Published in final edited form as:

Growth Change. 2013 ; 44(1): 30–53. doi:10.1111/grow.12001.

The Roles of Population, Place, and Institution in Student Diversity in American Higher Education

Rachel S. Franklin

Spatial Structures in the Social Sciences, Box 1916, 112 George Street, Brown University, Providence, Rhode Island 02912, Rachel_Franklin@Brown.edu

Abstract

Student racial and ethnic diversity in higher education is an important and timely topic, as institutions, policy-makers, and economists increasingly recognize the value that accrues at many levels of having a skilled and diverse student body and workforce. Students benefit from learning in a diverse environment; firms may benefit from a diverse workforce; and more demographically diverse regions make experience higher rates of economic growth. However, the forces governing institution-level student diversity are poorly understood, as little prior research on the topic exists. This paper uses school enrollment data to parse out the contribution institutional characteristics, geographical setting, and local demographic characteristics make to student body diversity at each level of study. Results indicate that geographical location and local demographic composition play a role in student body diversity, as do the type and orientation of the institution. Institutional characteristics explain a lot of the variation in student body diversity and actual location of schools matters less than the demographic composition of young people around that location. Two broad conclusions emerge with regard to schools seeking to increase their student diversity. First, some may find their efforts hampered by circumstances outside their control (location, for example). Second, the influence of public/private status and even school size suggest further research on the ways in which these factors influence student diversity so that eventual policy action can be more effective.

Keywords

Diversity; population composition; race/ethnicity; higher education

Introduction

The word “diversity” has a positive connotation in almost all contexts, whether of perspectives, species, stock portfolios, or industry mix (as in Quigley 1998 or Dissart 2003). Human diversity, which can be measured in terms of everything from socio-economic background to sexual orientation but is most often considered in terms of race and ethnicity in the United States, is increasingly seen as conveying indispensable advantage in business, government, and education. In education, student diversity contributes to classroom learning (Hurtado 2006); workforce diversity helps avoid “groupthink” and is associated with higher

levels of innovation and creativity (Audretsch et al. 2010); and, increasingly, ethnic or cultural diversity is also seen as conveying an economic advantage: businesses and cities with more diverse workforces or populations may see higher returns or better economic growth (Alesina and La Ferrara 2005; Easterly 2001; Ottaviano and Peri 2006).

If possession at the regional level of a diverse workforce is a source of economic advantage and if regions are successful at retaining the diverse – and educated – post-graduation, then areas with more diverse student bodies may reap the long-term economic rewards associated with both ethnic diversity and increased human capital. Received wisdom would suggest that, since most students who go to college in the United States remain in the state in which they attended high school (Kodrzycki, 2001), portions of the country with higher racial and ethnic diversity will have more diverse student bodies. But demography alone is surely not responsible for the observed variation in student body diversity: characteristics of colleges and universities, as well as their geographical location, potentially also play an important role.

This paper has two goals. The first is to assess variations in student body diversity at different types of higher education institutions and in different parts of the country. The second is to evaluate the relative contributions of local diversity, along with institutional characteristics and location, to student body diversity at U.S. higher education institutions (hereafter termed schools, colleges, or universities). Most college students attend an in-state school (Mak and Moncur, 2003), so local and regional population composition should play a large role in determining how diverse a school is. In the case of higher education, the “users” do not tend to be uniformly distributed in age, but rather tend to be young, and since few schools have a national reach in terms of market area, it makes sense to focus on local levels of population composition for those “at risk” of going to college. For that reason, in this paper population composition is disaggregated by state and county and considers only the population under age 25. Finally, by disaggregating undergraduate, graduate, and professional students, the differential impacts of location and school type on diversity at each level of higher education can be assessed.

The format of the paper is as follows. The second section provides a review of related research and provides the basic conceptual framework for the remainder of the paper. The following section lays out the data and variables used in the analysis. The fourth section provides a brief overview of the geography of diversity in the United States, both at institutions of higher education and in the total youth population. Next, explanatory models are estimated that isolate the relative impacts of population composition, location, and institutional characteristics on student diversity at three levels of study. Finally, the last section offers a recapitulation of the results, some brief conclusions, and avenues for further research.

