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Social Context and the Sexual Behavior of Elite College Freshmen

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ABSTRACT

Most examinations of sexual behavior ignore the social context in which partnering occurs. Using panel data from the first two waves of the National Longitudinal Study of Freshmen (N = 3,396), I examine how institutional and social network characteristics influence the sexual behavior of elite college students during their freshman year. I find a strong influence of the campus gender composition on women's sex, such that women are more likely to engage in sex on campuses where they are relatively more numerous. There is modest evidence that sexual culture—measured as the percent of freshmen on campus having sex—impacts both men's and women's sexual behavior. Social networks are also salient: Having friends who value religion and partying affects the likelihood that a student will have sex. These findings highlight the need to consider contextual influences on sexual behavior among college students and in the general population. Still, sexual behavior on college campuses is even more powerfully explained by students' prior sexual behavior, suggesting that for most, approaches to sexual relationships are established prior to arriving on campus.

With the average age at first marriage in the United States climbing to all-time highs for both men and women (US Census Bureau 2010), young adults are spending significant amounts of time in premarital romantic and sexual relationships. Navigating these intimate relationships is a key task during the transition to adulthood (Amato and Booth 1997; Arnett 2004; Clydesdale 2007). Moreover, how young adults handle these relationships has important implications for their mental health (Simon and Barrett 2010; Regnerus and Uecker 2011; Uecker forthcoming), substance abuse (Fleming, White, and Catalano 2010; Uecker forthcoming), and marital stability (Teachman 2003; Paik 2011), as well as direct ties to marriage formation and fertility.

For these reasons and more (including changing sexual scripts and continued inequality and stratification along race, class, and gender lines in college sexual relationships), the sexual lives of college students have drawn a significant amount of scholarly attention in recent years (Glenn and Marquardt 2001; Paul and Hayes 2002; Armstrong, Hamilton, and Sweeney 2006; England, Shafer, and Fogarty 2007; Bogle 2008; Burdette et al. 2009; Hamilton and Armstrong 2009; Morgan, Shanahan, and Brynildsen 2010; McClintock 2010; Owen et al. 2010; Ray and Rosow 2010; Uecker and Regnerus 2010; Vazsonyi and Jenkins 2010). What is missing from these studies, however, is a systematic examination of how social context influences college sexual behavior among students on different campuses.[1] Such an examination would shed important light not just on the determinants of college sexual behavior, but on the processes underlying sexual partnering in general, including the role of institutions and social networks.

Indeed, college campuses are perhaps ideal laboratories for studying social context and sexual behavior. As Ellingson et al. (2004:11) explain, "individuals frequently search for

[1] Some have examined how one contextual effect or another influences college sex. For example, Burdette and colleagues (2009) explore the role of religious colleges in shaping sexual behavior, and Uecker and Regnerus (2010) examine the effect of the campus gender composition on women's sexual attitudes and behaviors. Others consider contextual influences but have data from only one or two campuses, limiting the amount of comparative analysis that can be done (Armstrong et al. 2006; Bogle 2008; Morgan et al. 2010).

partners in school…because search costs are reduced there and information about prospective partners tends to be better." According to data from the National Longitudinal Survey of Freshmen (NLSF), about 58 percent of elite college students who had one or more romantic partner during their freshman year met at least one of those partners on campus (author's calculations).[2] Colleges provide many forums for social interaction that may foster romantic relationships (Uecker and Regnerus 2010), and the college admissions process may weed out many "low-quality" partners.

A college campus can thus be conceived of as a "sex market"—the social structure wherein individuals search for a sex partner (Ellingson et al. 2004:8). The characteristics of the sex market determine the number and types of partners available to an individual, and market characteristics potentially expose individuals to different scripts about sexual behavior (though individuals also bring their pre-existing scripts which help shape their market). The market metaphor has been used before to study sexual partnering, with one's market typically defined (by the researcher) as the neighborhood or census tract in which they live. These studies tend to focus on adolescents and the role of neighborhood disadvantage in explaining adolescent sexual behavior, though they also find associations with neighborhood-level factors like social disorganization, female labor force participation, population characteristics, collective efficacy, sexual norms, and more (Brewster, Billy, and Grady 1993; Billy, Brewster, and Grady 1994; Brewster 1994a, 1994b; Upchurch et al. 1999; Baumer and South 2001; Browning and Olinger-Wilborn 2003; Cubbin et al. 2005; Browning et al. 2008; Cubbin et al. 2010; Warner et al. 2011; Warner et al. forthcoming). Although the conceptualization of neighborhoods as sex markets is appropriate for adolescents who are typically limited in their geographic mobility and who

[2] Data are weighted to reflect race-ethnic distribution of each student's campus. The single-sex and historically black colleges were not included in the analysis.

usually attend school in their immediate area, it is less clear how many young adults—and adults in general—search for partners in their neighborhood. The number of people who meet their romantic partners as neighbors has declined over time, especially since the turn of the 21st century with the introduction of the Internet to the matching process. According to one estimate, in only about five percent of relationships begun in 2010 did the couple meet as neighbors (Rosenfeld and Thomas 2010). The Chicago Health and Social Life survey studied sexual partnering in four Chicago neighborhoods. In one of the neighborhoods just 24 percent of people chose one of their last two sex partners from their neighborhood; in a second, 50 percent did (Mahay and Laumann 2004).[3] These percentages would almost certainly be lower in suburban areas and less densely populated urban areas.

