Social Contagion in Drug Use and Sex among College Students

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Abstract

Past research suggests that congregating delinquent youth increases their likelihood of problem behavior. We test for analogous social contagion effects in the drug use and sexual behavior of college students, using data on the characteristics of first-year roommates to whom they were randomly assigned. We find that boys who reported binge drinking in high school drink much more in college if assigned a roommate who also binge drank in high school than if assigned a non-binge-drinking roommate. No such multiplier effect is observed for females, nor are multiplier effects observed for marijuana use or sexual behavior for either males or females. Students who did not engage in these behaviors in high school do not appear to be affected by their roommates' high school behavior.

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I. INTRODUCTION

A growing literature on juvenile offenders suggests that congregating deviant youth in classes, juvenile detention facilities or summer camps sparks a social "contagion" process that increases the likelihood of future deviant behavior. Whether social contagion effects are present among middle-class youth in college is the subject of this paper. Our data are drawn from surveys of students at a large public university, all of whom were randomly assigned first-year roommates. We focus on several kinds of problem behavior: binge drinking, marijuana use, multiple sexual partners, and binge drinking prior to sex.

Social contagion is estimated in a variety of ways. Among students whose binge drinking, marijuana use or sexual behavior had begun during their high school years, we estimate whether their reports of these behaviors in their first and in their second through fourth college years is greater if they were assigned first-year roommates who had engaged in the problem behaviors in high school. And for students who had not engaged in drug use or sex prior to college entry, we estimate whether such students might be drawn into future problem behavior if assigned roommates with a high school history of problem behavior.

This paper is organized as follows: Section II reviews the literature. Section III describes the data and measures used in our analysis; Section IV details our results; and a summary and discussion follow in Section V.

II. BACKGROUND

Drug use and unprotected sex can compromise life chances by threatening health and, in the case of illegal drug use, risking legal sanctions (National Institute on Drug Abuse 1999, 2001, 2002; National Institute of Alcohol Abuse and Alcoholism 2000). And yet all are widespread on U.S. college campuses. Wechsler and colleagues (2000) estimate that 44% of college students binge drank[1] in the two weeks prior to responding to the 1999 College Alcohol Study. Similar rates were reported in the 1993 wave of the survey. These same surveys showed that 16% of college students reported recent marijuana use in 1999, up from 13% from 1993 (Gledhill-Hoyt et al., 2000). Some 25.7% of 18-24 year old college students reported six or more sexual partners in their lifetimes (http://www.cdc.gov/nccdphp/dash/yrbs/pdfs/01nchrbs.pdf).

There are many theories as to why some students engage in these behaviors while others do not. Some researchers concentrate on personality difficulties such as anxiety, depression, low self-esteem and social introversion (Schall et al., 1992; Kaplan, 1979; Valliant, 1995). Others examine college contexts such as institutional size and competitiveness, and residential factors such as dormitory vs. fraternity/sorority residence (e.g., Wechsler et al., 2000).

Still others focus on student beliefs regarding normative behavior among their classmates. If students act, in part, to conform more closely to their perceptions of classmates' behavior and if, as appears to be the case, many students overestimate the prevalence of problem behaviors on campus, then it might be possible to affect behavior with interventions targeted on changing beliefs (Barnett et al., 2001). Many studies of drug and sex-related problem behaviors concentrate on the middle and high

[1] Binge drinking is defined as five or more drinks for males and four or more drinks for females (Wechsler et al., 1995).

school periods and examine family influences such as parental monitoring and parental drinking (Reifman et al., 1998).

There is ample documentation of continuities in drug and sexual behaviors across adolescence. Much larger fractions of binging than non-binging college students reported binge drinking in high school (Wechsler et al., 2000, Table 3). But while correlations in problem behavior across time are substantial, they are far from perfect: relatively few individuals are chronic binge drinkers across adolescence and into adulthood, and most eventually stop engaging in these problem behaviors altogether (Schulenberg et al., 1996). However, some individuals begin to engage in these behaviors while in college and, more generally, college settings appear to be times of heightened risk for problem behaviors. Data from the Monitoring the Future study show that while in high school, college-bound students use less of all classes of substances studied as compared with classmates not bound for college (Bachman et al., 1997). However, after high school graduation, the increase in alcohol and marijuana use among college students exceeds that of their former classmates who are not attending college. In the case of alcohol, binge drinking is more prevalent among youth attending than not attending college.

Peer effects. The focus of this paper is on how peers affect drug use and problematic sexual behavior among college students. Peer influences on problem behaviors in both early adolescence and college settings have been investigated extensively, but rarely convincingly. Many empirical studies document the fact that individuals with friends who abuse drugs are themselves more likely to abuse drugs, but fail to address problems of self-selection into peer groups (Manski, 1993, Moffitt, 2001). As long as individuals are free to choose their friends, it is possible that someone's substance abuse behavior is affecting his or her choice of peer group.

Longitudinal studies have documented that individuals with friends who drink are more likely to begin drinking subsequently (e.g., Reifman et al., 1998) and to increase their drinking more rapidly (Curran et al., 1997). While the strength of the evidence for peer impacts is stronger in longitudinal than cross-sectional studies, it is still possible that difficult-to-measure characteristics (e.g., thrill seeking) or circumstances (e.g., family problems) are leading individuals to both choose drinking peers and display unusually rapid increases in their own substance use.

A few studies of teen problem behavior have used two-stage peer effects models in which a first-stage peer group equation is estimated and then used to relate predicted peer group characteristics into the second stage equation focused on teen problem behavior. Evans, Oates and Schwab (1992) estimate models of high-school completion and out-of-wedlock teen child-bearing in which their contextual variable was the SES of the student body. They identified student-body SES using characteristics of the metropolitan area in which the student resided (e.g., unemployment rate), and yet one can imagine ways in which labor market characteristics might influence teen schooling and fertility choices independently of peer influences. Norton et al. (1998) estimate a model of peer impacts on teen alcohol and tobacco use of young adolescents, but they are forced to identify the model with parental and census-based reports of neighborhood characteristics.

What if assignment to peers is beyond the control of the individual? Although no studies of substance abuse have addressed this question, a growing literature on delinquent behavior provides disturbing evidence of unintended ("iatrogenic") effects of congregating delinquent youth who do not already know one another (Dishion, McCord and Poulin, 1999). Bayer et al. (2003) find that juvenile offenders released from Florida residential correctional facilities tended to commit the kinds of crimes that had been committed by their correctional-facility peers. McCord (1995) finds that assigning juvenile offenders to summer camps with the hope of reducing subsequent criminal behavior in fact had the opposite effect, when those offenders were compared with others not afforded the opportunity to attend such camps. Poulin, Dishion and Burraston (2001) evaluated the effects of an intervention

program that brought deviant teens together for sessions that emphasized prosocial goals and self-regulation. Teachers blind to treatment status reported more problem behavior three years later for youth in the treatment group than in a quasi-experimental control group.

If iatrogenic effects apply to substance abuse in college, then we might expect that students with high school histories of substance abuse will abuse substances more in college as they have more contact with substance-abusing peers. National data confirm the stereotype of much more binge drinking among students living in fraternities and sororities as compared with dormitories (Wechsler et al., 2002), but here again, since such residential arrangements are chosen, one cannot conclude that drinking patterns are caused by fraternity- or sorority-based peer effects. Our paper uses the "natural experiment" of randomly assigning roommates to get around the confounding effects of residential choice.

