply that "bad kids" face if they desire homophily in their friendships. Finally, we test whether the strength of their predilection for friends who participate in illicit activities varies depending on the normative contexts in adolescents' schools and communities.

Friendship, trust, and deviance

The choice of friends depends on opportunities and preferences—we choose whom we like among whom we meet. At times, preferences can take the lead and induce us to seek opportunities to meet kindred spirits, but most of the time opportunities for making friends are a by-product of the domains we happen to be in—neighborhoods, schools, and places of work or leisure (Blau, 1977; Mouw and Entwisle, 2006; Quillian and Campbell, 2003). Whether or not we end up being friends with those whom we choose depends on reciprocation—the ones we choose have to choose us too. Like marriage, employment, or club membership, friendship is the result of matching choices.

Friendship, in common understanding, is not driven by instrumental concerns: ideally, we choose (and expect to be chosen by) our friends regardless of looks or riches, and furthermore not because we expect anything in particular in return from them (or they from us) other than friendship. "One definition of *friend* (American Heritage Dictionary) is 'a person whom one knows, likes and trusts'. … A *friend* is someone to whom one is not bound,

and hence etymologically speaking *free*, based on choice and not status obligation" (Hart, 1988: 187).

However, the trust component of friendship makes it arduous to eliminate *all* instrumental considerations. A minimally rational choice of friends takes into account whether we can rely on them to help us when in need, to guard our secrets, and to side with us if we are badly treated, or at least not to cause harm to us. If unmet, this condition makes it hard to call anyone a friend. All else equal, we choose those who seem to us more trustworthy.

The extent to which we can let our preferences and emotions govern our choice of friends depends on the toughness of the environment we inhabit—the tougher it is, the more trustworthiness matters and the more caution will dictate friendship choices. It does not mean that those who are finally chosen as friends are therefore not true friends, but just that one's belief in their loyalty must be stronger before one feels in a position to befriend them. For instance, in an ethnographic study of friendship formation among 11 to 15-year-old students in two Chicago schools in violent neighborhoods, Chan Tack and Small (2010: 21) found that many youngsters

> responded actively to the violence in their neighborhoods by a strategic attitude toward friendship and developing multiple strategies: seeking friendships for protection; avoiding emotional investment in friendship; cultivating friends who helped them avoid violence; testing friends to ensure their trustworthiness; and relying on kin or fictive-kin to fulfill their emotional needs for friendship.

While in peaceful, law-abiding communities people can afford to switch off their ability to think strategically about friendship and simply follow their tastes, in certain environments and under certain circumstances these concerns become central and even dominate friendship choices.

Cut now to the breach of norms: a fundamental consequence of engaging in norm violations is to expose one to the risk of being caught and hit by legal or social sanctions. An unavoidable cost of deviance is that it makes deviants vulnerable. This vulnerability puts a stringent constraint on deviants' choice of friends: if one engages in illicit activities, not just in a sporadic or solipsistic form, the rational course of action is to be more selective in choosing whom one associates with. One needs, at the very least, to trust one's friends not to blackmail or inform on him. But how can those who breach norms manage to find trustworthy friends? Or, conversely, how can those who befriend deviants show themselves to be trustworthy enough?

Trust and "sharing compromising secrets"

When deviants are involved, trust is at once essential, but its emergence unpromising. It is essential because, as we have argued above, deviants are vulnerable; but vulnerability also makes trust unpromising because people who deviate are on average more disposed to be distrustful, and correspondingly have a more arduous hurdle to overcome to prove their trustworthiness to their potential friends (Gambetta, 2009).

An extreme situation of this kind was devised by Thomas Schelling (1960: 43), who imagined the following case: "both the kidnapper, who would like to release his prisoner, and the prisoner, may search desperately for a way to commit the latter against informing on his captor once released, without finding one." (Here Schelling assumes the kidnapper has a preference for not harming his prisoner and would prefer to let him go after collecting the ransom.)

The situation is asymmetrical. A has committed a crime not just known to B but, worse, at B's expense, so A fears that once released B would turn him in, no matter how vigorously B promises otherwise. If A could trust B they could have the outcome they both prefer to all other outcomes. But the kidnapper fears that once freed the victim will inform on him; his crime makes him vulnerable. The victim is desperate to be trusted, but words in this case are cheap; thus the deal falls through, to both parties' detriment.

Not all is lost, however. Thomas Schelling (1960: 43–44) himself suggested the solution: "If the victim has committed an act whose disclosure could lead to blackmail, he may confess it [to the kidnapper]; if not, he might commit one in the presence of his captor, to create the bond that will ensure his silence."[1] This is a counterintuitive situation in which it is to our advantage to reveal our misdeeds to others so that they can use them against us. In this case we have an interest in *volunteering* negative information about ourselves. If we have no bad things to reveal, we even have the incentive *to do* something bad.

The key feature of the solution is to re-establish the symmetry of interests between the kidnapper and his victim. Offering evidence of having done something bad can make our promises credible by making *us* blackmailable. The same reason that makes it best to keep incriminating information secret is also that which gives such information its persuasive force once selectively revealed.

This way of establishing a form of low-quality trust is frequently adopted by criminals (Gambetta, 2009). Still, what has the above to do with deviants' choice of their friends? We can accept that hardened criminals, to the extent to which they have any friends, will only have friends of their disposition, in which—implicitly at least—each can blackmail the other by

knowing enough to inform on him. Mafiosi, for instance, can only have friends among other Mafiosi. An ethnographic study provides evidence that as fear of sanctions increases, drug dealers restrict their relationships to other dealers and increase the closure and density in their networks, weakening their previous bonds with non-criminal associates (Ekland-Olson et al., 1984). Serious criminals cannot take chances—for them liking is a luxury, trusting is the key. Here homophily in deviance is complete.

But while this reasoning may plausibly apply to people at the extreme of deviance, how can it help us to understand ordinary forms of social life? Law-abiding citizens are at the opposite extreme of hardened criminals: we choose our friends freely—within the constraints of our social environments. Opportunities may lead us to have more friends in our profession, but nothing prevents us from having friends in other walks of life. Still, between "we" and Mafiosi there is a large grey area in which people engage in moderate breaches of norms or laws. People dodge the IRS, pay bribes, play truant, smoke dope, drink underage, gamble in illegal dens, vandalize neighbors' property, and visit prostitutes—there is a whole range of low-voltage illicit activities in which otherwise ordinary people engage. And even if they do none of the above, people may still violate a host of social norms which once known would attract scorn and ostracism from their communities. Sometimes these activities are illegal in one place and not in another, at one age and not another, at one time and not another. Some such acts break the law, while others simply break community rules or parental injunctions.

Our prediction is that the extent to which people engage in sanctioned activities will *at the margin* affect their choice of friends for the same fundamental reasons described in Schelling's example: they will of course choose as friends people they like and generally feel less on edge than hardened criminals; they may not even be fully aware that their choices are influenced by the logic of SCS[2]—people find it hard to think counterfactually. But, everything else equal, they will lean toward making friends with kindred deviants whose secrets they can share; not necessarily people who engage in the same deviations, but those who engage in deviations that carry similar sanctions. With the hardened criminals they share an intense motive: not being caught.[3]

The key requirement of SCS is that all individuals involved divulge their misdeeds, and one person necessarily needs to make the first move. If neither trusts the other enough to go first then, one could argue, SCS will never materialize. In reality, there are several ways in which this hurdle can be bypassed and the SCS equilibrium attained. At the start of a relationship, people need not disclose their deviance or do so in an incriminating way. Rather, the development of a friendship is a process in the course of which a deviant can work up to larger and more incriminating disclosures without immediately

putting him or herself at risk. For instance, it comes quite naturally to start by hinting at minor deviations of little consequence to gauge the level of complicity this may engender in the other, or even by boasting about bigger deviations but providing no evidence; if the other party responds with the same small step, a deviant can then move on to more serious deviation-sharing, else he can loosen the connection or sever it completely.

In that narrative the SCS equilibrium is achieved via *selection*. But it can also be achieved via *influence*. A deviant whose misdeeds become known by a non-deviant who has no misdeed to reveal does not at first need to sever a relationship: he can try to re-establish SCS symmetry by cajoling a non-deviant to carry out a misdeed too as a price to pay for friendship. And a non-deviant who wants to befriend a deviant may not even need encouragement, but may willingly engage in deviant acts to prove his trustworthiness. Finally, influence can work both ways, and individuals can engage in deviant acts *jointly and simultaneously*, a product of which (often tacit) is to generate incriminating evidence against each other.

Hypotheses

People who play golf may end up having more friends among golfers because of both opportunities to meet and selective affinities for people with tastes similar to their own (McPherson et al., 2001). But our hypothesis is that not only because of opportunities and selective affinities, but also because deviants mutually rely on their deviance to establish trust,

> *(H1) people who commit deviant acts have more homophilous friendships than those who do not.*

Illicit activities vary in the extent to which they can be kept hidden. While a public act of deviance increases an individual's risk of sanction, the fact that it is a public act also frees the actor of the risk associated with friendship. The friend cannot inform on the actor simply because everyone already knows. Thus we further expect that

> *(H2) people who commit deviant acts that are less easily hidden have less homophilous friendships than people whose deviant acts can be more easily kept hidden.*

If illicit activities expose an individual to the risk of sanctions, then the activity should matter less than the fact that it is illicit. Deviance, whether drinking, doing drugs, or other acts, should bring people together by creating a foundation for trust. We therefore expect that

(H3) people who commit deviant acts are more likely to befriend other deviants, regardless of their activity, than people who participate in non-deviant activities are to befriend non-deviants who participate in different non-deviant activities.

The same illicit activities can vary in the extent to which they are sanctioned. We expect that the more severe the punishment for a given breach, the more important is the symmetry of interests that needs to be established and therefore the greater the prudence with which friends are chosen. Therefore, we expect that

(H4) people who commit deviant acts have more homophilous friendships than those who do not, and homophily will increase as the sanctions expected as a result of a particular act of deviance increase.

Below we will test our predictions, but before this, we consider three alternative explanations for the same outcomes and describe how they can be distinguished from ours.

