Socioeconomic Segregation, Campus Social Context, and Disparities in Bachelor's Degree Attainment

Dafna Gelbgiser

ABSTRACT It is well established that students from different socioeconomic backgrounds attend different colleges, net of their academic preparation. An unintended consequence of these disparities is that in the aggregate, they enhance socioeconomic segregation across institutions of higher education, cultivating separate and distinct social environments that can influence students' outcomes. Using information on the academic careers of a nationally representative sample of U.S. high school students who entered college in the mid-2000s, matched with external information on the social context of each college, this study evaluates the extent of socioeconomic segregation by social context in higher education and its implications for socioeconomic inequality in bachelor's degree attainment. Results confirm that social context is highly consequential for inequality in student outcomes. First, disparities in social context are extensive, even after differences in demographics, skills, attitudes, and college characteristics are accounted for. Second, the social context of campus, as shaped by segregation, is a robust predictor of students' likelihood of obtaining a bachelor's degree. Finally, the degree attainment rates of all students are positively associated with higher concentrations of economic advantages on campus. Combined, these results imply that socioeconomic segregation across colleges exacerbates disparities in degree attainment by placing disadvantaged students in social environments that are least conducive to their academic success.

KEYWORDS Campus social context • Bachelor's degree attainment • Socioeconomic inequality • Socioeconomic segregation • Postsecondary education

Introduction

Socioeconomic disparities in bachelor's degree attainment are a key mechanism for the intergenerational transmission of inequality in the United States (Brand and Xie 2010; Hout 2012; Torche 2011). Despite dramatic increases in college enrollment rates over the past four decades, especially among students from disadvantaged families, socioeconomic inequality in bachelor's degree attainment has increased over time (Bloome et al. 2018). In 1980, young adults aged 25–34 from families in the top income quartile were 2.3 times more likely to obtain a bachelor's degree than were

their peers in the bottom quartile. By 2015, this gap increased by nearly 40%, such that young adults in the top income quintile were 3.2 times more likely to obtain a bachelor's degree than were their peers in the bottom quartile.[1] Given the rising costs of higher education and the growing reliance on student loans (Goldrick-Rab 2016: chapter 8; Hout 2012), these patterns suggest that students from disadvantaged families are paying more for their education today (usually by taking on substantial debt) but are increasingly less likely to reap the benefits of their investment. Understanding inequality in college *outcomes*, rather than *access*, is therefore crucial for uncovering the mechanisms that reproduce inequality (Bloome et al. 2018).

Research on socioeconomic disparities in student outcomes has revealed important individual-level mechanisms of inequality, including large and persistent differences in academic preparation, occupational plans, and attitudes toward academia (Alon and Tienda 2007; Goldrick-Rab 2006; Morgan et al. 2013; Reardon 2011; Sirin 2005). It has also revealed organizational-level factors, such as disparities in college sector and degree offerings (e.g., Alon 2009; Ayalon and Yogev 2005; Bloome et al. 2018; Brand et al. 2014; Doyle 2009; Gelbgiser 2018; Leigh and Gill 2004). Compared with their more affluent peers, students of low socioeconomic status (SES) arrive at college with poorer academic preparation and fewer social and financial resources; they are also more likely to enroll at two-year colleges and at open admission four-year colleges. As a result, low-SES students are less likely to obtain a degree.

Although research has focused primarily on variations in individual and organizational characteristics, the social environments encountered by students from different social backgrounds on campus also differ substantially. It is well established that students from different social backgrounds apply to and enroll in different colleges, even net of their prior academic abilities (Ayalon and Yogev 2005; Black et al. 2015; Dillon and Smith 2017; Griffith and Rothstein 2009; Hoxby and Avery 2013). One unintended corollary is that, in the aggregate, ongoing socioeconomic disparities enhance the unequal distribution of students from different backgrounds across colleges—socioeconomic segregation—which in turn shapes and solidifies distinct social environments in higher education. Thus, college students from different socioeconomic backgrounds encounter distinct social contexts in higher education—a situation similar to that described in the literature on neighborhood and high school segregation (Bischoff and Owens 2019; DiMaggio and Garip 2012; Harding 2011; Owens 2018, 2020; Reardon et al. 2018).

These systematic differences in college social contexts can exacerbate socioeconomic inequality in student outcomes because colleges are fundamentally social spaces where students interact, exchange information and perspectives, and adopt behaviors that can affect their educational outcomes. Far from arriving at college as "finished products," students' identities, choices, and aspirations evolve, partly as a result of their social environment on campus (Armstrong and Hamilton 2013; Binder et al. 2016; Bourdieu 1986; Hamilton et al. 2018; Kaufman and Feldman 2004; Stevens 2009; Stevens et al. 2008; Winston and Zimmerman 2004). The college social environment can influence students' professional aspirations (Binder et al. 2016; Bourdieu 1984, 1986; Walpole 2003), major choices (Armstrong and Hamilton

---

[1] The figure is from the author's analyses using Current Population Survey data from 1980–2015.

2013), grades (Fletcher and Tienda 2009), and retention (Tinto 1987, 1997)—all of which are related to their likelihood of obtaining a degree.

The research presented here extends the demographic and sociological scholarship on inequality by assessing the extent of socioeconomic variation in the social contexts students encounter in college and its implications for inequality in bachelor's degree attainment. I analyze information on the academic careers of a nationally representative sample of high school students who entered higher education in the mid-2000s (obtained from the Educational Longitudinal Study of 2002), matched with external information on the social context of each student's college (obtained from the College Scorecard data). The social context of each campus, measured by indicators of the socioeconomic composition of enrolled students and evaluated relative to the entire field of higher education, provides a novel and comprehensive assessment of variation across institutions of higher education. Drawing on the available longitudinal data on students and the variability in context-student matches, I generate careful comparisons among students with similar observable characteristics who attended colleges characterized by different social contexts. This approach differs from most studies on the social experiences of students in college, which have focused on a limited set of colleges and often on a limited set of students within those colleges (e.g., Armstrong and Hamilton 2013; Binder et al. 2016; Espenshade and Radford 2009; Fletcher and Tienda 2009; Jack 2016, 2019; Stevens 2009; see Stevens et al. 2008 for a similar argument).

Results confirm that disparities in campus social context are consequential for socioeconomic inequality in student outcomes, providing new arenas for future research and policy interventions. Among this recent cohort of high school graduates, students from different social backgrounds, especially those attending four-year colleges, encounter significantly different social contexts. These differences are important for inequality because for all students, the likelihood of graduation is strongly related to the social context of their college, even after variation in students' academic preparation, attitudes toward education, aspirations and occupational plans, and colleges' organizational characteristics and admission practices are accounted for. Importantly, a higher concentration of socioeconomic advantages on campus is associated with increases in degree attainment rates among students from all family backgrounds. It follows that socioeconomic segregation across campus contexts exacerbates preexisting inequalities in degree attainment by placing disadvantaged students in social environments that are least conducive to degree attainment and placing advantaged students in environments that facilitate degree attainment.

Theoretical Motivation and Significance

Socioeconomic Segregation Across Colleges

Students are not randomly distributed across colleges. Low- and high-SES students attend colleges that differ in degree offerings, sector, and selectivity, partially because of ubiquitous and persistent disparities in prior academic achievements and standardized test scores (Alon and Tienda 2007; Reardon 2011; Sirin 2005). High-SES students are overrepresented at highly selective colleges, and low-SES students

are overrepresented at two-year and open admission four-year colleges (Alon 2009; Bloome et al. 2018; Brand et al. 2014; Chetty et al. 2017; Gelbgiser 2018).

Because most prior work on socioeconomic segregation across colleges has focused on the edges of the admission selectivity distribution—namely, on elite and open admission colleges—the extent of socioeconomic segregation across institutions that occupy the center of the distribution is unclear. This omission is a major oversight, given that most four-year colleges employ some degree of admission selectivity. Among the 1,493 four-year colleges rated by the NCES-Barron's Admissions Competitiveness Index in 2004 (the year most students in the high school cohort studied here graduated from high school), only 66 colleges were classified as "most competitive," and only 106 were rated "noncompetitive," leaving 1,240 four-year colleges with some degree of selectivity. How segregated are they?

Some degree of socioeconomic segregation across all colleges is likely for several reasons. First, the literature on application behavior has found consistent differences in the application and enrollment patterns of students with similar academic profiles but different socioeconomic backgrounds. Low-SES and minority students are more likely to enroll in colleges whose admission requirements are below their qualifications, whereas high-SES students are more likely to enroll in "reach" colleges whose requirements are above their qualifications (Black et al. 2015; Bowen 2018; Dillon and Smith 2017; Griffith and Rothstein 2009; Hoxby and Avery 2013; Mullen and Goyette 2019). These differences increase socioeconomic segregation across colleges.