Note that the iatrogenic effects hypothesis applies to youth who binged, used marijuana or engaged in sex prior to entering college. Whether the subsequent problem behavior of students entering college without these experiences is influenced by the prior experiences of their college roommates is less clear. Social learning or pressures to conform might lead innocent youth to adopt the problem behaviors of their roommates. On the other hand, a binge-drinking roommate may annoy a non-drinking roommate by making sleep or study more difficult. Illegal drug use may have a discouraging effect if it increases the risk that innocent roommates might be arrested.

A handful of past peer effect studies have taken advantage of roommate random assignment. Sacerdote (2001) finds significant correlations in first-year college GPAs among randomly-assigned college roommates. Duncan et al. (2003) use random-assignment roommate data to estimate peer effects on attitudes and pro-social behaviors. They find that white students assigned African-American roommates are more likely to endorse affirmative action policies, students become less supportive of higher taxes for the wealthy when they are assigned roommates from high-income families, and students volunteer more when assigned roommates from low-income families. Taken together, their results suggest that students become more sympathetic to the social groups to which their roommates belong.

More to the point of this paper, Kremer and Levy (2002) find that college GPA is significantly predicted by the reported high-school drinking behavior of randomly-assigned first-year roommates. In testing for iatrogenic effects, they could not reject the hypothesis that roommates who drank in high school had the same GPA effects on students who themselves had vs. had not reported drinking in high school. Our own paper shifts the focus of the Kremer and Levy work from college academic performance to college problem behaviors -- specifically binge drinking, marijuana use, multiple sex partners and binge drinking prior to sexual intercourse.

III. ROOMMATE ASSIGNMENT, DATA SOURCES, OUTCOME MEASURES, AND DESCRIPTIVE STATISTICS

III.A. Data Sources

Our data are taken from students entering a large, academically strong state university in the fall of 1998, 1999 and 2000. The university's housing office provided information on each student's housing application and housing assignment. High school grades, socioeconomic information and some behavioral data on students were gathered from the Cooperative Institutional Research Program's (CIRP) Entering Student Survey, an annual survey of the American higher-education system that was started in 1966 by the American Council on Education and is now conducted jointly by the Council and the University of California, Los Angeles. In the case of the particular university in our study,

entering students fill in the survey at an orientation session occurring before classes begin. While a few students may have met their roommates first, the large majority of students filled out this survey over the summer, before meeting their roommates.

Drug use and sexual behavior. Questions about drug use and sexual behavior in high school, in the first college year and at the time of the interview were asked in a survey we administered to students who entered the university in the fall of 1998, 1999, and 2000 and were randomly assigned roommates. The timing of our survey (winter/spring of 2002) provides us with data when students were more than halfway through their second, third and fourth years. The survey was administered via the internet with a telephone follow-up to maximize response rates.

The follow-up survey provides measures of binge drinking at the time of the survey and in the student's first year, as well as whether the student binge drank at all during high school. In keeping with standard research practice (Wechsler et al., 1995) we defined binge drinking differently for males and females – five or more drinks in a row for males and four or more in a row for females. High school binge drinking was presumed to take place if the respondent reported that the first time he or she drank the requisite number of drinks was "before college." First year and current binge drinking are measured as times per month in response to the respective questions "During your fall semester of your first year how often did you drink [five if male/ four if female] drinks in a row?", "During your winter semester of your first year how often did you drink [five if male/ four if female] drinks in a row?" and "Over the past two weeks, on how many occasions have you had [four if female/five if male] or more drinks in a row?" First-year drinking was taken to be the average of the responses to the first two questions. Current binge drinking responses are converted to a monthly amount by multiplying by 2.15.

We used information provided by the answers to these questions to classify respondents and their roommates into the following categories: i) neither binge drank in high school; ii) the respondent binge drank in high school but the roommate did not; iii) the respondent did not binge drink in high school but the roommate did; iv) both binge drank in high school; and v) roommate drinking data are not ascertained owing to case or item nonresponse. Key dependent variables in our regressions are the frequency of the respondent's binge drinking in his or her first year and at the time of the follow-up survey.

Similar questions regarding marijuana use provide measures of any marijuana use in high school, and monthly frequency of marijuana use in "your first year" and "during the last 12 months." Our measure of current sexual behavior is based on responses to the questions "During the last 12 months, with how many partners do you estimate you have had sexual intercourse?" and "During the last 12 months, how often did you drink [five if male/ four if female] drinks in a row before engaging in sexual intercourse?" Sex in high school is defined by a "before college" response to the question "When did you have sexual intercourse for the first time?"

Mediator variables. To help explain the pattern of roommate effects we observe, we constructed a number of additional measures gleaned from the follow-up survey. To gauge social interactions between roommates we used responses to the question: "During your first year, how often did you socialize with your initially assigned roommate?" To determine whether roommate behavior disturbed sleep or study we formed dichotomous variables based on responses to the questions "How compatible was your sleeping schedule with that of your initially assigned roommate?" and "how compatible were your study habits with those of your initially assigned roommate?" Further evidence of compatibility is indicated by whether the respondent reported considering his or her initially assigned roommates to be either a "best college friend" or "one of my friends" at the time of the follow-up survey. And finally, to test whether roommate high school drinking affected perceptions of

normative drinking behavior, we used responses to the question: "In your opinion, what percentage of students on campus drink alcohol regularly (i.e. three times or more a week)?"

Control variables. CIRP measures used as control variables in our regressions include both self and roommate responses to questions about: i) years of father's education; ii) years of mother's education; iii) high school grade point average; and iv) family income.

We also controlled for respondents' and roommates' high school test scores. Since some students took only the SAT, others took only the ACT, and some took both, a common admissions test score measure was needed as an academic background variable. We therefore standardized test scores using the ACT scale based on concordance tables (published by both ACT, Inc. and the College Board), which are used by many admissions offices around the country (including the admissions office of the university used in this study).

Race and ethnicity were asked in the single question: "Are you (mark all that apply): White/Caucasian, African American/Black, American Indian, Asian American/Asian, Mexican American/Chicano, Puerto Rican, Other Latino, Other." We coded as "white" respondents who marked only the first category, "black" respondents who marked only the second category and "Asian" respondents who marked only the fourth category. For our "Hispanic" designation we included respondents who gave Mexican American/Chicano, Puerto Rican, or Other Latino and no other response. All respondents marking more than one category, marking American Indian, or marking "other" fall into our "Other" category.

Of all entering students in the 1998 and 1999 cohorts, about 90% completed the CIRP survey (corresponding response-rate data for the 2000 cohort are not available). Of the 10,268 CIRP respondents, 2,232 opted to live in enrichment residence halls, 2,029 requested a roommate, 724 requested living alone during their first year, 4,134 failed to meet the lottery deadline, and 42 otherwise-eligible students were not assigned a roommate, leaving 1,107 students eligible for our lottery sample (see Table 1).

To avoid missing data and other complications of multiple roommates, we concentrated our analysis on the 990 individuals who were randomly assigned a single roommate. The follow-up survey response rate among this sample was 72% and produced an analysis sample of 714. Response rates were considerably higher for females (76%) than males (67%). Missing data on individual survey items reduced this case count further. We return to the issue of sample representativeness below.

