

Structural Determinants of a Positive Campus Climate for LGBT Students

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There is a need for more macro-scale approaches in exploring the experiences of lesbian, gay, bisexual, and transgender (LGBT) students, faculty, and staff (Renn 2010). Research that examines the structural forces that operate within postsecondary contexts could illustrate a campus's role in determining the relative acceptance of sexual minorities. For instance, the LGBT resource center is a relatively new presence on many campuses, providing sexual minority students with community space and staff to help facilitate their educational and social growth while at college (Sanlo et al. 2002). Information about these centers has been used to determine what kinds of campuses may be more likely to have an LGBT resource center, a sign that the college and administration may be more sensitive to the needs of sexual minority students. In prior work (Fine forthcoming), I merged these historical data from the Consortium with data about postsecondary institutions' enrollment, endowment, tuition, and other descriptive factors from the Integrated Postsecondary Educational Data System, or IPEDS (U.S. Department of Education 2010). The Consortium of Higher Education LGBT Resource Professionals (2010) keep a public record on their website of the founding of new LGBT resource centers. The work links two prominent social movement theories, political opportunity and resource mobilization, to explain which campuses may be more likely to have these on-campus spaces. I found that larger public institutions in more politically-liberal states were more likely to have LGBT resource centers, supporting the claim that both resource mobilization and political process exert some influence in determining these centers' presence. This also meant that these on-campus

spaces for sexual minority students may not be present at colleges where students may need them most: smaller institutions in politically-conservative areas.

Although this study was one of the first to investigate structural factors that contribute to a marker of an LGBT-friendly campus, the presence of an LGBT resource center is but one indicator. Other data sources can be useful in determining the structural influence colleges and universities may have on the lives of LGB students. Rankin's (2003, 2005) Campus Climate Survey started by asking students on a sampling of college campuses about their perceptions of safety and acceptance at their educational institution. It has since expanded to the Campus Climate Index, a tool that asks designated officials from campuses across the nation to self-report on an array of variables that indicate its relative LGB-friendliness (Beemyn et al. 2010). The Index is particularly useful, as the publicly-available data provide a number of measures on institutional characteristics related to the climate for sexual minority students, including housing policies and staff training. Although it has its faults, the site remains one of the most comprehensive available for information on structural factors that could affect the lives of LGBT students, faculty, and staff.

Indicators exist that detail the existence of many supports for LGBT persons at postsecondary institutions. However, an investigation of patterns that might determine the presence these macro-level structural factors on various college campuses could provide a more comprehensive understanding of what structures might contribute to a more positive climate for sexual minorities. As an extension of my prior work, merging the IPEDS data with data sources that provide measures of a variety of indicators would provide a more nuanced understanding of how structure has the potential to influence sexual minority students' lives on campus. This work uses data from IPEDS data and the Campus Climate Index to determine what structural

factors, both at the school and regional level, affect the likelihood of a campus having a positive climate for sexual minority persons. The data support the hypotheses in that some structural factors, such as an institution's gender composition, student-to-faculty ratio, and political context, have an effect on campus climate, while other structural factors that may be assumed to have an effect do not.

Theoretical Framework

Campus climate for LGBT students. Homophobia, the “hatred or fear” (Pharr 1997:18)¹ of sexual minorities, and heterosexism, “the belief that the world is and must be heterosexual” (Pharr 1997:16), are still present on American college and university campuses, affecting students in particular. Researchers have demonstrated that heterosexism and homophobia still affect students in many parts of the campus environment, including residence life (Evans and Broido 1999, Robinson 1998), the classroom (Eyre 1993), and Greek life (Yeung and Stomblor 2000). Gay, lesbian, and bisexual students are able to name several encounters they have had with these forces on college campuses while simultaneously being reluctant to confront them (Fine 2011). A positive campus climate makes it less likely that students will encounter these negative forces that can have ramifications on their self-esteem, academic achievement, and overall college experience.

Rankin's (2003, 2005) Campus Climate Studies, which serve as a predecessor to the Campus Climate Survey used in this work to capture the dependent variable, offer some other indicators that heterosexism and homophobia still affect students' lives. Nearly two-thirds of sexual minority students reported hearing a homophobic comment at their institutions, and one-

¹ Herek (1984) problematizes the use of the term “homophobia” to mean a fear of those who are not heterosexual, when terms such as “prejudice” or phrases like “negative attitudes” may better apply. Although fear may not be the correct emotion to associate with the phenomenon as it manifests itself on college campuses, the general use of the term to indicate negative feelings toward sexual minority persons is what is intended in this work.

third feared for their safety at some point and time while on campus. Higher education continues to be an environment where heterosexism and homophobia continue to negatively affect the lives of LGBT students.

Structural explanations for this climate, though, are generally scant. In prior work, I used the Integrated Postsecondary Educational Data System (IPEDS), provided by the U.S. Department of Education, to determine the presence of an LGBT Resource Center on particular campuses (Fine forthcoming). LGBT Resource Centers are on-campus spaces, typically staffed by a full-time professional, that provides services and support to sexual minority students (Sanlo et al. 2002). The results indicated that larger, public universities in more liberal political climates tended to be more likely to have these centers. These spaces are one indicator of a positive campus climate, and it was demonstrated that macro-level factors were correlated with their existence.

Although this work was a starting point in identifying what structural factors at colleges and universities might lead to an LGBT resource center, the presence of such a space is but one indicator among many of a positive climate for sexual minorities. Domestic partner benefits, sexuality studies curricula, residence life training, and gender-neutral restrooms are some of the many other indicators of campus climate that have yet to be studied. Although it can be hypothesized that macro-level factors, such as enrollment, endowment, tuition, and the like, have an effect on the campus climate, research has yet to address this deficiency in the literature.