Second, socioeconomic differences in information, social, and financial resources can enhance segregation across colleges, even net of prior academic preparation. High school students often turn to their peers, academic counselors, neighbors, and family members for advice about an appropriate college destination. Because of high and persistent neighborhood and school segregation by income, students from different socioeconomic backgrounds are exposed to vastly different consulting about suitable college destinations, and disadvantaged students are less likely to have access to accurate information about costs, admission practices, and career opportunities (Harding 2011; Owens 2016; Reardon et al. 2018). Indeed, using qualitative data, Holland and DeLuca (2016) found that inner-city African American youth are drawn to for-profit trade colleges mainly because of misinformation regarding the job prospects of the degrees they offer. Disadvantaged students are also less likely to apply to colleges outside their geographical area and are more sensitive to tuition costs (Cortes and Lincove 2019; Hoxby and Avery 2013; Long 2004; Mullen and Goyette 2019; Roksa and Deutschlander 2018). Consequently, they are more likely to attend colleges with students of a similar socioeconomic background.

Third, colleges increase socioeconomic segregation by catering to the needs of students from specific sociodemographic strata in order to mitigate competition and increase efficiency and financial stability (Armstrong and Hamilton 2013; Jaquette and Curs 2015; Stevens 2009). Armstrong and Hamilton (2013), for example, found that large, flagship state universities invest in the "party pathway"—characterized by well-funded facilities such as gyms, Greek life, and other recreational activities—in order to attract affluent students who could not secure a position at an elite college. Jaquette and Curs (2015) found that public universities in Michigan target out-of-state students to increase revenues. Similarly, many for-profit colleges target low-income

and older students by offering them labor market–applicable training and greater flexibility than available from traditional colleges (Cottom 2017; Kutz 2010).

Combined, these forces enhance socioeconomic segregation, even across colleges with similar admission selectivity and among students with similar academic abilities. Consider, for example, Grand Valley State University and Florida International University, two public four-year colleges classified in 2004 by Barron's Index as "very competitive," with a 25th percentile ACT score of 21 for admitted students. In most research on higher education, the two institutions would be lumped together as selective four-year colleges. Yet the student composition at these two colleges in 2004–2005 was vastly different: the median family income of students at Florida International University was $22K, and the average poverty rate at students' home ZIP codes was 11%; comparative figures for Grand Valley State University were $58K and 5.5%, respectively.[2] This example demonstrates that socioeconomic segregation is distinct from other commonly studied college characteristics, such as sector or admission selectivity, and can exert a unique influence on student outcomes.

Campus Social Context and Degree Attainment

Consistent socioeconomic segregation across colleges is an important axis of stratification because it solidifies differences in the socioeconomic composition of enrolled students across institutions and places students in systematically different campus social contexts. In turn, campus social contexts influence the probability that students interact with peers from different socioeconomic backgrounds, regardless of students' social preferences and academic capabilities. From this perspective, social context is an underlying ecological college characteristic because it influences students' access to certain information, behaviors, and other social resources that flow in the network (DiMaggio and Garip 2012; McPherson et al. 2001).

The importance of student composition for academic achievements, often considered part of the "hidden curriculum" of schools, has been recognized by the sociological literature on school socioeconomic and racial segregation (Entwisle and Alexander 1992; Kahlenberg 2001; Kim and Conrad 2006; Owens 2020; Portes and MacLeod 1996), the educational literature on so-called frog-pond effects (e.g., Crosnoe 2009; Marsh 1987; Marsh and Hau 2003), and the economic literature on peer effects (Goethals et al. 1999; Lavy et al. 2012; Winston and Zimmerman 2004; Zimmerman 2003). There is far less agreement, however, on whether attending schools characterized by high concertation of students with similar SES is beneficial for student outcomes and for whom. From an inequality perspective, these questions are critical. If attending a college with a high concentration of low-SES students is beneficial for the academic success of low-SES students (net of other organizational and individual characteristics), then socioeconomic segregation across colleges *mitigates* inequality. By contrast, if most students benefit from attending colleges with higher concentrations of students from mid- and high-SES families, socioeconomic segregation *exacerbates* inequality.

---

[2] These figures are based on the College Scorecard data and the Integrated Postsecondary Education Data System.

For example, the frog-pond perspective, which focuses on students' self-concept and its effects on academic outcomes, suggests that attending college with a high concentration of students from similar backgrounds can be beneficial for disadvantaged students. This literature predicts that as the proportion of high-SES students increases, low-SES students become more vulnerable because they face greater competition for grades and resources and are at greater risk of stigmatization. These vulnerabilities can worsen low-SES students' negative self-concept, making it especially challenging for them to navigate college and eventually increasing their risk of dropping out. Indeed, analyzing detailed information from the National Longitudinal Study of Adolescent Health, Crosnoe (2009) found that as the proportion of mid- and high-income high school students increased, low-SES students experienced decreases in math and science achievement and increases in psychological problems. Jack (2019) found that low-SES students at Harvard experienced social isolation and hardship, and Armstrong and Hamilton (2013) found that the retention rates of low-SES female students at one state college were hindered by their integration with higher-SES students, although the latter suffered no observed educational consequences.

By contrast, theoretical models focusing on social learning predict that segregation can be particularly detrimental for low-SES students. Tinto's (1987, 1997) retention model, for instance, views social integration with mid- and high-SES students as crucial for the retention of disadvantaged students because it provides them with access to valuable informational, academic, and normative resources (Rubin 2012; Walpole 2003). This prediction is consistent with some interpretations of Bourdieu's (1984) cultural reproduction theory, which posits that inequality is reproduced in college through social interactions and organizational arrangements that disproportionally reward predispositions associated with affluent families (Binder et al. 2016; Stevens 2009). According to this view, a higher presence of high-SES students on campus increases the exposure of all students, but particularly disadvantaged students, to dispositions and behaviors that are valued in academia, thereby increasing their likelihood of success (Walpole 2003). These norms and expectations can be institutionalized over time through the efforts of students' families, thereby boosting all students' graduation rates (Binder et al. 2016; Stevens 2009).

Normative pressures to obtain a degree may also increase with the proportion of affluent students, given that aspirations for a bachelor's degree are nearly universal among mid- and high-SES families (Breen and Goldthorpe 1997; Goyette 2008; Harding 2011; Morgan et al. 2013). These pressures are likely to be especially beneficial for the degree attainment rates of low-SES students, who have greater exposure to competing mobility schemas in their home and neighborhood (Harding 2011). However, as some studies have identified, affluent students may be better positioned to gain more from these social pressures, thereby enhancing their prior advantage in degree attainment via segregation (Christakis and Fowler 2008; DiMaggio and Garip 2012).

The main conclusion from this review is that ongoing socioeconomic segregation in higher education can increase inequality in student outcomes because it creates systematic disparities in the social context encountered in college. The key for evaluating the effect of socioeconomic segregation on inequality in degree attainment is to assess whether and how the social context that students from different social backgrounds encounter in college affects their outcomes, net of social background, academic preparation, aspirations, or the organizational characteristics of their colleges.

This is the focus of the current investigation. I expand existing scholarship on higher education by considering an unexplored source of variation in students' pathways in higher education and highlight systematic disparities in the opportunities of students from different social backgrounds to obtain a degree. To this end, I investigate two related empirical questions. First, to what extent do students from different socioeconomic backgrounds enter colleges with a different social context? Second, how does the campus social context influence the college outcomes of students from different social backgrounds, beyond their individual- and college-level characteristics?

Method

Data and Sample

Previous studies on campus social context have generally focused on small and select groups of students enrolled in a limited number of institutions. Although this approach allows in-depth analyses of student interactions, it limits the ability to compare different social contexts and assess their variability in higher education. To provide a broad view of the extent of socioeconomic disparities in social contexts in U.S. higher education, I use data from the Educational Longitudinal Survey of 2002 (ELS) to analyzes the educational trajectories and outcomes of a large, nationally representative sample of students who have attended a variety of institutions. Collected by the U.S. Department of Education, the ELS data contain information on a sample of more than 15,000 students who were high school sophomores in 2002 and who were resurveyed in 2004, 2006, and 2012.

The main strength of the ELS lies in its wealth of information on students' social, economic, and academic background collected from students, parents, teachers, and schools collected prior to college enrollment. Because college selection is not random, this information is critical for assessing the selection processes that channel students into different postsecondary destinations. The ELS also contains information on the timing of entry into postsecondary education, the U.S. Department of Education college identifier, and degrees earned, collected from students and their institutions. Although the students in the ELS entered higher education more than a decade ago, it is the most recent longitudinal study available on a high school cohort whose members have had sufficient time to complete their education, making it uniquely suitable for the current study.