III.B. Roommate Assignment

Given that our analysis relies on randomness in the roommate assignment process, it is worth reviewing this process in some detail. In the spring before entering the university, incoming students submit (by mail) housing applications listing basic housing preferences (smoking/non-smoking room, substance-free housing, single/double/triple occupancy, geographic area of campus, and gender composition of corridor), as well as requests to live in an enrichment residence hall or to be assigned a specific roommate. For some of these preferences, students could list a first, second, and third choice. Students who met the lottery deadline (usually around the end of April) were randomly assigned to their rooms by a computer unless they elected to live in an enrichment residence hall (in which case they submitted an essay to be considered for admission) or selected a specific roommate (in which case the housing office honored the request as long as it was mutual). Our analysis thus focuses exclusively on those students who were randomly assigned rooms and roommates as part of the lottery process. Furthermore, in order to focus on bilateral peer effects, we restrict our analysis to students who were randomly assigned a single roommate.

Students in the lottery sample are randomly assigned rooms and roommates conditional on gender and the combination of housing preferences. Hence these roommate assignments should be random within cells defined by the combination of gender and first, second, and third choices of basic housing preferences. All of our analyses control for the student's combination of first choices of housing preferences, which amounts to fixed-effects regressions in which the unit of observation is the cell (*i.e.* combination of values of housing variables plus gender and cohort).

To verify that the housing assignment process was indeed random within cells, we first spoke with housing officers to understand how the assignment process worked and the computer software used to make the assignments. We then reviewed the documentation of the computer software used for the 1997 and 1998 entering cohorts and checked that it truly randomized within cells. Finally, using techniques discussed more fully in Kremer and Levy (2002), we verified that, controlling for all housing preference choices, initial roommates' background characteristics were not significantly correlated. For students in the entering 1998-2000 cohorts, regressions of entering student characteristics on those of their roommates, controlling for the first choice of housing characteristics, yielded only 6 significant coefficients (3 positive and 3 negative) out of 140 variables checked. Only 3 of 140 correlations were in the 5% tail of a simulated distribution of correlations under random assignment.[2] As Kremer and Levy discuss, these checks for random assignment have reasonable statistical power. It therefore seems reasonable to assume that controlling for first choices produces a sample that is close enough to random that residual departures from random assignment in the second and third preferences are unlikely to impart serious bias.

It is important to note that when we use the terms "roommate" and "floormate" we are referring to the roommate(s) or floormates *initially* assigned to the student when entering the university. If a student changed roommates or residence hall floors, we do not use the information on the new roommates or floormates because this would raise the possibility of self-selection and possibly bias our results.[3] University policy does not allow roommate changes during the first six weeks of classes except for extreme cases such as those involving violence, and strongly discourages any roommate changes during the first year. Less than 5% of students switch roommates during their first term.

III.C. Descriptive statistics

Table 2 shows descriptive statistics for our dependent and mediator variables. Descriptive data on control variables are presented in Appendix Table 1. Binge drinking and marijuana use are fairly widespread at this university. About two-thirds of the respondents reported at least some binge drinking in their first year, while about half were binge drinking at the time of the follow-up survey.[4] Including students with zeroes, current binge drinking averages 3.9 times per month for males and 2.8 times per month for females. Frequencies are twice as high among students who engage in at least some binge drinking. As shown in the last column of Table 2, females report significantly less binge drinking than males.

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[2] This method does not require assuming normality of the errors.

[3] For example, one may expect that a student usually would switch to a roommate who is more similar or compatible than the initial roommate. If this is the case, and we used actual roommate (instead of initial roommate) information in our regressions, our peer-effect estimates could reflect self-selection.

[4] Wechsler et al. (2000) report that 44.1% of students reported binge drinking in the two weeks prior to their 1999 survey. The estimated rate was 42.1% for first-year students and between 44.9% to 45.9% for second through fourth-year students.

Marijuana use is somewhat less pervasive than binge drinking, although it is still reported by at least one third of both male and female students both in their first college year and at the time of the follow-up survey. The average monthly frequency of marijuana use is considerably lower for females than males, and lower than binge drinking for both groups.

The distribution of responses to the question on number of current sexual partners is shown at the bottom of Table 2. A little over one-third of both males and females report no sexual intercourse in the 12 months preceding the follow-up interview, and an additional one-third reported sex with only one partner. Roughly one-fifth of both groups report 2-3 partners. The average number of partners does not differ significantly between males and females. The combination of binge drinking and sex is fairly common in the sample, with 40% of males and 33% of females reporting it at least once a month.

The remaining rows of Table 2 show means of mediator variables. Both males and females report frequent socializing with first-year roommates during their first year. First-year roommate compatibility with sleep and study schedules falls in the middle of the scale. More than half of both groups reported being friends or best friends with their assigned roommates. Finally, both males and females report that about half of all university students drink regularly.

Data on control variables are presented in Appendix Table 1. Roughly one-third of the roommates of follow-up survey respondents did not respond to the survey. For the remainder, roughly similar fractions fall into the various combinations of respondent/roommate binge drinking in high school. In the case of sexual behavior, the modal group consisted of respondent/roommate pairs in which both were virgins in high school.

The remaining rows of Appendix Table 1 show the affluent nature of the sample, with high paternal and maternal education and family incomes averaging more than $100,000. Test scores and high school grade-point averages are high. Relatively few of the students were from minority groups.

IV. RESULTS

IV.A. Social contagion in binge drinking

Regression models of current and first-year binge drinking are reported in Table 3. In all cases we present separate estimates for males and females and control for all combinations of first housing preferences. Given the substantial number of "zero" responses in our dependent variables (Table 2), we estimated our models both with OLS as well as Tobit regression, with Tobit coefficients expressed as marginal effects. In the case of OLS we adjust standard errors for roommate clustering using Huber-White methods. All regressions omit the "neither respondent nor roommate binge drank" category, so coefficients on the included variables show regression-adjusted differences in binge drinking relative to this group.

It is clear that high school binge drinking is a powerful predictor of college binge drinking. Both male and female respondents entering college with a history of binge drinking report much more frequent binge drinking in their first college year, and at the time of the follow-up interview, than respondents entering college without a history of binge drinking. In the case of respondents assigned non-drinking roommates, respondents who binge drank in high school averaged 2.1 to 4.8 more binge drinking episodes per month at the time of the follow-up survey than respondents who did not drink in high school, depending on whether the effect is estimated with OLS or Tobit. The corresponding difference for drinking in the first year ranged from 3.3 to 5.8 more episodes per month.

Social contagion in binge drinking is present if college drinking for students who entered college with a history of heavy drinking is magnified when those students are assigned roommates who

had similar high-school histories. This comparison is revealed in Table 3 by the difference in coefficients between the "respondent but not roommate binge drank in high school" and "both respondent and roommate binge drank in high school." The first column, based on OLS estimation for males, shows a large contagion effect – more than four times more binge drinking episodes per month. This difference is statistically significant at the p=.004 level (Table 4). The corresponding Tobit model difference is significant at the p=.02 level. But for females, the difference is insignificant and even has the wrong sign. Tobit coefficients also show contagion effects for binge drinking among males but not females.

A contagion story involving first-year roommates would suggest that the impact of roommate pairings would be as large as or larger for first year drinking than for drinking at the time of the follow-up survey. Results presented in the right half of Table 3 suggest that this is indeed the case. The OLS results for young men shows a contagion effect on drinking in the first year of 2.3 more binge drinking episodes per month. This difference is at best marginally significant (p=.13); the corresponding Tobit model difference is significant at the .05 level (Table 4). It is remarkable that the second through fourth year contagion estimates are, if anything, larger than those in the first year when all of the roommates are living together. Again, for females there is no evidence of contagion in the first college year.