Gender and attitudes toward sexual minorities. Studies demonstrate that gender has an effect on one's relative acceptance of sexual minorities. For example, Altemeyer (2001) and Herek (1998) show that women generally have more favorable attitudes than do men. This is likely due to the positioning of hegemonic masculinity – that is, the dominant and socially

preferred narratives of how men should behave (Connell 1992) – against the foil that is gay male masculinity. That is, what is normal becomes so as it is framed against an unspeakable other (Foucault 1978). Pascoe's (2005) investigation of fag discourse among high school males illustrates the power the specter of homosexuality wields in policing gendered behavior. By defining the masculine as exclusively heterosexual, hegemonic masculinity may lead to negative attitudes towards LGBT persons.

Other studies have demonstrated that gender is not a significant predictor of attitudes, but adherence to traditional gender norms is. Brown and Henriquez (2008) as well as Newman (2007) discuss how an adherence to traditional gender roles is a predictor of more negative attitudes toward sexual minorities – more so than the respondent's gender. Wilkinson and Pearson (2009) use regression techniques to demonstrate that sexual minority students express less comfort in high schools with a strong football culture. They argue that the importance a school places on football, as a sport that traditionally embraces hegemonic masculinity, is a strong barometer for ascertaining the climate toward sexual minority students. Sexual minority students in these institutions that value football expressed lower levels of self-esteem than those in schools where the sport was perceived as less important.

Either interpretation suggests that gender is a significant predictor of an educational context's likelihood of providing a positive environment for LGBT young people. Because dominant discourses of masculinity use sexual minorities as a basis of comparison to determine normality, an institution's relative adherence to these discourses may be a predictor of the campus climate for LGBT persons.

Political climate, resources, and sexual minorities. The gay rights movement has made a transition in its attempt to gain acceptance from mainstream society. From its origins in the

homophile movement in larger cities such as Chicago and San Francisco, which emphasized assimilation into the dominant culture (Boyd 2003, Phelan 2001), the movement has expanded to tackle issues like employment discrimination (Schilt 2009, Badgett 2001), military service (Rimmerman 2008, Phelan 2001), and same-sex marriage (Taylor et al. 2009, Polikoff 2008). These changes appear to be causing incremental shifts in attitudes toward sexual minorities in America. Young people report more positive attitudes toward sexual minorities than ever before (Newman 2007, Broido 2004). However, these positive attitudes may be conditional. In general, surveys of attitudes toward LGBT persons indicate that more liberal political leanings are associated with more positive attitudes (Brown and Henriquez 2008, Altemeyer 2001), although the interaction of political ideology with age is appearing to be a more likely explanation, as young persons generally indicate more relative comfort with alternate forms of sexuality (Savin-Williams 2005, Stozer 2009).

Two theories of social movement success may have some utility in predicting what structural factors may lead to a more positive environment on college campuses, given this evolution in attitudes. Political opportunity theory, one explanation of social movement success that is germane to the argument in this work, states that the presence of key, elite figures in power determines a social movement's success (Meyer and Minkoff 2004). Jenkins and Perrow's (1977) study of western farm workers reveals that it was not continued strikes that led to positive changes for these laborers, but rather the presence of a president and a congress sympathetic to their plight that enacted favorable legislation. Political context can have a great influence on how successful social movements are.

In contrast to political opportunity theory, resource mobilization theory holds that more successful social movements typically have more resources – such as labor, time, money, and

media coverage – at their disposal than unsuccessful ones (McCarthy and Zald 1977). This availability of resources is what ensures their success as compared to their peers, who are not as able to translate their passion into efficacious social change. For instance, Cress and Snow (1996) found that some organizations that attempted to assist the homeless in American urban centers were still present nearly a decade later, while others were not; they attribute the staying power of particular organizations to their ability to procure funds, space, and media attention. The organizations that were able to obtain these needed resources persisted and were able to better assist the homeless than those that were not.

Both the structural factors of resources and political climate, under certain conditions and in certain contexts, can exert an influence on micro-level outcomes. On the college campus, the larger political context in which the university is nested may have an effect on whether or not a positive environment for LGBT persons is made manifest. Also, the presence of resources, such as finances, staff, and faculty, may determine the campus climate toward sexual minorities.

Hypotheses. Based on the literature, four hypotheses will be tested in this work:

1. Campuses with more resources, including students and money, will be more likely to have a positive campus climate. Some of the services that the Campus Climate Index indicates contribute to a college's composite ranking of friendliness toward LGBT people require an investment of resources to provide. For instance, founding and maintaining an LGBT resource center can cost hundreds of thousands of dollars a year (Sanlo et al. 2002). Providing benefits for domestic partners also requires a financial investment on the part of the college and university. It is assumed that campuses with more financial resources will be more likely to be able to provide these services to sexual minorities.

Beyond financial considerations, it is assumed that larger campuses may have a greater need for such services, simply because it is likely that they have a larger number of sexual minority staff, faculty, and students on their campus. This critical mass of sexual minorities could lead to demands for recognition and equality. Meanwhile, smaller campuses with fewer LGBT persons may not have the ability to mobilize to advocate for similar benefits. Therefore, it is assumed that campuses with more of these resources will be more likely to have positive campus climates (McCarthy and Zald 1977, Fine forthcoming).

2. Institutions with a higher percentage of female students will be more likely to have a positive campus climate. Because of work that demonstrates the gender divide in acceptance of homosexuality (Altemeyer 2001, Herek 1998), as well as the traditional association between hegemonic masculinity and homophobia (Pascoe 2005), it is assumed that institutions with more women will be more likely to provide services and supports for sexual minority persons on campus.

3. More selective institutions will be more likely to have a positive campus climate. More prestigious universities, although smaller in size, may have more resources – particularly in terms of finances and relative amount of faculty – that could contribute to a more positive campus environment. Further, the university market has become very competitive in recent times, forcing universities to provide more services to attract the most desirable students (Winston 1999). It is assumed that more prestigious universities will have particular resources at their disposal to create a more positive campus climate, in addition to the motivation to attract the best talent possible to their institutions – regardless of sexual identity.

4. Campuses nested in more liberal political environments will be more likely to have a positive campus climate. Traditionally, a link has existed between the American gay rights

movement and liberal, progressive politics (Stein 2001). The greater political context in which a university is nested is believed to have an effect on a college's campus climate, with a more liberal political context leading to more positive outcomes for LGBT students, faculty, and staff.

