

True for Your School?

How Changing Reputations Alter Demand for Selective U.S. Colleges

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Abstract There is a comprehensive literature documenting how colleges' tuition, financial aid packages, and academic reputations influence students' application and enrollment decisions. Far less is known about how quality-of-life reputations and peer institutions' reputations affect these decisions. This paper investigates these issues using data from two prominent college guidebook series to measure changes in reputations. We use information published annually by the Princeton Review—the best-selling college guidebook that formally categorizes colleges based on both academic and quality-of-life indicators—and the U.S. News and World Report—the most famous rankings of U.S. undergraduate programs. Our findings suggest that changes in academic and quality-of-life reputations affect the number of applicants received by a college and the academic competitiveness and geographic diversity of the ensuing incoming freshman class. Colleges receive fewer applications when peer universities earn high academic ratings. On the other hand, unfavorable quality-of-life ratings for peers are followed by decreases in the college's own application pool and the academic competitiveness of its incoming class. This suggests that potential applicants often begin their search process by shopping for groups of colleges where non-pecuniary benefits may be relatively high.

“When some loud bragger tries to put me down
And says his school is great,
I tell him right away, now,
What’s a-matter buddy,
ain’t you heard of my school?
It’s number one in the state.”

-Beach Boys, *Be True to Your School*

Publicized ratings should influence consumer demand in markets that have at least one of two elements. First, ratings may influence demand when there is asymmetric information whereby consumers possess far less knowledge than suppliers. For example, first-time diners might be unaware of a restaurant’s kitchen’s typical hygiene standards, and so health inspection report cards can reduce this asymmetric information. Second, ratings may influence demand when consumers would otherwise have trouble processing ample information to determine signals' accuracy and relevance. Concise information can be so influential in some contexts that experimental studies may exploit variation in the availability of concise information to instrument for program participation (e.g., Hastings and Weinstein, 2008).

Several previous empirical studies of ratings and reputations have focused on supply and demand responses to single indicators of the quality of suppliers' services. Researchers have examined the effects of restaurants’ display of hygiene quality grades (Jin & Leslie, 2003), mortality rate report cards for hospitals and doctors performing cardiac surgeries (Dranove et. al, 2003), K-12 school accountability grades of A through F (e.g., Figlio & Lucas, 2004), and U.S. News & World Report’s rankings of hospitals (Pope, 2009) and colleges (Monks & Ehrenberg, 1999; Griffith & Rask, 2005; Bowman & Bastedo, 2009; Luca & Smith, 2012).

This paper expands on this literature by examining multiple dimensions of reputation and by examining the impact of changes in ratings of both suppliers and their peers. Our market of interest

is selective U.S. colleges¹, and our ratings information comes from two prominent college guidebook series. We use information published annually by the Princeton Review—the best-selling college guidebook that formally categorizes colleges based on both academic and quality-of-life indicators—and the U.S. News and World Report—the most famous rankings of U.S. undergraduate programs.

Each year, hundreds of thousands of college applicants use guidebooks for various stages of the college search process. College guidebooks may influence demand because the market for selective colleges has both cases of asymmetric information and cases of information overflow. Some students (and their parents) have limited information about aspects of particular colleges, especially if they do not know recent attendees. Guidebook information should be particularly influential when other forms of research—e.g., campus visits, discussions with current students or alumnae—are relatively costly. In other cases, students have an abundance of information concerning a specific college but may have difficulty processing this information. Students might not know how to interpret and weight various signals, such as whether higher mean student SAT scores implies more engaging class discussions. College guidebooks thus serve both to inform and to simplify information processing through the use of a limited set of signals. These signals may be influential at multiple stages of the matching process: deciding which colleges to investigate further, deciding where to apply, and deciding which admittance offer to accept.

There is a comprehensive literature documenting how colleges' tuition, financial aid package structure, and academic reputations influence students' application and enrollment decisions.² Far less is known about how “quality of life” reputations affect these decisions. By

¹ Throughout this paper, we use the term “colleges” to refer to both universities' undergraduate programs and liberal arts colleges.

² For further discussion of these issues, see various chapters in “College Choices: The Economics of Where to Go, When to Go, and How to Pay for It,” a National Bureau of Economic Research Conference Report published by the University of Chicago Press in 2004.

examining the importance of quality-of-life reputations, this paper provides complementary evidence to an emerging literature on the importance of non-pecuniary benefits in the market for U.S. postsecondary education. Recent studies document how demand for a college is related to the college's spending on student services (Jacob et al., 2012) and the performance of football and basketball teams (Pope & Pope, 2009, forthcoming).³ Aside from the pecuniary returns to college, the college experience may be important both for short-term consumption and for long-term investments in additional non-pecuniary benefits (Oreopoulos & Salavanes, 2009). Quality-of-life ratings may provide signals concerning the potential non-pecuniary benefits of attending a particular college.

To investigate the importance of quality-of-life and academic reputations, we use a college-level panel data set containing qualitative information offered by the Princeton Review's *Best Colleges* guidebooks. The guidebooks list various aspects of college life that are allegedly popular or unpopular among students attending each college. To further investigate the importance of academic ratings, we also incorporate the annual rankings in the U.S. News and World Report's *America's Best Colleges* series. Changes in colleges' ratings and rankings over time occur for both idiosyncratic reasons related to the guidebook publishers' methods and for reasons related to broader reputational changes otherwise known to some consumers. Our goal is not to isolate the causal impact of ratings *per se*, but rather to provide evidence on which dimensions of reputation matter for which stages of the college search process. We use a fixed effect methodology similar to Pope's (2009) hospital-level analysis of the impact of rankings.

Our findings suggest that academic ratings and quality-of-life ratings predict both the number of applicants received by a college and the "academic competitiveness" of the ensuing incoming freshman class. Colleges receive more applicants when they make Princeton Review's

³ See Clotfelter's (2011) comprehensive analysis of how "big-time college sports" are deeply integrated into the operations of many U.S. universities.

Top 20 lists for academics or for campus beauty; colleges receive fewer applicants when they make the Top 20 list for ugliest campuses or receive a “Students are Not Happy” rating on their individual Princeton Review summary pages. Colleges’ incoming freshman classes become more competitive (i.e., higher SAT scores and high school class ranks) in years immediately after the college makes the Top 20 lists for Happiest Students or for Most Beautiful Campuses. Both Princeton Review’s academic ratings and the U.S. News and World Report’s rankings predict the number of applications and the academic competitiveness of the next incoming freshman class; these numerical ratings and rankings are primarily important, however, to the extent that they determine whether colleges are included at all in the lists of top academic colleges.

While our main empirical specification does not necessarily isolate the direct effects of the ratings themselves, additional analyses suggest that the estimates are at least partially influenced by direct effects of ratings. When data are available on both a “top 20” list and the index related to that list, we find that the impact of making the top 20 list remains statistically significant even if the model controls for the related index variable. This suggests a causal effect of the front-of-book advertising associated with the top 20 list.

We also find that close competitors’ reputational changes can either enhance or weaken a college’s own ability to recruit students. For academic ratings, colleges receive more applications when peer universities earn lower marks. On the other hand, unfavorable quality-of-life ratings for peer colleges are followed by *decreases* in the college's own application pool and the academic competitiveness of its incoming class. This suggests that potential applicants often begin their search process by shopping for groups of colleges where non-pecuniary benefits may be relatively high. While college officials may be concerned with the behavior of their closest competitors, student recruitment is not necessarily hampered by peer institutions’ improved reputations.

The next section describes the college guidebook market and content of the Princeton Review and U.S. News and World Report college rating series. Section 3 describes our data, Section 4 describes our empirical methods, Section 5 discusses our findings, and Section 6 briefly concludes.

2. Background on College Guidebooks

The college guidebook business has grown along with its consumer base—a 1998 study estimated that 400,000 high school seniors utilize guidebooks and rankings each year in their search for the best-fit college (McDonough, Antonio, Walpole, Perez, 1998). In addition to the Princeton Review’s *Best Colleges* and U.S. News and World Report’s *America’s Best Colleges* series, other prominent guidebooks include Fiske’s *Guide to Colleges* (published for over 25 years), Peterson’s *Four-Year Colleges* (published annually since 1970, known as *Peterson’s Annual Guide to Undergraduate Study* until 1983), and Barron’s *Profiles of American Colleges* (published annually from 1964-1974 and bi-annually from 1980-2010 with additional editions including 1976, 1991, 1997 and 2009). In all, there are over 100 different college guides or rankings that students and parents may choose from (McDonough et al., 1998), dating back to “as early as 1870, [when] annual reports by the United States Bureau of Education rank ordered [graduate] universities based on statistical information” (Meredith, 2004, p.444).