If sex partners are decreasingly chosen from among one's neighbors, neighborhoods may not be optimal markets to analyze for sexual partnering in a wide-scale study. Instead, for one segment of the population, college campuses are more appropriate sex markets. This study examines how sexual behavior is patterned and constrained by the structural characteristics of the sex market, including the institutional characteristics of the college and the social networks students are embedded in. Because college campuses are chosen by students, I also examine the role of selection onto campuses by prior sexual behavior and other individual characteristics.

A SOCIAL CONTEXTUAL MODEL OF SEXUAL BEHAVIOR

Before any consensual sexual relationship is commenced, some sort of matching must occur. How this matching takes place varies across sex markets, the "spatially and culturally bounded arena[s] in which searches for sex partners…are conducted" (Ellingson et al. 2004:8). The participants in these sex markets are mutually relevant to one another, meaning they observe

[3] Percentages were not reported for the other two neighborhoods.

each other's strategies and preferences for matching and are potential partners for one another. Thus, individuals and their sex market are mutually constituted: individuals are constrained and informed by the market, but individuals also determine the characteristics of the market. Markets, then, are social structures that both act upon individuals and are created and sustained by individuals and their interactions.[4] The market or structure in which an individual is embedded (and the degree to which he or she is embedded in it) can influence sexual partnering in at least two ways: (1) It can define the types of partners and behaviors that are deemed appropriate and the context in which those partners and behaviors are appropriate by both shaping preferences and exerting social control, and (2) it can limit the availability and willingness of potential sexual partners. Of course, individuals retain agency in their sexual partnering—at least when the partnership is consensual. Markets do not *determine* sexual behavior. But they can exert causal influence on sexual behavior. Despite this, markets have received little attention in the social scientific study of (especially adult) sexual behavior (Laumann et al. 1994). Emphasis is instead placed on the characteristics of individuals and how they influence sexual partnering. While important, individual-level examinations are incomplete as they ignore structural constraints and differences in sexual scripts across markets (Ellingson et al. 2004).

This market approach to sex is not unlike other sociological theorizing that seeks to explain the reciprocal relationship between social structures and human behavior. Theorists from Bourdieu (1977) to Giddens (1984) to Sewell (1992) have argued that social action is the result of the interplay between the cultural schemas and the resources that are available to different actors. Cultural schemas, or "ordered, socially-constructed, and taken for granted framework[s]

[4] This is not to say social structures do not have emergent properties irreducible to their constitutive parts. They do (Smith 2010).

for understanding and evaluating self and society, for thinking and for acting" (Blair-Loy 2001:689), help individuals interpret the world, provide scripts for how to act, and define that which is good and right (Johnson-Hanks et al. 2006). These schemas are instantiated in the physical world by resources (e.g., media, rituals, institutions, physical objects), which in turn are imbued with relevance by cultural schemas. Individuals draw on resources to enact schema, and schema are legitimated by the resources produced by their enactment (Sewell 1992). Thus, one's immediate social context, with its unique blend of schemas and resources, is vital to understanding why individuals behave in the way they do. Matching behaviors add an additional layer of complexity, as action requires cooperation with a willing partner. In other words, acting on one's desires is contingent upon those desires being reciprocated by another individual in the market.

With respect to college sexual behavior in particular, institutions and social networks constrain and facilitate matching within sex markets. I explore each of these in turn, as well as the role of selection into markets based on individual characteristics.

Institutional Characteristics

Institutional characteristics can structure sexual behavior in a number of ways. In the case of college campuses, universities can implement policies that limit or encourage interaction among potential sex partners. For example, many universities—especially religious ones—impose restrictions or outright bans on alcohol consumption on campus. Given the link between alcohol and college students' sexual behavior (England et al. 2007), policies such as these could curb sexual behavior among students. Colleges may also structure living arrangements in such a way as to facilitate or impede sexual behavior. Colleges where most students live on campus could provide opportunities for sex, on one hand, or reduce privacy for sexual interaction on the other.

Other residential policies, such as co-ed dorms, may contribute to sexual climates more conducive to sexual behavior (Willoughby and Carroll 2009).

Institutional population characteristics may also structure opportunities and shape sexual culture. In the most straightforward case, larger student bodies may provide more options for individuals and higher likelihood of securing a partner that matches one's preferences. More students may also contribute to anonymity that may be conducive to casual sexual experiences but less conducive to romantic relationships (Bogle 2008).