Methods

Sample. Data were taken from three sources, though the majority of the variables come from the Integrated Postsecondary Educational Data System, or IPEDS. The 2008 IPEDS data, which is collected by the U.S. Department of Education, provided most of the contextual independent variables (2010). Each year, IPEDS collects basic statistics on all American institutions of higher education, including enrollment statistics, faculty salaries, available endowments, and so forth. Data are then sorted and quality checked. The data from 2008 were selected as it was the most recent set of data available at the time of this project. These variables will provide measures related to background contextual factors of the institution.

Only four-year institutions inside the 50 U.S. states and the District of Columbia were included in the analysis. Specialty schools that were not coded as public or private four-year institutions, such as military colleges or professional schools, were excluded. Additionally, any institution that did not report on any of the IPEDS variables of interest were dropped. Schools with no admittances or reporting no undergraduate enrollments were also not included. Branch campuses of larger institutions were kept in the analysis if they had a separate entry in the IPEDS database. This led to a final sample size of (N=1,432).

Independent variables: structural factors. The IPEDS data contained many of the independent variables related to the hypotheses. Because gender is believed to have an effect on the relative acceptance of sexual minority students – and, thus, the campus climate – a variable

from IPEDS that reports the gender composition of the school was included, measuring the percentage of female students.

To measure resources, several IPEDS variables for institutions were used. IPEDS provides the total enrollment, the total full-time undergraduate enrollment, and total full-time faculty at each institution. The number of undergraduates was included as an independent variable, as campuses with more undergraduate students may be more likely to offer these services (Fine forthcoming). The student-to-faculty ratio was calculated by dividing the number of total students – not just undergraduates – by the number of full-time faculty reported in the IPEDS data. This variable can be conceptualized as a measurement of resources, as it also provides an indication as to the presence of faculty in relation to students – in essence, examining faculty as a resource. Financial resources, too, were included in the analysis. Schools with more financial resources may be more likely to provide the services, training, and support that may be necessary to maintain a positive campus climate for sexual minorities. IPEDS provides the average yearly tuition charged by institutions, which was included as an independent variable capturing both resources and institutional prestige. For public universities, tuition for in-state students was used for this measure. Schools also reported their available endowments, which was included as an independent variable.

Two other independent variables to capture the effects of institutional prestige on campus climate were used in the analysis. The IPEDS data contain both private and public postsecondary institutions, so a dummy variable for private schools was included. Schools also reported the percentage of students who applied in the past year that were admitted as new undergraduate students, which will be used as an independent variable. In addition, the student-to-faculty ratio, mentioned above, will also be considered a variable that captures the effect of

institutional prestige. These variables serve as a measure of prestige, as more prestigious postsecondary institutions tend to be private with smaller student-to-teacher ratios and lower admission rates (Astin 1999).

Independent variable: political context. Political climate has an effect on a region's relative acceptance of LGBT persons. For instance, my prior work indicated that a liberal political climate is associated with the presence of an LGBT resource center (Fine forthcoming). Because of the importance of the influence the larger political climate beyond the campus may have on an institution's climate for LGBT students, a measure was constructed to determine the relative liberalism of a particular campus. Data for a measure of political liberalism came from the U.S. Federal Elections Commission official certified 2008 presidential election results (2010). The variable was created by dividing the state's votes for Barack Obama, the democratic candidate for President, by the total number of votes cast in that state. This is similar to the method I used in my earlier work, where I measured political liberalism by using a variable for the state's percentage of votes that went to John Kerry, the democratic presidential candidate in the 2004 election.

Admittedly, this is a rough measurement of a college campus's political context. It is likely that, for many college campuses, the political milieu of the "town" does not match that of the "gown" (Sharp 2002). Further, using the state as a unit of analysis is a crude estimate, as the relative liberalism of the political environment can vary within the state as well (Moller et al. 2009). Unfortunately, a more sophisticated measurement of political liberalism could not be obtained given the structure of the IPEDS data and the lack of data sources available that used smaller geographic units' election returns. Future research could use a more refined measurement of the political context of these institutions.

Control variables. Other factors were controlled for in the analysis. The intersection of race and sexuality can lead to differential experiences with heterosexism and homophobia (Collins 2004), particularly on the college campus (Poynter and Washington 2005). For instance, some racial minority cultures generally associate homosexuality with whiteness (Harper et al. 2004). White Americans also tend to have more positive attitudes toward homosexuality than do Americans of color (Brown and Henriquez 2008). The IPEDS data provides statistics on the racial makeup of their student bodies. The percentage of white students was used as a variable to control for any potential affect an institution's racial composition would have on the campus climate toward sexual minorities.

IPEDS also provides information on the urban context of institutions. Traditionally, gay rights causes have taken root in large urban areas (Boyd 2003). Meanwhile, rural areas have generally had slower progress with regard to acceptance for sexual minorities (Bell and Valentine 1995). IPEDS categorizes institutions in being in one of four broad urban contexts: urban, suburban, town, or rural. To control for the effects of urban context, institutions in town or suburban locales as determined by IPEDS were used as the reference group. Two dummy variables for rural and urban institutions were included in the analysis.

Dependent variable and analysis. The dependent variable in this work is a campus's comprehensive "LGBT-Friendly Score" star rating on the Campus Climate Index website (Beemyn et al. 2010). The site allows a verified representative of any American postsecondary institution to log on and answer a battery of questions related to the campus environment for LGBT persons. Questions include topics related to residence life training, the availability of domestic partner benefits, the presence of a sexuality studies program, and the establishment of an LGBT resource center, among others. The index then provides a star rating, from one to five,

on several dimensions of perceived friendliness toward sexual minority persons, as well as a comprehensive “LGBT-Friendly Score” for each college that takes all dimensions into account. These are associated with the Campus Climate Survey developed by Rankin (2003, 2005), and Rankin is one of the three scholars associated with the Index website (Beemyn et al. 2011).