I combine the ELS data with information from the College Scorecard Data, a publicly available data set that is also compiled by the U.S. Department of Education. This data set contains annual institution-level information on campuses obtained from various government agencies, including the National Student Loan Data System, the U.S. Department of the Treasury, and the Integrated Postsecondary Education Data System (IPEDS).[3] The main advantage of these data is that they are exogenous to the characteristics of ELS respondents and reflect the variability of all students in the entering cohort at each campus, including older students and other nontraditional student populations.

---

[3] The College Scorecard data are available at https://collegescorecard.ed.gov/data. I use the college identifier for ELS students' first postsecondary institution in order to link the College Scorecard Data from the 2004–2005 cohort.

Using these data, I can compare observationally similar students that attend colleges with similar organizational characteristics but experience different campus social contexts.

The analytic sample consists of 8,100 high school sophomores who (1) participated in all relevant waves, (2) attended any type of college before January 2007, and (3) have valid nonmissing information on the composition of their first college destination and outcomes. To avoid potential biases in students' transition to college, I limit the sample to students who graduated high school on time. I construct appropriate sample weights that allow projections to the entire population of students who were in 10th grade in 2002; I use item-specific best-subset linear regression to impute missing information on the adjustment variables.[4]

Main Variables

Degree attainment, the outcome of interest, is a three-category measure of the highest degree obtained by 2012: (1) *bachelor's degree* indicates that the student obtained a bachelor's degree, its equivalent, or above by 2012; (2) *associate's degree or lower* indicates that the student's highest degree obtained by 2012 is a certificate or associate's degree; and (3) *no degree* indicates that the student attended college before 2007 but did not obtain a degree or certificate by 2012.

Campus social context, the primary predictor, is a composite measurement drawing on five aggregate dimensions of the composition of enrolled students in each campus available in the College Scorecard Data: (1) median family income; (2) weighted average family income (taking both dependent and independent students into account); (3) average median household income in students' home ZIP code; (4) average poverty rates in students' home ZIP code; and (5) percentage of students receiving federal aid.[5] Together, these aggregate dimensions of the economic conditions of enrolled students' families and their neighborhoods capture underlying ecological characteristics of the social environment that students encounter in college, especially in light of the strong correlation between economic and social conditions.[6]

Because of the high concentration of low-SES students at colleges offering less than a four-year degree (hereafter, "two-year colleges"), factor scores are estimated separately for the populations of accredited four- and two-year colleges in 2005 ($N = 1,973$ and $N = 3,495$, respectively). This practice may underestimate the overall degree of socioeconomic segregation in higher education, but it is necessary for iden-

---

[4] I weight the data by the first and last survey wave panel weight developed by the data distributors, multiplied sequentially by the inverse probabilities of students for nonparticipation in all four waves and nonresponse on the relevant outcomes estimated (estimated from separate logit models using demographic characteristics, family background, and base year indicators of academic engagement). Sample sizes are rounded to the nearest 10, according to the Institute of Education Science guidelines.

[5] Dimensions 1, 2, and 5 are derived from the National Student Loan Data System; dimensions 3 and 4 are calculated by the U.S. Department of the Treasury. Information on parental education is not available for the 2004–2005 cohort. Sensitivity analyses indicate that similar results are obtained using each dimension separately.

[6] Dimensions 1, 2, and 5 portray the average family conditions of enrolled students. Dimensions 3 and 4 capture the average contextual conditions of enrolled students' families. Together, these measures capture the concentration of economic advantages or disadvantages on campus.

Table 1 Dimensions of campus social context. Estimated for the entire population of accredited colleges in U.S. higher education in the 2004–2005 academic year

	College Rank in the Campus Social Context Distribution					
	Bottom 20%		Middle 60%		Top 20%	
	Mean	SD	Mean	SD	Mean	SD
A. Four-Year Colleges (*N*=1,973)						
Campus factor score (standardized)	−1.3	0.5	0.0	0.5	1.4	0.5
Average family income	22,287.8	6,165.5	42,170.7	8,959.7	69,974.3	10,594.1
Median family income	18,970.8	5,459.0	38,575.3	9,983.0	64,941.7	9,258.7
Avg. median household income in student home ZIP code	51,076.0	7,261.1	62,954.9	7,572.4	74,595.6	7,241.6
Avg. poverty rate in student home ZIP code	14.0	5.0	8.1	1.8	5.8	1.1
% of students who receive federal aid on campus	60.7	19.1	33.5	16.5	19.1	8.0
B. Two-Year Colleges (*N*=3,495)						
Campus factor score (standardized)	−1.2	0.3	−0.1	0.4	1.5	0.7
Average family income	11,263.1	2,450.1	18,502.5	4,163.6	32,920.2	7,638.3
Median family income	9,310.1	2,755.2	15,813.2	3,826.5	29,971.1	8,188.6
Avg. median household income in student home ZIP code	44,686.9	6,804.9	55,573.5	8,839.9	66,112.3	10,472.1
Avg. poverty rate in student home ZIP code	17.7	4.7	10.3	2.8	6.8	1.9
% of students who receive federal aid on campus	72.0	20.8	56.2	21.2	37.5	18.4

Notes: Data include all accredited postsecondary colleges in the United States in 2005. Factor scores are calculated separately for four- and two-year colleges.

Source: College Scorecard data, U.S. Department of Education (entering cohorts of 2004–2005).

tifying disparities in student outcomes associated with campus social context. Factor scores are calculated using principal component analyses and are converted into decile rank.[7] Colleges in the lowest and highest deciles are those with the highest concentrations of economically disadvantaged and advantaged students, respectively.[8]

Table 1 presents the means and standard deviations of each dimension for colleges at the bottom 20%, middle 60%, and top 20% of the social context distribution, confirming that these dimensions capture substantial differences in social environments. In 2005, the average mean and median household incomes at four-year colle-

---

[7] These factors capture most of the variance in social context, eigenvalues of 3.5 and 3.0 among four- and two-year colleges, respectively, and eigenvalues for all subsequent factors below 0.5. Cronbach's alpha is .75 among four-year colleges and .69 among two-year colleges. Examples of four-year colleges at the bottom and top deciles are listed in Table A1 in the online appendix.

[8] I tested the validity of these scores by calculating an alternative factor score for a subset of institutions for which data on average and median family income were available from the Opportunity Insights project (available at https://opportunityinsights.org/data). The correlation between the social context ranks is .90 and .74 for four- and two-year colleges, respectively, and the respective average differences in percentile rank are −0.98 and −0.04.

ges ranked at the bottom 20% of the distribution were $22K and $19K, respectively. By contrast, among four-year colleges ranked at the top 20%, the average mean and median incomes were $70K and $65K, respectively. Similar differences between colleges in the top 20% and those in the bottom 20% are evident in the average poverty rates at students' home ZIP codes (14% vs. 5.8%) and the share of students who received federal financial aid (61% vs. 19%).

Overall, students attending two-year colleges have lower family income, higher poverty rates, and higher rates of financial aid receipt. The average family income of students in two-year colleges ranked at the top 20% of the distribution was $33K, compared with only $11K for students attending two-year campuses at the bottom 20%. Similar differences are observed for poverty rates (18% vs. 7%) and the share of students receiving federal aid (72% vs. 38%).

Students' socioeconomic background (SES) is measured by a composite score constructed by the National Center for Educational Statistics (NCES) that considers data on students' family income, parents' education, and Socioeconomic Index scores when the student was in 10th grade, collapsed into quartiles. I evaluate the extent of socioeconomic disparities by comparing the educational trajectories and outcomes of students at the bottom SES quartile, two middle quartiles, and top quartile (hereafter, low-, mid-, and high-SES students, respectively).

Adjustment Factors

College selection and enrollment decisions are influenced by multiple factors, including students' academic achievements, aspirations, attitudes, and demographic factors—all of which are associated with college outcomes. Colleges also differ in their characteristics, which can be correlated with both campus social context and student outcomes. If not accounted for, these associations can generate spurious noncausal correlations between campus social context and student outcomes. The models therefore adjust for a comprehensive set of individual- and college-level factors, detailed in Table 2, that are crucial for assessing the effect of campus social context on student outcomes.

Analytic Strategy

I explore the extent and implications of differences in campus social context in several steps. I begin by assessing disparities in the distribution of students across contexts. First, I fit an ordinary least squares (OLS) model predicting campus social context as a function of student SES. The coefficients for SES in this model capture unadjusted differences in campus social context that students from different backgrounds encounter in college. Next, I fit a series of nested OLS models that sequentially add the individual- and college-level factors described in Table 2. In all models, high-SES students are the reference category. Thus, the coefficients for student SES reflect the average difference in campus social context decile between low- or mid-SES students and high-SES students. The changes in the SES coefficients across models capture the extent to which variations in individual- and college-level factors explain socioeconomic differences in campus social context.