The university's gender composition may also impact behavior. This is especially germane because women now far outnumber men on college campuses, comprising 57 percent of four-year college students (National Center for Education Statistics 2011). The gender composition of the campus could affect sexual behavior in two ways. On one hand, the gender imbalance may reduce the number of available partners for women, thereby making them less likely to have sex. Men would have an abundant supply of potential partners, making them more likely to have sex. On the other hand, a relative shortage of men may foster competition for partners among women, making both men and women more likely to have sex. This theory relies on the assumption that men value sex more than women, an assumption for which there is considerable empirical evidence (Clark and Hatfield 1989; Oliver and Hyde 1993; Sedikides, Oliver, and Campbell 1994; Baumeister, Catanese, and Vohs 2001; Peplau 2003; Schmitt et al. 2003; Baumeister and Vohs 2004; Byers and Wang 2004; Arcidiacono, Beauchamp, and McElroy 2011). By this logic, the "price" of female sex is lowered in response to market conditions (Baumeister and Vohs 2004). The evidence for the effect of market gender composition on sexual behavior is somewhat mixed. One study suggests that the presence of more adolescent boys corresponds to a lower level of virginity and more frequent intercourse

among adolescent girls as more partners are available (Billy et al. 1994). Two studies of modern-day China, where men far outnumber women, similarly find that a surplus of men is positively associated with premarital sex among women and negatively associated with premarital sex among men (Trent and South 2008; South and Trent 2010). But Brewster (1994) finds no association between the neighborhood gender composition and the timing of first sex among black adolescent girls, and Browning and Olinger-Wilbon (2003) report that a higher ratio of men to women is *positively* associated with men's number of short-term partners, a finding that would not be predicted by either explanation described above. In high schools, girls are more likely to have sex when there are fewer men, suggesting a gendered effect of the gender composition consistent with a sexual economics perspective (Baumeister and Vohs 2004; Arcidiancono et al. 2011). Similarly, Uecker and Regnerus (2010) find that on college campuses with more women, women are more likely to be sexually active.

Other campus-level factors could also shape sexual behavior. Not only might individual religiosity affect sexual partnering, but so too may the general level of religiosity on campus. In what has been dubbed the "moral communities thesis" (Stark 1996; Regnerus 2003), religion is said to operate as a group-level phenomenon where religious norms permeate the community and affect the behavior even of those who are not themselves religious. For example, women who attended high school with more conservative Protestants are less likely to obtain an abortion (Adamczyk 2009), and school-level religiosity is associated with lower substance use (Wallace et al. 2007) and delinquency (Stark 1996; Regnerus 2003) among adolescents—net of individual characteristics. Greek organizations, with their high visibility and status, may also contribute to an overall campus "hookup culture" characterized by heavy drinking and casual sex. Thus, we

might expect campuses with a more pronounced Greek presence to have more sexually active students.

Different sex markets provide different norms and values associated with sexual behavior—schemas or scripts that define when and with whom sex is appropriate. The sexual culture may have an independent causal influence on sexual behavior. For example, local neighborhood norms about sex are tied to adolescent sexual behavior: Adolescents in neighborhoods with less restrictive norms are more likely to have sex, casual sex, and more sexual partners (Warner et al. 2011). Similarly, adolescents who attend high schools with fewer virgins are less likely to remain virgins themselves (Regnerus 2007). These findings suggest that individuals take cues from the behavior of those around them and factor them in to their own sexual decision-making.[5] Different markets furnish different sexual schemas to be enacted.

Of course, these are only a few of the potentially numerous ways in which local institutional factors can affect the sex market. Still, it is likely that some of these institutional characteristics, which can vary widely from campus to campus, may exert influence on students' sexual behavior.

Social Networks

Within institutions, individuals may also sort into social networks that may be even more proximate causes of sexual behavior. These networks may serve as reference groups for behavior, and they may also channel information and exert social control. There is some evidence that social networks influence sexual behavior. For example, having friends who are more religious may delay the timing of first sex (Adamczyk 2006, 2008). It is also possible that those whose friends value romantic relationships and partying may be more likely to have sex.

[5] Sexual behavior may not always be the result of rational decision-making. Behavior may be explained by processes operating below the level of cognition (Johnson-Hanks et al. 2006).

Social networks may also be shaped by institutional characteristics and may mediate these effects. The broader characteristics of the institution constrain the types of networks that are available. It may be through these networks that institutions exert their influence.

Selection into Markets by Individual Characteristics

Because men and women select the university they attend, observed differences in sexual behavior on different campuses may not be attributable to campus characteristics themselves, but rather to selection processes wherein students with certain sexual attitudes and behaviors choose to attend colleges and sort into networks based in part on these attitudes and behaviors. In this case, differences in sexual behavior would be the result of socialization processes that occurred before students set foot on their college campus. Morgan et al. (2010) find that Duke students' sexual behavior is largely a function of their behavior their senior year in high school, indicating a sexual trajectory independent of campus influence. Networks may also be selected based on cultural worldviews and prior behavior (Vaisey and Lizardo 2010). Observed effects of a sex market may be overstated unless these selection factors are taken into account.