During fall of 2010, a research assistant went through all schools listed in the index and coded the star ratings for all campuses that were included in the IPEDS data set. All data provided publicly on the website was coded between September and November 2010, and is accurate for that time period (Beemyn et al. 2010). The Index provides several sub-ratings for campuses on matters like transgender inclusiveness and residence life, which the assistant also recorded; however, for this work, only the comprehensive, final star rating was used. The rating is from one to five stars in half-star increments, with one star indicating a hostile climate and five an accepting one.

The Index has some faults: schools choose to opt-in to the assessment; many institutions do not choose to complete the Index, and as such, the sample size of postsecondary institutions with publicly-available data is less than 300. Further, the site may have a financial motive (Renn 2010). Although Campus Pride, the organization that operates the site, is not-for-profit (Beemyn et al. 2011), they offer a “Premier Campus” listing on their site for a fee, which complicates the nature of this site as an open resource for students, faculty, and administrators. Efforts to obtain a more comprehensive data set from the administrators of the Campus Climate Index were denied, as the administrators did not wish to share data from any schools that chose not to publish their results publicly on the website because of confidentiality.² Also, the site provides no concrete anchor for their scores, other than referring to the system as “a continuum

² Renn (2010) might suggest that allowing access to these data would also compromise the Campus Climate Index financially.

of progress” and a rating of three stars as “the mid-range score” (Beemyn et al. 2011). Despite this, the site remains one of the most comprehensive available for information on structural factors that could affect LGB student lives.

The dependent variable data source has notable selection issues. The Campus Climate Index has 258 campuses that publicly display their data on the website. Of these, 221 were present in the IPEDS data set.³ Of the 1,432 schools, 1,211 were censored, having no data for the dependent variable. Generally, schools that had data posted on the Index tended to have higher scores; on a scale from one to five, the average rating for the available institutions was 3.56. Figure one illustrates this skew in the data: schools with more positive climates were more likely to be available on the Index. Presumably, other institutions did complete the Index, but may have been less likely to share their results on the website if they were less-than-positive. Therefore, the data can be considered not missing at random, and there are selection issues present.

Because of these issues, a Heckman model was used to determine the effects of structural factors on the campus’s climate toward sexual minorities, as determined by the Campus Climate Index ratings. Heckman models can be used when data for all independent and control variables is present, but data for the dependent variable is missing (Heckman 1976, 1979). The model first uses a probit equation to determine a case’s likelihood of having data for the dependent variable. In this case, the selection model determines a campus’s likelihood of having participated in the Campus Climate Index. Then, contingent on this probability, the second full informational

³ Most institutions that had a Campus Climate Index entry but no corresponding IPEDS data were typically community colleges or branch campuses without a separate IPEDS entry. About ten larger, four-year, non-branch campuses did have a Campus Climate Index rating, but were not present in the IPEDS data set. For most, this is because they were excluded earlier in the analysis for not reporting on an independent or control variable of interest.

maximum likelihood (FIML) model predicts the effects of independent and control variables on the outcome: the school's total star rating on the Index.

FIML estimators for the Heckman variable were used instead of two-step estimators. Heckman (1976) suggests using FIML estimators because of their increased efficiency – that is, their lower standard errors – as compared to two-step estimators (Bushway et al. 2007). However, the potential problem of multicollinearity exists, as variables in the probit selection equation are then used in the outcome equation. To best prevent this multicollinearity, Bushway et al. suggest using exclusion restrictions: variables in the selection equation that would not be assumed to affect the second FIML outcome equation. However, all the structural factors of interest in the outcome equation could be assumed to affect selection into the Campus Climate Index model, as well. Therefore, to check for multicollinearity, Leung and Yu's (1996) suggestion of calculating the condition number for the matrices of the equation is used. The condition number for the provided Heckman model is 25.0460; both Bushway et al. and Leung and Yu state that condition numbers above 20 in a FIML model suggest that multicollinearity is a concern. However, Bushway et al. advise that the use of a Heckman model to correct for sample selection may be justified depending on the model specification, even with condition numbers above 20. Because selection bias is such an important issue with the Campus Climate Index data, the Heckman correction will be used. Future research may identify exclusion restrictions or more comprehensive campus climate data to avoid multicollinearity.⁴

Because no variables are exclusion restrictions, interpreting the coefficients in a Heckman model cannot be done directly without calculating the marginal effects (Sigelman and Zeng 1999). The coefficients in the second Heckman model, β , have been converted to marginal

⁴ For an explanation, see Bushway et al. (2007), who provide sample syntax for STATA to use in calculating the condition number. The condition number is a measurement of the correlation between matrices in the Heckman equations, a reflection of potential multicollinearity in the model.

effects, or m.e. Marginal effects for significant variables were not found to differ radically from their corresponding coefficients.⁵ Significance for coefficients was determined using one-tailed tests, as the directions of the effects in the Heckman model are predicted by the hypotheses. Two-tailed tests are still used for the selection equation. The equation was corrected for clustering by region. IPEDS identifies eight broad regions of the country (see table 1). This Heckman model corrects for any regional effects through this clustering correction.

Results

Table two shows the results of the regression. The ρ statistic determines whether or not controlling for selection effects, as the Heckman model does, is appropriate. The Wald- χ^2 test for ρ was significant (4.24, $p < 0.05$). The significance of the ρ term indicates that sample selection bias exists in the Campus Climate Index data, and a Heckman selection model is appropriate. Regarding the selection effects of campuses that choose to publish their results onto the public Campus Climate Index website, many of the variables were found to have a statistically significant effect. Large, public universities in liberal state political contexts were more likely to offer their Campus Climate Index survey responses. Schools that charge large tuition rates, have large endowments, and have higher proportions of white students were also more likely to participate.