The Princeton Review *Best Colleges* publishers argue that they have filled a void in the college guidebook market. In their Introduction, they state:

No publication provided college applicants with statistical data from colleges that covered academics, admissions, financial aid, and student demographics along with narrative descriptions of the schools *based on comprehensive surveys of students attending*

them...no one was polling students at these terrific colleges about their experiences on campus—both inside and outside of the classroom. (PR 2008, p.16, emphasis theirs)

By addressing this “very obvious omission in college guide publishing” (PR 2008, p.16), the Princeton Review has set itself apart from its predecessors and competitors. While this is blatant self-promotion, the publishers of the Princeton Review have hit on a key issue present in college ranking systems that rely on mathematical formulas to determine quality. Meredith discusses weaknesses in college rankings, saying “[f]irst, high stakes rankings create more incentive for schools to publish inaccurate or misleading data. Second, academic quality is a difficult concept to quantify” (2004, p.4445). The Princeton Review’s student survey includes over 80 questions which aim to cover as many facets as possible of each college. By combining these extensive survey data with facts and statistics, the Princeton Review lends a unique voice to a familiar dialogue. Other guidebooks, such as Fiske’s *Guide to Colleges*, also devote great attention to the details of college lifestyle and urge prospective students to consider the goodness-of-fit between themselves and the colleges. The Princeton Review series, however, provides better information for our research study because its guidebooks assign formal ratings for various aspects of colleges and determine these ratings in a rather haphazard fashion.

The Princeton Review’s *Best Colleges* series (henceforth abbreviated as PR) began with the 1992 edition and was published annually starting with the 1994 edition. The guidebooks profiled the most selective colleges in the United States, starting with 250 colleges in 1992 and gradually increasing to 366 colleges in 2008. Each edition is intended to be up-to-date for applicants planning to enroll in college in the fall of that year and is therefore published during the summer of the previous calendar year, (e.g., the 2008 edition was published in June of 2007). To prepare these

guidebooks, PR staff survey current college students and obtain administrative data directly from colleges.⁴

The PR's surveys of students are notorious among college administrators for the selection bias issues inherent in the sampling procedures. In the early years of the series, PR staff would go to various spots on campus and recruit students to fill out their questionnaires. The choice of these locations and the voluntary nature of student participation in the surveys could easily make the responses not representative of the overall student population. In some cases, PR staff would even mail the questionnaires to college administrators who could then choose which students to solicit responses. In recent years, the PR contacts college administrators to solicit email addresses of students who might participate in the surveys. This could add an additional layer of selection if colleges strategically choose their lists of potential survey respondents. The unscientific nature of this survey administration should thus lead to year-to-year changes in ratings that are not always reflective of sudden changes in typical student attitudes and perceptions. The PR staff's methods of aggregating these survey results, which they do not publicly disclose, might add further noise to the ratings process. As long as these idiosyncrasies in ratings determinations are unrelated to omitted variables affecting college demand, then these idiosyncrasies will lead the estimates below to more closely reflect the causal impact of ratings changes.

The PR guidebooks publish college ratings in two ways. First, in the front of the books, they present several "top 20" college lists for various categories. Second, in a two-page spread for each individual college, the PR guidebooks list various statistical information and ratings surrounding a narrative that summarizes information about the college. The sidebars on each page of these two-page spreads present statistics and ratings in a standardized format. PR provides

⁴ Our comparisons of certain variables that overlap with the National Center for Education Statistics' IPEDS data reveal that the administrative data reported in the PR guidebooks typically correspond with the most recent school year but occasionally correspond with the previous school year.

numerous statistics to assist potential applicants' awareness of the selectivity, resources, and costs associated with the colleges. Admissions statistics include the number of applicants to a college and both the percent accepted and percent attending, SAT and ACT scores, average high school GPA, and the percent of students to graduate in the top 10th, 25th and 50th percentiles of their high schools. SAT and ACT scores are sometimes reported as average scores (1992, 1994-1997), sometimes reported as a range of scores (2007-2008), and sometimes reported as both (1998-2006). GPA reports are generally on a scale of 1-4, but may be on a scale of 100 depending on the scale used by each individual institution. College cost statistics reported in the PR guidebooks include tuition (both in-state and out-of-state where relevant), room and board, and the percentages of both freshmen and all undergraduates receiving financial aid (either need-based or any). Finally, PR includes statistics which describe the institution's student/faculty ratio, the percent of professors who teach undergraduate courses, the percent of courses taught by graduate student teaching assistants, and undergraduate enrollment percentages by race and gender.

The U.S. News and World Report's *America's Best Colleges* was first published in 1983 and has been published annually since 1985. The series publishes two lists of rankings of undergraduate programs, one for universities and one for liberal arts colleges. Some editions also contain other rankings, such as "best value" colleges. Colleges often prominently display favorable rankings from the *U.S. News*, and changes in the order of top ranked universities often draw considerable attention from the media. In recent years, college administrators have decried the arbitrary nature of the *U.S. News* rankings and argued that students and the media should give less credence to the rankings.⁵ Some critics argue that the *U.S. News* purposely tweaks their rankings formula to change the ordering from year to year in order to sell more copies (Machung, 1998). Other critics are concerned that colleges engage in undesirable strategic behavior in order to alter their rankings

⁵ For some examples of criticism, see Applebome's (1997) article in the New York Times, Strauss's (2007) article in the Washington Post, and Jaschik's (2011) article in Inside Higher Ed.

(Machung, 1998; Monks & Ehrenberg, 1999). While some colleges have gone as far as to refrain from reporting requested information from the *U.S. News* (Strauss, 2007), college administrators may still keep a watchful eye on the ratings for fear that they affect potential enrollees' decisions. In fact, the University of Tennessee recently announced a quest to become a top 25 public research university based on *U.S. News* rankings (Vol Vision Top 25, posted Fall 2010).

Several prior studies examine the impact of *U.S. News* rankings on the higher education market. Monks and Ehrenberg (1999) use data from 30 COFHE (Consortium on Financing Higher Education) colleges to explore responses to *U.S. News* rankings. Using college fixed effect models, they find that worse rankings from the immediate prior year predict higher admit rates, lower yields, lower SAT scores among entering students, and lower net tuition charged. Griffith & Rask (2007) use data from Colgate University's admitted student questionnaire to examine how changes in college's *U.S. News* rankings affect different types of students' enrollment decisions. They find that full-paying students' enrollment decisions were particularly sensitive to the *U.S. News* rankings and were especially sensitive at the top of the ranking distribution. More recently, Luca and Smith (forthcoming) cleverly exploit changes in the *US News*' ranking formulas over time to show that arbitrary changes in rankings affect college applications even controlling for the underlying variables that determine the rankings. Their simulated instrumental variables approach produces even larger coefficients than their OLS models. Bowman and Bastedo (2009) find positive effects of making the top 25 in the US News rankings on colleges' admissions statistics during the following year. The results below are consistent with this finding. This is only part of the story, however, as quality-of-life reputations and peer institutions' rankings also predict changes in college demand.

3. Data

3.1 Guidebook Data

The Princeton Review guidebooks contain front-of-book lists of colleges containing the “top 20” best or worst colleges in a given category. The guidebooks also contain sidebars on each college’s 2-page spread; the sidebars include colleges’ Academic Ratings⁶ (numerical scores from 60 to 100) and descriptors of positive and negative aspects of college life. The descriptors are listed under headings like “Survey Says” or “Hot” and “Not.” There are numerous categories for both the top 20 lists and sidebars—far too many to simultaneously test for effects of each one—so we narrow down the group by focusing on a few major categories. From the sidebars, we focus on the Academic Rating and on the three descriptors which the guidebooks reported in the most consistent fashion across editions: (1) student happiness, (2) campus appearance, and (3) campus location. From the front pages of the Princeton Review guidebooks (PR), we focus on eight top 20 lists: (1) Best Overall Academic Experience for Undergraduates, (2) Happy Students, (3) Least Happy Students, (4) Beautiful Campus, (5) Campus is Tiny, Unsightly, or Both, (6) Party Schools, (7) Stone-Cold Sober Schools, and (8) Jock Schools. We chose the latter three of these lists because they are related to current policy debates concerning binge drinking and the role of big-time college sports. We chose the former five because they match the ratings and descriptors that we use from colleges’ individual sidebars. Appendix 1 describes how we standardize the sidebar descriptors from various guidebook editions to create the college quality-of-life variables. Figures 1a and 1b

⁶ The Academic Rating is based on “how hard students work at the school and how much they get back for their efforts” (PR 1995 ed., page 7). In particular, “...how many hours students studied, how vigorously they did assigned readings and attended all classes, and the quality of students the school attracts; ...the student/teacher ratio, the students’ assessments of their professors’ abilities and helpfulness, and the students’ assessment of the school’s administration (in those areas where administrators directly affect the quality of education).” (PR 1995 ed., page 8)

display the resulting frequencies for these variables across our sample period.⁷ Figures 2a and 2b show which schools most frequently received positive and negative happiness ratings.