CONCEPTUAL MODEL

Figure 1 about here

Figure 1 illustrates the conceptual model described above. In this model, individual characteristics expose people to different institutional characteristics and social network characteristics, and also have an independent, direct effect on the number of available partners. Institutional factors can impact the availability of sex partners, and their influence is also mediated by social networks. Social networks—along with pre-existing socialization and institutional characteristics—shape the schemas and resources available to individuals in the market, as well as available partners. These schemas and resources determine whether one

engages in sexual behavior, which in the positive case is contingent on locating an available and willing partner.

DATA

The data for this study come from the first two waves of the National Longitudinal Study of Freshman (NLSF), a panel study of college students who were enrolled as freshmen at 28 highly selective institutions across the United States in the fall semester of 1999. The NLSF data were originally collected to answer questions about minority underachievement in higher education, but they include detailed information about social, psychological, economic, and demographic characteristics. Lists of students were provided by university registrars, and students were selected randomly by race and ethnicity to provide approximately equal numbers of Whites, Blacks, Hispanics, and Asians. The baseline survey was a face-to-face, Computer Assisted Personal Interview (CAPI). Follow-up surveys were conducted via telephone in the spring semesters of the students' freshman, sophomore, junior, and senior years. Of the 35 colleges chosen for the study,[6] 28 took part for an institutional participation rate of 80 percent.[7] In all, 3,924 out of 4,573 students who were approached completed the baseline survey for an overall response rate of 86 percent. Nearly all respondents—3,728 (or 95 percent)—were retained for the second wave of the survey in the spring semester of 2000.[8] For the present study I dropped respondents from single-sex universities and one historically black university, as well as those with missing data on any of the study variables and those who did not complete the spring survey. This leaves a working sample of 3,366 students at 24 universities. The campus-level data

[6] The colleges were chosen based on mean SAT scores.
[7] Five colleges refused to participate, and two were unable to provide an adequate sampling frame.
[8] More information about the NLSF, including a list of colleges in the study, is available in Massey et al. (2003).

reflect campus characteristics for the 1999–2000 academic year and are taken from *Barron's Profiles of American Colleges 2001*.

MEASURES

Dependent Variable

The dependent variable is a binary measure of whether the respondent had sexual intercourse during his or her freshman year. In the spring survey, respondents were asked, "Since the beginning of the Fall term, have you engaged in sexual intercourse?" Respondents replied either yes (coded 1) or no (coded 0).

Independent Variables

Individual characteristics. To account for selection onto college campuses, I include a number of individual characteristics. I control for the respondents' race-ethnicity [Black, Hispanic, Asian, White (reference group)]; whether they were born outside the United States; and whether they attended high school in the Northeast United States census region. I also include data from the fall survey on how often they attended religious services. Responses to this question ranged from never (coded 1) to more than once a week (coded 5). My measure of Greek (sorority or fraternity) membership is taken from the third survey (fall of their sophomore year) because it was not asked in the first two surveys. I include a dummy variable for missing information on this variable because many respondents (n = 482) did not complete the third survey. Lastly, I include a binary measure indicating whether the respondent had sex by the time they turned 18 years old. This question is asked retrospectively during the fall semester survey.

Institutional characteristics. I include several variables that gauge institutional effects on sexual behavior. Living arrangements and population characteristics can determine the number of available partners in a market and may also shape the resources and schemas individuals are

exposed to. To test the influence of these characteristics, I incorporate three campus-level variables: the percent of students living on campus, the natural log of the size of the student body, and the percent of the full-time undergraduate student body that was female. Institutional culture may also influence sexual behavior. I include a dummy variable indicating the campus is in the Northeast United States census region. I also created a campus-level variable for the average religious service attendance among students in the sample (reported in the fall survey). I did this by taking the weighted (by race-ethnicity) average of reported religious service attendance for all individuals on the campus who participated in the survey. I also include the percent of men on campus who were members of a fraternity. This is taken from the *Barron's* profile.[9] Lastly, I include the weighted (by race-ethnicity) percentage of the student body who reported at the time of the spring survey that they had had sex during their freshman year. This taps the amount of sexual behavior occurring on campus among freshmen and serves as a reasonable proxy for sexual culture, although information about others' sexual behavior is not perfect, and other cultural factors like students' attitudes toward sex may also be important.

Social network characteristics. NLSF asked a number of questions about respondents' social networks. I include measures tapping the salience of romantic relationships, partying, and religion to the respondent's friends during the spring semester of their freshman year. Respondents ranked the importance of these things to their friends on a scale of 0–10, with higher values indicating more importance. I retain this coding.