Alternative explanations and supporting literature

Homophily among deviants is a well-documented phenomenon, particularly among adolescents, the subset of the population on which we test our hypotheses. Whether because those who participate in deviant activities are drawn to one another as friends or because they influence one another to participate in deviant activities, "bad" kids are more likely to be friends with other "bad" kids than with "good" kids (Cohen, 1977; Kandel, 1978). This homophily is alarmingly steady across activities and behaviors including smoking, drinking, sexual activity, violence, aggression, and general delinquency (Haynie, 2002; Haynie and Osgood, 2005).

The question that emerges (and that much of this research attempts to answer) is: why does homophily occur among deviants? Two theories dominate the debate—social control theory and differential association theory—and each provide mechanisms for the creation of similarity alternative to the one we propose.

Social control theory

Social control theory (SCT), popularized by Travis Hirschi (1969), is an explanation for general delinquency. He argues that in the absence of institutions and community, people would behave delinquently. Strong social bonds to school, family, and peers lead to conformity with accepted norms

of non-delinquent behavior. Those with "little stake in conformity," without ties to their community, act delinquently. *Homophily* among delinquents results from a preference for friends with similar stakes in conformity. However, "those committing delinquent acts are not likely to think much of each other; distrust and suspicion, not intense solidarity, are the foundations of the delinquent gang" (Hirschi, 1969: 154). Homophily in deviance would be, in other words, the result of exclusion by the "good" kids rather than of a choice by the bad kids (Gottfredson and Hirschi, 1990; Knecht et al., 2010). SCT argues that homophily in deviance is the consequence of selection, but a default selection rather than an actively pursued selection based on preferences—it suggests that the non-deviants are shutting out the deviants.

Recent research provides some support for this argument. While aggressive boys express no preference in either direction for aggressive or non-aggressive friends, non-aggressive boys prefer non-aggressive friends. The result is that aggressive boys tend to be friends with one another because of exclusion (Sijtsema et al., 2010). Several other studies confirm the result that aggressive children are less likely to be preferred to non-aggressive children (Cairns et al., 1988; Coie and Kupersmidt, 1983; Dodge, 1983). If adolescent deviants and non-deviants act similarly to aggressive and non-aggressive children, homophily among deviants would be the result of default selection rather than active preferences.

While we do not rule out this possibility, we argue that, regardless of ostracism, deviants have a reason to prefer each other's friendship and that segregation is best conceived as an equilibrium state, in which no one wants to change his friendship ties across the licit–illicit divide. Even if non-deviants would dearly love to befriend deviants, it would still be the case that the rational deviants would be careful before accepting them. Our framework admits that agency leading to segregation works from both sides. We therefore explicitly model the tendencies for both deviants and non-deviants to rule out the possibility that homophily is the result of exclusion by non-deviants. These models, elaborated in the fourth section, allow us to distinguish our predictions from those derived from social control theory.

SCT has little to say about our other hypotheses. Although each could be the result of selection, the mechanism proposed by SCT—specifically exclusion by non-deviants—should not lead to greater homophily across deviant activities (H3). If visibility increases the likelihood that a non-deviant knows about a deviant's behavior, then we would expect *greater* homophily among those who participate in more visible acts of deviance than among those who participate in less visible acts (the opposite of H2). If exclusion mechanisms are driven instead by the social or legal sanctions within the environment, then greater homophily among deviants may result

(H4). Again, however, we explicitly model preferences of non-deviants alongside preferences of deviants. If homophily in normatively stricter environments is driven by exclusion among non-deviants, we will observe strong preferences against deviant friends among non-deviants and these preferences will grow more negative in these environments.

Differential association theory

In contrast to SCT, differential association theory (DAT) assumes that people are generally good and follow the rules. This assumption puts the stress on the need to explain why people are delinquent, rather than why people are not delinquent. This perspective argues that criminal behavior is learned. Individuals are exposed to delinquency through their peer networks and negative influence from their peers is the cause of deviance (Sutherland and Cressey, 1974). In other words, homophily among deviants is the result of influence.

This theory was extended by Ronald Akers (1998) and others to incorporate an explanation for *how* adolescents learn delinquent behaviors and *why* they would be influenced to participate.[4] This work focuses on two mechanisms: imitation and rewards. People learn delinquent behaviors by imitating them, and they imitate these behaviors because of the rewards that are conferred on delinquents. Individuals thus balance the possibility of punishment with the possibility of reward, and under favorable conditions will be influenced to behave deviantly.

In certain social settings, delinquency's reward consists in the admiration and the status one receives from friends and peers more generally. For example, adolescents who are popular with their peers are more likely to engage in minor deviance (substance use and minor acts of criminal behavior; Allen et al., 2005). Bullies seek out situations in which their behavior can be witnessed to demonstrate their status (Felson, 1993). If motivated by these kinds of rewards, delinquents should actively endeavor to display rather than hide their rebelliousness, even taunting the authorities to catch and punish them. Punishment, or credible exposure to the risk of it, provides the evidence that the deviant acts are costly to the perpetrators, the proof that rather than posturing they truly have what it takes to defy authority (Hamill, 2011; Short and Strodtbeck, 1965).

If these were the rewards being sought by deviants, then the basic motive necessary for our SCS explanation to work—namely the aim to keep one's violations hidden from both peers and authority figures and thus both the need for prudence in the choice of friends and the preference for co-deviants—would be absent. The question is: to what extent would these rewards for engaging in illicit activities lead to the same predictions? Should

deviance for show lead deviants to be extra-homophilous relative to non-deviants?

The answer depends on what exactly the deviants are seeking. If participating in illicit acts is meant to increase *popularity*, deviants should be open to or at least indifferent toward befriending anyone, deviant or not. This line of reasoning assumes that those who participate in illicit acts are not choosy about whom they befriend—the more popular with anyone, the better. In this case, we should observe little or no homophily.

Rather than popularity, however, they could be seeking *status*, like the bullies studied by Felson. Because their friends' status reflects on their own status, "bad" kids could both be more exclusive and make friends only with other high-status peers. If status is achieved by engaging in deviant acts, then "bad" kids will have this as the reason to select their friends among other co-deviants. Similarly, if deviance is used to demonstrate status to a potential group of friends (who are also deviant), greater homophily among deviants will be achieved.[5] In the instance of overall levels of homophily (H1), DAT would lead to the same prediction as SCS: greater levels of homophily among individuals who participate in illicit activities. Similarly, as sanctions for particular deviant acts increase, so too should their status. The result is a corresponding increase in homophily as sanctions for deviant activities increase (H4), again the same prediction as SCS. It is not clear whether DAT predicts homophily *across* deviant activities (H3). If homophily occurs as a result of social learning and the pursuit of status, it is not clear that participating in *any* deviant activity will lead to the same rewards as a particular activity. Regardless, the two theories should diverge with respect to hypothesis 2: if status is attained through participation in illicit activities, the visibility of a particular activity should either have no effect on homophily or increase it. Our theory, by contrast, argues that visibility is fundamentally tied to risk. Although high visibility makes one more vulnerable to sanctions, the fact that one's participation in the activity is generally known makes it less necessary to have trustworthy friends.

Cognitive dissonance reduction

We can think of only one other theory that can yield similar predictions to those that we derive from SCS, which, unlike SCT and DAT, was not originally created as a theory of deviance: cognitive dissonance reduction (CDR). Festinger (1957) starts with two simple propositions: when people experience inconsistencies (in ideas, behaviors, beliefs, etc.), they will (a) try to reduce the dissonance, and (b) actively avoid situations and information that would increase the dissonance. Groups of friends can be both a cause of and a solution to cognitive dissonance.

> One of the most effective ways of eliminating dissonance is to discard one set of cognitive elements in favor of another, something which can sometimes only be accomplished if one can find others who agree with the cognitions one wishes to retain and maintain … The larger the number of people that one knows already agree with a given opinion which he holds, the less will be the magnitude of dissonance introduced by some other person's expression of disagreement. (Festinger, 1957: 177, 179)

If by committing deviant acts people experience moral tension or even guilty feelings due to the fact that their violations set them against the norms of society, it is conceivable that by associating with like-minded individuals who partake in the same transgressions, they alleviate the tension. They find legitimacy in numbers and in their segregation from individuals abiding with the predominant mores.

Like SCS, this mechanism can in principle account for both selection and influence: a deviant may *select* the company of other deviants in order to find moral solace, or may try to *influence* his non-deviant friends to align their behavior to his in order to suppress the moral challenge that law-abiding friends might inflict on him. Unlike SCS, which rests on the simple assumption that people generally prefer to avoid punishment and then provides a rational reason for the homophilous choice of friends, CDR is a "behind-the-back" mechanism of which actors are not necessarily aware.

CDR as such has not been used in the context of homophily or to generate these implications. However, conceived as part of the DAT family with a focus on influence rather than selection, Sherif and Sherif (1964) and, later, Warr (2002) proposed something quite close to it. According to Warr (2002: 70):

> Groups provide moral cover for criminal conduct. They deflect, dilute, or supplant the moral responsibility for illegal behavior. In the latter two cases, these mechanisms operate within the group to alleviate the disapproval they face from parents, school officials, police, and others. The critical difference is that, in one case, the moral responsibility for the action is merely evaded, whereas in the other, it is denied.

Whether friends allay feelings of guilt or redefine morals such that deviance becomes acceptable, the predicted result is homophily among deviant adolescents.[6]

There is limited empirical work focused on this mechanism. Devereux (1970) found, for example, that feelings of guilt following transgressions are significantly lower among children who associate with other deviant peers. In more recent work, McGloin and Piquero (2009) focus on the descriptive relationship between the number of co-offenders and the level of

violence of a crime. They find a strong positive relationship. The level of violence that occurs during a crime increases as the number of people involved in perpetrating the crime increases. These articles highlight the possible relationship between the peer group and moral assessment of deviance, either before or after the deviance is committed. The stress for these authors is on the group as a source of an alternative set of norms that allow for and encourage transgressions. But one can surmise that some guilt-allaying effect starts with just having a homophilous friend.