The content of the top 20 lists do not necessarily correspond with the descriptors that the colleges receive in their sidebars. For example, there are numerous cases where a college received a “students are happy” rating in their sidebar but was not listed among the top 20 colleges for happiness, whereas another college was included in the top 20 but did not receive a “students are happy” rating in their sidebar. The correlations between having a sidebar descriptor and making the top 20 list are positive but not so large to prevent us from separately estimating their effects on college demand in the regression models below.⁸ These differences may be partly due to sidebar ratings being norm-referenced against a college’s own ratings in other categories, whereas the top 20 lists may be based on mean student survey ratings compared across colleges. Many of these discrepancies, however, appear to be due to arbitrary choices by the publisher. For example, the PR guidebooks claim that the Top 20 Best Overall Academic Experience for Undergraduates is based on the colleges’ Academic Ratings. Yet 7 percent of colleges in this top 20 list were not actually among the highest 20 Academic Ratings in that edition, and 24 percent of colleges with the highest 20 Academic Ratings (including ties) in that edition did not make the top 20 list. In some cases, the snubs from the top 20 list seem particularly egregious—Yale University received the third highest Academic Rating in both the 2001 and 2002 editions but did not make the top 20 list in either year.

⁷ These quality-of-life measures do not necessarily go hand-in-hand. For example, in both the 1998 and 1999 editions, Austin College received a positive happiness rating while both its campus and location received negative ratings. California colleges frequently received positive ratings for their campuses, while Northeastern colleges frequently received positive ratings for their locations. Colleges’ ratings did vary substantially over time—five colleges initially receiving a negative happiness rating received a positive happiness rating in the very next edition. Similarly, location ratings flip-flopped (in either direction) in consecutive editions for nine colleges and campus ratings flip-flopped in consecutive editions for ten colleges.

⁸ For example, the correlation between making the top 20 list for happy students and receiving a “students are happy” descriptor is .25. Fifty percent of the college-by-year observations making the top 20 list for happy students received a “students are happy” descriptor on their sidebars, while 20 percent of colleges receiving “students are happy” on their sidebars also made the top 20 list for happy students. For the unhappy student descriptor and top 20 list, the correlation is .35 and these percentages are 44 percent and 36 percent respectively. As seen in Tables 2 through 4, most of the results are robust to omitting other types of ratings variables from the regression models.

Columbia University was omitted from the top 20 list during three consecutive years in which its Academic Rating was higher than at least one college on the list. Our analyses below reveal that these arbitrary omissions from top 20 lists can actually influence the number of applications that colleges receive.

Research assistants helped us carefully enter PR guidebook data by hand, and we painstakingly checked for implausible values or values that were suspiciously different than a college's typical values. In one case, we detected a typographical error made by the PR guidebook itself for a college's entire sidebar for one edition: in the 2006 edition, Stanford University's sidebar contained the statistics and ratings of Saint Mary's College due to an apparent inconsistent alphabetical sorting of "St." and "Saint" for Saint Mary's. This publishing error did not have any apparent effect on Stanford's applications that year, though it may have affected Guilford College's applications because Guilford was incorrectly featured as a peer institution on Stanford's guidebook page.⁹

Our research assistants also hand-coded the U.S. News Rankings for the same years as the PR guidebook editions. We include two sets of rankings found in the U.S. News series: "Best Universities" and "Best Liberal Arts Colleges." Because the length of these lists varied over time and because schools were only eligible to be on one of the two lists, our models below also control for two dummy variables for whether the school made a list that year.

⁹ Guilford was listed under the "Applicants also Look at and Sometimes Prefer" header in Stanford's sidebar in the 2006 edition, along with Kenyon College and the College of William and Mary. Guilford's applications increased by a striking 36% between 2005 and 2006, and the resulting competitiveness rating for Guilford's admissions increased by 2 points. In contrast, neither Kenyon College nor the College of William and Mary experienced a significant increase in their applications in spite of being listed on Stanford's page in the 2006 edition. The increase in applications at Guilford in 2006 may have been largely due to the delayed effects of Guilford allowing online applications beginning in 2005—Guilford's applications had increased by only 3% between 2004 and 2005.

3.2 Other data sources

Along with the guidebooks, our other main data source is the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS), which annually reports comprehensive college-level data. Data culled from IPEDS for our project include the number of undergraduate applications received by colleges, full tuition for both in-state and out-of-state students, instructional expenditures per full-time undergraduate student, and expenditures on student services per full-time undergraduate student. Applications are only available in the IPEDS starting in 2001, so we gathered college applications data for earlier years from U.S. News & World Report college guidebooks, Peterson's college guidebooks, and directly from the colleges themselves.¹⁰

Table 1 displays descriptive statistics for the variables used in our analysis. Our panel data set contains annual college-level data for the class entering in the fall of 1993 through the fall of 2008.¹¹ We restrict our dataset to observations from the 265 selective colleges that appeared in at least 12 of the 16 PR guidebook editions published in our sample period.¹² The majority of these colleges (183) were included in all 16 editions of the guidebooks. The resulting data set includes 4,034 college-year observations.

¹⁰ U.S. News provides application and admissions data for 1995, 1999 and 2000. Peterson's provides application and admissions data for 1992, 1994, 1996, 1997 and 1998. To fill in otherwise missing values, we obtained applications data directly from Auburn University and Rutgers University for 1993 through 2000.

¹¹ Because the PR *Best Colleges* series began with the 1992 edition and did not include a 1993 edition, we use the 1992 edition to predict outcomes for the class entering in the fall of 1993.

¹² From the sample of all colleges ever discussed in the PR guidebooks, we remove 69 colleges that appeared in fewer than 12 editions, four military institutions, and two colleges that are highly specialized and have small enrollments (Deep Springs College and Eugene Lang College). In additional analyses, we examined whether entry and removal from Princeton Review editions leads to different types of changes in outcomes over time depending on colleges' ratings. Unfortunately, the standard errors of these estimates were too large to allow any meaningful conclusions, so we omit these analyses from this paper.

4. Empirical Models

We estimate college fixed effect models controlling for year effects and time-varying college-level variables. All models adjust the standard errors for clustering at the college level.

Our baseline model is:

$$Y_{it} = USNews_{it}\beta_1 + PR_Top20_{it}\beta_2 + X_{it}\beta_3 + \gamma_i + \lambda_t + e_{it} \quad (1)$$

where i indexes schools and t indexes year; γ_i captures college fixed effects; λ_t captures year effects;

$USNews_{it}$ contains variables based on the *U.S. News*' rankings of universities and liberal arts

colleges; PR_Top20_{it} is a vector of PR Top 20 ratings; X_{it} is a vector of time-varying college-level

control variables; and e_{it} is an error term. Y_{it} is one of three dependent variables: (i) the natural log

of the number of undergraduate applications received by the college, (ii) the resulting academic

competitiveness of the next year's incoming freshman class, or (iii) the resulting fraction of the

freshman class coming to the college from high schools in distant states. The second dependent

variable (academic competitiveness) is standardized by year and is based on reading and math SAT

scores and high school class rank variables.¹³ We use factor analysis across these variables to

create a single variable, and then we create standardized (Z-scores) values capturing year-specific

measures of academic competitiveness. Note that the estimated coefficients of the ratings variables

in these models will capture both the causal impact of changes in ratings and the effects of secular

changes in reputations that are correlated with changes in ratings.

¹³ Based on data availability, we use slightly different versions of five SAT and class rank variables across the years. For 1993, 1994, and 1998 through 2005, we use: average SAT scores in math, average SAT scores in reading, and the percent of the incoming class whose grades were in the top 50, 25, and 10 percent of their high school classes. For 2006 and later, we use similar variables except the SAT scores are from the 25th percentile rather than the average score. For 1995 and 1996, we use similar variables except the high school class grade cutoffs are the top 60, 40, and 20 percent. We conduct the factor analysis separately across years with similar data availability. As mentioned in footnote 4, the PR reporting may occasionally refer to data from two year's prior rather than the latest entering class. Unfortunately it is not possible to identify which cases use data from two year's prior. To verify that our main results are not simply due to an endogeneity bias due to delayed reporting, we also found conservative estimates using a dependent variable based on SAT and class rank statistics reported two editions later instead of one edition later. Fortunately, the results of these models remain qualitatively similar to those reported in column 1 of Table 4 below: statistically significant estimates for U.S. News University Rank and the top lists for Best Overall Academic Experience, Beautiful Campus, and Least Happy Students.