Available partners. In order to account for the availability of a sex partner, I include a dichotomous measure from the spring survey to identify respondents who had a romantic relationship during their freshman year. Respondents were asked, "Since the beginning of Fall

[9] This information was missing for Yale University. For Yale, I use information from a campus newspaper article that included this statistic (Ramaswamy 2000).

term, how many, if any, steady romantic relationships have you had?" Those with one or more relationships are coded 1; all others are coded 0. This variable is not a perfect measure of available partners as not all romantic partners are willing to have sex, and one need not be in a romantic relationship to have sex. Still, the presence or absence of a romantic relationship implies the possibility of a sexual relationship for those who desire one.

Descriptive statistics for the study variables are listed in Table 1. This table reveals a relatively low amount of sexual activity among elite college students[10] and a great deal of variation in sexual behavior across college campuses. The percent of freshmen on campus who had sex that year ranges from just 19 percent to about 55 percent among the campuses in the study.

Table 1 about here

ANALYTIC APPROACH

In Tables 2 and 3, I present odds ratios from multilevel logistic regression models predicting sex during the freshman year for women (Table 2) and men (Table 3). I analyze the data separately for women and men because of hypothesized gendered effects for factors like the campus gender composition. Because both individuals and campuses are sampled from respective populations and these populations are the target of inference, I use random-effects models to allow intercepts to vary randomly across campuses and to account for clustering within colleges (Rabe-Hesketh and Skrondal 2008). I do this using the *xtlogit* command in Stata 11.

I employ a nested modeling approach that allows me to observe how variables added to the model influence the effects of variables included in previous models. The baseline models

[10] Analysis weighted by campus racial composition reveals 33 percent of women and 32 percent of men had sex during their freshmen year, compared to the 32 percent of women and 35 percent of men who had sex in the unweighted analysis reported in Table 1.

include controls for individual characteristics. Models 1 also include the institutional characteristics. In Models 2, I add the social network characteristics. Finally, in Models 3 I add the variable for having had a romantic relationship during freshmen year. Then, in Models 4 and 5, I restrict the sample to those who had a romantic partner during their freshman year, in order to specify social contextual effects among those with a clearer opportunity to have sex. These models include the same variables as Models 1 and 2; the only difference is the sample.

Table 2 about here

RESULTS

Table 2 reports odds ratios predicting sex during freshmen year for women. The first three models include the full sample of women. Model 1 reveals a number of significant effects on freshmen women's sexual behavior, including individual characteristics. Black women are marginally less likely than white women to have sex during their freshmen year, and women who attended high school in the Northeast US are marginally more likely to have sex than women from other parts of the country. Model 1 also provides strong evidence that women who attended church more frequently at the time of the fall survey are much less likely to have sex during the year. Each unit increase in religious service attendance is associated with a 24 percent decrease in the odds of having sex. Sorority members are no more likely to have sex during their freshmen year than other women (net of prior sexual behavior and other characteristics). Model 1 shows a close tie to prior sexual behavior: The odds of a woman having sex during her freshmen year of college are more than 17 times higher if she had sex by the time she turned 18.

In terms of institutional effects, there is no significant effect of the percent of students living on campus on women's sexual behavior. Neither does there appear to be an effect of the number of students in the student body on women's sexual behavior. The gender breakdown of

those students, however, does appear to matter. For each percentage point increase in the percent women on a campus, the odds that a woman has had sex increase by about six percent. This is a sizable effect, considering the variability in gender compositions across campus. For example, by these estimates a woman on a campus with 60 percent women will be about 146% more likely to have sex as a woman on a campus with 45 percent women, net of a host of other variables, including prior sexual behavior.

None of the other institutional factors are statistically significant in Model 1. Attending Northeastern colleges is not significantly related to freshmen women's sexual behavior. Moreover, the effect of religious institutions appears limited to those who are themselves religious. Net of individual religious attendance, the average level of religious service attendance on campus does not influence a woman's sexual behavior. Similarly, fraternities do not appear to impact the sexual behavior of freshmen women (net of her individual characteristics) as the percent of men on campus who are in fraternities is not associated with women's sexual behavior during their freshmen year. Attending a college where a higher percentage of freshmen have sex also does not appear to affect women's sexual behavior. The effect is positive, as would be expected, but not statistically significant. In a model without prior sexual behavior (not shown), this variable is significantly and positively associated with women's sexual behavior, meaning observed effects of sexual culture on college campuses may instead be attributable to selection.

Model 2 adds social network variables. Having friends who value romantic relationships does not appear to affect women's sexual behavior, but having friends who value partying and religious activities does. The more important partying is to a woman's friends, the more likely she is to have sex during her freshman year. There is a seven percent increase in the odds of having sex for each unit increase (from 0 to 10) in her friends' importance of partying. The

opposite effect is evident for having friends who value religion. For each unit increase in the importance of religious activities to a woman's friends, there is a nine percent decrease in the odds that she will have sex during her freshmen year. The effect of campus gender composition is not explained by social networks, however; if anything, the effect is suppressed by social networks, meaning the peer groups one sorts into may mask the effect of the broader campus population characteristics.