Table 2 Individual- and college- level adjustment variables included in the analyses

Variable	Description
Individual-Level Factors	
Social and demographic factors	
Gender	Self-reported gender (male or female)
Race/ethnicity	Self-reported race and or ethnicity in 10th grade (White, Hispanic, Black, Asian, or other race)
High school urbanicity	Urbanicity of the locality of high school in 10th grade (urban, suburban, or rural)
High school type	Type of school in 10th grade (public, Catholic, or other private)
Academic achievements and preparation	
Math scores, 10th grade	Scores in an NCES-administered standardized math test in 10th grade (standardized)
Math scores, 12th grade	Scores in an NCES-administered standardized math test in 12th grade (standardized)
Reading scores, 10th grade	Scores in an NCES-administered standardized reading test in 10th grade (standardized)
High school course work in science, math, and non-English language	Highest level of courses student took in each subject in high school, based on the NCES coding schema developed by Burkam and Lee (2003)
Cumulative GPA in high school	Student cumulative academic GPA in 12th grade reported by the school
SAT/ACT scores (in percentiles)	SAT/ACT scores converted to the national percentiles in 2004–2005
Academic aspirations, expectations, and attitudes	
Self-reported educational aspirations in 2004	A dummy variable indicating whether the student self-reported in 12th grade (in 2004) that they expected to earn a bachelor's degree, based on the response to the following prompt: "As things stand now, how far in school do you think you will get?"
Required education of expected occupation	Whether the anticipated occupation at the age 30 requires a bachelor's degree, based on student's response to the following question: "What occupation do you expect to have at the age of 30?," coded and matched to O*NET occupational classification information about required education (college or more; high school or less; or don't know, missing)
Student commitment to school in 10th grade	A composite measurement (standardized) based on 31 items reported by the student, teachers, and parents about student behavior in school in 10th grade
College Characteristics	
Admission competitiveness[a]	Measured with two indicators reported to the IPEDS: (1) the composite ACT scores of the 25th percentile of first-time admitted students in 2005, and (2) the admission rate of first-time students in 2005 (calculated as the number of admitted students / number of applicants). For open admission colleges, the admission rate is 100%, and the ACT score is set to the minimum.
College sector	Categorized as public, private nonprofit, or private for-profit college
College financial resources	Measured by the core revenues of the college in 2004–2005 (in millions of dollars)

Table 2 (continued)

Variable	Description
Student-faculty ratio	Ratio of the number of full-time undergraduate students to faculty/research full-time equivalent staff
College size	Measured by the total number of undergraduate students (12-month unduplicated enrollment)
College location	An indicator for whether the college is located in the same state as students' high school in 10th grade[b]

Sources: ELS 2002–2012, IPEDS, and the College Scorecard data.

[a] Selectivity is available only for four-year colleges.

[b] Low-SES students may be less mobile in their college choices, leading to greater dependency on college region and prior network recourses. Differences in the likelihood of attending a college in the same state are evident among ELS students but are smaller than anticipated: 90% of low-SES students, 85% of mid-SES students, and 72% of high-SES students attended their first college in the same state as their high school.

Next, I examine whether and how campus social context influences student outcomes by fitting a series of multinomial models that predict student outcomes as a function of that context. I first fit a "naïve model," which includes only students' socioeconomic background and campus social context. The coefficients for campus social context in this model capture the gross association between social context and student outcomes.

I then estimate three additional nested models: a model that adjusts for students' individual characteristics (e.g., academic preparation, attitudes, and aspirations); one that adds adjustments for their college characteristics (e.g., admission selectivity, sector, size, student-faculty ratio, and financial resources); and one that includes all individual- and college-level factors and interaction terms between student SES and campus social context. The coefficients for campus social context in the first two nested models capture the net associations between campus social context and student outcomes, whereas the last nested model assesses whether the effect of campus context on student outcomes varies by SES.

Results

Socioeconomic Background and Campus Social Context

The extent of socioeconomic differences in the social context that students encounter in higher education is captured in Figure 1, which graphs the density distribution of campus social context percentile rank by student SES. Low-, mid-, and high-SES students encounter substantially different social contexts on campus, even when attending colleges of a similar level. Low-SES students are concentrated on campuses characterized by concertation of economic disadvantages, whereas mid- and high-SES students are more often found on campuses characterized by concertation of economic advantages (higher average and median family income, lower poverty rates, and lower reliance on financial aid).

Traditional segregation indices succinctly tell the story. The index of dissimilarity (D) for segregation of low- and high-SES students across campus social context deciles
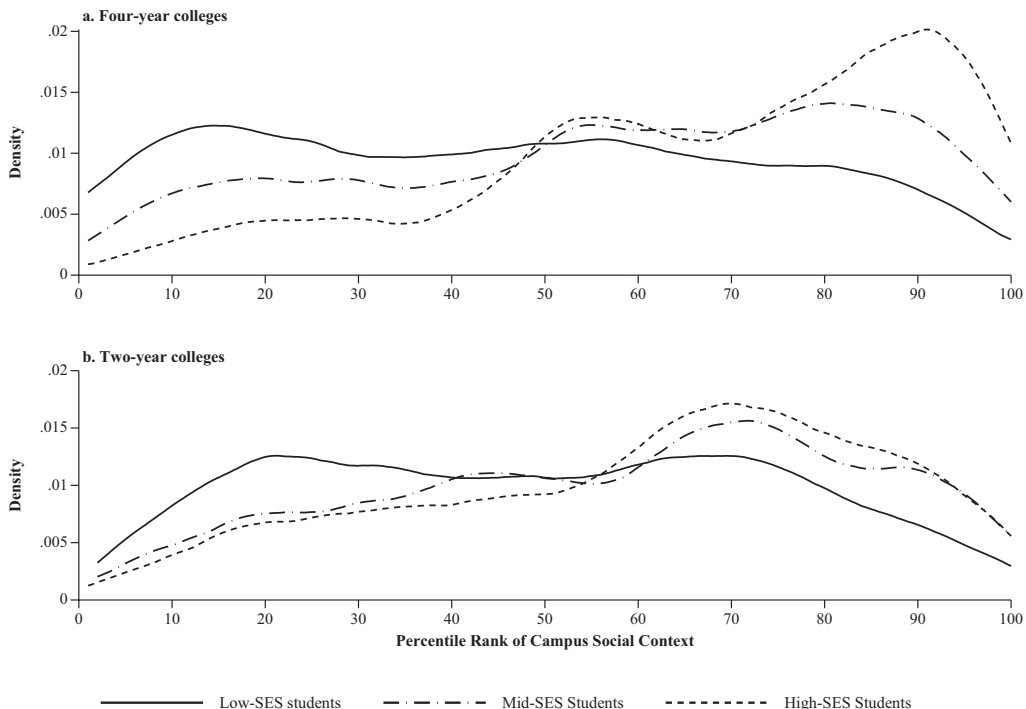
Fig. 1 Distribution of students across campus social contexts. *Sources:* ELS 2002–2012 and College Scorecard data.

is .34 among four-year colleges and .19 among two-year colleges, implying that about 34% of low-SES (or high-SES) students at four-year colleges and 19% at two-year colleges would have to switch colleges in order to be distributed equally across social contexts. Importantly, the association between social background and campus social context is not perfect: students from all socioeconomic backgrounds attend colleges across the entire distribution of campus social contexts. This variation is key for the evaluation of the association between campus social context and student outcomes.

Socioeconomic disparities in campus social context can reflect differences in students' academic preparation, standardized test scores, attitudes, and educational aspirations, or the characteristics of the colleges they choose (such as sectors and admission selectivity). In this case, the differences in campus social context depicted in Figure 1 would be expected to mitigate (or disappear altogether) once differences in background and college characteristics are accounted for. Differences in social context may also reflect group-specific preferences of certain institutions or other unobserved differences between low- and high-SES students. Results from nested OLS regression models that evaluate these possibilities are presented in Table 3.

Among students at four-year colleges, the campus social context ranks in colleges attended by low- and mid-SES students are, respectively, 2.30 and 1.03 deciles lower than in colleges attended by high-SES students (Model 1). Adjusting for variation in individual-level factors (Model 2) reduces socioeconomic differences in average campus social context by 67% among low- and high-SES students (from −2.29 to

Table 3 Selected coefficients from OLS models predicting campus social context deciles

	Students at Four-Year Colleges			Students at Two-Year Colleges		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Student Socioeconomic Background (ref.=high-SES students)						
Low-SES students	−2.29**	−0.76**	−0.44**	−1.07**	−0.55**	−0.39*
	(0.17)	(0.14)	(0.12)	(0.28)	(0.18)	(0.18)
Mid-SES students	−1.03**	−0.42**	−0.14†	−0.27	−0.26†	−0.19
	(0.11)	(0.09)	(0.08)	(0.17)	(0.15)	(0.15)
Individual-Level Factors						
Demographic factors		Yes	Yes		Yes	Yes
Academic achievements and preparation		Yes	Yes		Yes	Yes
Aspirations and attitudes		Yes	Yes		Yes	Yes
College Factors						
Admission competitiveness, sector, size, financial resources, proximity, student-faculty ratio			Yes			Yes
Constant	7.05**	4.48**	−3.33**	6.56**	7.76**	7.83**
	(0.10)	(0.37)	(0.65)	(0.17)	(0.45)	(0.48)
Number of Observations	5,140	5,140	5,140	2,960	2,960	2,960
R^2	.073	.389	.560	.023	.261	.304

Notes: Data are weighted (see main text). Robust standard errors are shown in parentheses. Descriptions and definitions of individual- and college-level factors are available in Table 2.