From CDR one can predict H1, as people involved in illicit activities will be more driven to associate with each other than people involved in licit activities. One can also predict our other hypotheses, albeit with additional assumptions. If evasions of moral responsibility and denial of moral transgression are not tied to associating with people who engage in the *same* transgression—any similar transgression will do—then hypothesis 3 would be compatible with CDR as with SCS. Similarly, if cognitive tension for a given activity increases as sanctions for *that* activity increase, we might expect a corresponding stronger inclination to seek homophilous friends (H4). At a stretch, even hypothesis 2—that homophily will be stronger in more easily concealed activities than in more unavoidably visible deviant acts—can be made to fit CDR: one needs to assume that those who engage in not so easily hidden acts of deviance are on balance less susceptible to shame, better prepared to face social reproach, less inclined to form guilty sentiments about their transgressions, and thus less likely to experience dissonance. Individuals of this type therefore would not care that much about the reduction of tension, thus for them homophily would be less necessary.

In the literature, SCT and DAT are played against one another: do delinquents influence one another to act badly or do they prefer friends who are already delinquents? A vast amount of research attempts to answer this question using a wide range of data sources and methods, with, unsurprisingly, a wide range of results. For example, Haynie (2002) finds support for the influence argument, while Knecht et al. (2010) conclude that selection drives similarity in delinquency, and Matsueda and Anderson (1998) find evidence of both selection and influence. We are agnostic as to whether the similarity between friends in deviance is the result of selection (social control), influence (differential association), or a bit of each—our explanation for homophily survives (or fails) regardless of the source of homophily. Rather, we argue that homophily emerges as a strategy for creating trust among an otherwise untrustworthy population. We cannot test our mechanism directly. Our strategy rather is to test our four hypotheses which, taken together, are consistent with our SCS theory, but not with either SAT or DAT. These predictions *are* consistent with

CDR. Even though CDR and SCS are very different theories, we cannot distinguish between them.

Nonetheless, SCS is more parsimonious, requiring no additional qualifications. In order for SCS to explain our set of hypotheses, we only need to rely on individuals' near-universal dislike of punishment. By contrast, for CDR to explain our hypotheses, we need to assume that all individuals experience a similar moral tension as a result of norm breaches. This seems unlikely. Psychological research suggests that deviants are more likely to classify transgressions as permissible and tend to attach morality to punishment (a particular act is morally wrong because one could be punished for it; Smetana, 2006). Particularly when it comes to individuals transgressing boundaries, these assumptions may be problematic. Occam's razor would deem SCS superior to CDR.

Table 1 provides a summary of each alternative discussed above, as well as whether their predictions are consistent with each of our four hypotheses.

Data, model, and measures

Although our hypotheses are indifferent to age, and could equally well fit wayward teenagers or 60-year-old Mafiosi, the best source of data that we could find for testing them is the National Longitudinal Study of Adolescent Health (Add Health).

Table 1. Alternative mechanisms and their consistency with each hypothesis.

	H1 Homophily	H2 Visibility	H3 Cross activity	H4 Sanctions
SCS	Yes	Yes	Yes	Yes
Social control theory				
Exclusion	Yes	No	—	Yes
Differential association theory				
Popularity	No	No	No	No
Status	Yes	No	—	Yes
Cognitive dissonance reduction	Yes	Yes[a]	Yes[b]	Yes[c]

[a]If those who engage in visible deviance are less susceptible to shame/better prepared for social reproach.
[b]If dissonance depends only on deviance and not the particular activity.
[c]If dissonance increases with stronger sanctions.

Data

Add Health surveyed 7th–12th grade students in a nationally representative sample of 144 schools in 80 US communities between September of 1994 and April of 1995 (N=89,940). Nearly all students completed the in-school survey, containing basic socio-demographic information and reports of several illicit and licit behaviors, as well as—crucially for our purposes—their friendship nominations. All respondents were asked to nominate up to five of their closest male friends and up to five of their closest female friends. All students participating in the in-school survey were linked to their nominated in-school friends, allowing us to observe adolescents' activities, both licit and illicit, as well as their friends' activities as reported by their friends. Because all students were surveyed in all schools, we are also uniquely able to characterize the opportunities that adolescents have to choose friends who participate in both licit and illicit activities in the school (Bearman et al., 1997).[7]

We hypothesize that adolescents' friendship nominations are sensitive to the strictness of norms of their social environments (H4), in this case the school and the larger community.[8] To measure these norms, we use two sources included in or linked to the Add Health Study.

1. School norms: The School Administrator Survey, which includes administrator reports about the schools of respondents. Among the school characteristics reported are the sanctions students face for participating in various illicit activities.
2. Community norms: The Contextual Database, which links the communities of respondents with state, county, and census tract-level data.

The model

Our primary concern is the extent to which homophily occurs among adolescents who participate in illicit and licit activities and whether these activities are equally homophilous. We predict that adolescents who break norms will end up having more friends among other norm-breakers because they can trust them more, while those who participate in licit activities will have more heterogeneous friends because there is less of a requirement for trustworthiness among their friends.

Comparing illicit and licit activities is problematic, however, because the relative supply of potential friends who participate in licit activities is much greater than the supply of potential friends who participate in illicit activities. In other words, the friends of "bad" kids may be less homophilous

merely because the "bad" kids cannot realize their preferences for "bad" friends. Given that illicit activities are infrequent, particularly among younger adolescents, we need to account for the fact that adolescents have different opportunities to choose friends who also participate in illicit activities, both between and within schools. We do this using a discrete-choice analysis (Ben-Akiva and Lerman, 1985; McFadden, 1978).

This method of analysis compares an adolescent's chosen friends to the set of students in school that the adolescent could have chosen but did not choose. This set of chosen and non-chosen friends represents an adolescent's friend opportunities. For individual i, the observed utility V of friend alternative j is a function of an individual fixed effect α, the friend alternative's characteristics Y and the interaction between i's characteristics X and friend j's characteristics Y, or:

$$V_{ij} = \alpha_i + \beta_j X_i Y_j + \delta_j Y_j \tag{1}$$

The probability π of choosing friend alternative j by individual i is:

$$\pi_i(j \mid \mathrm{D}) = \frac{\exp\left[V_{ij}\right]}{\sum_{k \in \mathrm{D}} \exp\left[V_{ik}\right]}, j \in \mathrm{D} \tag{2}$$

where **D** is the set of friend alternatives, including the chosen friends (Ben-Akiva and Lerman, 1985; McFadden, 1978). The friend dyad is the unit of analysis and all models condition on the respondent. The model therefore includes multiple observations for each respondent and the additive effects of all individual characteristics on friend choice are netted out of the model. In other words, the dependent variable in this analysis is an indicator of whether a friendship dyad exists between respondent i and possible friend j in the school, and an individual fixed effect is included to eliminate dependencies among individuals' friendship choices. Because the unit of analysis is the friendship dyad and the analysis conditions on the individual, individuals who do not nominate any in-school friends are excluded from the analysis.

In this case, the set of possible friend choices is defined as all same-gender students within the school attended by the respondent.[9] The size of each individual's choice-set is the number of same-gender students in the school minus one. The number of observations within one school is therefore the number of same-gender students in the school, N, multiplied by $N - 1$. The smallest school in Add Health contributes 132 observations to the analysis, while the largest school contributes 1,634,562. Because the size of each individual's choice-set grows with the school size, we randomly

sample a set of possible friends within each school to represent each individual's non-chosen friends within the choice-set. All chosen friends are sampled with a probability equal to 1, and 100 non-chosen individuals are sampled with probability equal to the inverse of the number of non-chosen individuals within the school.[10,11] Because non-chosen alternatives are randomly sampled, no sampling correction is required and estimates should be unbiased (Ben-Akiva and Lerman, 1985; McFadden, 1978; Parsons and Kealy, 1992).

Although in principle adolescents are able to nominate any friend within the school, their opportunities to choose friends within the school are not equal. Schools are stratified on many dimensions, but most notably by grade. Students in the same grade are more likely to come into contact with one another than students in different grades and their likelihood of contact likely declines as the distance between grades increases. In other words, a 12th-grader is more likely to come into contact with another 12th-grader than with an 11th-grader, and more likely to come into contact with an 11th-grader than with a 10th-grader. Because contact structures opportunities, even within schools, adolescents do not have the same opportunities to choose friends. Following Zeng and Xie (2008), we include an offset in all models of friend choice to account for differences in opportunities within schools across grades to choose friends. We assume opportunity is a continuous decreasing function of the distance in grade levels, g, between individual i and friend alternative j, or:

$$O_{in} = \frac{1}{\left(g_{ij} + 1\right)^2} \tag{3}$$

If we fully account for adolescents' different opportunities to choose friends, the model should capture adolescents' preferences for certain friends rather than others.[12] Stronger predilections for friends who participate in illicit activities among those who participate in illicit activities should indicate that given the choice between a "bad" friend and a "good" friend, the "bad" kid will more often choose the "bad" friend rather than the "good" friend.[13]

This methodological approach makes two assumptions—(a) that dyad pairs are independent and (b) that network structure plays a minimal role in affecting friendship choices—which are problematic. Let us explain how we dealt with this hurdle.

First, the conditional logit model is a dyad-level analysis. Respondents within a school will therefore appear as the focal respondent and then potentially reappear several times as a friend or possible friend. As a result, these dyad-level observations are not independent within a school and standard

errors will be biased downward. In response, we cluster standard errors at the school level adjusting for the non-independence of dyadic observations within schools, thereby relaxing the assumption of independence.