Are nondrinking students susceptible to peer influence if matched with drinking roommates? Table 3 provides no evidence that this is the case. Here the relevant coefficient is on the "roommate but not respondent binge drank in high school" measure, which contrasts nondrinkers who were and were not paired up with drinking roommates. Most of the coefficients are negative rather than positive and, in a couple of cases (i.e., Tobit results for males) exceed their standard errors. If anything, nondrinkers may be put off by rather than attracted by the drinking habits of their roommates.

A number of other results in Table 3 are noteworthy. Respondents with nonresponding roommates report significantly more binge drinking than the omitted group consisting of nondrinking roommate pairs. But for the issue of whether nonresponse cases differ from response cases, the key test is whether the adjusted mean for the nonresponse category differs significantly from all others taken together. In fact, none of these differences is significant (see bottom row of Table 3). Few demographic measures have consistently significant coefficients across the regressions. Net of parental schooling and other controls, family income has positive and generally significant coefficients for females but not males.

IV.B. Marijuana use and sexual behavior

In some respects, the patterns of marijuana use parallel those of binge drinking (Table 5). Marijuana use in high school and college are highly correlated, respondents who had not used marijuana in high school were, if anything, turned off rather than turned on by marijuana-using roommates, and there is no evidence of multiplier effects for females. A key difference is the much weaker evidence of multiplier effects for marijuana use among males. Among men who entered college having used marijuana in high school, those paired with marijuana-using vs. non-marijuana-using roommates report somewhat more marijuana use in both their first years and at the time of the follow-up survey, but the differences do not approach conventional levels of statistical significance (Table 4). A second difference for the marijuana as opposed to binge drinking results is that the links to high school patterns of behavior are stronger in the first college year than they are at the time of the follow-up survey.

There is no conclusive evidence of contagion effects in the sexual behavior outcomes (Table 6). Both males and females who lost their virginity in high school report more sexual partners at the time of the follow-up survey than high-school virgins. And while the non-virgins who are paired with non-virgins report a somewhat larger number of sexual partners than non-virgins paired with virgin

roommates, the differences never attain statistical significance at conventional levels. In the case of sex coupled with binge drinking, both binge drinking and sex in high school boost the reported frequency of this combination. And while coefficient differences are usually in the direction predicted by a social contagion model, the differences rarely come close to attaining statistical significance (Table 4).

IV.C. Mediators

Tables 7 and 8 report results from regressions that are intended to help reveal the process by which social contagion in binge drinking might be operating. Regressions in Table 7 use mediators measured in the first college year: frequency of roommate socializing and of roommate interference with study and sleep. High school binge drinking for respondents and roommates is not predictive of first-year patterns of socializing for either males or females. Interestingly, study and, more weakly, sleep compatibility of nondrinking male respondents is worse if those respondents are paired with drinking than nondrinking roommates. This supports the idea that nondrinkers might be put off by drinking roommates and thus insulated from the attractions of drinking.

Table 8 shows results for two time-of-survey measures – roommate friendships and perceptions of college drinking. High-school drinking history has no significant effect on whether the respondent and assigned roommate are friends at the time of the follow-up surveys. Curiously, female respondents assigned binge-drinking roommates provide lower estimations of student drinking than do young women assigned roommates who did not binge drink in high school.

V. SUMMARY AND DISCUSSION

Intervention research on juvenile offending is uncovering disturbing evidence that congregating offending youth into treatment groups may spur a kind of "deviancy training" that increases rather than reduces future problem behavior (Dishion et al., 1999). Whether a similar process might be taking place in college dormitories is the subject of this paper.

We find important but rather selective evidence of the dangers of grouping college students who exhibited problem behavior in high school. Pairing up boys who binge drank in high school appears to promote binge drinking in college -- both in the first and in subsequent college years. No such multiplier effect is observed for females, nor are multiplier effects observed for marijuana use or sexual behavior for either males or females.

Theory is more ambivalent about the consequences of roommate pairings for first-year college students with no prior history of problem behavior. We uncovered no evidence that being paired with a roommate with problematic high school behavior had any effect on a student's own problematic behavior in college. In fact, non-drinking students paired with drinking roommates may be put off by their roommate's behavior, since they are more likely to say that their study habits were incompatible with those roommates.

Beyond these results on study compatibility, our data did not provide a clear story regarding the process by which social contagion in young men's drinking might be working. High school drinking history was not predictive of roommates' social interactions in their first year, nor of their chances of forming lasting friendships. Our data also failed to support the hypothesis that the prior drinking experiences of one's roommate affects beliefs regarding the prevalence of regular drinking among the broader population of university students.

Perhaps behaviors are shaped more powerfully by the larger residential or social environment. When we reconfigured our data to relate respondents' drinking to the high-school drinking patterns of all of the individuals initially assigned to the respondent's dormitory floor, we found no consistent

evidence of floormate effects.[5] Nor did floormate effects emerge when we divided the sample according to high-school drinking.[6]

Our results suggest that, for the most part, students, parents and college administrators need not fear that roommate assignments will promote problem behavior during college. Indeed, our other work with these data suggests that shuffling the roommate deck and pairing students who did not know one another prior to college entry may promote social understanding (Duncan et al., 2003). An important exception is that pairing young men with drinking problems may aggravate those problems. Despite the logistical difficulties in identifying entering students with binge drinking histories, our results suggests substantial benefits to ensuring that binge-drinking young men do not room together in their first college year.

[5] In this case, the reports of high school drinking came from responses to the CIRP survey. The CIRP contains a section in which respondents are asked whether they undertook certain activities frequently, occasionally, or not at all during the last year. The list of activities includes "Drank beer" and "Drank wine or liquor." We considered a floormate to be a problem drinker in high school if he or she answered "frequently" to at least one of the two drinking-related questions.

[6] There was no evidence whatsoever that higher proportions of floormates who drank in high school led to higher respondent drinking. In the case of current but not first-year drinking, respondents who binge drank in high school reported *less* drinking if assigned to dorm floors with higher concentrations of high school drinkers. This interaction was significant in the Tobit but not OLS models. Surprisingly, floormate drinking was not associated with estimates of the fraction of all student who drank regularly.