Sources: ELS 2002–2012 and College Scorecard data.

†$p<.10$; *$p<.05$; **$p<.01$

−0.76 deciles) and by 59% among mid- and high-SES students (from −1.03 to −0.42 deciles), although the differences are still statistically significant. College-level factors (Model 3) explain an additional 14% of the difference in campus social context between low- and high-SES students (and nearly all remaining differences between mid- and high-SES students). Together, these factors explain 81% of the gap between low- and high-SES students attending four-year colleges.

Differences in campus social context are smaller among students who attend two-year colleges and are statistically significant only among low- and high-SES students (Model 4), confirming that socioeconomic segregation is substantially lower among students at two-year colleges. Low-SES students attend colleges ranked 1.07 deciles lower, on average, than the social context rank of colleges attended by high-SES students. Adjusting for variation in individual-level factors reduces the gap in social context between low- and high-SES students by 49%, from −1.07 to −0.55 deciles (Model 5). College characteristics explain an additional 15% of the initial gap, with a residual significant difference of 0.39 deciles (Model 3). Together, the individual- and college-level factors in the model account for 64% of the gap between students attending two-year colleges.

The factors included in the models also account for a substantial share of the total variance in campus social context within each group. When estimated separately for

each social stratum (not shown here), individual- and college-level factors together account for 64%, 56%, and 54% of the variance in campus social context among low-, mid-, and high-SES students attending four-year colleges, respectively. At two-year colleges, these factors account for 37%, 31%, and 28% of the variance among low, mid-, and high-SES students, respectively.

The preceding analyses yield two novel findings. First, segregation by social context in higher education is substantial, especially at four-year colleges, even after a comprehensive set of individual and college factors is adjusted for. It follows that campus social context is distinct from other forms of stratification in higher education.[9] Second, the comprehensive set of covariates detailed in Table 2 captures most of the selection regimes that channel students from different socioeconomic backgrounds to colleges with different social contexts. These results are foundational for the assessment of the effect of campus social context on students' outcomes because they demonstrate that substantial variations in the outcomes associated with the treatment assignment can be netted out.

Campus Social Context and Degree Attainment

Socioeconomic disparities in campus social contexts are consequential for inequality in degree attainment only if campus social context has enduring effects on student outcomes beyond other factors. Table 4, which presents results from a series of nested multinomial logit models that predict students' college outcomes as a function of their campus social context, explores this possibility. In all models, bachelor's degree attainment is set as the base outcome. Thus, the coefficients depict the change in the (log) likelihood of not obtaining a degree or of obtaining an associate's degree or lower, relative to the likelihood of obtaining a bachelor's degree.

Among students attending four-year colleges (panel A), the naïve estimate for campus social context decile (Model 1) is negative and has a small standard error: net of students' socioeconomic background, higher-ranked campus social context is associated with a lower likelihood of not obtaining a degree or of obtaining an associate's degree or lower and with a higher likelihood of earning a bachelor's degree. For students attending two-year colleges (panel B), the naïve estimate for campus social context is also negative, although it is statistically significant only for the likelihood of not obtaining a degree versus obtaining a bachelor's degree.

The effect of campus social context on student outcomes remains substantial and statistically significant among four-year colleges (panel A) even after I account for individual-level variation in demographics, academic preparation, and attitude (Model 2), as well as variation in college-level characteristics, including size, selectivity, student-faculty ratio and financial resources (Model 3). Similar results are obtained among students at two-year colleges (panel B), although the net effect of campus social context disappears when other college-characteristics are accounted for in Model 3. Model 4 tests whether the association between campus social context and student outcomes

9 See Figure A1 in the online appendix for the relationship between campus social context and other college characteristics, including college admission selectivity, dorm capacity, geographic spread, percentage of underrepresented minorities, college revenues, and tuition.

Table 4 Coefficients from multinomial logit models predicting students' academic outcomes

Outcome (Base outcome: bachelor's degree)	Model 1: Student SES+ Campus Social Context		Model 2: Model 1+ Individual-Level Factors		Model 3: Model 2+ College-Level Characteristics		Model 4: Model 3 + SES × Context Interactions	
	No Degree	Associate's or Lower	No Degree	Associate's or Lower	No Degree	Associate's or Lower	No Degree	Associate's or Lower
A. Students at Four-Year Colleges								
Campus social context decile	-0.19**	-0.22**	-0.11**	-0.16**	-0.12**	-0.14**	-0.10**	-0.09†
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)
Student socioeconomic background (ref.=high-SES students)								
Low-SES students	0.80**	0.85**	0.55**	0.56**	0.56**	0.59**	0.62†	0.64
	(0.14)	(0.20)	(0.15)	(0.22)	(0.15)	(0.22)	(0.33)	(0.42)
Mid-SES students	0.56**	0.73**	0.40**	0.54**	0.42**	0.52**	0.57*	0.99**
	(0.09)	(0.134)	(0.10)	(0.15)	(0.10)	(0.1485)	(0.26)	(0.33)
Student SES × Campus SES interactions								
Low-SES students × Campus SES							-0.01	0.01
							(0.05)	(0.07)
Mid-SES students × Campus SES							-0.02	-0.08
							(0.04)	(0.05)
Constant	-0.14	-0.97**	3.31**	3.19**	3.03**	2.11*	2.95**	1.87†
	(0.14)	(0.19)	(0.44)	(0.56)	(0.64)	(0.99)	(0.66)	(1.03)
Number of observations	5,140		5,140		5,140		5,140	
Model chi-square (df)	287.2 (6)		731.0 (76)		817.2 (96)		838.4 (98)	

Table 4 (continued)

Outcome (Base outcome: bachelor's degree)	Model 1: Student SES+ Campus Social Context		Model 2: Model 1+ Individual-Level Factors		Model 3: Model 2+ College-Level Characteristics		Model 4: Model 3 + SES × Context Interactions	
	No Degree	Associate's or Lower	No Degree	Associate's or Lower	No Degree	Associate's or Lower	No Degree	Associate's or Lower
B. Students at Two-Year Colleges								
Campus social context decile	−0.06*	−0.03	−0.07*	−0.05	−0.06†	−0.04	−0.02	−0.04
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Student socioeconomic background (ref. = high-SES students)								
Low-SES students	1.05**	1.22**	0.69**	0.77**	0.68**	0.70**	0.92	0.85
	(0.19)	(0.19)	(0.21)	(0.21)	(0.21)	(0.21)	(0.59)	(0.54)
Mid-SES students	0.57**	0.72**	0.44**	0.51**	0.44**	0.44*	0.88†	0.48
	(0.15)	(0.16)	(0.16)	(0.17)	(0.16)	(0.17)	(0.49)	(0.47)
Student SES × Campus SES interactions								
Low-SES students × Campus SES							−0.03	−0.02
							(0.09)	(0.09)
Mid-SES students × Campus SES							−0.07	−0.01
							(0.07)	(0.07)
Constant	0.55**	0.01	5.18**	3.11**	5.24**	2.92**	4.98**	2.87**
	(0.21)	(0.24)	(0.56)	(0.57)	(0.62)	(0.64)	(0.67)	(0.66)
Number of observations	2,960		2,960		2,960		2,960	
Model chi-square (df)	62.79 (6)		594.6 (76)		627.1 (88)		631.7 (92)	

Notes: Robust standard errors are shown in parentheses. Table 2 provides descriptions for individual- and college-level characteristics included in the models.

Sources: ELS 2002–2012 and College Scorecard data.

†*p* < .10; *p < .05; **p < .01

varies by student background by adding interaction terms between student socioeconomic background and campus social context. The interaction terms in both models are small and have large standard errors, indicating that the association between campus social context and degree attainment does not vary significantly across socioeconomic backgrounds (although the slope may vary by the value of the predictors).[10]

The relationship between social context and student outcomes is clearly captured in Figures 2, which graph the adjusted predicted probability of earning a bachelor's degree, an associate's degree or lower, or no degree as a function of campus social context decile rank, by student SES (based on Model 4). The predictions are adjusted to reflect the demographics, academic preparation, attitudes, and college characteristics of the average student at each social stratum. Thus, the graph reflects the changes in each outcome probability associated with changes in campus social context, leaving everything else unchanged.