Model 3 adds the romantic relationship variable. This accounts for women's varying ability or desire to secure a potential sex partner during the year. In other words, controlling for romantic partnerships effectively eliminates differential partner availability as an explanation for the effects in Model 3, and it also reveals what the effects of the other variables are net of partner availability. As would be expected, having a romantic partner is strongly and positively linked to sexual behavior. Women who had a romantic partner during their freshmen year are more than nine times as likely to have had sex during that time. When romantic partnerships are controlled, the effect of friends' importance of partying is reduced to nonsignificance, suggesting a link between partying, romantic relationships, and sex. Romantic relationships do not explain the effects of friends' importance of religious activities, however. In fact, this effect is *strengthened* by the inclusion of the romantic partner variable. Partner availability also does not appear to be driving the campus gender composition effect. Attending a college with more women continues to have a strong and positive effect on women's sexual behavior in Model 3.

Interestingly, in Model 3 the odds ratio for sexual culture—operationalized as the percent of freshmen on campus having sex during the year—becomes positive and significant. Although this might be interpreted as a suppression effect, the association between having a romantic partner and percent of students on campus having sex is not statistically or substantively

significant. Instead, this likely reflects minor variations in effects across model specifications. The effect of sexual culture in Models 1 and 2 is nearly significant ($p = .18$ and $p = .15$, respectively).

Models 4 and 5 restrict the sample to women who had a romantic relationship during their freshman year in order to show the effect of the other variables on the sample of women who had the opportunity for sex. The findings are generally consistent with the previous models including women who did not have a romantic relationship, but a few differences emerge. Attending college in the Northeast is positively related to having sex (at $p < .05$ in Model 4 and $p < .10$ in Model 5), and the sexual culture variable is also positively associated with having sex and marginally significant in both Models 4 and 5. The findings from these five models, taken together, provide modest evidence for a sexual-culture effect on women's sexual behavior.

Table 3 about here

Table 3 presents the results for men's sexual behavior during their freshmen year. Model 1 shows that Asian men are much less likely than White men to have sex, but Black and Hispanic men are not more or less likely than Whites to have sex during their freshmen year. Unlike with women, men who attended high school in the Northeast US are neither more nor less likely to have sex. Men who attend religious services have lower odds of having sex during their freshmen year: For each unit increase in religious service attendance, men have 14 percent lower odds of having sex. Fraternity membership, unlike sorority membership, is strongly associated with sexual behavior. Men in fraternities have 72 percent higher odds of having sex during their freshmen year. Consistent with the findings for women, men who had sex prior to turning 18 were far more likely to have sex during their freshmen year. The odds that these previously sexually-active men will have sex are over 12 times higher than men who were virgins at age 18.

In Table 3, none of the institutional characteristics is associated with men's sexual behavior. The residential nature of the campus does not seem to matter. Size of the student body does not influence men's sexual behavior either. More women on campus does not translate into significantly higher odds of men having sex, net of their individual characteristics. Ancillary analyses revealed a positive effect of percent women on men's sexual behavior when their prior sexual behavior was not included in the model, suggesting that men on campuses with a higher proportion of women are more likely to have sex, but sexually active men are more likely to select onto these campuses.

Neither are the other institutional characteristics in Model 1 significantly associated with men's sexual behavior. Attending college in the Northeast, campus-level religiosity, and campus-level fraternity membership are not related to men's sexual behavior. There also seems to be no independent effect of campus sexual behavior on men's individual sexual behavior. As with campus gender composition, this variable is significant in a model (not shown) not including men's prior sexual behavior. This again highlights the role of selection in observed differences in sexual behavior across college campuses.

Social network variables are introduced in Model 2. As with women, the amount of value placed on romantic relationships by one's friends does not affect men's sexual behavior. However, having friends who place a higher importance on partying does affect sexual behavior. Each unit increase in the respondents' report of friends' importance of partying results in 11 percent higher odds of having sexual intercourse during their freshmen year. Having friends who value religious activities has the opposite effect. Each unit increase in friends' importance of religious activities decreases the odds of men having sex by six percent. The institutional characteristics remain nonsignificant in Model 2.

Model 3 incorporates the romantic relationship variable. Men who had a romantic partner were more than five times more likely to have sex than men without a romantic partner. This variable does little to alter the social network effects. As was the case with women in Table 2, the sexual culture variable becomes significant in Model 3 (at $p < .10$). Again, as there is a lack of association between romantic partnerships and sexual culture, this is likely not a suppression effect. Nevertheless, there is modest evidence that the sexual behavior of other students may influence men's own sexual behavior. Models 4 and 5, which restrict the sample to men who had a romantic relationship, reveal few significant effects. The size and direction of the effects are generally similar to those in previous models, suggesting the statistical power forfeited by the sample restriction may underlie the lack of significant findings.

DISCUSSION AND CONCLUSION

This study used data on elite college freshmen to explore how social context influences sexual behavior. I examined the role of institutional and network characteristics. In general, contextual effects on college student behavior are modest. The sexual behavior of college freshmen is closely linked to their sexual behavior prior to arriving on campus, as Morgan and colleagues (2010) find in their study of Duke students and "hooking up." Still, there are some contextual factors that appear salient to the sexual behavior of freshmen, especially freshmen women.