Second, friendship choices are not made solely on the basis of the characteristics of individuals and their possible friends. There are important structural features of the network that may lead two individuals to be friends, independent of their characteristics. For instance, if initial friendships are formed on the basis of common interests and future friendships are the result of friends introducing friends, ignoring transitive relationships (friends of friends) will lead us to overstate the amount of homophily among friends. Disregarding network structure could also minimize homophily and lead to an underestimate of similarity among friends if initial friendships are based on proximity and proximity is determined at random (i.e. random assignment into classes at school). We partially guard against this peril as we account for local network structure by controlling for whether a respondent and a possible friend have a friend in common, and the number of friendship nominations the possible friend receives. Above all, recall, however, that we are interested not in the levels of homophily among deviant adolescents, but in the comparison of levels of homophily among deviants and non-deviants. As long as network structures equally lead to homophily among deviant and non-deviant adolescents, not fully accounting for network structure will not influence our results.[14]

Definitions of a "friend"

We consider three definitions of a "friend" that identify progressively stronger friendships—all friendships whether reciprocated[15] or not in the survey, friendships which are reciprocated, and finally, reciprocated friends with whom respondents also spend time after school. While lack of reciprocation does not mean that these individuals are not friends with one another,[16] we expect the closest friendships to be among reciprocated friends. We also expect trust requirements to be met at the highest level among close friends. As a result, we expect homophily and patterns of SCS to be stronger among reciprocated friends and those whom the respondent "spent time with after school" in the last week. All three definitions are restricted to same-gender friendships; this helps us to exclude heterosexual romantic relationships and to avoid the problem that influence/selection among mixed-gender friends is different than among same-gender friends (Gaughan, 2006).

Illicit activities

We focus on four activities that are illicit for adolescents: drinking, smoking, skipping school, and fighting.[17] Drinking and smoking are examples of

activities that can be easily hidden from those who could meet sanctions, whereas skipping school and fighting are more public acts of deviance. In our sample, almost 12% of students got drunk at least once per month in the last year; 23% smoked at least one cigarette per week in the last year; 14% skipped school at least once per month in the last year; and 16% were involved in at least three fights at school in the last year (Table 2). Again, our goal is to observe patterns consistent with SCS among populations participating in minor, everyday breaches of norms.

A concern with these measures is that adolescents involved in these activities may underreport their participation, either by (a) not answering the question or by (b) stating that they participate less often than they actually do, because—as we argue above—these adolescents are risk-averse when it comes to sharing information about these behaviors. With regard to (a), 7.3% of respondents do not report how often they were drunk in the last year and 6.6% do not report how often they smoked in the last year; but these numbers are comparable to missing data in reports of licit activities such as time spent watching TV (4.7%) or how many times per week the respondent exercises (10.7%).[18] If misrepresentation (b) were the case, we would erroneously classify "bad" kids as "good" kids. If those who participate in illicit activities in fact are more likely to be friends with other "bad" kids compared to those who do not participate in illicit activities, then we will observe less homophily among deviant adolescents and more homophily among non-deviant adolescents. In other words, if adolescents underreport participation in illicit activities, our estimates of homophily among deviant adolescents will be conservative.

Licit activities

Our challenge is finding licit activities comparable to our set of illicit activities, particularly in terms of their "socialness." The illicit activities that we study mostly take place in groups, especially among adolescents. They are activities that may attract more social individuals generally. Differences (or similarities) in the number of friends of participants in illicit and licit activities may therefore result from the *social* nature rather than from the illicit nature of the activities we study. We therefore chose three licit activities which are comparably social in nature: belonging to a sports team, being a member of a club, and participating in music. We also added exercising, although its sociability varies. Participation in licit activities is of course more common than participation in illicit activities: 70% of respondents report exercising more than three times per week; more than 50% report that they are on a sports team; 35% participate in at least one club at school; and 20% participate in a choir, orchestra, or band (for details see Table 1).

The licit and illicit activities we study take place in different environments, the former largely within the school and the latter largely outside. These different contexts may affect the opportunities that similar individuals (whether deviant or not) have to make friends with one another. Although these different opportunities (referred to as "structural homophily") are often treated as problematic because they can mask preferences, opportunities (or lack of opportunities) can only explain when homophily does *not* occur. When opportunities are there, preferences still matter crucially to determine the outcome. Should people have features that deter friendship, then one can refrain from befriending them. So if homophilous friendships are observed, it follows that we are observing the outcome of choices—they had the opportunity and decided to take it.

The fact that our licit activities necessarily take place in groups in structured environments means that participation ensures opportunity. By contrast, our illicit activities, while adaptable to group settings, do not necessarily take place in a group. These features of our licit and illicit activities work against SCS (potentially overestimating homophily on licit activities and underestimating homophily on illicit activities) and should produce conservative estimates of differences in homophily between illicit and licit activities.

We estimate the log odds that an individual who participates in a particular illicit activity has a friend who also participates in that illicit activity, compared to a friend who does not participate in that illicit activity, and the log odds that an individual who does not participate in a particular licit activity has a friend who participates in that licit activity, compared to a friend who does not participate in that licit activity.[19] Because all activities are set up as dummy variables, we are able to compare coefficient estimates of illicit activities to those of licit activities and determine whether homophily is greater among those who break norms compared to those who do not. These models include controls for the friend or potential friends' race/ethnicity, parental education, and grade in school, as well as whether the respondent and possible friend are the same on each of these measures. Models also include controls for the following network structural characteristics: reciprocity between the respondent and possible friend, whether the respondent and possible friend have a friend in common, and the number of friends nominated by the possible friend. Controls are described in appendix Table A.1. Again, the standard errors are adjusted for clustering within schools. These adjustments help to account for the non-independence of dyad pairs within schools.

Evaluating homophily

Table 3 presents the results from conditional logit models predicting whether or not a friendship exists between two individuals within the same school. Coefficients represent the log odds that a respondent has a friend who

Table 2. Description of variables.

	Description	Mean	S.D.	*N*
Number of friends				
Nominated in-school	Number of same-gender nominated friends from the in-school survey	3.055	1.955	85,627
Reciprocated nominated in-school	Number of same-gender nominated friends who also nominate the respondent from the in-school survey	0.720	1.014	85,627
In-school nominating respondent	Number in school who nominate the respondent as a friend, regardless of whether the respondent nominates the nominator	2.125	2.177	85,627
Illicit activities				
Drinking	Been drunk at least 1 time per month in the last year	0.116	0.320	79,344
Smoking	Smoked at least 1 time per week in the last year	0.228	0.420	80,014
Skip school	Skipped school at least 1 time per month in the last year	0.143	0.350	79,839
Fight	Was involved in at least 3 fights at school in the last year	0.161	0.367	76,420
Licit activities				
Exercise	Exercise at least 3 to 5 times in in a normal week	0.705	0.456	76,499
Sports	Participate in at least 1 of the following sports: baseball/softball, basketball, field hockey, football, ice hockey, soccer, swimming, tennis, track, volleyball, wrestling, cheerleading/dance team, other sport	0.542	0.498	85,627
Clubs	Participate in at least 1 of the following clubs: French club, German club, Latin club, Spanish club, book club, computer club, debate team, drama club, future farmers of America, history club, math club, science club, other club	0.354	0.478	85,627
Music	Participate in at least 1 of the following: band, chorus or choir, orchestra	0.209	0.407	85,627

(Continued)

Table 2. (Continued)

	Description	Mean	S.D.	*N*
Norms				
School penalties				
Smoking at school	Penalty if student is caught smoking at school 1st time, from school administrator survey: 1 no policy, 3 verbal warning, 4 minor action, 5 in-school suspension, 6 out-of-school suspension, 7 expulsion	5.047	0.917	85,066
Drinking at school	Penalty if student is caught possessing alcohol at school 1st time, from school administrator survey: 1 no policy, 3 verbal warning, 4 minor action, 5 in-school suspension, 6 out-of-school suspension, 7 expulsion	5.916	0.598	83,918
Fighting at school	Penalty if student is caught fighting at school 1st time, from school administrator survey: 1 no policy, 3 verbal warning, 4 minor action, 5 in-school suspension, 6 out-of-school suspension, 7 expulsion	5.697	0.554	84,622
County norms				
Conservative religious adherents	Proportion adherents in conservative denominations in the county. From the Churches and Church Membership data collected by the offices of the Church Growth Research Center at the Church of the Nazarene Headquarters in Kansas City, Missouri	0.328	0.206	83,757

Table 3. Conditional logit models predicting the log odds of nominating a friend who does *X* compared to a friend who does not do *X*, Add Health 1994–1995.

Fr activities	All nominated friends				Reciprocated friends				After-school friends			
	R participates		R does not participate		R participates		R does not participate		R participates		R does not participate	
Illicit												
Smoking	0.708	**	–0.311	**	0.920	**	–0.327	**	0.923	**	–0.423	**
	(0.032)		(0.024)		(0.036)		(0.029)		(0.080)		(0.038)	
Drinking	0.665	**	0.009		0.785	**	0.005		0.795	**	–0.097	*
	(0.031)		(0.022)		(0.028)		(0.031)		(0.055)		(0.048)	
Skip school	0.290	**	–0.118	**	0.415	**	–0.092	**	0.551	**	–0.224	**
	(0.037)		(0.021)		(0.046)		(0.028)		(0.096)		(0.044)	
Fighting	0.126	**	–0.097	**	0.248	**	–0.092	**	0.320	**	–0.120	
	(0.038)		(0.020)		(0.044)		(0.028)		(0.083)		(0.071)	
Licit												
Music	0.670	**	–0.308	**	0.756	**	–0.390	**	0.714	**	–0.451	**
	(0.045)		(0.024)		(0.065)		(0.021)		(0.071)		(0.045)	
Sports	0.507	**	–0.178	**	0.636	**	–0.255	**	0.558	**	–0.380	**
	(0.023)		(0.018)		(0.030)		(0.026)		(0.047)		(0.052)	
Clubs	0.268		–0.122		0.278	**	–0.147	**	0.252	**	–0.187	**
	(0.023)		(0.016)		(0.029)		(0.025)		(0.047)		(0.030)	
Exercise	0.141	**	–0.086	**	0.188	**	–0.186	**	0.116	**	–0.310	**
	(0.017)		(0.023)		(0.021)		(0.037)		(0.036)		(0.058)	

Standard errors are shown in parentheses ** $p<.01$, * $p<.05$.
All models include controls for individuals' and friends' parental education, race, gender, grade, similarity between respondents and friends on these characteristics, and network structural characteristics including reciprocity, popularity, and transitivity.

participates in each of the illicit and licit activities discussed earlier, given that the friend participates or does not participate in each of the illicit and licit activities. Note that the preferences of individuals participating in illicit (or licit) activities and those not participating in illicit (or licit) activities are estimated separately. The fact that smokers may prefer smokers as friends does not imply that non-smokers prefer non-smokers. The first two columns present the most relaxed definition of friendship, the third and fourth include only reciprocated friends, and the fifth and sixth include friends with whom the respondent hung out after school in the previous week. The main difference in estimates of the effects of illicit and licit activities on friendship across friend definitions is that homophily increases as friend definitions become stricter. In other words, smokers are more likely to choose friends who smoke when only reciprocated friends are treated as friends. Nonetheless, results are consistent across friend definitions. Below, we discuss results for models that include reciprocated friendships only, but keep in mind that the patterns are the same when all nominated friends are included and when only after-school friends are included.