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Table 1
Sample Composition and Attrition

	1998 to 2000			1998	1999	2000
	All	Male	Female	All	All	All
Response rate on CIRP survey for all entering students				89%	90%	n/a
Number of students responding to CIRP survey	10,268	4,890	5,378	3,573	3,419	3,276
Of which: students opting to live in enrichment dormitories	2,232	1,052	1,180	920	633	679
Of which: students requesting a specific roommate.	2,029	1,123	906	755	662	612
Of which: students failing to meet the lottery deadline	4,134	2,046	2,088	1,166	1,615	1,353
Of which: students living alone during the first year.	724	350	374	273	215	236
Of which: students not assigned roommates	42	23	19	5	12	25
Total number of students randomly assigned roommates	1,107	448	659	454	282	371
Target sample of students assigned just one roommate	990	415	575	393	249	348
Of which: failed to respond to follow-up survey	276	136	140	132	71	73
Final analysis sample	714	279	435	261	178	275
Of which:						
Male	279			104	76	99
Female	435			157	102	176

Table 2
Descriptive Statistics on Dependent Variables

	Male n=279			Female n=435			P Value of T- or Chi-Square Test on Gender Differences
	Mean	Standard Deviation	% zero	Mean	Standard Deviation	% zero	
Current binge drinking (# of times per month)	3.86	(5.550)	48.0	2.81	(4.160)	53.1	0.005
First-year binge drinking (# of times per month)	4.29	(5.508)	30.5	3.31	(4.421)	34.9	0.010
Current use of marijuana (# of times per month in the last 12 months)	2.45	(6.170)	52.0	1.18	(3.540)	60.1	0.001
First-year use of marijuana (# of times per month)	2.48	(6.162)	57.0	0.819	(2.856)	66.6	0.000
Frequency of binge drinking before sex (# of times per month in the last 12 months)	0.67	(1.650)	59.3	0.51	(1.210)	66.6	0.144
How often respondent socialized with initially assigned roommate (# of times per month)	17.76	(13.550)	8.6	15.25	(13.860)	12.0	0.018
How compatible was respondent's study habits with initially assigned roommate[1]	1.10	(.720)	21.6	1.08	(.700)	20.8	0.715
How compatible was respondent's sleeping habits with initially assigned roommate[1]	1.16	(.690)	17.0	1.14	(.690)	17.9	0.707
Whether roomed with initially assigned roommate more than one term	0.92	(.269)		0.88	(.326)		
Whether currently best friend or friend with initially assigned roommate	0.43	(.400)		0.42	(.490)		0.776
Estimation of % of students who drink regularly	47.65	(21.950)		49.42	(20.630)		0.277
Current number of sex partners (# in the last 12 months)	1.23	(1.430)		1.07	(1.260)		0.120
		Distribution			Distribution		
No sexual intercourse in the last 12 months		36.7			38.4		
1 person		35.6			38.6		
2-3 people		20.4			18.6		0.536
4-5 people		6.6			4.0		
6-12 people		0.7			0.5		
		100.0			100.0		

Notes:
[1] Scale: (2) very compatible; (1) somewhat Compatible; (0) not at all compatible

Table 3
Frequency of Current and First-Year Binge Drinking
(Number of Times per Month)

	Current Binge Drinking (# of times per month)				First-Year Binge Drinking (# of times per r		
	OLS Regression[1]		Tobit Regression[2]		OLS Regression[1]		Tobit I
	Male	Female	Male	Female	Male	Female	Male
RESPONDENT AND ROOMMATE HIGH SCHOOL BEHAVIOR							
Neither resp. nor roommate binge drank in high school (omit.)							
Respondent but not roommate binge drank in high school	*2.125* (1.164)	**3.165** (.704)	**4.324** (1.865)	**4.825** (.984)	**3.562** (1.173)	**3.324** (.842)	**5.815** (1.49
Roommate but not respondent binge drank in high school	-.327 (1.083)	-.001 (.720)	-1.552 (1.016)	.110 (.667)	-1.181 (.995)	-.303 (.741)	-1.094 (1.06
Both respondent and roommate binge drank in high school	**6.207** (1.455)	**2.280** (1.017)	**7.328** (1.849)	**4.152** (.910)	**5.857** (1.274)	**3.989** (.986)	**7.954** (1.38
Roommate nonresponse to follow-up survey	**2.302** (.883)	**1.216** (.581)	**3.584** (1.234)	**2.102** (.622)	**3.031** (.934)	**2.256** (.717)	**4.443** (1.03
RESPONDENT CHARACTERISTICS (all gathered in entering student survey)							
Black	-.443 (2.914)	1.119 (1.456)	-.740 (2.083)	.222 (1.436)	1.213 (3.603)	2.175 (2.035)	.095 (2.33
Asian	-.020 (1.432)	.507 (.733)	-1.083 (1.056)	.211 (.662)	-.116 (1.422)	.498 (.760)	-1.101 (1.14
Hispanic	-1.147 (1.412)	-.797 (.783)	1.541 (2.162)	-.676 (.729)	-.395 (1.647)	**-2.083** (.629)	.963 (1.83
Other	-.963 (1.491)	1.608 (2.660)	-.084 (1.142)	1.904 (1.255)	-.407 (2.220)	.743 (1.751)	.546 (1.17
Father's education	-.212 (.275)	**.346** (.137)	-.142 (.177)	.148 (.104)	-.155 (.257)	.164 (.135)	-.127 (.16
Mother's education	.170 (.221)	**-.347** (.128)	-.001 (.164)	**-.257** (.090)	.206 (.200)	-.148 (.117)	.080 (.15
High school grade point average	-.800 (1.575)	*-2.211* (1.173)	-1.298 (1.146)	*-1.191* (.699)	-.438 (1.585)	-1.513 (1.052)	-.864 (1.10
Test scores (ACT scale)	.104 (.164)	.134 (.082)	-.049 (.117)	.045 (.070)	-.103 (.164)	-.016 (.089)	-.154 (.11
Family income (in thousands)	-.137 (.089)	*.076* (.041)	-.021 (.049)	**.088** (.030)	-.074 (.074)	**.107** (.043)	-.004 (.04
ROOMMATE CHARACTERISTICS (all gathered in entering student survey)							
Non-white roommate	.251 (1.046)	.517 (.519)	-.755 (.705)	.449 (.521)	-.050 (.986)	.563 (.685)	-.584 (.71
Roommate's father's education	-.260 (.216)	-.075 (.137)	-.168 (.171)	.010 (.101)	*-.413* (.230)	-.153 (.143)	*-.313* (.16
Roommate's mother's education	-.013 (.215)	-.080 (.116)	-.052 (.160)	.017 (.090)	.118 (.211)	-.029 (.129)	.093 (.15
Roommate's high school grade point average	-.121 (1.825)	-1.008 (.977)	.445 (1.056)	.227 (.664)	-.085 (1.600)	**-2.443** (1.132)	-.274 (1.02
Roommate's test scores (ACT scale)	-.056 (.137)	.016 (.088)	-.045 (.110)	-.075 (.068)	-.143 (.145)	.135 (.091)	-.023 (.10
Roommate's family income (in thousands)	-.028 (.059)	.037 (.038)	-.054 (.044)	.010 (.028)	.014 (.060)	-.014 (.039)	-.009 (.04
	N=271 R^2=.548	N=426 R^2=.420	N=271	N=426	N=272 R^2=.590	N=427 R^2=.424	N=272
Coefficients and standard errors for contrast between roommate nonresponse and all other combinations of respondent and roommate drinking behavior.	-.511 (.853)	-.119 (.441)	.414 (.628)	.001 (.383)	.295 (.917)	.686 (.598)	.535 (.56

Notes:
All regressions include control for housing preferences, cohort, test taken; values not shown.
Missing values assigned to the mean and controlled for by missing value indicators; values not shown.
Standard errors adjusted for room clustering using Huber-White robust estimations except for TOBIT model.
Coefficient in **Bold** is significant at p<=.05.
Coefficent in *Italic* is significant at p<=.10

[1] With control for all combinations of 1st preferences and clustering
[2] Coefficients shown are marginal effects.With control for a restricted number of combinations of 1st preferences but NOT for clustering.