We initially estimate a sparse version of equation 1, in which the X_{it} only contains control variables for whether the college participated in the “common application” and for cost-related variables: in-state and out-of-state tuition and the college’s financial aid rating. We then test the robustness of these initial results by estimating the model with additional control variables: instructional expenditures and student services expenditures, the SAT scores of the prior incoming frosh class, and the prior year’s student–faculty ratio. With the addition of these controls, the estimated impact of the ratings reveals the effects of sharp changes in ratings distinct from recent trends in the college’s academic resources. The instructional expenditure and student service expenditure variables are similar to those analyzed by Jacob et al. (2012) in their study of how college resources affect demand.

Additional models incorporate the ratings of self-identified peer institutions. We exploit information reported in the PR sidebars concerning which colleges have overlap in their applicant pools.¹⁴ This information is reported directly from the college administrators themselves, and they are free to list any colleges’ names without providing any sort of supporting statistics. For each college in our sample, we define groups of its three “peer institutions” as the other colleges in our sample that were most frequently included in the college’s applicant pool overlap lists. Our definitions of peer groups are thus static even as the listings change across editions, and our definitions of peer groups are not necessarily reflective—i.e., College X can be a peer institution for College Y even if the converse is not true. We estimate

$$Y_{it} = USNews_{it}\beta_1 + PR_Top20_{it}\beta_2 + X_{it}\beta_3 + USNews_{it}^{peer}\beta_4 + PR_Top20_{it}^{peer}\beta_5 + \gamma_i + \lambda_t + e_{it} \quad (2)$$

where $USNews_{it}^{peer}$ and $PR_Top20_{it}^{peer}$ are the sum of the rating variables for college i ’s three peer institutions.

¹⁴ The typical headers for these lists are “Applicants often prefer...”, “Applicants sometimes prefer...”, and “Applicants rarely prefer...”

5. Results

5.1 *Own Ratings*

Table 2 displays our estimation results for versions of model 1 with the log of the number of applications as the dependent variable. The U.S. News and World Report ranking does not have statistically significant effects on the number of applications received by colleges. The magnitudes of these estimates are also small; for example, the estimate in row 1 of column 1 implies that an improvement of one ranking place increases applications by about 0.1 percent. The estimated effect of failing to make the U.S. News' reported rankings list entirely, however, does predict a statistically significant decrease in applications for universities (for the models in columns 1 and 2).

Several of the PR Top 20 ratings have large and statistically significant effects on applications. The largest estimated effect in column 1 is a 5.1 percent decrease in applications when a college makes the list of the 20 least desirable campuses. Conversely, there is a 2.3 percent increase in applications when a college makes the Top 20 most beautiful campuses. The other positive quality-of-life list, Happiest Students, is associated with a 3.1 percent increase in applications. Placement in a Top 20 category of subjective virtue—Party Schools, Stone-cold Sober Schools, and Jock Schools—does not have statistically significant effects on the total number of applications.

Making the PR Top 20 list for Best Overall Academic Experience increases applications by 3.9 percent. This effect remains positive and statistically significant in the model in column 2 when the linear PR Academic Rating measure is also included. This suggests that the front-of-book advertising associated with Top 20 lists do have a causal impact on college demand. In fact, if we further control for whether the college is in the actual highest twenty values for Academic Rating that year, then the coefficient on the front-of-guidebook top 20 Academic Experience Rating is at

least as large as before: a .046 estimated coefficient with a .018 standard error. This suggests that the idiosyncratic choices made by PR editors can influence potential college applicants.

The addition of the individual college sidebar ratings to the models in columns 2 and 3 does little to change the estimated effect of the Top 20 placements. The lone statistically significant estimate from the sidebar is the effect of a college receiving a "Students are not happy" rating, which predicts applications decreasing by about 5 percent. When the Top 20 list variables are excluded, the sidebar ratings variables' estimated coefficients remain similar in size and significance (see column 4). The addition of controls for categorical expenditures, prior year student-professor ratio, and prior year freshman class SAT scores in the model in column 3 of Table 2 does not substantially change the estimates. All models in Table 2 also suggest that colleges receive more applications during years when they accept the "Common Application" that students may easily submit to multiple colleges.

Table 3 presents results from identical models as Table 2, except changes the dependent variable to be the academic competitiveness of the resulting incoming freshman class. Academic competitiveness is not strongly affected by the U.S. News' rankings. The estimated effects are statistically insignificant and moderate in magnitude—e.g., column 1 suggests that a 1 place change in university ranking leads to a .008 standard deviation change in competitiveness. The estimated effect for liberal arts colleges' rankings is similar. Once again, making the U.S. News' rankings list at all, however, may be more important than the actual ranking if a college is on the list. Failing to make the list is associated with at least a 0.3 standard deviation lower level of academic competitiveness. If there is serial correlation of omitted variables used to construct the academic competitiveness index in year t and used to determine whether colleges made the U.S. News' rankings in year $t-1$, then these estimates could be biased upward. Comparing the estimates in columns 1 and 2 suggests that this upward bias might be small; the estimated effect of failing to

make the U.S. News rankings does not decrease by much when the model adds lagged student SAT scores as control variables.

The results in Table 3 suggest that making several of the PR Top 20 lists predicts changes in colleges' competitiveness of the next frosh class. There are statistically significant positive effects associated with making the Top 20 list for Best Overall Academic Experience (.067 standard deviation improvement in competitiveness), Happy Students (.123 s.d.), or Beautiful Campus (.050 s.d.), as well as a large negative effect of making the Top 20 list for Least Happy Students (-.129 s.d.).

Participation in the common application does not significantly affect academic competitiveness. Students who are marginally induced to apply due to the availability of the common application may not tend to be the types of students who increase the academic competitiveness of the admissions process.

When additional control variables are added, the effects of the Top 20 list for Happy Students and Beautiful Campus remain statistically significant (columns 2 and 3 of Table 3). The Princeton Review's numeric Academic Rating also has a large and statistically effect on the ensuing competitiveness of the next year's freshman class—a one point increase in Academic Rating leads to a .018 standard deviation increase in competitiveness. This implies that a 1 standard deviation change in Academic Rating is followed by a .15 standard deviation change in competitiveness. While marginally significant estimates in column 3 suggest negative changes in academic competitiveness after colleges receive a “Students are happy” or “Student like the campus” rating on their sidebars, these results are not robust to slight changes in the independent variables and may be due to multicollinearity of the ratings variables. In particular, column 4 shows that these estimates become statistically insignificant if one omits the top 20 list variables from the model.

Ratings may also influence other characteristics of incoming freshman classes. The information dissemination aspect of ratings might help colleges reach a broader audience. Favorable ratings may enable a college to attract a more geographically diverse class without sacrificing other desired student characteristics. To test this idea, we next estimate equation 1 with a new dependent variable equal to the proportion of the college's frosh class that had graduated from high schools in states that were at least 500 miles away from the college's campus.¹⁵ The average college had 24% of its students come from at least that far away.

Table 4 displays the results of these models. As expected, more favorable quality-of-life ratings predict a more geographically-diverse ensuing freshman class. Geographic diversity is most responsive to favorable happiness ratings and unfavorable campus ratings. Placing in the top 20 for happiness increases the proportion of geographically distant students by 1.5 percent, whereas placing in the top 20 worst campuses list decreases this proportion by 1.5 percent. Interestingly, placing in the top 20 party school list predicts lower geographic diversity, suggesting local high school students might be attracted to the "party school" label and/or more distant high school students might be dissuaded by this label. Geographic diversity at universities decreases when universities have been omitted from the U.S. News rankings. Aside from this, the U.S. News rankings, PR ratings, and PR descriptors do not have statistically significant effects on colleges' geographic diversity.

The models in Tables 2 through 4 have various ratings enter individually, but various ratings could potentially be substitutes or complements with each other in terms of how they influence college demand. Two types of potentially important overlap come to mind: (1) whether colleges make at least one or both of the top 20 lists for quality of life (i.e., happiness, campus quality), and

¹⁵ Data for the geographic location of applicants is unavailable, so we only examine the geographical diversity of enrolled students. The data reveal students' home states but not their hometowns; we use the actual coordinates of the colleges and calculate the distance from there to the student's home state's centroid coordinates.

(2) whether colleges make at least one or both of the top 20 list and the corresponding sidebar indicator. Additional models, not displayed here for brevity, test these hypotheses by combining these ratings into two variables—one for making either rating and one for making both. The results suggest that making both the top 20 lists for Happy Students and for Beautiful Campus has a much larger positive effect on applications than the sum of the effects of making either list individually. In contrast, the estimates do not suggest significantly different cumulative effects for the other two dependent variables or for making two negative top 20 lists or for making both a top 20 list and corresponding sidebar indicator.

5.2 Heterogeneous Responses to Own Ratings

The empirical models above assume that different types of colleges would experience similar effects from ratings changes, but there may actually be important heterogeneity in terms of which colleges are most affected. In additional analyses, we tested for heterogeneous effects along three dimensions: (1) whether the college participates in the Common Application, (2) whether, in the average year, the college attracted at least 25 percent of its incoming students from distant locations (states at least 500 miles away), and (3) whether the college is a university offering doctoral degrees or a liberal arts college. We divided the sample along each of these dimensions and tested for differences in slopes, using the same models as in column 1 of Tables 2, 3, and 4.