Of particular interest in this regression, though, are the outcome equation results. Gender composition was found to have a significant effect on the Campus Climate Index's rating of an

⁵ The typical interpretation of a one unit change in x leads to a particular magnitude of change in y is not possible without first converting the coefficients into marginal effects for variables included in both the selection and outcome equations of a Heckman model. Sigelman and Zeng (1999) provide a formula for calculating the marginal effects of variable k of coefficients in a Heckman model: $m.e._k = \beta_k - \lambda_k \rho \sigma_k \delta(-\mathbf{w}\lambda)$, where β_k is the provided coefficient for the variable from the outcome model, λ_k is the coefficient from the selection model, ρ is the correlation between errors, σ_k is the error of the variable in the outcome model, and $\delta(-\mathbf{w}\lambda)$ is the inverse Mills ratio for the equation. Both ρ and the inverse Mills ratio, which is used to calculate coefficients in Heckman's models (Heckman 1976), can be provided in the statistical output in STATA.

institutions relative friendliness toward sexual minorities ($\beta = 0.0146$, $p < 0.05$). The marginal effects indicate that a campus with a balanced sex ratio gains over half a star toward its total rating (0.73 of a star), and an all-female institution will have nearly a star and a half added to its total rating (1.46 stars), net of other effects.

Political climate, too, was found to have a statistically significant effect on the likelihood of a campus having a higher total star rating ($\beta = 0.0226$, $p < 0.01$). All else being equal, a state where Obama carried half the vote in the 2008 presidential election translates to a Campus Climate Index rating of just over a star (1.14), compared to about half a star (0.57) in a state where he received 25 percent of the vote and nearly two stars (1.70) in a state where he received 75 percent of the vote, according to the marginal effects calculated.

The only measure of institutional prestige that was found to have a statistically significant effect on the dependent variable was the student-to-faculty ratio ($\beta = -0.0382$, $p < 0.01$). A fifteen-unit increase in the student-to-faculty ratio results in the loss of about half a star (0.57) on the total Campus Climate Index rating. That is, a school with 15 students (undergraduate and graduate, where applicable) to every full-time faculty member is likely to have half a star more in its final rating than a school with 30 students to every faculty, controlling for all other variables. None of the other prestige variables – percentage of students admitted, endowment, private status versus public, or tuition – were found to be significant.

Aside from the student-faculty ratio, none of the other variables related to resources were found to be significant. The number of undergraduate students, tuition, and endowment did not have a statistically significant effect on the Campus Climate Index rating. None of the control variables were found to be significant, either.

Discussion and Conclusion

Two hypotheses of this work are supported outright by the Heckman model: gender composition and the political milieu both affect campus climate. Support for the other two hypotheses depends on the interpretation of the significance of the coefficient for the student-to-faculty ratio. The ratio is an indicator of prestige, but also is an indirect measure of the number of faculty – which could be considered a resource for a positive climate, according to resource mobilization theory.

The three macro-scale explanatory variables that were found to be significant are notable. The percentage of female students was generally positively associated with outcomes indicated by the Campus Climate Index. This indicates that gender is an important force in determining a campus's climate toward sexual minority students. Although suggesting that a campus could improve its climate toward LGBT persons by admitting more women is impractical, further research could investigate how gender differences in acceptance of sexual minorities translate to positive contexts. Qualitative interviews of students or key decision-makers could be worthwhile. Non-discrimination policies or institutional guidelines could be coded and reviewed, examining whether there is a correlation between the presence of policies that support women and those that support LGBT persons. A focus on women's-only institutions, too, could be useful, examining how these institutions uniquely construct a campus climate for LGBT persons differently from co-educational campuses.

Correcting for clustering by region, a state's vote for President Obama in the 2008 election was a relatively strong predictor of a positive climate for LGBT students. More liberal political environments, which have traditionally been associated with acceptance of sexual minority equality, are related to more positive campus environments. This indicates that political

context still has an influence on the manifestation of an accepting environment for sexual minority persons. Even given the crude operationalization of liberal political climate in this work, and even after correcting for clustering by region, the variable was found to be a statistically significant predictor of an institution's final rating on the Campus Climate Index.

Finally, the student-to-faculty ratio was found to be a significant influence on the presence of many of the survey's indicators of a positive climate for sexual minorities. If the student-to-faculty ratio is considered representative of institutional prestige, then it stands out as the only variable that has a statistically significant effect on a campus's comprehensive Campus Climate Index rating. However, neither private status nor the percentage of students admitted, two other strong indicators of institutional prestige, were found to be significant, so this interpretation is suspect.

It may make more sense to conceptualize of faculty as a resource (of sorts) – and, as such, it was the only resource to have a statistically significant effect on an institution's Campus Climate Index rating. No other variables that represent potential resources – tuition, endowment, nor number of undergraduates – were statistically significant predictors. There are several potential mechanisms for this effect. Education level remains a predictor of attitudes toward gay and lesbian persons; those with more education tend to espouse more positive views (Brown and Henriquez 2008, Grapes 2006). As faculty have higher levels of education, their beliefs might affect the greater educational context. Or, it may be that there are instrumental, key figures among the faculty who challenge the administration to include more protections for, courses about, and services geared toward sexual minority persons. Future work could explore what role faculty play in determining a campus's climate for sexual minority persons.

Particular structural factors, then, have an influence on campus climate. Gender and political opportunity play a role in determining a campus's relative acceptance toward sexual minorities as measured by the Campus Climate Index. Results in this work also indicate that faculty, if conceptualized as a resource, may also contribute to a postsecondary institution's positive environment for LGBT persons. What is notable, though, is that many campuses have less-than-ideal environments for sexual minority students, faculty, and staff. The absence of non-discrimination policies, same-sex domestic partner benefits, LGBT resource centers, and other programs, offices, and interventions potentially disadvantage sexual minorities who learn, live, and work on many American college campuses.