Table 4
Significance Levels of Tests
For Social-Contagion Effects

Comparison	Significance Level of Test	
	Male	Female
For individuals who binge drank in high school, more drinking in college if assigned a drinking than non-drinking roommate		
Current binge drinking		
OLS	.004	.356
Tobit	.019	.519
First-year binge drinking		
OLS	.130	.521
Tobit	.044	.681
For individuals who smoked marijuana in high schook, more marijuana in college if assigned a smoking than non-smoking roommate		
Current marijuana smoking		
OLS	.381	.839
Tobit	.972	.701
First-year marijuana smoking		
OLS	.564	.828
Tobit	.830	.675
For Individuals who had sex in high school, more sex partners in college if assigned a non-virgin than virgin roommate		
Current number of sex partners		
OLS	.120	.309
Tobit	.508	.418

Table 5
Frequency of Current and First-Year Use of Marijuana
(Number of Times per Month)

	Current Use of Marijuana (# of times per month in the last 12 months)				First-Year Use of Marijuana (# of times per			
	OLS Regression[1]		Tobit Regression[2]		OLS Regression[1]		Tobit I	
	Male	Female	Male	Female	Male	Female	Male	
RESPONDENT AND ROOMMATE HIGH SCHOOL BEHAVIOR								
Neither resp. nor roommate used marijuana in high school (omit.)								
Respondent but not roommate used marijuana in high school	**2.601** (1.202)	**1.719** (.842)	**3.826** (1.421)	**2.905** (.706)	**4.720** (1.597)	**1.250** (.593)	**7.949** (1.95	
Roommate but not respondent used marijuana in high school	-.436 (.866)	-.403 (.457)	**-2.025** (.470)	.576 (.469)	.125 (.970)	-.218 (.288)	*-1.049* (.61	
Both respondent and roommate used marijuana in high school	**4.812** (2.330)	**1.983** (.895)	**3.910** (1.834)	**2.623** (.743)	**6.510** (2.754)	*1.465* (.864)	**8.859** (2.45	
Roommate nonresponse to follow-up survey	.962 (.943)	*.793* (.410)	*1.287* (.779)	**1.106** (.351)	1.558 (.979)	**.891** (.353)	**2.776** (.88	
RESPONDENT CHARACTERISTICS (all gathered in entering student survey)								
Black	-.082 (1.577)	-.703 (.922)	-.862 (1.518)	-.083 (.772)	.094 (1.416)	*-1.191* (.631)		
Asian	.412 (1.166)	-.101 (.690)	-.375 (1.057)	-.184 (.343)	-1.038 (1.451)	-.420 (.302)	.153 (1.06	
Hispanic	-.990 (1.376)	*-1.385* (.782)	-.893 (1.028)	**-.909** (.205)	1.895 (3.865)	-.922 (.663)	1.445 (1.92	
Other	.122 (1.242)	-1.396 (.933)	2.603 (1.598)	**-.618** (.310)	-.921 (.998)	**-1.102** (.496)	*2.565* (1.51	
Father's education	-.131 (.234)	**.223** (.113)	-.143 (.151)	*.120* (.066)	.053 (.292)	-.077 (.178)	-.088 (.13	
Mother's education	-.111 (.204)	-.157 (.129)	-.132 (.147)	-.071 (.056)	-.132 (.228)	-.023 (.116)	-.169 (.12	
High school grade point average	-1.716 (2.082)	-.554 (.647)	-1.385 (1.023)	-.486 (.425)	-.793 (2.002)	.110 (.543)	-.156 (.84	
Test scores (ACT scale)	.036 (.165)	.010 (.060)	**.249** (.105)	.027 (.045)	.016 (.184)	**-.113** (.056)	.023 (.08	
Family income (in thousands)	.066 (.085)	-.053 (.034)	*.078* (.042)	-.025 (.019)	.110 (.086)	-.043 (.033)	**.103** (.03	
ROOMMATE CHARACTERISTICS (all gathered in entering student survey)								
Non-white roommate	.736 (1.620)	-.464 (.534)	-.313 (.658)	-.247 (.275)	.319 (1.219)	-.294 (.387)	.500 (.67	
Roommate's father's education	-.186 (.166)	.040 (.103)	-.078 (.148)	.018 (.063)	.037 (.198)	.008 (.097)	-.004 (.12	
Roommate's mother's education	-.172 (.221)	.096 (.098)	-.018 (.134)	*.097* (.057)	-.039 (.246)	.079 (.065)	-.022 (.11	
Roommate's high school grade point average	-.851 (2.000)	-1.035 (.716)	-.634 (.882)	.030 (.410)	.453 (1.608)	-.486 (.704)	*-1.164* (.70	
Roommate's test scores (ACT scale)	-.076 (.110)	-.065 (.087)	-.077 (.095)	-.008 (.041)	*-.272* (.160)	*-.098* (.054)	-.026 (.08	
Roommate's family income (in thousands)	*.118* (.062)	-.003 (.031)	.002 (.038)	-.005 (.017)	**.142** (.067)	-.014 (.029)	.017 (.03	
	N=277 R^2=.605	N=431 R^2=.259	N=277	N=431	N=277 R^2=.539	N=431 R^2=.214	N=277	
Coefficients and standard errors for contrast between roommate nonresponse and all other combinations of respondent and roommate drinking behavior.	-.625 (.926)	.258 (.490)	.204 (.538)	.164 (.251)	-1.012 (.913)	.484 (.437)	.025 (.51	

Notes:
All regressions nclude control for housing preferences, cohort, test taken; values not shown.
Missing values assigned to the mean and controlled for by missing value indicators; values not shown.
Standard errors adjusted for room clustering using Huber-White robust estimations except for TOBIT model.
Coefficient in **Bold** is significant at p<=.05.
Coefficent in *Italic* is significant at p<=.10

[1] With control for all combinations of 1st preferences and clustering
[2] Coefficients shown are marginal effects.With control for a restricted number of combinations of 1st preferences but NOT for clustering.

Table 6
Current Number of Sex Partners
and
Frequency of Drinking Before Sex
(Number of Times per Month)