The results are striking: among students attending four-year colleges (Figure 2, panel a), higher campus social context decile is associated with a significantly higher likelihood of earning a bachelor's degree and a lower likelihood of leaving college without a degree. Consider, for example, two observationally similar low-SES students who attend colleges at the lowest and highest social context deciles. The expected probability of bachelor's degree attainment for low-SES students at colleges with the highest social context deciles is 49% higher than that of observationally similar low-SES students at colleges with the lowest social context deciles (.59 vs. .40, respectively). Among mid-SES students, the slope is even steeper, with a 56% difference in the predicted probability of bachelor's degree attainment of observationally similar students at colleges ranked at the highest and lowest deciles (.70 vs. .45). Among high-SES students, the change is more moderate, with the expected probability of bachelor's degree attainment changing by 24% between colleges ranked at the highest and lowest deciles (.81 vs. .65). The likelihood of earning an associate's degree or lower, however, varies only slightly with social context.

The adjusted slopes for campus social context are less steep among students attending two-year colleges (Figure 2, panel b). Among observationally similar mid-SES students, for example, the probability of leaving college without a degree decreases by 23% (from .52 to .38) between those attending colleges ranked at the lowest and highest social context deciles, all else being equal.

Three main findings emerging from these analyses reveal that differences in social context are highly consequential for inequality in student outcomes. First, the social context that students encounter is a strong predictor of their academic outcomes, especially among those attending four-year colleges, even after variation in student academic preparation, dispositions, aspirations, and college characteristics are accounted for. The effect of social context is substantially smaller at two-year colleges. This finding is expected given the relative homogeneity in the social backgrounds of students who attend two-year colleges, resulting in substantially smaller variation in social contexts (see Table 1 and Figure 1). Second, the college social context influences the academic outcomes of students from all socioeconomic backgrounds sim-

---

[10] In sensitivity analyses (shown in Table A2, online appendix), I adjusted for whether the college had dormitories, the cost of tuition and fees, and the share of underrepresented minorities on campus. The results were similar.

a. Four-year colleges
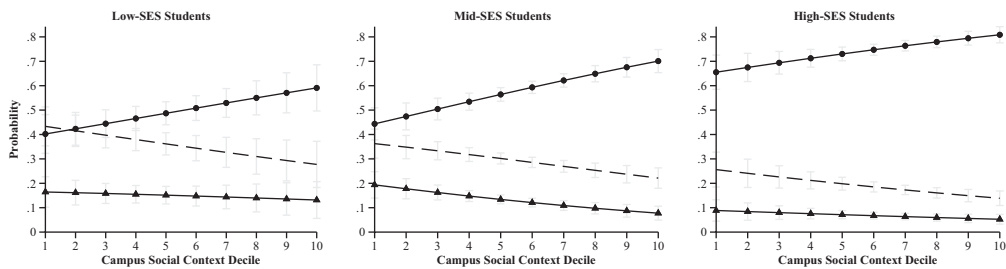
b. Two-year colleges
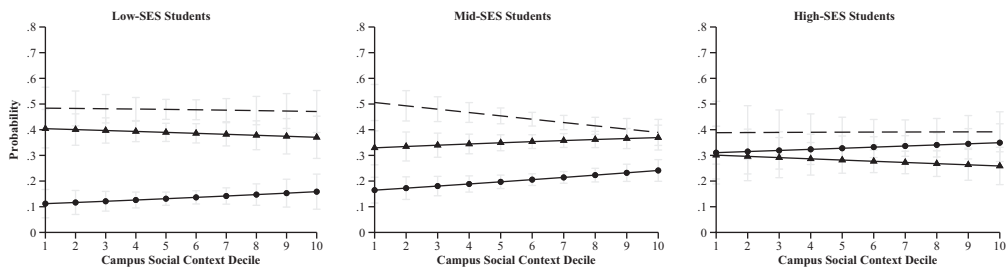
Bachelor's degree   Associate's degree or lower   No degree

Fig. 2 Predicted college outcomes of students at four-year colleges (panel a) and two-year colleges (panel b), adjusted for individual-level factors and college characteristics. The graphs are based on multinomial models predicting student outcomes. See the text for a full explanation. *Sources:* ELS 2002–2012 and College Scorecard data.

ilarly, although the magnitude of the effect varies slightly because of differences in the characteristics of these populations (with slightly steeper slopes among mid- and low-SES students). Finally, the graduation rates of all students benefit from attending colleges with higher concentrations of economic advantages.

Sensitivity Analyses

To evaluate the robustness of these results, I consider two alternative explanations for the association between college social context and student outcomes depicted in Figure 2, panel a. First, the effect of campus social context on student outcomes may be driven by individual-level factors that are unaccounted for in the models, such as IQ and noncognitive skills, given that some disparities in the selection of students into social contexts remain significant net of the comprehensive set of predictors used in the analyses and listed in Table 2. Although no available statistical method can fully rule out this possibility, the probability that omitted variables would completely alter the results is lower given the likely correlation between the detailed measured characteristics in the models (e.g., students' aspirations, commitment, and academic achievements) and unmeasured qualities, such as noncognitive skills or IQ. Further,

because the comprehensive factors included in the model account for 83% of the socioeconomic differences in social context, it is unlikely that these unmeasured factors would significantly alter the results reported here.

A variant of this explanation is that the effect of social context is driven by unmeasured organizational characteristics, such as unmet needs or faculty-student engagement programs. Although this is a possibility, it is not at odds with the previously presented interpretations for two reasons. First, some unmeasured organizational practices, such as special social programs on campus, are endogenous to the effect of campus social context. Netting out these factors will artificially mitigate the effect of social context. Second, although some unmeasured organizational characteristics are exogenous, they are likely to be correlated with the comprehensive set of organizational predictors included in the models. Indeed, the results in Table A2 (online appendix) show that the effect of social context maintains magnitude and statistical significance even when additional organizational factors—such as tuition and fees, dormitory capacity, and the share of underrepresented minorities in the student body—are accounted for.

A second alternative explanation for these results is that the effect of campus social context is heterogeneous across factors associated with how students select themselves into social contexts, also known as negative or positive selection. For example, if the students most likely to enter colleges with a higher concentration of socioeconomic disadvantage are also the most vulnerable to their social context, the effect of campus social context on student outcomes will be upwardly biased. Recent methodological developments offer sophisticated methods to assess heterogeneity in the treatment effect when observational data are used, but most are designed to evaluate differences between clearly defined and distinct causal states and are less suitable for evaluating the disparities between continuous relative measurements, such as the measurement of social context developed here.

With this caveat in mind, I used a weighted regression technique to assess heterogeneity in the effect of attending a college ranked at the bottom and top 20% of social context distribution on the likelihood of earning a bachelor's degree among students at four-year colleges (Morgan and Winship 2014: chapter 7). This technique offers a straightforward method to balance the observed characteristics of the treatment and control samples with weights. I evaluated the effect of each campus context twice: (1) among students who were observationally similar to those attending a college ranked at the bottom or top 20% of the social context distribution, which can be interpreted as the average treatment effect for the treated (ATT); and (2) among students who were observationally similar to those who did not attend such a college, which can be interpreted as the average treatment effect for the untreated (ATU).

The results of these analyses, presented in Table 5, are inconsistent with the negative selection hypothesis: in both cases, the estimated ATU is similar in magnitude and even slightly higher than the ATT, indicating that heterogeneity in the effect of attending a college at the bottom or top 20% of the social context distribution is not associated with student selection into colleges. The larger effect of the top 20% of colleges on students who are observationally similar to students who did not attend these colleges suggests that the effect depicted in panel a of Figure 2 may be slightly underestimated. Additional nonparametric smoothing-differencing models developed by Xie et al. (2012) yielded similar results (not shown here).

Table 5 Coefficients for attending colleges ranked at the bottom and top 20% of college social context from a weighted logit regression predicting bachelor's degree attainment among students at four-year colleges: Estimated average treatment effect for the treated (ATT) and estimated average treatment effect for the untreated (ATU)

	ATT		ATU	
	B	SE	*B*	SE
A. College Ranked at the Bottom 20% of the Campus Social Context Distribution (*N*=5,020)				
Model 1: Campus social context only	−0.47**	.12	−0.64**	.17
Model 2: Model 1+individual-level factors	−0.56**	.12	−0.64**	.16
Model 3: Model 2+college characteristics	−0.56**	.14	−0.55**	.19
B. College Ranked at the Top 20% of the Campus Social Context Distribution (*N*=5,130)				
Model 1: Campus social context only	0.23**	.08	0.47**	.12
Model 2: Model 1+individual-level factors	0.26**	.08	0.55**	.11
Model 3: Model 2+college characteristics	0.16	.10	0.44**	.12

Notes: Robust standard errors are reported. Models are estimated for students at the region of common support only. College-level factors are included only as predictors in the models, but they are not part of the propensity weight estimations. The ATT and ATU weights improved the balance substantially: a diagnostic routine (Morgan and Todd 2008) showed that the mean absolute difference of the mean decreased from 0.358 to 0.032 and 0.061 with the ATT weights and ATU weights, respectively, for panel A, and from 0.315 to 0.035 and 0.056 in panel B. Similarly, the mean absolute difference for the standard deviation decreased from 0.099 to 0.024 and 0.028 with the ATT and ATU weights, respectively, in panel A, and from 0.189 to 0.019 and 0.029 in panel B.