Preferences for "bad" friends

Adolescents who do not participate in illicit activities, "good" kids, are generally less likely to choose friends who participate in illicit activities than friends who do not participate in illicit activities (see column 5, "R does not participate"). Non-smokers, for example, have .72 times the odds of choosing a friend who smokes compared to choosing a fellow non-smoker ($e^{-.327}$). In other words, non-smokers are significantly more likely to be friends with non-smokers than with smokers. Similarly, those who do not skip school and those who do not fight are significantly less likely to choose truants and fighters as friends respectively, compared to choosing non-truants and non-fighters. By contrast, those who do not get drunk often are *not* significantly more or less likely to choose drinkers versus non-drinkers as friends.

Friend choices are quite the opposite among "bad" kids. Those who participate in illicit activities are always significantly more likely to choose friends who also participate in those illicit activities (see column 4, "R participates"). For example, adolescents who get drunk at least once per month have 2.19 times the odds of choosing a friend who also drinks compared to a friend who does not ($e^{.785}$). Similarly, smokers have 2.5 times the odds of choosing a smoker compared to a non-smoker as a friend ($e^{.920}$), truants have 1.5 times the odds of choosing a fellow truant versus a non-truant ($e^{.145}$), and fighters have 1.26 times the odds of choosing a fighter versus a non-fighter ($e^{.248}$). Verifying the results of previous research, those who participate in illicit activities choose friends who also participate in

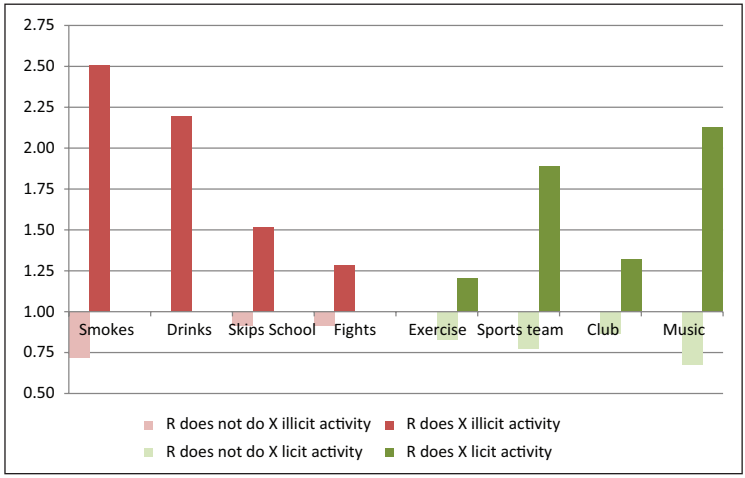

Figure 1. Predicted odds of choosing a friend who participates in activity *X* versus a friend who does not participate in activity *X*, Add Health 1994–1995.

illicit activities, even after accounting for the different opportunities that adolescents have for choosing "bad" friends. In short, adolescents who participate in illicit activities have a preference for homophily in their friendships, and this preference is not driven by a desire among "good" kids for friends who do not participate in illicit activities. Furthermore, the preferences among "good" kids for "good" rather than "bad" friends are always lower than the preferences among "bad" kids for "bad" friends.

"Bad" friends vs. "good" friends

This result is not enough for us to claim that deviant adolescents, in order to establish trust, pursue *more* symmetry in illicit activities than non-deviants do with regard to licit activities. Indeed, adolescents who participate in licit activities are similarly more likely to choose friends who also participate in licit activities. We need to compare homophily in licit and illicit activities to establish whether we are not just capturing a *general* preference for homophily rather than a stronger preference for it among deviants.

Figure 1 shows the estimated odds of choosing a friend who engages in a given activity—smokes, drinks, skips school, fights, exercises, belongs to a sports team, is a member of a club, participates in music—compared to a friend who does not, by the respondents' participation in each activity. Odds are calculated from coefficients in columns 4 and 5 of Table 3. Table 4 summarizes the results of chi-squared tests to determine whether estimated

Table 4. Results of significance tests indicating differences in homophily across licit and illicit activities, reciprocated friendships, Add Health 1994–1995.

Illicit activities	Licit activities			
	Exercise	Sports team	Club	Music
Smoking	+	+	+	+
Drinking	+	+	+	No
Skipping school	+	–	+	–
Fighting	No	–	No	–

differences between illicit and licit preferences for homophily are statistically significant at or above the $p<.05$ level.

The odds of choosing a friend who drinks among drinkers and a friend who smokes among smokers are greater than the odds of choosing a friend who participates in *any* licit activity. For example, the odds that a smoker chooses a smoker versus a non-smoker as a friend ($e^{.920} = 2.51$) are greater than the odds that an adolescent on a sports team chooses a friend also on a sports team, compared to one not on a sports team ($e^{.636} = 1.89$). All differences are statistically significant for smokers; smokers are significantly more likely to have friends who also smoke than exercisers or members of sports teams, clubs, or music participants are to have friends who also participate in those activities.

Among drinkers, the likelihood of choosing a friend who drinks is greater than the likelihood that exercisers, members of sports teams, and members of clubs choose friends who also participate in these activities. There is only one area of overlap with the most homophilous of licit activities, music: the odds that drinkers choose friends who drink do not differ significantly from the odds that those who participate in music choose friends who also participate in music.

Although drinking and smoking provide strong evidence that homophily is greater among adolescents who participate in illicit activities compared to those who participate in licit activities, skipping school and fighting suggest another story. Those who fight at school have friendships that are equal to or less homophilous than licit activities, and those who skip school have less homophilous friendships than those on sports teams and involved in music, but more homophilous friendships than those who exercise and are in clubs.

Whereas drinking and smoking can be kept hidden so as to avoid sanctions, fighting and skipping school are more easily detected by authorities and families. Fights attract attention (and leave give-away marks on clothes and bodies) and truants are conspicuous because of their unjustified absence.

As a consequence, adolescents who skip school or fight have already to some extent accepted that a by-product of their exploits is a high probability of being outed as "bad" kids. The public nature of their deviance relaxes the requirement for trustworthiness which one looks for among one's friends, in contrast with adolescents who participate in less visible forms of deviance.

As hypothesized in H1, homophily is stronger among adolescents who participate in illicit activities than among adolescents who participate in licit activities. Furthermore, as hypothesized by H2, the differences in homophily across more and less detectable illicit activities suggest that as trust requirements intensify, so too does homophily. These results are certainly compatible with our larger hypothesis that trust is the driving force behind the greater homophily among deviants.

Indeed, we believe the results presented in this section represent conservative estimates of differences in levels of homophily between licit and illicit activities. This is not only because, as we said, the licit activities studied here are based primarily in the school, and thus the differences we observe would be larger if the licit activities could be separated from the school environment (or if the illicit activities were similarly organized within schools). Strengthening our argument further is also the observation that the licit activities represent general categories. We are not estimating the odds that a person who plays football will be friends with someone who also plays football, but the odds that that person will be friends with someone who plays football *or* basketball *or* golf *or* any other sport. Given the large number of people who play any sport, or any kind of music, or participate in any club, we are allowing for a lot more heterogeneity in these measures of homophily than we allow for the illicit activities. The differences in levels of homophily between licit and illicit activities represent a bottom bound of what they truly are.

Preferences across activities

SCS would be reinforced, both in itself and in relation to alternative explanations, if we found that the greater homophily in deviance holds across illicit activities. To find out, we can look at preferences for friends *across* illicit activities and compare them to preferences *across* licit activities. In Table 5, we compare the log odds of nominating a smoker, a drinker, a musician, and an athlete. For each illicit activity, we calculate the log odds for those who do not drink or smoke, those who only smoke, those who only drink, and those who drink and smoke. For each licit activity, we calculate log odds for those who do not participate in music or sports, only music, only sports, and both music and sports. If the results in the fourth section are the consequence of a general desire for homophily, we should see null or

Table 5. Log odds of nominating a friend who participates in activity *X* compared to a friend who does not participate in activity *X*, Add Health 1995.

Friend activities	Respondent activities															
	No smoking or drinking		Smoking		Drinking		Drinking and smoking		No music or sports		Music		Sports		Music and sports	
Illicit																
Smoking	–0.329	**	0.512	**	–0.154	**	0.808	**								
	(0.025)		(0.043)		(0.046)		(0.040)									
Drinking	–0.029		0.317	**	0.542	**	0.736	**								
	(0.024)		(0.040)		(0.045)		(0.040)									
Licit																
Music									–0.260	**	0.895	**	–0.341	**	0.542	**
									(0.023)		(0.065)		(0.033)		(0.042)	
Sports									–0.171	**	–0.211	**	0.559	**	0.376	**
									(0.019)		(0.030)		(0.027)		(0.034)	

Robust standard errors clustered by school are shown in parentheses. ** $p<.01$, * $p<.05$.
Coefficients estimated in the same model including controls for other licit and illicit activities, individual's and friends' parental education, race, gender, grade, similarity between respondents and friends on these characteristics, and network structural characteristics including reciprocity, popularity, and transitivity.

negative preferences across activities and similar patterns of preferences across illicit and licit activities.

The left side of Table 5 shows the log odds of choosing a friend who smokes (row 1) and a friend who drinks (row 2) compared to a friend who does not. As we observed in the fourth section above, drinkers are significantly more likely to nominate a fellow drinker compared to a non-drinker ($e^{.542}$ =odds 1.72 times those of a non-drinker) and smokers are significantly more likely to nominate a fellow smoker compared to a non-smoker ($e^{.512}$ =odds 1.67 times those of a non-smoker). What interests us here, however, is the likelihood that a smoker nominates a drinker, and vice versa. A smoker, for example, has 1.37 times the odds of choosing a drinker over someone who does not drink ($e^{.317}$), even though he does not drink himself. By contrast, both those who participate in music and in sports are significantly *less* likely to choose a friend who participates in the other activity than one who does not. For example, an athlete has odds 30% lower of nominating a friend who participates in music compared to a friend who does not. While the smoker is happy to cross illicit activities, the athlete is not happy to cross licit activities.