These analyses suggest that differential effects are generally unimportant in the search process. In very few cases is the estimated coefficient statistically significant for a sub-sample and also significantly different from the comparison sample. Making the top 20 list for “Happiest Students” has significantly different effects across different types of colleges. The positive effect of making this list on the academic competitiveness of the ensuing freshman class is larger for colleges using the common application; the positive effect of making this list on ensuing geographic

diversity is larger for liberal arts colleges and for colleges that tend to be geographically diverse. Conversely, colleges only experience a decrease in academic competitiveness after making the top 20 list for “Least Happy Students” if these colleges do not participate in the common application. The only type of rating that has a significant effect for a subsample of colleges but *not* for the entire sample is making the top 20 list for “Stone cold sober” colleges, which increased geographic diversity at doctorate-offering universities but not at liberal arts colleges. Given the large number of estimated slopes, one should not put too much emphasis on this result, but it might suggest that some students and/or their parents are concerned whether drug and alcohol use are common at distant universities.

5.3 Competitor Ratings

Table 5 displays estimates of equation 2, the model that adds peer institution ratings as additional independent variables. Recall that peer groups are self-disclosed by the college themselves, based on the colleges most frequently cited as having overlapping applicants. The estimated coefficients for colleges' own ratings barely change in this model from their values in Table 2 and Table 3; in the interest of brevity, Table 5 thus only displays the peer rating variables' coefficients. Given that the independent variables are the sum of the ratings across the peer institutions, one should interpret the magnitude of these coefficients as the estimated effect of one peer institution having a rating change.

Better academic ratings for peer colleges decrease the number of applications that colleges receive. A one rank improvement in a peer's U.S. News university ranking is followed by a 1.4 percent decline in a college's own applications. A one rank improvement in a peer's liberal arts college ranking has a similar estimated effect but the estimate is less statistically significant.

Colleges also receive fewer applications after peers make the PR top 20 list for academics, but this estimate is not statistically significant at the .10 level.

While peer colleges' favorable academic ratings may decrease the size of a college's own application pool, these ratings do not reduce the academic competitiveness of the college's incoming freshman class. In fact, U.S. News' rankings of peer liberal arts colleges are positively related to the academic competitiveness of a school's own incoming class. Given that liberal arts colleges can only make a relatively small number of admissions offers, this result might reflect a trickle-down effect for college admissions—e.g., Haverford College might have a higher yield rate among highly talented admitted students when Swarthmore College has a historically high ranking and thus rejects more applicants.

Unlike academic ratings, peer institution quality-of-life ratings may have complementary effects on a college's own recruitment efforts. Applications decrease by 4.4 percent if a peer institution makes the top 20 list for Unsightly, Tiny Campus. This negative effect is almost as large as the negative effect when the school makes this list itself. Negative quality-of-life ratings appear to be particularly important for the academic competitiveness of the resulting incoming class—both of the two negative ratings top 20 lists (Least Happy Students and Unsightly, Tiny Campus) have statistically significant estimated coefficients with magnitudes exceeding .06 standard deviations. As with a school's own ratings, there are not strong effects from peer institutions cracking the top 20 lists for party schools or jock schools.

6. Conclusion

This paper's results contribute to the general literature on reputation formation by showing that perceived non-pecuniary benefits affect demand (e.g., happiness ratings matter) and that different dimensions of close competitors' reputations can either increase or decrease demand. Our

analysis reveals three general findings for the U.S. market for selective undergraduate colleges. First, inclusion in selective academic lists (i.e., Princeton Review's Top 20, U.S. News rankings of universities) is followed by an increase in applications, suggesting that front-of-book advertising may be important in the initial phases of the college search process. Second, quality-of-life ratings can substantially affect the demand for specific colleges. Negative quality-of-life ratings are especially important for the early stages of the search process (as reflected by changes in the number of applicants), and positive quality-of-life ratings are especially important for the later stages (as reflected by the competitiveness of the resulting frosh class). Finally, although favorable academic ratings for peer universities may decrease college demand, unfavorable quality-of-life ratings for peer schools actually decrease college demand. Quality-of-life ratings may primarily influence how students narrow down their choice set to groups of peer institutions. An implication of these findings for future research is that it may be important to control for quality-of-life factors when examining the impact of college costs and expenditures on application and matriculation decisions.

There are also several potential policy implications from these findings. Colleges may wish to collaborate with peer institutions to entice students to further investigate themselves as a group. Students appear to be responsive to quality-of-life information for sets of colleges—especially if these colleges are geographically distant from the students' high schools. There may be economies of scale associated with colleges' collaborative efforts. Second, colleges' efforts to enhance their reputations as places with happy students and beautiful campuses may attract high school students with stronger academic credentials. Both academic and quality-of-life reputations influence the credentials of the incoming cohorts of students. While colleges' objective functions are not as simple as maximizing the number of applicants or the SAT scores of enrolled students, they should be concerned with the types of students they are attracting.

Finally, colleges may wish to monitor the accuracy and representativeness of information put forth in college guidebooks and websites. Several websites with user-generated content—such as unigo.com—are becoming increasingly popular as ways of reading reviews, watching videos, and viewing pictures posted by current college students. These websites could greatly reduce high school students' search costs, but they will only improve student–college matches if the websites produce more accurate reputation formation. It may be in the public interest for an independent organization to review the practices of these guidebooks and websites to assess the objectivity of their content; otherwise, one can imagine financial or other considerations being given to the publisher. Improved match quality between students and colleges could ultimately improve social welfare—with higher college completion rates, fewer years lost by transfer students' transitions, happier undergraduates, and better outcomes after graduation day.

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Table 1: Descriptive Statistics

Variable	Mean	SD	Source(s) ⁱ
DEPENDENT VARIABLES			
Applications (N=4,104)	7,451	7,340	Several
Academic Competitiveness Rating (N=3,521)	.056	1.01	PR
Proportion of Entering Frosh Class Coming from States at least 500 Miles Away (N=2,728)	.244	.193	IPEDS
KEY INDEPENDENT VARIABLES OF INTEREST (N=4,104)			
U.S. News University Rank (times -1)	-1.6	6.1	US News
“ “ “ if has a rank (i.e., excluding zeros)	-25.3	15.3	US News
U.S. News Liberal Arts College Rank (times -1)	-3.6	10.6	US News
“ “ “ if has a rank (i.e., excluding zeros)	-16.3	11.9	US News
Not Ranked in U.S. News University List	.858	.349	US News
Not Ranked in US Liberal Arts College List	.904	.294	US News
<u>Princeton Review Top 20 Listing for...</u>			
Best Overall Academic Experience	.060	.238	PR
Happy Students	.060	.237	PR
Least Happy Students	.062	.241	PR
Beautiful Campus	.068	.251	PR
Unsightly, Tiny Campus	.058	.235	PR
Party Schools	.064	.245	PR
Stone-cold Sober Schools	.052	.222	PR
Jock Schools	.056	.230	PR
<u>Princeton Review Individual College Sidebar</u>			
Academic Rating	83.3	8.2	PR
“Students are <u>Happy</u> ”	.147	.355	PR
“Students are <u>NOT Happy</u> ”	.075	.264	PR
“Students <u>like the Location</u> ”	.216	.411	PR
“Students <u>DO NOT</u> like the Location”	.136	.343	PR
“Students <u>like the Campus</u> ”	.146	.353	PR
“Students <u>DO NOT</u> like the Campus”	.093	.291	PR
Common Application Dummy Variable	53.2%	49.9%	The Common Application, Inc.

Table 1 continued

TUITION/COST CONTROL VARIABLES (N=4,088)			
Full Tuition (equal to out-of-state tuition for public universities), Year 2008 Dollars ⁱⁱ	\$27,650	\$8,706	IPEDS
Full Tuition for In-State Residents (equal to full tuition for private universities), Year 2008 Dollars ⁱⁱ	\$24,531	\$12,692	IPEDS
Financial Aid Rating	81.8	8.6	PR
CATEGORICAL EXPENDITURES PER PUPIL (N=3,902)			
Instructional Expenditures, Year 2008 Dollars ⁱⁱ	\$20,845	\$24,028	IPEDS
Student Services Expenditures, Year 2008 Dollars ⁱⁱ	\$4,260	\$2,862	IPEDS
PRIOR YEAR PERFORMANCE AND RESOURCE VARIABLES (N=3,902)			
PRIOR YEAR AVERAGE MATH SAT SCORE ⁱⁱ	603	53	PR
PRIOR YEAR AVERAGE VERBAL SAT SCORE ⁱⁱ	591	59	PR
PRIOR YEAR Student–Professor Ratio	12.7	3.5	PR

(i) PR= Princeton Review *Best Colleges* series; IPEDS= National Center for Education Statistics' Integrated Postsecondary Education Data System; Several= U.S. News & World Report for 1995, 1999 and 2000, Peterson's Guide for 1992, 1994, 1996, 1997 and 1998, and IPEDS for 2001 and later.