The relative absence of certain structural factors that affect the general campus climate toward sexual minorities may be considered distressing. If the presence of a more positive climate for LGBT students cannot be explained using structural factors such as endowment and the number of undergraduates, then it may appear that we are no closer to understanding how macro-scale phenomenon at the university level systematically affect this outcome. However, the fact that many of the variables in these models are not statistically significant could be interpreted positively. If there are few structural factors related to institutional prestige or financial resources that affect a campus's relative standing on the Campus Climate Index, then it may be possible for any campus, no matter what its resources, to enact programs, policies, and interventions that may lead to a more positive environment for sexual minority students. Were any of the factors to be significant, it could be difficult to fault campuses that do not have the resources to enact such programs; instead, these results suggest that many campuses, regardless of their available resources, have been able to create a positive environment for their sexual minority students.

Limitations. There are some limitations to this work that could be corrected in future studies. First, the Campus Climate Index is not a comprehensive data source; completing the survey is voluntary, and an unknown number of institutions elected to keep their responses confidential. The Heckman model for selection corrected for this obstacle, but a more comprehensive data source could help in ascertaining the exact effects of structural determinants on the campus's climate toward sexual minorities. Given the variables of interest to the Department of Education, who collects the IPEDS data, it is unlikely that questions about campus climate will be included in their survey in the foreseeable future. An expansion of the Campus Climate Index, or the development of another independent data set, could produce responses from more schools.

The scaling of the dependent variable is problematic as well; the developers of the Index did not anchor the ratings to particular institutional characteristics (Renn 2010). Although it can be assumed that a campus with an overall rating of one star on the index has a better climate than one with five stars, there is no quantitative or qualitative description about what a particular rating translates to at the campus level. Although the Campus Climate Index could be strengthened by the development of such a rubric, future work could develop a more comprehensive data set. The use of an index that is compiled on an institution-by-institution basis would be time-intensive, but could use dummy variables to provide concrete measures as to whether or not a particular indicator of a positive climate is present.

The measure of political climate in this work was confined to the state level and measured based on the results of one election: the 2008 presidential election. This data was used because it was readily available and nationally comprehensive. It should also be noted that, despite the crudeness of this estimate, the variable was still found to be statistically significant.

If time were to permit, the development of a data source that measures political outcomes in smaller geographic contexts – such as cities, counties, or even on campuses themselves – could be used to provide a more sophisticated measure of political effects.

There are likely many more resources or campus-wide structural factors that could contribute to an institution's acceptance of sexual minority persons. Although this macro-level analysis has identified some national patterns in this regard, there may be campus-specific histories or key figures that have led to more positive outcomes in terms of campus climate. Qualitative work, particularly case histories, can supplement the data here by indicating how, in what manner, and to what degree these structural factors affect the lives of students, faculty, and staff on a daily basis.

Finally, although the Heckman model was appropriate, given the significance of the ρ term in the model, multicollinearity is still a concern. The lack of exclusion factors, or variables that have a theoretical basis for being included in the selection equation, but not in the outcome equation, led to a condition number above the recommended threshold. Future research could identify exclusion variables to lessen the risk of multicollinearity. A more comprehensive data set from campusclimateindex.org or another source could also address this issue by removing the need for a Heckman selection model, allowing alternatives for analysis.

Conclusion. Macro-scale structural factors affect the milieu for sexual minority persons on college campuses. Gender, political context, and faculty exert an influence on several of the measures used by the Campus Climate Index to determine an institution's acceptance of LGBT people. The findings of this work also indicate that many campuses, regardless of their available resources, have been able to create more inclusive climates for their sexual minority students, faculty, and staff. An awareness of these structural forces can be used by administrators,

students, and staff who wish to improve their campus climate. The directions for future scholarship provided here can use these findings to determine other structural determinants that might have an effect on campus climate, as well as how these forces translate to other outcomes for LGBT persons.

Figure 1

Distribution of Campus Climate Index Ratings, 221 Institutions

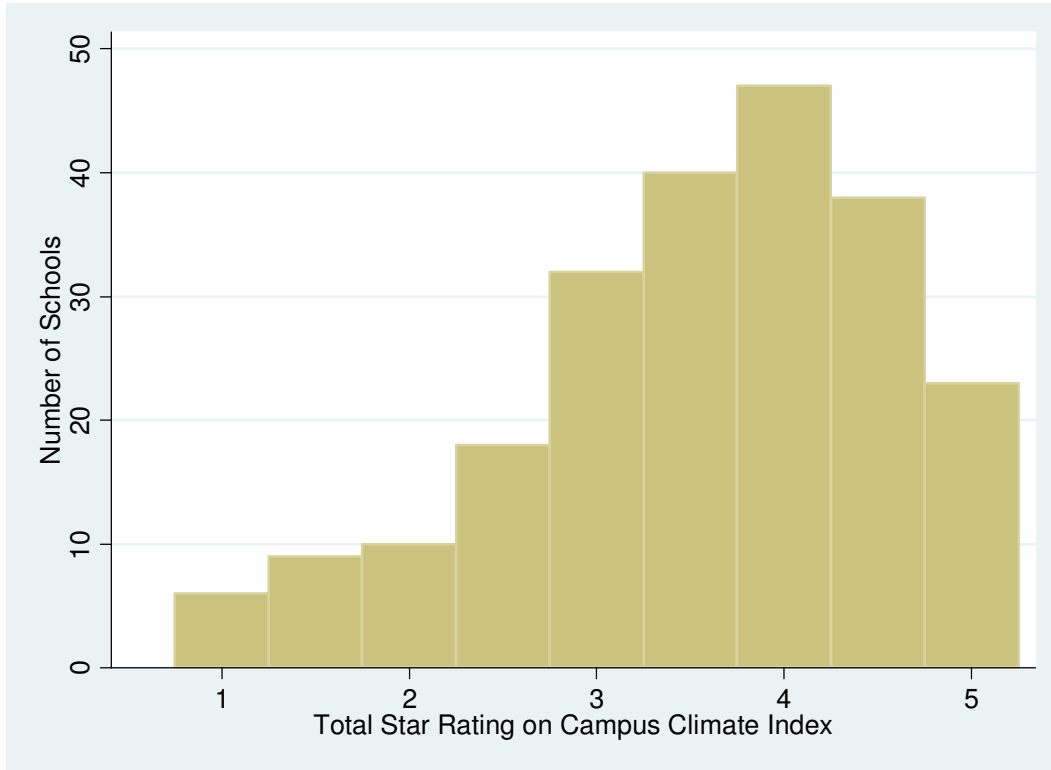


Table 1
 IPEDS Classification of States Into Regions

Region	States Included
New England	CT, MA, ME, NH, RI, VT
Mid-Atlantic	DC, DE, MD, NJ, NY, PA
Great Lakes	IL, IN, MI, OH, WI
Midwest	IA, KS, MN, MO, NE, ND, SD
South	AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV
Southwest	AZ, NM, OK, TX
Mountain	CO, ID, MT, UT, WY
West	AK, CA, HI, NV, OR, WA,