The exception here is the preference for smokers among drinkers. Drinkers (who do not smoke) prefer non-smokers to smokers.[20] Drinkers' negative preference for smokers, however, is smaller than the negative preference for smokers among non-drinker/non-smokers. Furthermore, drinkers' preferences for smokers are larger than musicians' preferences for athletes and athletes' preferences for musicians.

Finally, turning our attention to those who participate in both illicit activities, they are significantly more likely to nominate smokers or drinkers than non-smokers or non-drinkers. These preferences are significantly greater than those of only smokers for smokers and only drinkers for drinkers. In other words, the more active one is in illicit activities, the stronger are his preferences for friends who also participate in illicit activities, regardless of the activity. Among those who participate in licit activities, the pattern is quite different. Those who participate in both music and sports have significantly *lower* odds of nominating a friend who does music or plays sports compared to someone who does just one or the other. This pattern may signal a type of cliquishness that forms around each of these licit activities that is based on a preference for homophily. The fact that we observe a very different pattern among those who participate in illicit activities suggests that a preference for homophily in activity is not a sufficient explanation.

The effects of sanctions' severity

One way to seek further evidence is to consider that adolescents do not live in the same normative environments. Studying variation in homophily across

Table 6. School penalties for possessing alcohol, drinking alcohol, smoking, and fighting in school.

School penalties	% of respondents	Number of schools
Possessing alcohol		
Verbal warning	0%	0
Minor action	4.06	4
In-school suspension	10.13	15
Out-of-school suspension	75.97	98
Expulsion	9.84	21
Drinking alcohol		
Verbal warning	0%	0
Minor action	1.12	1
In-school suspension	8.95	11
Out-of-school suspension	74.73	100
Expulsion	15.2	27
Smoking a cigarette		
Verbal warning	8.13%	7
Minor action	15.74	23
In-school suspension	40.77	55
Out-of-school suspension	35.34	54
Expulsion	0.03	1
Fighting		
Verbal warning	0.68%	4
Minor action	2.74	8
In-school suspension	22.83	32
Out-of-school suspension	73.76	95
Expulsion	0	0

environments should provide us with a test of whether the greater homophily we observe among illicit activities is the result of the possible greater "socialness" of illicit activities. If homophily occurs because of some intrinsic feature of illicit activities, homophily should *not* vary depending on context.

Norms against drinking and smoking, for example, are stricter in some schools and communities than in others. Table 6 shows that schools vary widely in the sanctions they impose when students are caught possessing and drinking alcohol, smoking, and fighting at school. Four schools, for example, take only minor action when a student is caught possessing alcohol at school, while 21 schools will expel students caught possessing alcohol at school. If sanctions differ across schools, the level of trustworthiness

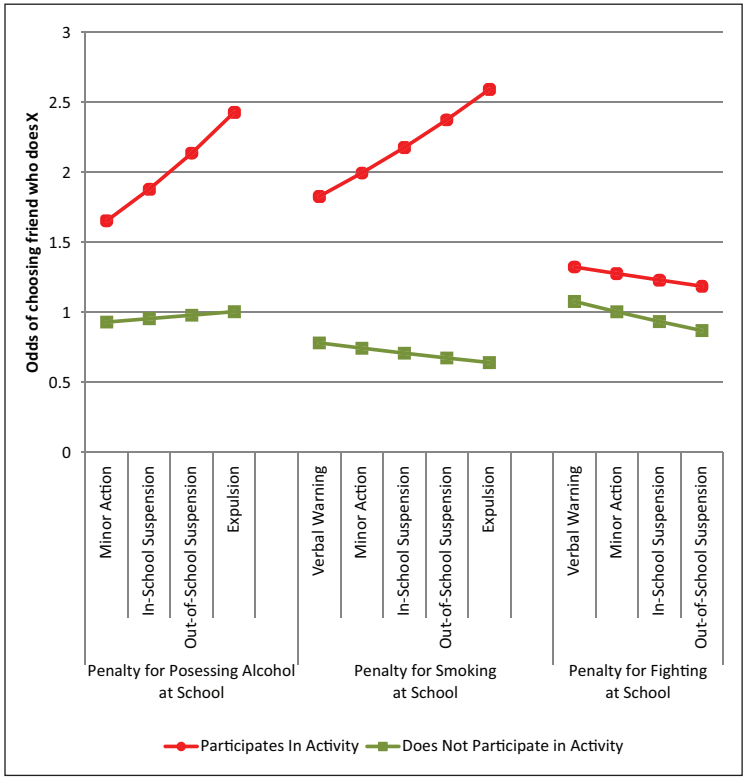

Figure 2. Predicted odds of choosing a friend who participates in activity *X* versus a friend who does not participate in activity *X* by school penalties for *X*, Add Health 1994–1995.

required among friends, and thus requirements for parallel norm-breaking, should vary across schools depending on these sanctions. Similarly, communities vary widely in the behaviors and activities they deem acceptable or tolerable for adolescents and in the extent to which they sanction norm-breaking among adolescents, with more conservative and religious communities being stricter.

We use data from the school administrator survey and linked county-level data to test these ideas. We study variations in levels of homophily depending on school sanctions for possessing alcohol, smoking, and fighting at school,[21] and depending on the proportion of the county who are conservative religious adherents.[22] Results are summarized in Figures 2 and 3.

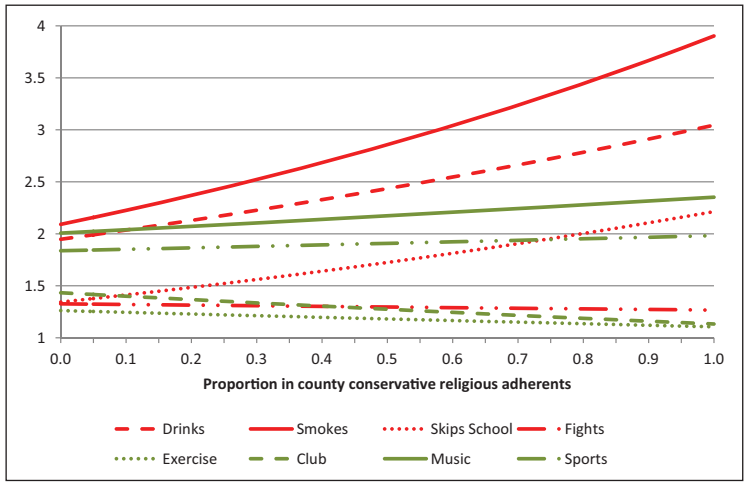

Figure 3. Predicted odds of choosing a friend who participates in activity *X* versus a friend who does not participate in activity *X* among respondents who do *X* by proportion in county who are conservative religious adherents, Add Health 1994–1995.

Schools

Figure 2 shows the estimated odds of choosing a friend who drinks, smokes, and fights by the school penalties for possessing alcohol, smoking, and fighting in school respectively. For both drinking and smoking, the odds of choosing a friend who participates in the illicit activity increase as the sanctions imposed by the school for participating in that activity increase in seriousness ($p<.05$). The odds that smokers in schools which sanction smoking with only a verbal warning choose a friend who smokes are 1.8 times the odds that they choose a friend who does not smoke. As sanctions increase in severity, so do the odds that smokers choose smokers as friends and drinkers choose drinkers. The odds that a smoker in a school that sanctions smoking with an out-of-school suspension chooses a friend who is a smoker are 2.4 times the odds that he chooses a friend who does not smoke. Stricter sanctions appear to promote homophily among smokers and drinkers. The odds of choosing a fighter versus a non-fighter, by contrast, do not vary by school sanctions placed on fighting.

Counties

One might suspect that the explanation for the relationship we observe between school sanctions and homophily on illicit activities is selection,

namely that schools *respond* to the clustering of "bad" kids by increasing sanctions for participating in illicit activities. However, community composition should be a good instrument to test for endogeneity. Endogeneity problems should be less severe at the community/county level, for it is hard to see how the political or religious composition of an area, and its normative make-up, could be significantly affected by adolescents' current behaviors.

Figure 3 shows the predicted odds of choosing friends who participate in licit and illicit activities by the proportion in the county who are conservative religious adherents. Drinkers, smokers, and truants are all significantly more likely to choose a friend who drinks, smokes, and skips school in counties with more conservative religious adherents. By contrast, the odds of choosing a friend who participates in any of the licit activities do not depend on the religious composition of the county.

Homophily increases as the sanctions expected as a result of particular act of deviance grow more severe, and these results strengthen the support for H4. In both schools and counties, the friend choices of adolescents who engage in illicit acts depend on the sanctions imposed. Stricter sanctions lead to more homophilous friends. In other words, more serious punishment of norm-breakers appears to bring norm-breakers together. We argue that this relationship exists because risk increases as the severity of sanctions increase. Trust is a more fundamental requirement of relationships among deviants when risk is greater; trust, in this instance, is established through the sharing of illicit acts.

Conclusions

In this article, we hypothesize that relative to comparable licit activities, deviance generates greater homophily among friends. Accounting for the availability of "bad" and "good" friend alternatives within and between schools, we estimate adolescents' predilections for friends who participate in licit and illicit activities. Results from these models show that *preferences for similar friends are stronger among adolescents who participate in illicit activities than among those who participate in licit activities*. The basic homophily findings hold not only for the same illicit activity, but also across *different* illicit activities, which suggests that the results are not the consequence of a more intense yet generic preference for homophily based on the *specific* type of activity.

We have produced good empirical evidence of this hitherto overlooked phenomenon. As for what may explain it, we believe that deviants establish trust through the mutual sharing of illicit acts—the difference in patterns of homophily among "bad" and "good" adolescents would be the result of the

pressure to give evidence of one's trustworthiness, which is stronger among the former than among the latter. But have we found enough evidence to claim that this theory, which inspired our search for differences in homophily across deviant and non-deviant activities, is also the best explanation for it? Two general theories of deviance, social control theory and differential association theory, posit the same fundamental hypothesis, one claiming that homophily would be the result of *exclusion* of the bad kids by the good kids and the other that homophily would be the result of *status* seeking among deviants influencing each other.