Sources: ELS 2002–2012 and College Scorecard data.

**$p<.01$

These results, together with the results shown in Table 4 and panel a of Figure 2, provide compelling evidence that campus social context is a distinct and consequential predictor of student outcomes.[11]

Discussion and Conclusions

The past decades have been marked by a massive expansion of higher education and growing diversity in college students' socioeconomic backgrounds. Yet, far from the ideals of social integration implied by the notion of "college for all," students from different social backgrounds occupy separate spaces in higher education. Socioeconomic

---

[11] Another straightforward robustness check for the effect of campus social context is to assess its effect on students' educational aspirations for a bachelor's degree—a strong predictor of student likelihoods of degree attainment—for which consistent measurements are available before college entrance (in 2004) and after college enrollment (in 2006). I estimated a model predicting bachelor's degree aspirations in 2006 for the subset of students who in 2004, while still in high school, aspired to earn a bachelor's degree and went on to attend a four-year college by 2005 (*N*=4,830), adjusting for the comprehensive set of individual and organizational factors described in Table 2. Figure A2 in the online appendix graphs the estimated adjusted probability of maintaining bachelor's degree aspirations in 2006 by campus social context and student socioeconomic background obtained from this model. The results are consistent with those for bachelor's degree attainment presented in Figure 2: for all students, college social context is positively associated with the probability of maintaining bachelor's degree aspirations one to two years after college enrollment, even net of other individual and organizational factors.

segregation across colleges is prevalent and pervasive. In the aggregate, ongoing segregation cultivates and reinforces distinct social environments in higher education. Students from different backgrounds encounter substantially different social contexts on campus, even when they have similar academic preparation, attitudes, and aspirations and attend colleges with similar admission practices and characteristics.

Using information on the educational trajectories of a nationally representative cohort of American high school students who entered college in the mid-2000s and information on the social context of all accredited colleges in the United States, this study is the first to assess the extent of socioeconomic disparities in the social context that students encounter on campus and the implications of such disparities for inequality in degree attainment. I find that disparities in campus social context are substantial, especially among students attending four-year colleges, and are consequential for inequality in student outcomes. As the concentration of economic advantages on campus increases, all students are more likely to obtain a bachelor's degree and are substantially less likely to drop out, even net of their academic preparation, aspirations, and attitudes and the organizational characteristics of their college. Sensitivity analyses show that social context is also correlated with the probability of maintaining aspirations for bachelor's degree attainment two years after college (see Figure A2, online appendix). Although the effect of social context does not significantly vary across students, it is most detrimental for low-SES students, who are concentrated in colleges characterized by economic disadvantage, and is most beneficial for high-SES students, who are concentrated at colleges characterized by economic advantages. It appears that by providing differential opportunities for academic success, socioeconomic segregation across colleges acts as a hidden mechanism for cumulative disadvantage that exacerbates socioeconomic inequality in degree attainment (DiPrete and Eirich 2006).

These findings highlight the need for stratification theories to consider systematic differences on the meso level—the specific social context that students from different backgrounds encounter in higher education, along with other well-studied organizational and individual characteristics, such as college admission practices, college sector, and individuals' academic backgrounds. Indeed, a substantial body of evidence shows that social ties in higher education transmit tacit knowledge about academia and the labor market, expose students to varying perspectives and career options, and help them shape and refine their educational and occupational aspirations (Armstrong and Hamilton 2013; Binder et al. 2016; Bourdieu 1984, 1986; Jack 2019; Walpole 2003). This study expands our knowledge by demonstrating that systematic disparities in campus social context are an important contributor to inequality in academic outcomes and require further attention.

Although the interactions that facilitate the association between social context and student academic outcomes cannot be observed in the data, the findings are consistent with theories that highlight network effects, such as social learning of behaviors that are rewarded in academia (e.g., Bourdieu 1986; Tinto 1987) and the extent of normative pressures to obtain a degree (e.g., Harding 2011). According to these theories, college social environments create and reinforce norms and expectations that influence students' actions, behaviors, aspirations, and outcomes. Norms and expectations may translate into social and institutional arrangements that impact the degree attainment of all students (Binder et al. 2016; Kerckhoff 1995; Stevens 2009).

Although socioeconomic background continues to shape students' pathways within college (Armstrong and Hamilton 2013; Jack 2016), the similarity in the effect of campus social context on all students' outcomes is indicative of the strength and importance of the social environment on campus, even for students with substantially more resources and privileges.

Future research should unpack the mechanisms that facilitate positive social experiences that are conducive to the academic success of students from different backgrounds. Examining whether and how additional academic outcomes—such as GPA and time to degree attainment—are influenced by social context, as well as whether the effects of social context vary by student ethnicity and race, may provide a deeper understanding of the effect of campus social context. Given that socioeconomic inequality varies by race/ethnicity in the United States, campus social context may exacerbate racial/ethnic inequality in degree attainment in distinct ways. Researching these issues can help policymakers design focused and effective interventions that may substantially reduce disparities, particularly at four-year colleges. Increasing the normative pressures to obtain a degree by communicating consistent academic goals or by providing students with explicit strategies for effective learning and engagement with faculty, for example, may go a long way to mitigate disparities in student outcomes related to campus social context. ∎

References

Alon, S. (2009). The evolution of class inequality in higher education. *American Sociological Review, 74,* 731–755.

Alon, S., & Tienda, M. (2007). Diversity, opportunity, and the shifting meritocracy in higher education. *American Sociological Review, 72,* 487–511.

Armstrong, E. A., & Hamilton, L. T. (2013). *Paying for the party*. Cambridge, MA: Harvard University Press.

Ayalon, H., & Yogev, A. (2005). Field of study and students' stratification in an expanded system of higher education: The case of Israel. *European Sociological Review, 21,* 227–241.

Binder, A. J., Davis, D. B., & Bloom, N. (2016). Career funneling. *Sociology of Education, 89,* 20–39.

Bischoff, K., & Owens, A. (2019). The segregation of opportunity: Social and financial resources in the educational contexts of lower- and higher-income children, 1990–2014. *Demography, 56,* 1635–1664.

Black, S. E., Cortes, K. E., & Lincove, J. A. (2015). Academic undermatching of high-achieving minority students: Evidence from race-neutral and holistic admissions policies. *American Economic Review: Papers & Proceedings, 105,* 604–610.

Bloome, D., Dyer, S., & Zhou, X. (2018). Educational inequality, educational expansion, and intergenerational income persistence in the United States. *American Sociological Review, 83,* 1215–1253.

Bourdieu, P. (1984). *Distinction: A social critique of the judgment of taste*. Cambridge, MA: Harvard University Press.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York, NY: Greenwood.

Bowen, W. G. (2018). Crossing the finish line: Completing college at America's public universities. In K. Guthrie (Ed.), *Ever the leader* (pp. 101–114). Princeton, NJ: Princeton University Press.

Brand, J. E., Pfeffer, F. T., & Goldrick-Rab, S. (2014). The community college effect revisited: The importance of attending to heterogeneity and complex counterfactuals. *Sociological Science, 1,* 448–465.

Brand, J. E., & Xie, Y. (2010). Who benefits most from college?: Evidence for negative selection in heterogeneous economic returns to higher education. *American Sociological Review, 75,* 273–302.

Breen, R., & Goldthorpe, J. H. (1997). Explaining educational differentials. *Rationality and Society, 9,* 275–305.

Chetty, R., Friedman, J. N., Saez, E., Turner, N., & Yagan, D. (2017). *Mobility report cards: The role of colleges in intergenerational mobility* (NBER Working Paper No. 23618). Cambridge, MA: National Bureau of Economic Research.

Christakis, N. A., & Fowler, J. H. (2008). The collective dynamics of smoking in a large social network. *New England Journal of Medicine, 358,* 2249–2258.

Cortes, K. E., & Lincove, J. A. (2019). Match or mismatch? Automatic admissions and college preferences of low- and high-income students. *Educational Evaluation and Policy Analysis, 41,* 98–123.

Cottom, T. M. (2017). *Lower ed: The troubling rise of for-profit colleges in the new economy*. New York, NY: The New Press.

Crosnoe, R. (2009). Low-income students and the socioeconomic composition of public high schools. *American Sociological Review, 74,* 709–730.