	Current Number of Sex Partners (# in the last 12 months)								Frequency of Drinking Before Sex (# of times per month in th months)							
	OLS Regression[1]				Tobit Regression[2]				OLS Regression[1]				Tobit Regressi			
	Male		Female		Male		Female		Male		Female		Male		F	
RESPONDENT AND ROOMMATE HIGH SCHOOL BEHAVIOR																
Neither resp. nor roommate binge drank in high school (omit.)																
Respondent but not roommate binge drank in high school									.573	(.424)	.206	(.181)	*1.164*	(.610)	.2	
Roommate but not respondent binge drank in high school									.581	(.469)	-.019	(.298)	.609	(.489)	-.0	
Both respondent and roommate binge drank in high school									.999	(.613)	.323	(.214)	**1.499**	(.591)	**.5**	
Neither resp. nor roommate had sex in high school (omit.)																
Respondent but not roommate had sex in high school	*.666*	(.382)	**1.196**	(.220)	**1.138**	(.358)	**1.265**	(.245)	.354	(.697)	.312	(.230)	.295	(.303)	**.4**	
Roommate but not respondent had sex in high school	.196	(.294)	.261	(.226)	.054	(.307)	.093	(.200)	-.181	(.442)	.186	(.218)	-.179	(.181)	.0	
Both respondent and roommate had sex in high school	**1.654**	(.496)	**1.574**	(.364)	**1.411**	(.358)	**1.531**	(.283)	.374	(.540)	**.900**	(.390)	.314	(.288)	**.7**	
Roommate nonresponse to follow-up survey	**.502**	(.230)	**.379**	(.162)	**.496**	(.212)	**.427**	(.156)	.468	(.289)	**.338**	(.146)	**.981**	(.349)	**.5**	
RESPONDENT CHARACTERISTICS (all gathered in entering student survey)																
Black	-.205	(.818)	-.248	(.439)	-.344	(.616)	-.307	(.368)	-.454	(.403)	.282	(.627)			.0	
Asian	-.463	(.303)	**-.354**	(.163)	**-.817**	(.219)	**-.463**	(.156)	*-1.265*	(.729)	-.058	(.148)	**-.414**	(.115)	-.1	
Hispanic	-.655	(.493)	.262	(.683)	.138	(.537)	.343	(.322)	*-.574*	(.342)	-.130	(.373)			-.1	
Other	-.244	(.377)	.068	(.310)	.425	(.377)	.311	(.328)	-.285	(.372)	-.242	(.219)	.014	(.247)	.1	
Father's education	-.011	(.068)	-.022	(.040)	-.025	(.049)	*-.059*	(.034)	.079	(.081)	.014	(.043)	-.012	(.037)	-.0	
Mother's education	*-.112*	(.058)	-.002	(.033)	*-.079*	(.047)	.017	(.031)	-.090	(.068)	.017	(.032)	-.040	(.035)	.0	
High school grade point average	.061	(.464)	-.413	(.267)	-.101	(.339)	**-.511**	(.232)	-1.102	(.951)	-.345	(.269)	-.220	(.249)	-.2	
Test scores (ACT scale)	*-.067*	(.039)	.039	(.028)	**-.072**	(.034)	*.041*	(.023)	-.055	(.054)	-.002	(.019)	**-.052**	(.025)	.0	
Family income (in thousands)	.015	(.018)	-.001	(.013)	.017	(.014)	-.001	(.010)	-.012	(.022)	.002	(.011)	-.002	(.011)	.0	
ROOMMATE CHARACTERISTICS (all gathered in entering student survey)																
Non-white roommate	-.052	(.313)	-.109	(.169)	**-.394**	(.192)	-.211	(.143)	-.106	(.283)	-.160	(.126)	-.162	(.137)	-.0	
Roommate's father's education	.016	(.054)	-.029	(.042)	-.024	(.049)	-.016	(.033)	-.012	(.104)	.042	(.044)	-.002	(.036)	.0	
Roommate's mother's education	-.038	(.067)	.016	(.032)	-.021	(.044)	.005	(.030)	-.029	(.067)	-.031	(.028)	-.020	(.034)	-.0	
Roommate's high school grade point average	-.394	(.481)	.032	(.279)	*-.596*	(.309)	-.052	(.222)	-.274	(.439)	-.275	(.296)	-.152	(.227)	-.0	
Roommate's test scores (ACT scale)	.012	(.040)	-.012	(.029)	.012	(.031)	.001	(.022)	-.003	(.056)	.003	(.021)	-.025	(.023)	-.0	
Roommate's family income (in thousands)	-.014	(.015)	.012	(.012)	-.008	(.013)	-.001	(.010)	-.018	(.020)	-.012	(.008)	**-.019**	(.009)	**-.0**	
	N=275	R^2=.508	N=425	R^2=.382	N=275		N=275		N=268	R^2=.390	N=419	R^2=.369	N=268		N=4	
Coefficients and standard errors for contrast between roommate nonresponse and all other combinations of respondent and roommate drinking behavior.	.015	(.239)	-.162	(.159)	.019	(.167)	-.051	(.124)	-.024	(.309)	**.241**	(.115)	*.300*	(.179)	**.3**	

Notes:
All regressions include control for housing preferences, cohort, test taken; values not shown.
Missing values assigned to the mean and controlled for by missing value indicators; values not shown.
Standard errors adjusted for room clustering using Huber-White robust estimations except for TOBIT model.
Coefficient in **Bold** is significant at p<=.05.
Coefficent in *Italic* is significant at p<=.10

[1] With control for all combinations of 1st preferences and clustering
[2] Coefficients shown are marginal effects.With control for a restricted number of combinations of 1st preferences but NOT for clustering.

Table 7
First-Year Mediator Variables

	How Often Respondent Socialized With Initially Assigned Roommate During First Year (# of times per month)				How Compatible Was Respondent's Study Habits With Initially Assigned Roommate[2]				How Compatible Was Respondent's Sleeping Schedule With Initially Assigned Roommate[2]			
	OLS Regression[1]				OLS Regression[1]				OLS Regression[1]			
	Male		Female		Male		Female		Male		Female	
RESPONDENT AND ROOMMATE HIGH SCHOOL BEHAVIOR												
Neither resp. nor roommate binge drank in high school (omit.)												
Respondent but not roommate binge drank in high school	.441	(3.912)	-.033	(3.203)	-.177	(.214)	-.100	(.157)	-.294	(.212)	-.146	(.151)
Roommate but not respondent binge drank in high school	-1.609	(3.951)	2.329	(3.207)	**-.424**	(.183)	.008	(.159)	-.249	(.199)	.057	(.158)
Both respondent and roommate binge drank in high school	-5.404	(3.984)	.485	(3.706)	-.005	(.211)	.137	(.162)	.002	(.187)	.167	(.164)
Roommate nonresponse to follow-up survey	-5.083	(3.274)	-2.817	(2.834)	-.214	(.182)	**-.330**	(.136)	**-.337**	(.163)	**-.302**	(.134)
RESPONDENT CHARACTERISTICS (all gathered in entering student survey)												
Black	-8.281	(6.343)	3.217	(5.487)	-.321	(.322)	-.203	(.336)	-.366	(.562)	-.006	(.263)
Asian	*-7.596*	(4.289)	-3.307	(3.039)	.031	(.327)	.104	(.142)	-.114	(.180)	-.019	(.141)
Hispanic	**7.692**	(3.738)	-1.230	(5.150)	-.068	(.318)	-.102	(.220)	-.081	(.232)	*-.478*	(.278)
Other	-1.110	(5.862)	4.878	(4.066)	-.212	(.220)	.141	(.280)	-.118	(.210)	-.021	(.195)
Father's education	.420	(.687)	-.297	(.511)	.032	(.038)	.027	(.025)	-.003	(.034)	.019	(.023)
Mother's education	-.573	(.588)	.072	(.441)	-.005	(.038)	.001	(.021)	**-.067**	(.034)	-.022	(.020)
High school grade point average	-.819	(4.534)	*5.993*	(3.565)	.049	(.281)	-.048	(.161)	.119	(.244)	-.200	(.171)
Test scores (ACT scale)	.570	(.481)	-.187	(.345)	.008	(.022)	-.005	(.018)	.011	(.021)	.010	(.018)
Family income (in thousands)	-.351	(.213)	.019	(.151)	.000	(.011)	-.005	(.007)	.015	(.010)	-.006	(.007)
ROOMMATE CHARACTERISTICS (all gathered in entering student survey)												
Non-white roommate	2.071	(2.822)	1.538	(2.296)	.119	(.159)	.162	(.125)	.023	(.128)	-.067	(.124)
Roommate's father's education	.020	(.663)	.079	(.479)	.034	(.034)	-.002	(.025)	.006	(.032)	.013	(.027)
Roommate's mother's education	-.554	(.630)	-.257	(.449)	-.044	(.032)	.002	(.020)	-.027	(.031)	-.003	(.022)
Roommate's high school grade point average	*8.006*	(4.262)	-1.287	(3.368)	.357	(.228)	.192	(.171)	*.366*	(.211)	.178	(.170)
Roommate's test scores (ACT scale)	.465	(.428)	.212	(.336)	-.008	(.021)	-.004	(.018)	.003	(.023)	-.016	(.017)
Roommate's family income (in thousands)	.292	(.175)	-.041	(.136)	.009	(.009)	*.013*	(.007)	**.023**	(.009)	.005	(.006)
	N=278	R^2=.446	N=433	R^2=.266	N=273	R^2=.363	N=428	R^2=.272	N=276	R^2=.426	N=430	R^2=.271
Coefficients and standard errors for contrast between roommate nonresponse and all other combinations of respondent and roommate drinking behavior.	-2.837	(2.392)	*-3.476*	(1.855)	-.106	(.135)	**-.343**	(.095)	*-.239*	(.128)	**-.323**	(.095)