(ii) Values for these variables are interpolated for some years in which they are otherwise unavailable.

Table 2: Do Recent College Ratings Affect Applications?
 Dependent Variable: Natural Log of # of Undergraduate Applications

	(1)	(2)	(3)	(4)
U.S. News University Rank (times -1)	0.0011 (.0014)	0.0009 (.0014)	-0.0004 (.0014)	-.0003 (.0014)
Not included in U.S. News University Rank	-.023 ** (.011)	-.092 * (.052)	-.043 (.052)	-.049 (.052)
U.S. News Liberal Arts College Rank (times -1)	-0.00002 (.0013)	-0.00006 (.0013)	-0.0005 (.0014)	-.0002 (.0014)
Not included in Liberal Arts College Rank	.011 (.015)	-.031 (.038)	-.014 (.039)	-.026 (.039)
<u>Princeton Review Top 20 Listing for...</u>				
Best Overall Academic Experience	0.039 *** (.014)	0.033 ** (.014)	0.030 ** (.015)	
Happy Students	0.031 ** (.015)	0.027 * (.015)	0.027 * (.015)	
Least Happy Students	-0.042 (.027)	-0.031 (.026)	-0.044 (.028)	
Beautiful Campus	0.023 * (.013)	0.021 * (.013)	0.020 * (.013)	
Unsightly, Tiny Campus	-0.051 ** (.025)	-0.048 ** (.023)	-0.044 * (.025)	
Party Schools	0.001 (.018)	0.0006 (.018)	0.003 (.019)	
Stone-cold Sober Schools	0.015 (.028)	0.017 (.029)	0.016 (.029)	
Jock Schools	-0.002 (.025)	-0.004 (.025)	-0.0006 (.026)	
<u>Princeton Review Individual College Sidebar</u>				
Academic Rating		0.001 (.001)	0.001 (.001)	.002 (.001)
“Students are <u>Happy</u> ”		0.009 (.012)	0.006 (.013)	.010 (.012)
“Students are <u>NOT Happy</u> ”		-0.048 ** (.022)	-0.051 ** (.023)	-.058 ** (.024)
“Students <u>like the Location</u> ”		0.019 (.022)	0.021 (.022)	.020 (.022)
“Students <u>DO NOT</u> like the Location”		-0.007 (.018)	-0.005 (.019)	-.004 (.019)
“Students <u>like the Campus</u> ”		-0.007 (.018)	-0.013 (.018)	-.011 (.018)
“Students <u>DO NOT</u> like the Campus”		-0.007 (.021)	-0.006 (.021)	-.009 (.022)
Common Application	0.075 *** (.026)	0.074 *** (.026)	0.078 *** (.026)	.076 *** (.027)
School Effects, Year Effects, & Tuition/Cost Control Variables	X	X	X	X
Controls for Categorical Per Student Exp., Prior Frosh Class SAT Scores, & Prior Student-Professor Ratio			X	X

Notes: Each column displays the results of separate regression. The sample includes 4,104 college-by-year observations for columns 1 and 2, and 3,902 for columns 3 and 4. The models respectively explain 55.5%, 56.3%, 56.7%, and 56.5% of the *within-college* variation in applications. *** denotes statistical significance at the .01 level; ** .05 level; * .10 level

Table 3: Do Recent College Ratings Affect the Academic Competitiveness of Entering Students?
 Dep. Variable: Z-score for Academic Competitiveness Index of Following Year's Entering Freshman Class

	(1)	(2)	(3)	(4)
U.S. News University Rank (times -1)	0.0080 (.0049)	0.0071 (.0047)	0.0045 (.0038)	.0046 (.0038)
Not included in U.S. News University Rank	-.459 ** (.231)	-.446 ** (.225)	-.339 ** (.169)	-.341 ** (.163)
U.S. News Liberal Arts College Rank (times -1)	0.0072 (.0056)	0.0075 (.0055)	0.0069 (.0057)	.0061 (.0054)
Not included in Liberal Arts College Rank	-.432 ** (.251)	-.428 ** (.243)	-.368 (.238)	-.315 (.221)
<u>Princeton Review Top 20 Listing for...</u>				
Best Overall Academic Experience	0.067 ** (.029)	0.009 (.031)	0.022 (.029)	
Happy Students	0.123 * (.069)	0.132 * (.072)	0.138 * (.074)	
Least Happy Students	-0.129 ** (.057)	-0.097 * (.055)	-0.075 (.056)	
Beautiful Campus	0.050 * (.027)	0.050 * (.026)	0.051 ** (.025)	
Unsightly, Tiny Campus	0.017 (.052)	0.052 (.053)	0.061 (.044)	
Party Schools	-0.016 (.037)	-0.006 (.035)	-0.009 (.033)	
Stone-cold Sober Schools	0.037 (.045)	0.016 (.047)	0.014 (.046)	
Jock Schools	0.018 (.035)	0.008 (.035)	0.004 (.035)	
<u>Princeton Review Individual College Sidebar</u>				
Academic Rating		0.018 *** (.003)	0.018 *** (.002)	0.018 *** (.002)
“Students are <u>Happy</u> ”		-0.034 (.022)	-0.046 ** (.022)	-0.029 (.021)
“Students are <u>NOT Happy</u> ”		-0.064 (.039)	-0.079 * (.037)	-0.088 ** (.038)
“Students <u>like the Location</u> ”		0.014 (.034)	0.019 (.032)	0.023 (.034)
“Students <u>DO NOT like the Location</u> ”		-0.028 (.031)	-0.030 (.031)	-0.029 (.032)
“Students <u>like the Campus</u> ”		-0.036 (.023)	-0.037 * (.021)	-0.031 (.020)
“Students <u>DO NOT like the Campus</u> ”		-0.026 (.030)	-0.005 (.024)	-0.006 (.024)
Common Application	0.004 (.053)	0.003 (.052)	-0.005 (.049)	-0.006 (.050)
School Effects, Year Effects, & Tuition/Cost Control Variables	X	X	X	X
Controls for Categorical Per Student Exp., Prior Frosh Class SAT Scores, & Prior Student-Professor Ratio			X	X

Notes: Each column displays the results of separate regression. The sample includes 3,521 college-by-year observations for columns 1 and 2, and 3,366 for columns 3 and 4. Note that these samples are smaller than those in Tables 1 and 2 because we do not have data for our dependent variable for the 2008 entering class and for all cases in which the college did not make the PR guidebook during the immediate following year. The models respectively explain 10.1%, 12.2%, 16.5%, and 15.7% of the *within-college* variation in academic competitiveness. *** denotes statistical significance at the .01 level; ** .05 level; * .10 level

Table 4: Do Recent College Ratings Affect the Geographic Diversity of Entering Students?

Dep. Variable: Percentage of Following Year's Entering Freshman Class from States at least 500 Miles Away

	(1)	(2)	(3)	(4)
U.S. News Univer. Rank (times -1)	0.028 (.024)	0.029 (.024)	0.038 (.024)	.040 * (.024)
Not included in U.S. News University Rank	-2.3 ** (1.1)	-2.3 ** (1.1)	-3.0 *** (1.0)	-3.1 *** (1.0)
U.S. News Liberal Arts Col. Rank (times -1)	-0.05 (.06)	-0.05 (.06)	-0.04 (.05)	-.0002 (.0006)
Not included in Liberal Arts College Rank	1.1 (1.5)	1.2 (1.5)	1.0 (1.4)	0.5 (1.4)
<u>Princeton Review Top 20 Listing for...</u>				
Best Overall Academic Experience	0.34 (.53)	0.55 (.56)	1.00 * (.53)	
Happy Students	1.52 *** (.59)	1.57 *** (.46)	1.52 *** (.48)	
Least Happy Students	-0.21 (.63)	-0.32 (.64)	-0.12 (.68)	
Beautiful Campus	-0.44 (.41)	-0.36 (.41)	-0.46 (.43)	
Unsightly, Tiny Campus	-1.52 *** (.59)	-1.67 *** (.61)	-1.73 *** (.66)	
Party Schools	-0.70 ** (.36)	-0.76 ** (.36)	-0.82 ** (.37)	
Stone-cold Sober Schools	-0.56 (.71)	-0.51 (.73)	-0.48 (.75)	
Jock Schools	0.02 (.53)	0.05 (.53)	0.05 (.53)	
<u>Individual College Sidebar</u>				
Academic Rating		-0.058 (.062)	-0.076 (.064)	-0.06 (.06)
“Students are <u>Happy</u> ”		-0.37 (.31)	-0.32 (.30)	-0.17 (.29)
“Students are <u>NOT Happy</u> ”		0.22 (.68)	0.23 (.72)	0.21 (.73)
“Students <u>like the Location</u> ”		0.32 (.39)	0.40 (.40)	0.39 (.40)
“Students <u>DO NOT</u> like the Location”		-0.13 (.36)	-0.004 (.34)	-0.04 (.34)
“Students <u>like the Campus</u> ”		-0.14 (.35)	-0.08 (.35)	-0.06 (.35)
“Students <u>DO NOT</u> like the Campus”		-0.22 (.52)	-0.27 (.53)	-0.33 (.55)
Common Application	1.64 (1.22)	1.56 (1.16)	1.53 (1.21)	1.55 (1.19)
School Effects, Year Effects, Tuition/Cost Control Variables	X	X	X	X
Controls for Categorical Per Student Exp., Prior Frosh Class SAT Scores, & Prior Student-Professor Ratio			X	X