Dillon, E. W., & Smith, J. A. (2017). Determinants of the match between student ability and college quality. *Journal of Labor Economics, 35,* 45–66.

DiMaggio, P., & Garip, F. (2012). Network effects and social inequality. *Annual Review of Sociology, 38,* 93–118.

DiPrete, T. A., & Eirich, G. M. (2006). Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments. *Annual Review of Sociology, 32,* 271–297.

Doyle, W. R. (2009). The effect of community college enrollment on bachelor's degree completion. *Economics of Education Review, 28,* 199–206.

Entwisle, D. R., & Alexander, K. L. (1992). Summer setback: Race, poverty, school composition, and mathematics achievement in the first two years of school. *American Sociological Review, 57,* 72–84.

Espenshade, T. J., & Radford, A. W. (2009). *No longer separate, not yet equal: Race and class in elite college admission and campus life*. Princeton, NJ: Princeton University Press.

Fletcher, J. M., & Tienda, M. (2009). High school classmates and college success. *Sociology of Education, 82,* 287–314.

Gelbgiser, D. (2018). College for all, degrees for few: For-profit colleges and socioeconomic differences in degree attainment. *Social Forces, 96,* 1785–1824.

Goethals, G., Winston, G., & Zimmerman, D. (1999). *Students educating students: The emerging role of peer effects in higher education* (Discussion Paper No. 50). Williamstown, MA: Williams Project on Economics of Higher Education.

Goldrick-Rab, S. (2006). Following their every move: An investigation of social-class differences in college pathways. *Sociology of Education, 79,* 67–79.

Goldrick-Rab, S. (2016). *Paying the price: College costs, financial aid, and the betrayal of the American Dream*. Chicago, IL: University of Chicago Press.

Goyette, K. A. (2008). College for some to college for all: Social background, occupational expectations, and educational expectations over time. *Social Science Research, 37,* 461–484.

Griffith, A. L., & Rothstein, D. S. (2009). Can't get there from here: The decision to apply to a selective college. *Economics of Education Review, 28,* 620–628.

Hamilton, L., Roksa, J., & Nielsen, K. (2018). Providing a "leg up": Parental involvement and opportunity hoarding in college. *Sociology of Education, 91,* 111–131.

Harding, D. J. (2011). Rethinking the cultural context of schooling decisions in disadvantaged neighborhoods. *Sociology of Education, 84,* 322–339.

Holland, M. M., & DeLuca, S. (2016). "Why wait years to become something?" Low-income African American youth and the costly career search in for-profit trade schools. *Sociology of Education, 89,* 261–278.

Hout, M. (2012). Social and economic returns to college education in the United States. *Annual Review of Sociology, 38,* 379–400.

Hoxby, C., & Avery, C. (2013). The missing 'one-offs': The hidden supply of high-achieving, low-income students. *Brookings Papers on Economic Activity, 2013*(1), 1–65.

Jack, A. A. (2016). (No) harm in asking: Class, acquired cultural capital, and academic engagement at an elite university. *Sociology of Education, 89,* 1–19.

Jack, A. A. (2019). *The privileged poor: How elite colleges are failing disadvantaged students*. Cambridge, MA: Harvard University Press.

Jaquette, O., & Curs, B. R. (2015). Creating the out-of-state university: Do public universities increase nonresident freshman enrollment in response to declining state appropriations? *Research in Higher Education, 56,* 535–565.

Kahlenberg, R. D. (2001). *All together now: Creating middle-class schools through public school choice.* Washington, DC: Brookings Institution Press.

Kaufman, P., & Feldman, K. A. (2004). Forming identities in college: A sociological approach. *Research in Higher Education, 45,* 463–496.

Kerckhoff, A. C. (1995). Institutional arrangements and stratification processes of industrial societies. *Annual Review of Sociology, 21,* 323–347.

Kim, M. M., & Conrad, C. F. (2006). The impact of historically Black colleges and universities on the academic success of African-American students. *Research in Higher Education, 47,* 399–427.

Kutz, G. D. (2010). *For-profit colleges: Undercover testing finds colleges encouraged fraud and engaged in deceptive and questionable marketing practices* (Testimony before the Committee on Health, Education, Labor, and Pensions, U.S. Senate, GAO-10-948T). Washington, DC: U.S. Government Accountability Office. Retrieved from https://www.gao.gov/new.items/d10948t.pdf

Lavy, V., Paserman, M. D., & Schlosser, A. (2012). Inside the black box of ability peer effects: Evidence from variation in the proportion of low achievers in the classroom. *Economic Journal, 122,* 208–237.

Leigh, D. E., & Gill, A. M. (2004). The effect of community colleges on changing students' educational aspirations. *Economics of Education Review, 23,* 95–102.

Long, M. C. (2004). Race and college admissions: An alternative to affirmative action? *Review of Economics and Statistics, 86,* 1020–1033.

Marsh, H. W. (1987). The big-fish-little-pond effect on academic self-concept. *Journal of Educational Psychology, 79,* 280–295.

Marsh, H. W., & Hau, K.-T. (2003). Big-fish-little-pond effect on academic self-concept: A cross-cultural (26-country) test of the negative effects of academically selective schools. *American Psychologist, 58,* 364–376.

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

Morgan, S. L., Leenman, T. S., Todd, J. J., & Weeden, K. A. (2013). Occupational plans, beliefs about educational requirements, and patterns of college entry. *Sociology of Education, 86,* 197–217.

Morgan, S. L., & Todd, J. J. (2008). A diagnostic routine for the detection of consequential heterogeneity of causal effects. *Sociological Methodology, 38,* 231–282.

Morgan, S. L., & Winship, C. (2014). *Counterfactuals and causal inference.* Cambridge, UK: Cambridge University Press.

Mullen, A. L., & Goyette, K. A. (2019). Aiming high: Social and academic correlates of applying to and attending 'reach' universities. *British Journal of Sociology of Education, 40,* 1072–1089.

Owens, A. (2016). Inequality in children's contexts: Income segregation of households with and without children. *American Sociological Review, 81,* 549–574.

Owens, A. (2018). Income segregation between school districts and inequality in students' achievement. *Sociology of Education, 91,* 1–27.

Owens, A. (2020). Unequal opportunity: School and neighborhood segregation in the USA. *Race and Social Problems, 12,* 29–41.

Portes, A., & MacLeod, D. (1996). Educational progress of children of immigrants: The roles of class, ethnicity, and school context. *Sociology of Education, 69,* 255–275.

Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In G. J. Duncan & R. J. Murnane (Eds.), *Whither opportunity? Rising inequality, schools, and children's life chances* (pp. 91–116). New York, NY: Russell Sage Foundation.

Reardon, S. F., Bischoff, K., Owens, A., & Townsend, J. B. (2018). Has income segregation really increased? Bias and bias correction in sample-based segregation estimates. *Demography, 55,* 2129–2160.

Roksa, J., & Deutschlander, D. (2018). Applying to college: The role of family resources in academic undermatch. *Teachers College Record, 120*(6), 22150. Retrieved from https://www.tcrecord.org/Content.asp?ContentId=22150

Rubin, M. (2012). Social class differences in social integration among students in higher education: A meta-analysis and recommendations for future research. *Journal of Diversity in Higher Education, 5,* 22–38.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research, 75,* 417–453.

Stevens, M. L. (2009). *Creating a class: College admissions and the education of elites*. Cambridge, MA: Harvard University Press.

Stevens, M. L., Armstrong, E. A., & Arum, R. (2008). Sieve, incubator, temple, hub: Empirical and theoretical advances in the sociology of higher education. *Annual Review of Sociology, 34,* 127–151.

Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition.* Chicago, IL: University of Chicago Press.

Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *Journal of Higher Education, 68,* 599–623.

Torche, F. (2011). Is a college degree still the great equalizer? Intergenerational mobility across levels of schooling in the United States. *American Journal of Sociology, 117,* 763–807.

Walpole, M. (2003). Socioeconomic status and college: How SES affects college experiences and outcomes. *Review of Higher Education, 27,* 45–73.

Winston, G. C., & Zimmerman, D. J. (2004). Peer effects in higher education. In C. M. Hoxby (Ed.), *College choices: The economics of where to go, when to go, and how to pay for it* (pp. 395–424). Chicago, IL: University of Chicago Press.

Xie, Y., Brand, J. E., & Jann, B. (2012). Estimating heterogeneous treatment effects with observational data. *Sociological Methodology, 42,* 314–347.

Zimmerman, D. J. (2003). Peer effects in academic outcomes: Evidence from a natural experiment. *Review of Economics and Statistics, 85,* 9–23.

Dafna Gelbgiser
dgelbgiser@tauex.tau.ac.il

Department of Labor Studies, Tel Aviv University, Tel Aviv, Israel