Table 2

Heckman Regression of Independent Variables on American Four-Year Colleges' Campus
Climate Index Rating

Table 1. Heckman Regression of Independent Variables on American Four-Year Colleges' Campus Climate Index Rating				
	β		s.e.	m.e.
Number of Undergraduates (in thousands)	0.0001		0.0174	0.0009
Percentage of White Students	-0.0023		0.0052	-0.0022
Percentage of Female Students	0.0146	+	0.0088	0.0146
Percentage Admitted	0.0044		0.0043	0.0044
Student-to-Faculty Ratio	-0.0382	++	0.0175	-0.0382
Private	-0.4068		0.5546	-1.0035
Tuition (in thousands)	0.0277		0.0241	0.0289
Endowment (in thousands)	0.0001		0.0002	0.0001
Urban Context				
Urban	0.0110		0.1725	-0.0477
Rural	-0.0656		0.1797	-0.0469
Percentage of State Vote for Obama	0.0226	++	0.0094	0.0227
Constant	2.5475	++	0.9593	
<i>Selection Model</i>				
Number of Undergraduates (in thousands)	0.0761	***	0.0103	
Percentage of White Students	0.0070	**	0.0024	
Percentage of Female Students	-0.0025		0.0033	
Percentage Admitted	0.0019		0.0032	
Student-to-Faculty Ratio	-0.0050		0.0110	
Private	-1.7145	***	0.2375	
Tuition (in thousands)	0.0736	***	0.0092	
Endowment (in thousands)	0.0011	***	0.0002	
Urban Context				
Urban	0.0653		0.1388	
Rural	0.1652		0.2297	
Percentage of State Vote for Obama	0.0205	**	0.0066	
Constant	-3.4421	***	0.4877	
ρ	-0.7725		0.3316	
σ	1.0419		0.1221	
λ	-0.8049		0.2353	
Wald χ^2 test for ρ	4.24	*		
Uncensored Observations	221			
N	1432			

* = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$, two-tailed

+ = $p < 0.05$, ++ = $p < 0.01$, +++ = $p < 0.001$, one-tailed

Corrected for clustering by region as defined by the eight IPEDS regions.

For urban context variable, reference category is schools in towns or suburbs.

References

- Altemeyer, Bob. 2001. "Changes in Attitudes Toward Homosexuals." *Journal of Homosexuality* 42:63-75.
- Astin, Alexander W. 1999. "How the Liberal Arts College Affects Students." *Daedalus* 128:77-100.
- Badgett, M.V. Lee. 2001. *Money, Myths, and Change: The Economic Lives of Lesbians and Gay Men*. Chicago: University of Chicago Press.
- Beemyn, Brett Genny, Susan R. Rankin, and Shane L. Windmeyer. 2010. "Campus Search: Results." Retrieved November 15, 2010, from (<http://www.campusclimateindex.org/search/>)
- . 2011. "About the Index." Retrieved January 9, 2011, from (<http://www.campusclimateindex.org/about/default.aspx>)
- Bell, David, and Gill Valentine. 1995. "Queer Country: Rural Lesbian and Gay Lives." *Journal of Rural Studies* 11:113-122.
- Boyd, Nan Alamilla. 2003. *Wide Open Town: A History of Queer San Francisco to 1965*. Berkeley, CA: University of California Press.
- Brown, Michael J., and Ernesto Henriquez. 2008. "Socio-Demographic Predictors of Attitudes Toward Gays and Lesbians." *Individual Differences Research* 6:193-202.
- Bushway, Shawn, Brian D. Johnson, and Lee Ann Slocum. 2007. "Is the Magic Still There? The Use of the Heckman Two-Step Correction for Selection Bias in Criminology." *Journal of Quantitative Criminology* 23:151-178.
- Collins, Patricia Hill. 2004. *Black Sexual Politics: African Americans, Gender, and the New Racism*. New York: Routledge.
- Connell, R.W. 1992. "A Very Straight Gay: Masculinity, Homosexual Experience, and the Dynamics of Gender." *American Sociological Review* 57:735-751.
- Consortium of Higher Education LGBT Resource Professionals. 2010. Home Page. Retrieved November 17, 2010 from (<http://www.lgbtcampus.org/>)
- Cress, David M., and David A. Snow. 1996. "Resources, Benefactors, and the Viability of Homeless Social Movement Organizations." *American Sociological Review* 61:1089-1109.
- Evans, Nancy J., & Ellen M. Broido. 1999. "Coming Out in the Residence Halls: Negotiation, Meaning Making, Challenges, Supports." *Journal of College Student Development* 40:658-668.
- Eyre, Linda. 1993. "Compulsory Heterosexuality in a University Classroom.) *Canadian Journal of Education* 18:273-284.
- Fine, Leigh E. Forthcoming. "The Context of Creating Space: Assessing the Likelihood of Campus LGBT Center Presence." *Journal of College Student Development*.
- . 2011. "Minimizing Heterosexism and Homophobia: Constructing Meaning of Out Campus LGB Life." *Journal of Homosexuality*.
- Foucault, Michel. 1978. *The History of Sexuality*. Robert Hurley, Trans. New York: Pantheon.
- Grapes, Katharine. 2006. "Ignorant Discrimination: How Education Levels Affect Attitudes Toward Homosexuality and Gay Rights." *Sociological Viewpoints* Spring:51-59.
- Harper, Gary W., Nadine Jernewall, and Maria Cecila Zea. 2004. "Giving Voice to Emerging Science and Theory for Lesbian, Gay, and Bisexual People of Color." *Cultural Diversity and Ethnic Minority Psychology* 10:187-199.