Notes:
All regressions Include control for housing preferences, cohort, test taken; values not shown.
Missing values assigned to the mean and controlled for by missing value indicators; values not shown.
Standard errors adjusted for room clustering using Huber-White robust estimations.
Coefficient in **Bold** is significant at p<=.05.
Coefficent in *Italic* is significant at p<=.10

[1] With control for all combinations of 1st preferences and clustering
[2] Scale: (2) very compatible; (1) somewhat Compatible; (0) not at all compatible

Table 8
Time of Survey Mediator Variables

	Whether Currently Best Friend or Friend With Initially Assigned Roommate				Current Estimation of % of Students Who Drink Regularly			
	Logistic Regression				OLS Regression[1]			
	Male		Female		Male		Female	
RESPONDENT AND ROOMMATE HIGH SCHOOL BEHAVIOR								
Neither resp. nor roommate binge drank in high school (omit.)								
Respondent but not roommate binge drank in high school	-.151	(.579)	-.583	(.425)	-1.780	(6.476)	.400	(4.157)
Roommate but not respondent binge drank in high school	-.629	(.601)	.009	(.409)	1.148	(6.824)	-4.718	(4.402)
Both respondent and roommate binge drank in high school	-.259	(.566)	.562	(.467)	1.667	(5.853)	*-7.491*	(4.510)
Roommate nonresponse to follow-up survey	-.053	(.452)	**-.828**	(.376)	-6.606	(5.189)	-2.625	(3.777)
RESPONDENT CHARACTERISTICS (all gathered in entering student survey)								
Black	-1.730	(1.129)	**-1.750**	(.745)	3.126	(17.132)	-5.377	(9.474)
Asian	-.832	(.588)	-.167	(.375)	.260	(7.323)	-3.345	(4.373)
Hispanic	.594	(.856)	**-1.245**	(.581)	-11.667	(11.759)	-1.240	(6.044)
Other	-.405	(.683)	.179	(.577)	-.678	(8.549)	3.608	(6.833)
Father's education	.039	(.094)	.005	(.066)	.887	(1.126)	.055	(.718)
Mother's education	-.078	(.085)	.066	(.059)	-1.176	(.968)	.034	(.651)
High school grade point average	-.600	(.644)	-.035	(.488)	4.968	(7.344)	-6.351	(5.355)
Test scores (ACT scale)	-.006	(.062)	**-.120**	(.044)	-.607	(.657)	*-.869*	(.506)
Family income (in thousands)	.028	(.025)	-.010	(.018)	-.272	(.279)	.152	(.212)
ROOMMATE CHARACTERISTICS (all gathered in entering student survey)								
Non-white roommate	-.407	(.410)	-.139	(.304)	-3.715	(5.180)	-.115	(3.384)
Roommate's father's education	.107	(.093)	**.134**	(.066)	.058	(.972)	-.113	(.689)
Roommate's mother's education	-.030	(.081)	.055	(.059)	.864	(.905)	-.331	(.626)
Roommate's high school grade point average	**1.253**	(.595)	.624	(.464)	-2.730	(6.777)	-3.842	(5.041)
Roommate's test scores (ACT scale)	-.101	(.056)	-.076	(.043)	.306	(.660)	-.320	(.473)
Roommate's average family income (in thousands)	.029	(.023)	.005	(.018)	.351	(.288)	-.197	(.187)
	N=277	R^2=.095	N=435	R^2=.098	N=278	R^2=.429	N=434	R^2=.246
Coefficients and standard errors for contrast between roommate nonresponse and all other combinations of respondent and roommate drinking behavior.	.196	(.303)	**-.851**	(.268)	*-7.108*	(3.694)	.266	(2.739)

Notes:
Include control for housing preferences, cohort, test taken; values not shown.
Missing values assigned to the mean and controlled for by missing value indicators; values not shown.
Standard errors adjusted for room clustering using Huber-White robust estimations.
Coefficient in **Bold** is significant at p<=.05.
Coefficent in *Italic* is significant at p<=.10

[1] With control for all combinations of 1st preferences and clustering
[2] Scale: (2) very compatible; (1) somewhat Compatible; (0) not at all compatible

Appendix Table 1
Means and Standard Deviations of Respondent and Roommate Characteristics (Independent Variables)

	Respondents to the follow-up survey (all randomly assigned one roommate)			
	Males		Females	
	Mean	Std. Dev.	Mean	Std. Dev.
RESPONDENT AND ROOMMATE HIGH SCHOOL BEHAVIOR				
Neither resp. nor roommate binge drank in high school	.143	(.351)	.230	(.421)
Respondent but not roommate binge drank in high school	.118	(.324)	.133	(.340)
Roommate but not respondent binge drank in high school	.118	(.324)	.133	(.340)
Both respondent and roommate binge drank in high school	.190	(.393)	.159	(.366)
Neither resp. nor roommate had sex in high school	.269	(.444)	.301	(.459)
Respondent but not roommate had sex in high school	.100	(.301)	.124	(.330)
Roommate but not respondent had sex in high school	.100	(.301)	.124	(.330)
Both Respondent and Roommate had sex in high school	.115	(.319)	.092	(.289)
Roommate nonresponse to follow-up survey	.394	(.490)	.317	(.466)
RESPONDENT CHARACTERISTICS (all gathered in entering student survey)				
Black	.014	(.119)	.021	(.143)
Asian	.050	(.219)	.097	(.296)
Hispanic	.025	(.157)	.039	(.194)
Other	.057	(.233)	.034	(.183)
Father's education	16.552	(1.819)	16.391	(2.007)
Mother's education	16.055	(1.907)	15.728	(2.164)
High school grade point average	3.781	(.246)	3.782	(.259)
Test scores (ACT scale)	28.952	(2.499)	27.744	(2.647)
Family income (in thousands)	12.128	(5.930)	11.924	(6.286)
ROOMMATE CHARACTERISTICS (all gathered in entering student survey)				
Non-white roommate	.151	(.358)	.161	(.368)
Roommate's father's education	16.581	(1.751)	16.445	(1.975)
Roommate's mother's education	16.016	(1.826)	15.848	(2.059)
Roommate's high school grade point average	3.765	(.262)	3.774	(.261)
Roommate's test scores (ACT scale)	28.729	(2.608)	27.578	(2.726)
Roommate's average family income (in thousands)	13.176	(6.335)	12.333	(6.499)
	n=279		n=435	