Further tests suggest that SCS provides a better explanation. We show that homophily varies depending on the *type* of illicit activity: individuals who participate in more public forms of deviance are less likely to have similarly deviant friends compared to individuals who participate in more private forms of deviance. We believe that this result provides evidence in favor of SCS. While public acts of deviance expose one to greater risks of sanctions, they also lessen the requirement of trust among friends because the misdeeds are already known. Finally, we show that homophily among "bad kids" varies according to the norms and sanctions imposed by adolescents' schools and larger communities. Where norms and sanctions against illicit activities are weak, homophily among "bad kids" is also weaker than in contexts with strong norms and sanctions. When those who participate in illicit activities have less to fear, the requirement of trust is reduced and therefore the need to maintain friendships only with other norm-breakers is relaxed. By contrast, increasing sanctions brings norm-breakers together in an effort to manage risk.

Our tests support our claim that SCS has greater and more fine-grained explanatory power than the mechanisms implied by SCT and DAT. We cannot, however, make an equally strong claim with regard to cognitive dissonance reduction. We do not have a prediction that one theory can produce but not the other, and thus cannot adjudicate between the two on statistical grounds. It may simply be the case that both forces—trust creation and dissonance reduction, one a pull factor and the other a push factor—are operating jointly to produce the patterns we find. All we can say for the moment is that SCS is a simpler and more parsimonious theory than CDR, and is consistent with ethnographic evidence studying more serious criminals (Ekland-Olson et al., 1984). This research suggests that criminals form relationships with other criminals precisely because it solves the problem of establishing trust. While our deviants are much less deviant, the patterns of behavior are the same.

SCS is also a fertile theory: it yields two further predictions, which we plan to tackle in our future work. It is often observed that illicit activities

have a special "socialness" and that, for instance, adolescents tend to drink or smoke in groups (Cairns and Cairns, 1994; Warr, 2002). This phenomenon may in fact itself be the product of SCS: *a group in which only some individuals are engaged in deviant activities is likely to be unstable*, and those who do not conform would be under pressure to do so or be ostracized. The end result is that groups of deviants in a steady state are more likely to be homogeneous and less tolerant of differences than groups of non-deviants. A second, counterintuitive prediction derivable from SCS is that, *ceteris paribus, friendships among deviants should last longer than friendships among non-deviants*. According to SCS, deviants are more selective in assessing their friends' trustworthiness than someone who has nothing to fear. Deviants should make fewer mistakes, and the friendships that are formed should be less likely to lead to conflict. Moreover, shunning friends could prove costlier for deviants because ex-friends could retaliate by divulging incriminating information; therefore one who engages in illicit activities has an incentive to keep one's friends longer than someone who has nothing to fear. For both of these reasons—better selection and higher cost of breaking up—deviant friendships should last longer. Interestingly, this hypothesis can be derived from SCS but not from CDR: insofar as one were *only* subconsciously preoccupied with reducing moral and cognitive tension by associating with kindred deviants, then one would not necessarily be more cautious in choosing trustworthy friends and should be heedless to other consequences when deciding whether to drop them. CDR would be implausible as the only explanatory theory motivating deviants' choices of friends.

We have shown supporting evidence with the goal of inserting SCS into the broader theoretical debate about the relationship between deviance and friendship. SCS provides a novel and useful perspective to think about persistent patterns of deviance that appear in empirical research time and time again. This article also provides a new empirical perspective by comparing activities across the deviant/non-deviant divide and even comparing different deviant activities with one another. Homophily varies widely across both deviant and non-deviant activities and across important social contexts.

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Notes

1. As far as we know this case remains fictional, but then again if it did occur and succeeded we should *not* know! The only realization we know of is found in fiction, in the 1996 film *Albino Alligator* directed by Kevin Spacey.
2. We are not assuming that these friendship choices stem from deliberate action or even strong preferences. Nonetheless, we still believe these choices to have a rational underpinning. When outcomes simply occur without anyone planning for them, which is often the case in real life, rationality can still be deemed to enter the process on this more relaxed principle: should these unintended outcomes be suboptimal or harmful, then when stakes are sufficiently high, we would expect people to endeavor to avoid them, stay away, break up, etc. If they accept them, even unthinkingly, it means they do not need to bother as they are not going against their interests.
3. It is important to note that this is not a "Prisoner's Dilemma" game, but a coordination game. In this situation, silence dominates snitching and not the other way around, as in the PD. As long as the costs and payoffs for not snitching stay the same, SCS will be an effective way to maintain a friendship relationship among deviants.
4. We would like to stress that this is an extension of DAT. DAT simply states that negative influence from one's peers is the root cause of deviance. Again, we are not interested in the selection–influence debate, but rather in why either would occur in the first place. Because DAT does not speak to this mechanism, we rely on Ackers's (1998) extension of DAT. Nonetheless, we continue to refer to this interpretation as DAT because it grew out of DAT.
5. The predictions of our theory and those of the social learning hypothesis should diverge among adults. If our theory is correct, we should observe similar friendship patterns in the adult population, among whom the pressure to signal one's bravery and boldness by engaging in misdeeds should be lower than among adolescents.
6. Warr (2002: 70) distinguishes these ideas from the subculture tradition of criminology, arguing that this mechanism for influence is "about moral reasoning that takes place within small bands of adolescents, and not about the characteristic beliefs of larger cultural groups".

7. A follow-up survey, the WI in-home survey, was administered to a subsample of WI in-school respondents approximately six months after the in-school survey took place ($N \approx 20{,}000$). Although this survey includes a wider range of illicit activities, including reports of drug use and stealing, we are unable to use these data in this analysis for two reasons. First, only a subsample of the approximately 20,000 respondents who participated in the WI in-home survey were asked to nominate their five closest male friends and their five closest female friends (all others nominated their best male friend and their best female friend). The majority of these respondents attended 16 "saturation" schools, which are not representative of the larger Add Health sample. Second, even if the full WI in-home sample nominated 10 friends, we would not have corresponding information from respondents' in-school friends because the WI in-home survey was not administered to the full in-school sample.
8. Ideally, we would also study the relationship between homophily and family environment. Although the Wave 1 In-Home survey includes information on the family environments and the rules that parents impose, this survey occurred on average six months *after* the in-school survey when friends were nominated and behaviors reported. As a result, we cannot know whether the relationship we observe between family strictness and homophily among deviant adolescents results from a greater need among adolescents from strict families for trust in their friendships, or parental response to the bad company their children keep.
9. We limit friendships to same-gender friendships. As a result, we need to limit the set of *possible* friends to same-gender friends as well.
10. In schools with fewer than 100 same-gender non-chosen friend alternatives, all alternatives are included in the choice-set.
11. We tested an alternative definition of the choice-set that friendships occur within and not between grades. The choice-set included all same-gender children in the same grade in the same school as the respondent. This definition did not substantively change the results. Nonetheless, we prefer the more inclusive choice-set definition of all same-gender adolescents in the school for the simple reason that almost 30% of friendships in the Add Health data cross grades.
12. Schools are stratified by course-taking patterns as well as by grade. Although grade may provide a good approximation of course-taking in smaller schools, in large schools grade does not capture the different opportunities adolescents have to be friends with one another. Ideally we would control for the number of courses two individuals took together. Unfortunately, that information is not available in Add Health. For those who participated in the AHAA transcript supplement, we know adolescents' "local area positions", which group students based on the courses they take in a particular year (Frank et al., 2008). Unfortunately, this information does not exist for the full in-school sample that we use in this paper.
13. This analysis is based on adolescents' friend nominations rather than actual preferences. We have to assume in this section that nominated friends are

respondents' preferred friends. In reality, friendships are much more complicated. Ben may prefer Michael as a friend, but because Michael does not want to be friends with Ben, Ben must choose another friend, Martin. This paper treats Martin as Ben's preference when in fact Michael is Ben's preference.

14. The Exponential Random Graph Model (ERGM) is a natural solution to issues of dyadic dependence and global network structure. See Robins et al. (2007) for a description of the ERGM. There is, however, a serious limitation to the ERGM, namely that it is a school-based analysis resulting in a separate set of estimates for each school (often with a different set of estimators). As a consequence, results from ERGMs can be sensitive to the number of respondents within a school engaging in illicit and licit activities and to outliers within the school environment. Furthermore, in many of the smaller schools in the Add Health sample, results can vary greatly from one model to the next. In spite of these concerns, we carried out a series of ERGMs, replicating our conditional logit analysis for each of the sample schools. Overall our results from the ERGMs were substantively consistent with our results from the conditional logit analysis. A summary of these results across schools and for each analyzed school are available from the authors upon request. For the reasons stated above, we chose to present the results from our conditional logit analysis, which we feel are more robust.
15. Reciprocation means that Person A, who nominated Person B as a friend, is also nominated by Person B as a friend.
16. Unreciprocated friendships may be the result of restrictions the survey places on respondents. For example, Ben and Michael are friends. However, Ben has more friends than Michael. Michael is Ben's sixth closest friend whereas Ben is Michael's third closest friend. When Ben reports his friends on the survey, Michael is left off the list because of the limit of five male friends. It appears then that Michael's friendship with Ben is unreciprocated when it is in fact reciprocated.
17. Several additional illicit behaviors, including drug use, violent behaviors, and sexual behaviors, are reported in the Wave 1 In-Home survey. Although these behaviors may provide better tests of our theory, they are reported on average, six months after respondents nominated friends in the in-school survey. Because friendships are dynamic, particularly in adolescence, friendships observed at the time of the in-school survey may not reflect the (unobserved) friendships of respondents at the time of the in-home survey. Again, although we do observe friendships longitudinally in 16 schools, referred to as the saturation sample, these 16 schools are not representative of the larger Add Health sample: 14 of these 16 schools are extremely small schools with fewer than 200 students; one school is a special education school; seven schools are middle schools where reports of drug use, violent behaviors, and sexual behaviors are extremely rare; of the eight schools that contain high school grades, six of these are K-12 schools. Given the unique features of this sample, we prefer to focus on the less illicit activities for the larger, representative sample of Add Health respondents.
18. In all, 10.8% of respondents were missing data on fighting and 6.8% were missing data on skipping school.