Notes: Each column displays the results of separate regression. The sample includes 2,728 college-by-year observations for columns 1 and 2 and 2,622 observations for columns 3 and 4. Note that these samples are smaller than those in Tables 1 and 2 because, prior to the year 2000, the IPEDS only collected data on students' home states during every other sample wave (i.e., only for even years). The models respectively explain 7.0%, 7.3%, 8.3%, and 7.3% of the *within-college* variation in geographic diversity. *** denotes statistical significance at the .01 level; ** .05 level; * .10 level

Table 5: Do Peer Institutions' Ratings Affect a College's Own Applications & Incoming Class?

	Dependent Variable	
	ln(# of Applications)	Academic Competitiveness of Following Year's Frosh Class
Sum of Values for Three Peer Institutions		
U.S. News University Rank (times -1)	-0.0014 ** (.0006)	-0.0001 (.0022)
Not Included in University Rankings	.019 (.021)	.032 (.086)
U.S. News Liberal Arts College Rank (times -1)	-0.0015 (.0013)	0.0096 ** (.0042)
Not Included in L.A. College Rankings	.012 (.033)	-.455 *** (.152)
<u>Princeton Review Top 20 Listing for...</u>		
Best Overall Academic Experience	-0.017 (.012)	0.013 (.018)
Happy Students	0.011 (.007)	0.012 (.015)
Least Happy Students	0.009 (.012)	-0.065 ** (.030)
Beautiful Campus	.009 (.009)	-0.011 (.021)
Unsightly, Tiny Campus	-0.044 ** (.019)	-0.078 * (.045)
Party Schools	-0.002 (.011)	0.001 (.022)
Jock Schools	-0.001 (.012)	-0.020 (.017)

Notes: Each column displays the results of a separate regression; the independent variables include the peer ratings variables listed above, along with all of the independent variables used for the models in column 1 of Tables 2 and 3.