- Heckman, James J. 1979. "Sample Selection Bias as a Specification Error." *Econometrica* 47(1): 153-161.
- . 1976. "The Common Structure of Statistical Models of Truncation, Sample Selection, and Limited Dependent Variables and a Simple Estimator for Such Models." *Annals of Economic and Social Measurement* 5:475-592.
- Herek, Gregory M. 1988. "Heterosexuals' Attitudes Towards Lesbians and Gay Men: Correlates and Gender Differences." *The Journal of Sex Research* 25:451-477.
- . 1984. "Beyond 'Homophobia': A Social Psychological Perspective on Attitudes Towards Lesbians and Gay Men." *Journal of Homosexuality* 10:39-51.
- Jenkins, J. Craig, and Charles Perrow. 1977. "Insurgency of the Powerless: Farm Worker Movements (1946-1972)." *American Sociological Review* 42:249-268.
- Leung, Siu Fai, and Shihti Yu. 1996. "On the Choice Between Sample Selection and Two-Part Models." *Journal of Econometrics* 72:197-229.
- McCarthy, John D. and Mayer N. Zald. 1977. "Resource Mobilization and Social Movements: A Partial Theory." *American Journal of Sociology* 82: 1212-1241.
- Meyer, David S., and Debra C. Minkoff. 2004. "Conceptualizing Political Opportunity." *Social Forces* 82:1457-1492.
- Moller, Stephanie, Arthur S. Alderson, and François Neilsen. 2009. "Changing Patterns of Income Inequality in U.S. Counties, 1970-2000." *American Journal of Sociology* 114:1037-1101
- Newman, Bernie Sue. 2007. "College Students' Attitudes About Lesbians: What Difference Does 16 Years Make?" *Journal of Homosexuality* 52:249-265.
- Pascoe, C.J. 2005. "'Dude, You're a Fag': Adolescent Masculinity and the Fag Discourse." *Sexualities* 8:329-346.
- Pharr, Suzanne. 1997. *Homophobia: A Weapon of Sexism*. Expanded ed. Berkeley, CA: Chardon Press.
- Phelan, Shane. 2001. *Sexual Strangers: Gays, Lesbians, and the Dilemmas of Citizenship*. Philadelphia: Temple University Press.
- Polikoff, Nancy. 2008. *Beyond (Straight and Gay) Marriage: Valuing All Families Under the Law*. Boston, MA: Beacon Press.
- Poynter, Kerry John, and Jamie Washington. 2005. "Multiple Identities: Creating Community on Campus for LGBT Students." *New Directions for Student Services* 111:41-47.
- Rankin, Susan R. 2005. "Campus Climates for Sexual Minorities." *New Directions for Student Services*, 111:17-23.
- . 2003. *Campus Climate for LGBT People: A National Perspective*. New York: National Gay and Lesbian Task Force Policy Institute.
- Renn, Kristen A. 2010. "LGBT and Queer Research in Higher Education: The State of the Field." *Educational Researcher* 39:132-141.
- Rimmerman, Craig. 2008. *The Lesbian and Gay Social Movements: Assimilation or Liberation?* Boulder, CO: Westview.
- Robinson, Matthew W. 1998. "The Residence Hall: A Home Away from Home." Pp. 53-66 in *Working with Lesbian, Gay Bisexual, and Transgender College Students*, Ronni L. Sanlo, Ed. Westport, CT: Greenwood Press.
- Sanlo, Ronni, Susan Rankin, and Robert Schoenberg. 2002. *Our Place on Campus: Lesbian, Gay, Bisexual, Transgender Services and Programs in Higher Education*. Westport, CT: Greenwood Press.

- Savin-Williams, Ritch C. 2005. *The New Gay Teenager*. Cambridge, MA: Harvard University Press.
- Schilt, Kristen. 2009. "Just One of the Guys? How Transmen Make Gender Visible at Work." *Gender & Society* 20:465-490.
- Sharp, Elaine B. 2002. Culture, Institutions, and Urban Officials' Responses to Morality Issues. *Political Research Quarterly* 55:861-883.
- Sigelman, Lee and Langche Zeng. 1999. "Analyzing Censored and Sample-Selected Data With Tobit and Heckit Models." *Political Analysis* 8:167-182.
- Stein, Arlene. 2001. *The Stranger Next Door: The Story of a Small Community's Battle Over Sex, Faith, and Civil Rights*. Boston: Beacon.
- Stozer, Rebecca L. 2009. "Straight Allies: Supportive Attitudes Toward Lesbians, Gay Men, and Bisexuals in a College Sample." *Sex Roles* 60:67-80.
- Taylor, Verta, Katrina Kimport, Nella Van Dyke, and Ellen Ann Andersen. 2009. "Culture and Mobilization: Tactical Repertoires, Same-Sex Weddings, and the Impact on Gay Activism." *American Sociological Review* 74:865-890.
- U.S. Department of Education. 2010. "The Integrated Postsecondary Education Data System." Retrieved October 5, 2010, from (<http://nces.ed.gov/IPEDS/>)
- U.S. Federal Election Commission. 2010. "2008 Official Presidential General Election Results." Retrieved December 26, 2010, from (<http://www.fec.gov/pubrec/fe2008/2008presgeresults.pdf>).
- Wilkinson, Lindsey, and Jennifer Pearson. 2009. "School Culture and the Well-Being of Same-Sex-Attracted Youth." *Gender & Society* 23:542-568.
- Winston, Gordon C. "Subsidies, Hierarchy, and Peers: The Awkward Economics of Higher Education." *Journal of Economic Perspectives* 13:13-36.
- Yeung, King-to, & Mindy Stomblor. 2000. "Gay and Greek: The Identity Paradox of Gay Fraternities." *Social Problems* 47:134-152.