19. This analysis of course assumes that friends' activities are exogenous to the respondent's activities. We assume that homophily is the result of a respondent nominating a friend who participates in particular activities rather than the respondent affecting the friend's activities, the friend affecting the respondent's activities, or both. As we stated earlier, we are not so much interested in assessing what portion of the similarity between friends is the result of selection and what portion is the result of influence; we are more concerned with differences in levels of homophily on illicit versus licit activities. Although this analysis attributes all similarities to selection rather than influence, this should matter for our main interest in comparing levels of homophily across licit and illicit activities, net of opportunities to be friends with licit and illicit adolescents.
20. An important possible explanation for this result is the negative externalities of smoking. Hanging out with smokers could be unattractive because of secondhand smoke and the smell associated with smoking.
21. Unfortunately, we do not have a measure of school sanctions for unexcused absence.
22. We also looked at variation in levels of homophily depending on the proportion in the county who voted for George Bush Sr., the Republican candidate in the 1992 presidential election. Substantive results are the same.

References

Ackers RL (1998) *Social Learning and Social Structure: A General Theory of Crime and Deviance*. Boston, MA: Northeastern University Press.

Allen JP, Porter MR, McFarland FC, et al. (2005) The two faces of adolescents' success with peers: adolescent popularity, social adaptation, and deviant behavior. *Child Development* 76: 747–760.

Asteline R (1995) A reconsideration of parental and peer influences on adolescent deviance. *Journal of Health and Social Behavior* 3: 103–121.

Bearman P, Jones J and Udry JR (1997) The national longitudinal study of adolescent health: research design. Available at: http://www.cpc.unc.edu/addhealth

Ben-Akiva M and Lerman S (1985) *Discrete Choice Analysis: Theory and Application to Travel Demand*. Cambridge, MA: The MIT Press.

Blau P (1977) *Inequality and Heterogeneity: A Primitive Theory of Social Structure*. New York: Free Press.

Cairns RB and Cairns BD (1994) *Lifelines and Risks: Pathways of Youth in Our Time*. Cambridge: Cambridge University Press.

Cairns RB, Cairns BD, Neckerman HJ, et al. (1988) Social networks and aggressive-behavior – peer support or peer rejection. *Developmental Psychology* 24: 815–823.

Chan Tack A and Small ML (2010) Making friends in violent neighborhoods: strategies among African American elementary school children. Unpublished manuscript.

Cleveland HH and Wiebe RP (2003) The moderation of adolescent-to-peer similarity in tobacco and alcohol use by school levels of substance use. *Child Development* 74: 279–291.

Cohen J (1977) Sources of peer group homogeneity. *Sociology of Education* 50: 227–241.

Coie JD and Kupersmidt JB (1983) A behavioral-analysis of emerging social-status in boys groups. *Child Development* 54: 1400–1416.

Devereux E (1970) The role of peer group experience in moral development. In: Hill J (ed.) *Minnesota Symposium on Child Psychology*, vol. 4, pp. 94–140.

Dijkstra JK, Lindenberg S, Veenstra R, et al. (2010) Influence and selection processes in weapon carrying during adolescence: the roles of status, aggression, and vulnerability. *Criminology* 48: 187–220.

Dodge KA (1983) Behavioral antecedents of peer social-status. *Child Development* 54: 1386–1399.

Ekland-Olson S, Lieb J and Zurcher L (1984) The paradoxical impact of criminal sanctions – some microstructural findings. *Law & Society Review* 18: 159–178.

Felson M (1993) Predatory and dispute-related violence: a social interactionist approach. In: Clarke RVG and Felson M (eds) *Routine Activity and Rational Choice*. New Brunswick, NJ: Transaction Publishers, pp.103–125.

Festinger L (1957) *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford University Press.

Fisher LA and Bauman KE (1988) Influence and selection in the friend-adolescent relationship – findings from studies of adolescent smoking and drinking. *Journal of Applied Social Psychology* 18: 289–314.

Frank KA, Muller C, Schiller KS, et al. (2008) The social dynamics of mathematics coursetaking in high school. *American Journal of Sociology* 113: 1645–1696.

Gambetta D (2009) *Codes of the Underworld: How Criminals Communicate*. Princeton, NJ: Princeton University Press.

Gaughan M (2006) The gender structure of adolescent peer influence on drinking. *Journal of Health and Social Behavior* 47: 47–61.

Gottfredson MR and Hirschi T (1990) *A General Theory of Crime*. Stanford, CA: Stanford University Press.

Hamill H (2011) *The Hoods: Crime and Punishment in Belfast*. Princeton, NJ: Princeton University Press.

Hart K (1988) Kinship, contract, and trust: The Economic Organization of Migrants in an African city slum. In: Diego G (ed.) *Trust: Making and Breaking Cooperative Relations*. Oxford, UK: Basil Blackwell.

Haynie DL (2001) Delinquent peers revisited: does network structure matter? *American Journal of Sociology* 106: 1013–1057.

Haynie DL (2002) Friendship networks and delinquency: the relative nature of peer delinquency. *Journal of Quantitative Criminology* 18: 99–134.

Haynie DL and Osgood DW (2005) Reconsidering peers and delinquency: how do peers matter? *Social Forces* 84: 1109–1130.

Hirschi T (1969) *Causes of Delinquency*. Berkeley, CA: University of California Press.

Kandel DB (1978) Homophily, selection and socialization in adolescent friendships. *American Journal of Sociology* 84: 427–436.

Knecht A, Snijders TAB, Baerveldt C, et al. (2010) Friendship and delinquency: selection and influence processes in early adolescence. *Social Development* 19: 494–514.

McFadden D (1978) Modeling the choice of residential location. In: Karlqvist A (ed.) *Spatial Interaction Theory and Planning Models*. Amsterdam: North-Holland Publishing, pp.75–96.

McGloin JM and Piquero AR (2009) 'I Wasn't Alone': collective behaviour and violent delinquency. *Australian and New Zealand Journal of Criminology* 42: 336–353.

McPherson M, Smith-Lovin L and Cook JM (2001) Birds of a feather: homophily in social networks. *Annual Review of Sociology* 27: 415–444.

Matsueda R and Anderson K (1998) The dynamics of delinquent peers and delinquent behavior. *Criminology* 36: 269–308.

Mouw T and Entwisle B (2006) Residential segregation and interracial friendship in schools. *American Journal of Sociology* 112: 394–441.

Parsons GR and Kealy MJ (1992) Randomly drawn opportunity sets in a random utility model of lake recreation. *Land Economics* 68: 93–106.

Quillian L and Campbell ME (2003) Beyond black and white: the present and future of multiracial friendship segregation. *American Sociological Review* 68: 540–566.

Robins G, Pattison P, Kalish Y, et al. (2007) An introduction to exponential random graph (p*) models for social networks. *Social Networks* 29: 173–191.

Schelling T (1960) *The Strategy of Conflict*. Cambridge, MA: Harvard University Press.

Sherif M and Sherif C (1964) *Reference Groups: Exploration into Conformity and Deviation of Adolescents*. New York: Harper & Row.

Short J and Strodtbeck F (1965) *Group Process and Gang Delinquency*. Chicago, IL: University of Chicago Press.

Sijtsema JJ, Lindenberg SM and Veenstra R (2010) Do they get what they want or are they stuck with what they can get? Testing homophily against default selection for friendships of highly aggressive boys. The TRAILS study. *Journal of Abnormal Child Psychology* 38: 803–813.

Smetana J (2006) Social-cognitive domain theory: consistencies and variations in children's moral and social judgements. In: Killen M and Smetana J (eds) *Handbook of Moral Development*. Mahwah, NJ: Lawrence Erlbaum Associates, pp.119–153.

Sutherland EH and Cressey DR (1974) *Criminology*. New York: J.B. Lippincott.

Urberg KA, Degirmencioglu SM and Pilgrim C (1997) Close friend and group influence on adolescent cigarette smoking and alcohol use. *Developmental Psychology* 33: 834–844.

Warr M (2002) *Companions in Crime: The Social Aspects of Criminal Conduct*. Cambridge: Cambridge University Press.

Zeng Z and Xie Y (2008) A preference-opportunity-choice framework with applications to intergroup friendship. *American Journal of Sociology* 114: 615–648.

Appendix

Table A.1. Description of analysis variables.

Variable	Description	Mean	S.D.
Alter activities	1 if possible friend participates in the activity, 0 if the possible friend does not participate		
Smoke		0.16	0.366
Drink		0.165	0.371
Skip school		0.139	0.346
Fight		0.141	0.348
Exercise		0.729	0.444
Sports team		0.542	0.498
Music		0.212	0.409
Club		0.36	0.48
Ego and alter both participate	1 if possible friend and respondent participate in activity, 0 if otherwise		
Smoke		0.041	0.197
Drink		0.047	0.211
Skip school		0.037	0.188
Fight		0.042	0.201
Exercise		0.530	0.499
Sports team		0.319	0.466
Music		0.063	0.242
Club		0.152	0.359
Controls			
Same race	Respondent and possible friend report the same race/ethnicity	0.547	0.498
Alter's race	Possible friend's race/ethnicity		
White		0.541	
Black		0.169	
Asian/Pacific Islander		0.058	
Latino		0.165	
American Indian		0.032	
Other		0.016	
Same parental education	Ego and alter report the same parental education	0.28	0.449
Alter's parental education	Possible friend's parent's highest level of education		
<High School		0.090	

(Continued)

Table A.1. (Continued)

Variable	Description	Mean	S.D.
High School		0.308	
Some College		0.186	
BA+		0.417	
Same grade	Ego and alter are in the same grade in school	0.307	0.461
Alter's grade	Possible friend's grade in school	9.674	1.586
Reciprocity	Possible friend nominates the respondent as a friend	0.009	0.093
Transitive tie	Possible friend and respondent have at least one friend in common	0.167	0.373
Number of nominations alter made	Number of friends the possible friend nominates	3.688	1.892