*** denotes statistical significance at the .01 level; ** .05 level; * .10 level

Figure 1a

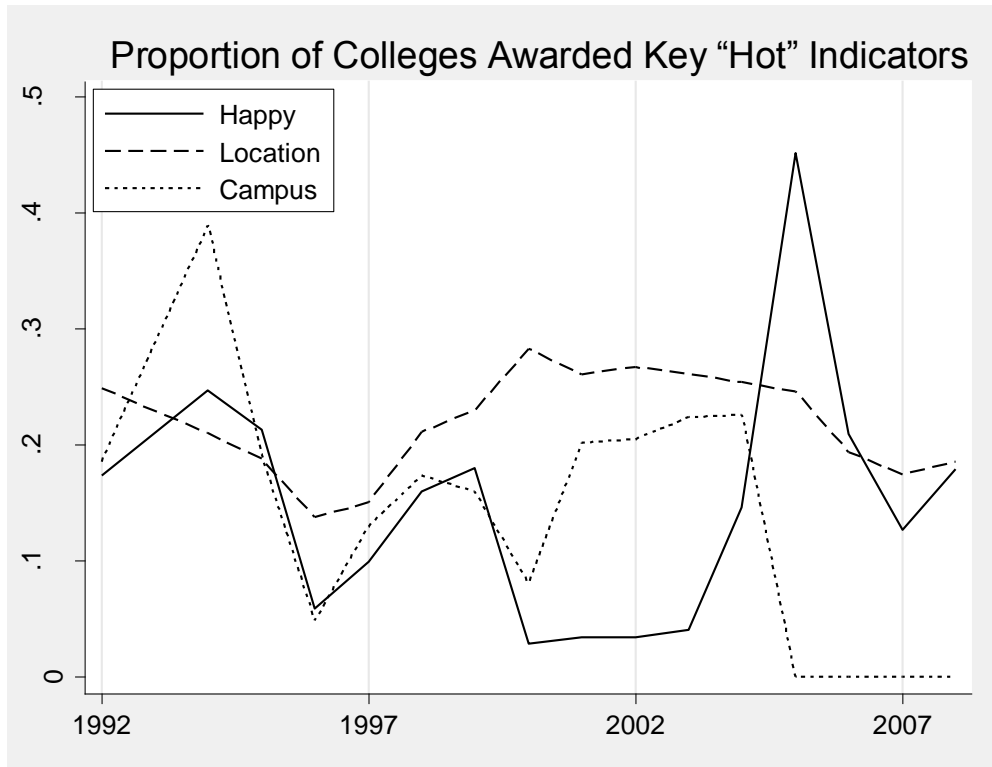


Figure 1b

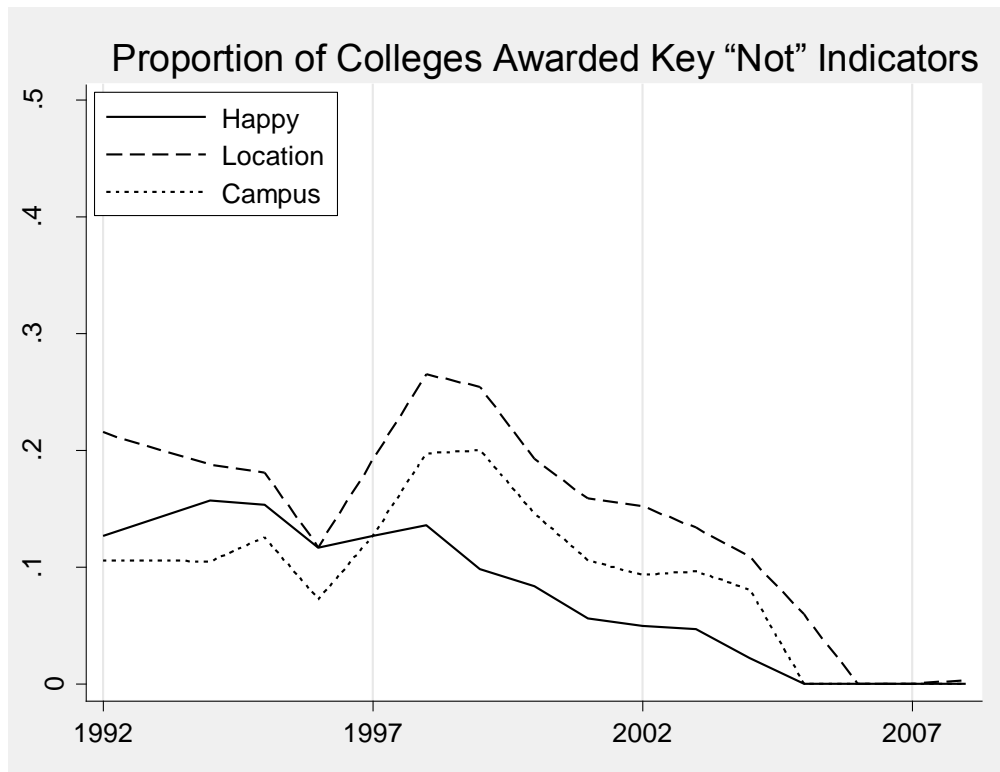


Figure 2a

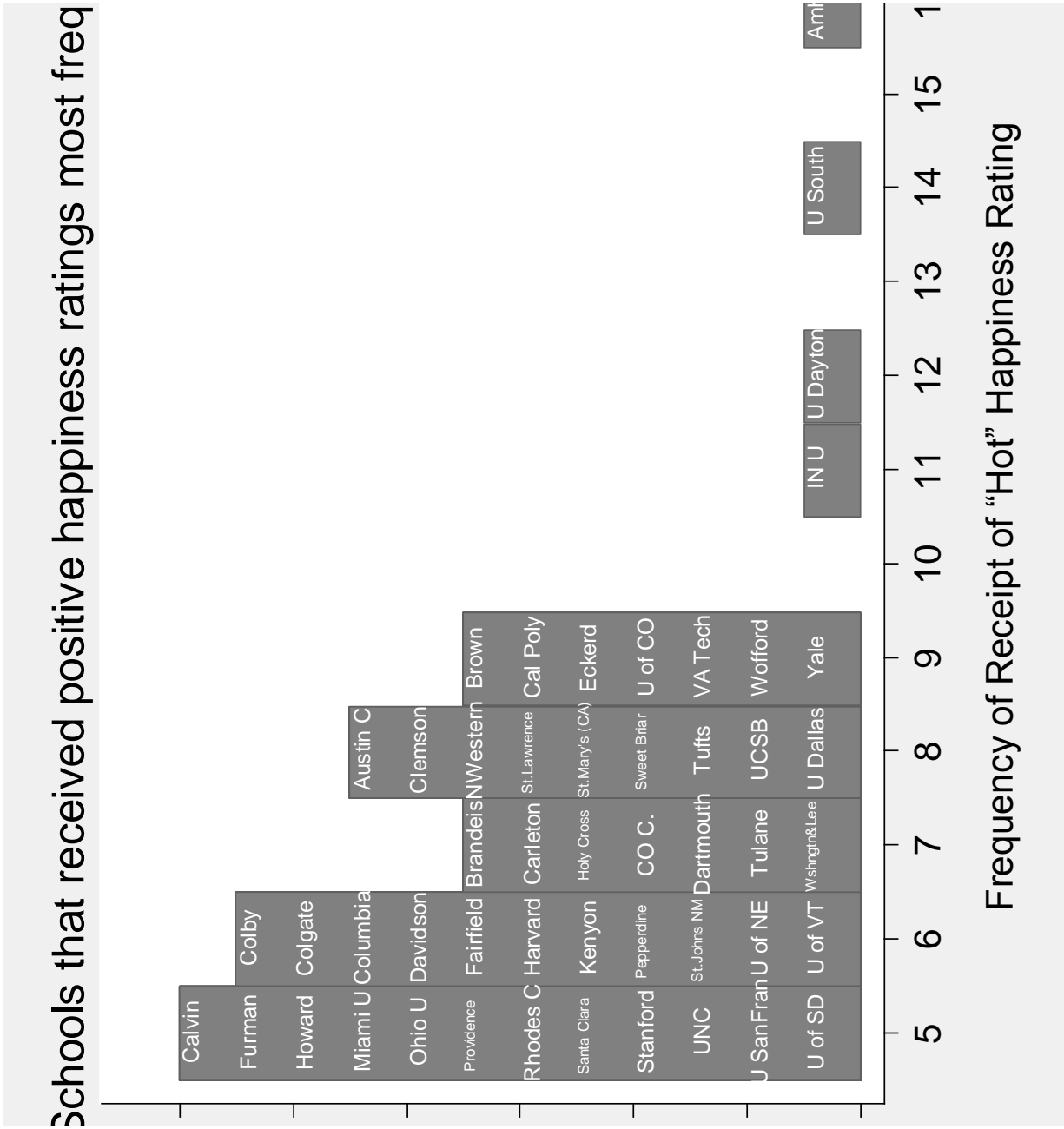
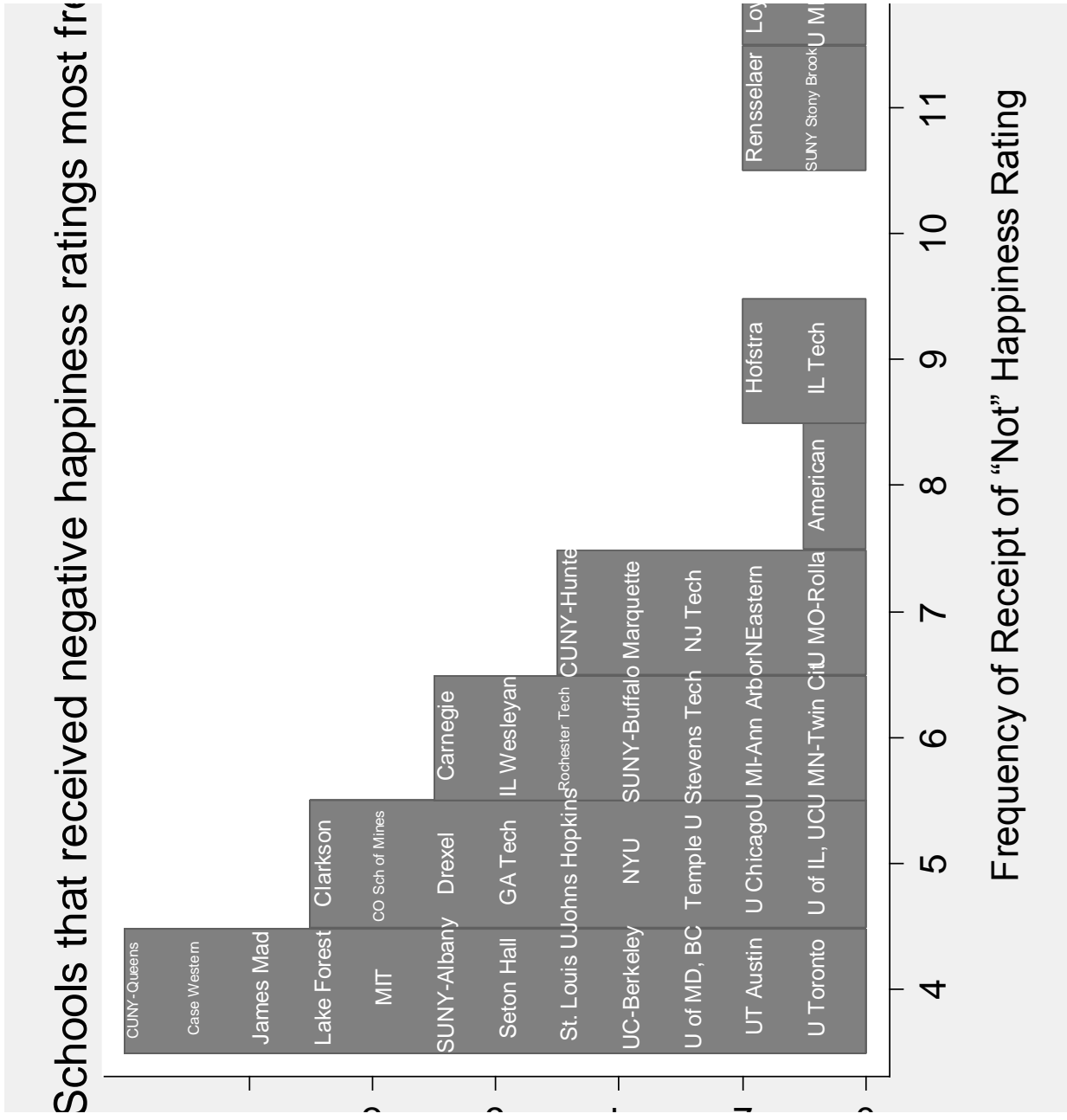


Figure 2b



Appendix

Table A.1: Construction of Quality-of-Life Indicator Variables

Our Variable	PR Guidebook Wording	Guidebook Edition
“Students <u>like</u> the Campus”	Beautiful campus	2000-2004,2006
	Hot: Campus is beautiful	1994-2000
	Hot: Campus	1995
	Hot: Campus safe, beautiful	1995
	Hot: Great campus	1995
	Hot: Campus appearance	1992
“Students <u>DO NOT</u> like the Campus”	Unattractive campus	1997-2004,2006
	Not: Campus is ugly	1996
	Not: Campus ugly	1994,1996
	Not: Campus	1995
	Not: Campus appearance	1992
	Not: Campus beauty	1992
“Students are <u>Happy</u> ”	Students are happy	1996-2008
	Hot: Overall satisfaction	1994-1995
	Hot: Overall happiness	1992
“Students are <u>NOT</u> Happy”	Students not very happy	2001-2004,2006
	Students are not very happy	1999-2000
	Not: Students are unhappy	1996-1998
	Not: Many unhappy students	1995
	Not: Overall dissatisfaction	1994
	Not: Overall satisfaction	1994
	Not: Overall happiness	1992
“Students <u>like</u> the Location”	Students love the college's city	2000-2008
	Students love college's city	2008
	Students love school's city	2008
	Everyone loves the college's city	2000
	Hot: Location	1992-1999
	Hot: <i>Name of town (e.g., Cambridge)</i>	1999
	Hot: Town is fun	1996
	Hot: Suitcase Syndrome	1992
“Students <u>DO NOT</u> like the Location”	Students don't like the college's city	2000-2006,2008
	Not: Location	1992,1994,1997-1999
	Not: <i>Name of town (e.g., Irvine)</i>	1998
	Not: Town is boring	1995-1996
	Not: Suitcase Syndrome	1992

Note: The capitalization of PR wording also varies by year.