Most notably, the gender composition of the campus has strong and robust effects on freshmen women's sexual behavior. The findings here support a gendered perspective where women are more likely to have sex when there are more women on campus. This corroborates other findings about campus sex ratios and women's sexual behavior (Uecker and Regnerus 2010). Women may use sex as a resource in order to secure romantic relationships with men in

more competitive environments. The strength of this finding is somewhat surprising, given the relative power of women attending elite colleges.

I also found some modest evidence that sexual culture on campus is tied to both men's and women's sexual behavior during their freshmen year. This should be interpreted only tentatively, but there does appear to be some evidence that the sexual behavior of one's peers at college has an independent influence on one's own sexual behavior. Individuals likely observe (indirectly and imperfectly) the sexual behaviors of others in the market and react according to these sexual scripts.

These two factors notwithstanding, institutional effects on sexual behavior are few and far between. More influential, it appears, are the social networks that students are embedded in. When students have friends who value religious activities, they are less likely to have sex—even net of their own religiosity and prior sexual behavior. Conversely, when students have friends who value partying, they are more likely to have sex. Social networks appear to be the most salient reference groups for elite college freshmen. The broader campus structure and culture is less influential, though not entirely inconsequential.

These findings suggest that broad institutional characteristics of one's sex market are less determinative of elite college students' sexual behavior than the more proximal world of their friends. Provided institutions admit students with a wide array of norms and values, students can sort into groups that reinforce and uphold their own values and behaviors. These groups serve as student plausibility structures (Berger 1967) more so than what occurs among the broader student body. Third parties interested in a student's sexual behavior would be better off focusing not on the student's college choice, but rather on the friends they make once they arrive there.

The one clear exception to this is the gender composition of the campus. Women are less likely to have sex on campuses with more men.

Indeed, the biggest role colleges play in the sexual behavior of their students appears to be in the admissions process. The gender composition of students and the students' sexual prior to arriving are the key ways elite colleges impact the sexual lives of their students.

This study suggests limited institutional effects and relatively strong social network effects on the sexual behavior of elite college freshmen. Even so, these findings point to the need to include social context in the social scientific study of sexual behavior. It is not clear the extent to which these findings are unique to elite college students. Subsequent examinations should look at nationally representative samples of all kinds of college students, and perhaps other local markets (e.g., match.com users), to determine the generalizability of these findings.

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Table 1. Descriptive Statistics of Study Variables, by Gender

	Women		Men		
	Mean	SD	Mean	SD	Range
Full sample (N = 1,941 women, 1,455 men)					
Had sex during freshmen year	.32		.35		0, 1
Black	.28		.21		0, 1
Hispanic	.24		.23		0, 1
Asian	.25		.26		0, 1
White	.27		.30		0, 1
Foreign born	.15		.16		0, 1
Attended high school in Northeast US	.26		.30		0, 1
Frequency of religious service attendance	2.59	1.16	2.51	1.13	1–5
Member of sorority/fraternity	.16		.18		0, 1
Missing data on sorority/fraternity membership	.09		.10		0, 1
Had sex by age 18	.30		.36		0, 1
Percent students living on campus	61.09	25.92	64.42	25.07	18–100
Size of student body (logged)	9.06	.82	9.01	.79	7.29–10.39
Percent students who are female	51.61	3.86	51.26	3.58	45.55–60.84
College in Northeast US	.31		.35		0, 1
Average freshmen religious service attendance	2.50	.28	2.52	.30	1.84–3.85
Percent male students member of fraternity	16.27	9.17	16.13	9.38	0–33
Percent freshmen who had sex during year	33.21	8.81	32.01	8.49	19.00–54.58
Importance of steady romantic relationship to friends	3.71	2.44	3.91	2.26	0–10
Importance of partying to friends	5.37	2.56	5.85	2.42	0–10
Importance of religious activities to friends	4.00	2.77	3.71	2.53	0–10
Had a romantic relationship during year	.60		.55		0, 1
Had romantic relationship sample (N = 1,158 women, 799 men)					
Had sex during freshmen year	.47		.50		0, 1
Black	.26		.20		0, 1
Hispanic	.26		.26		0, 1
Asian	.23		.21		0, 1
White	.25		.33		0, 1
Foreign born	.14		.16		0, 1
Attended high school in Northeast US	.26		.30		0, 1
Frequency of religious service attendance	2.57	1.13	2.51	1.07	1–5
Member of sorority/fraternity	.18		.22		0, 1
Missing data on sorority/fraternity membership	.09		.10		0, 1
Had sex by age 18	.40		.45		0, 1
Percent students living on campus	60.62	25.89	64.19	24.99	18–100
Size of student body (logged)	9.06	.82	9.02	.77	7.29–10.39
Percent students who are female	51.65	3.91	51.34	3.60	45.55–60.84
College in Northeast US	.31		.35		0, 1
Average freshmen religious service attendance	2.50	.28	2.53	.31	1.84–3.85
Percent male students member of fraternity	16.37	9.08	16.29	9.25	0–33
Percent freshmen who had sex during year	33.32	8.95	32.10	8.45	19.00–54.58
Importance of steady romantic relationship to friends	3.80	2.42	3.99	2.23	0–10
Importance of partying to friends	5.62	2.46	6.13	2.91	0–10
Importance of religious activities to friends	3.91	2.72	3.64	2.41	0–10

Table 2. Odds Ratios from Multilevel Logistic Regression Models Predicting Sex during Freshman Year, Women

	Full sample[a]			Had romantic relationship sample[b]	
	Model 1	Model 2	Model 3	Model 4	Model 5
Individual Characteristics					
Black	.75†	.87	1.04	.69†	.81
Hispanic	.93	.97	.95	.88	.90
Asian	.78	.83	.85	.72	.76
(Ref.: White)					
Foreign born	.79	.77	.83	1.00	.99
Attended high school in Northeast US	1.36†	1.37†	1.37†	1.18	1.20
Frequency of religious service attendance	.76***	.84**	.80**	.68***	.76***
Member of sorority	1.07	1.02	.98	.87	.84
Had sex by age 18	17.58***	17.45***	15.96***	18.02***	17.87***
Institutional Characteristics					
Percent students living on campus	.99	.99	1.00	1.00	1.00
Size of student body (logged)	.97	.97	1.11	1.16	1.19
Percent students who are female	1.06**	1.07**	1.08***	1.08**	1.08**
College in Northeast US	1.29	1.24	1.24	1.54*	1.49†
Average freshmen religious service attendance	1.13	1.26	1.22	1.06	1.25
Percent male students member of fraternity	.99	1.00	.98	.99	.99
Percent freshmen who had sex during year	1.01	1.01	1.02*	1.02†	1.02†
Social Network Characteristics					
Importance of steady romantic relationship to friends		1.02	1.01		1.02
Importance of partying to friends		1.07*	1.05		1.02
Importance of religious activities to friends		.91***	.90***		.90**
Available Partners					
Had a romantic relationship during year			9.28***		
Model-fit Statistics					
–2 log-likelihood	1691.82	1670.79	1447.55	1094.74	1083.45

† p < .10 * p < .05 ** p < .01 *** p < .001

[a] N = 1,941 individuals; 24 colleges/universities
[b] N = 1,158 individuals; 24 colleges/universities

Note: Constructed campus-level variables (i.e., campus religious service attendance, percent students who had sex during year) are created from weighted data that match the racial composition of the campus. The regression models are unweighted but control for race-ethnicity.

Table 3. Odds Ratios from Multilevel Logistic Regression Models Predicting Sex during Freshman Year, Men

	Full sample[a]			Had romantic relationship sample[b]	
	Model 1	Model 2	Model 3	Model 4	Model 5
Individual Characteristics					
Black	1.20	1.27	1.69*	1.42	1.54†
Hispanic	1.26	1.30	1.41†	1.33	1.39
Asian	.49**	.52**	.63*	.82	.87
(Ref.: White)					
Foreign born	1.12	1.11	1.11	1.15	1.13
Attended high school in Northeast US	1.18	1.19	1.27	1.19	1.15
Frequency of religious service attendance	.86*	.91	.86*	.80*	.85†
Member of fraternity	1.72**	1.59*	1.49*	1.45†	1.40
Had sex by age 18	12.32***	11.53***	10.99***	10.85***	10.37***
Institutional Characteristics					
Percent students living on campus	1.00	.99	1.00	.99	.99
Size of student body (logged)	.84	.84	.84	.79	.79
Percent students who are female	1.02	1.02	1.02	1.02	1.02
College in Northeast US	1.07	1.05	.99	1.06	1.07
Average freshmen religious service attendance	1.23	1.22	1.16	.97	1.00
Percent male students member of fraternity	1.00	1.00	1.00	1.00	1.00
Percent freshmen who had sex during year	1.02	1.02	1.02†	1.01	1.01
Social Network Characteristics					
Importance of steady romantic relationship to friends		.98	.96		.97
Importance of partying to friends		1.11**	1.11**		1.07
Importance of religious activities to friends		.94*	.93*		.93†
Available Partners					
Had a romantic relationship during year			4.98***		
Model-fit Statistics					
–2 log-likelihood	1351.85	1334.35	1220.04	829.82	823.43

† p < .10 * p < .05 ** p < .01 *** p < .001

[a] N = 1,455 individuals; 24 colleges/universities
[b] N = 799 individuals; 24 colleges/universities

Note: Constructed campus-level variables (i.e., campus religious service attendance, percent students who had sex during year) are created from weighted data that match the racial composition of the campus. The regression models are unweighted but control for race-ethnicity.

Figure 1. Conceptual Model of Social Contextual Influences on Sexual Behavior