Background and Conceptual Framework

The Importance of Understanding the Sources of Observed Student Body Diversity

Common sense would suggest that increasing minority student representation – and, by extension, overall diversity – in higher education should be beneficial: higher education is

key to social mobility and full integration of all societal groups promotes a fair and just society. On more concrete terms, educational policy researchers such as Hurtado (2006) have argued that exposure to student diversity in college is part of the education process that takes place; it is not only subject material taught by professors that teaches students, but also exposure to a wider array of perspectives and backgrounds. In particular, Jayakumar (2008) finds that, for white students, exposure to a diverse student body in college is positively associated with increased “workforce competencies.” Other recent research by Franklin (2011) suggests that, while there is a clear geography to undergraduate student diversity, public universities are often more successful at incorporating their state’s Asian population than their Hispanic populations.

In a similar vein, Audretsch et al (2010) and Niebuhr (2010) find that, at the regional level, increased cultural diversity is positively associated with new knowledge generation, in the form of technology firm start-ups and R&D activities, respectively. Florida and Gates (2003) draw a similar conclusion in their research on diversity (measured in a variety of ways) in U.S. metropolitan areas and high technology firm concentration and growth. They are less confident about the causal mechanisms at work – are “diverse” groups drawn to high-technology centers, or the reverse? – but that a relationship between the two exists seems clear. Faggian and McCann (2009) do not address the question of diversity, but rather assess the relationship between human capital – in the form of a college diploma, university location, and postgraduate mobility in the United Kingdom. In a nutshell, they find that benefits from the production of university graduates do not necessarily accrue to the region in which the degree was earned; some regions are net losers in the education production process: they educate students, who then leave the region to apply their human capital elsewhere. While a similar process clearly exists for the United States, previous research has suggested that, five years after college graduation, 70 percent of graduates were living in the state in which they attended college (Kodrzycki, 2001). While this result surely varies by region and by type of college attended, taking the research above as a whole suggests that regions may benefit economically from colleges that have more diverse student bodies.

Conceptualizing the Determinants of Student Body Diversity

Although the importance of student diversity in higher education is widely accepted, to date research has not focused on the factors that are associated with student body diversity at the institution level. This paper represents an initial effort in that direction and proposes a conceptual framework in which student diversity at each level of study (undergraduate, graduate, and professional) is mediated by institutional characteristics, the geographical setting of the school, and the demographic characteristics of the county and state in which the school is located. Decisions about student admissions are made at the institution level and it seems logical that different types of colleges and universities have different profiles, such as expense, religious orientation, public school status, or selectivity that will impact the size of the minority student population and, therefore, the overall diversity of the student body. It is assumed here that, with the exception of historically-black or tribal colleges, most institutions of higher learning originated with mostly white, non-Hispanic students and that diversity comes through increases in students of other races and ethnicities.

Once institutional factors are accounted for, however, the location of the school is also likely to be important, with rural locations perhaps less likely to attract minority students. Larger cities may be viewed as attractive locations to attend college, for the post-graduate employment opportunities. And, at a larger geographic scale, some states and regions may be perceived as less friendly to minority students or more isolated relative to the rest of the country. The geographical density of higher education institutions may also be important, especially with regard to community colleges. These are often seen as the initial stepping stone for minority students on the way to a four-year college. Traditional colleges and universities located close to community colleges may benefit from being “on the radar” of potential community college students. In addition, four-year schools located in states with ample access to community colleges may benefit from a larger pool of qualified transfer students.

Geography and demographic composition are closely linked: some parts of the United States are more diverse or have larger minority populations than others. One purpose of controlling for the geography of an institution’s location is to isolate the effect of population composition on student body diversity. State-level demographic variables are important, given the fact that most students choose a college in their home state. Students may travel much more locally for college, however, so county-level youth population composition may also play a role in determining how diverse a school’s student body is. The effect of local population composition is also hypothesized to vary by level of study, since graduate and professional students may choose a school differently than do undergraduates.

Data, Measurement, Model, and Variables

Data

Data come from two sources. University enrollment data come from the National Center for Education Statistics’ (NCES) International Postsecondary Education Data System (IPEDS) Fall 2008 survey. All institutions receiving federal student financial aid are required to complete the survey and over 7,000 institutions are included in the full data file. This analysis focuses on four-year schools and above; that is, colleges or universities offering at least a bachelor’s degree.¹ It therefore excludes two-year schools or community colleges since the mechanisms governing their student body diversity are quite different from those governing diversity at four-year schools. Because many for-profit schools, regardless of degree offering, rely on online students to varying extents, those are also excluded here, as a core component of the paper is an evaluation of the link between location and school-specific diversity.

The IPEDS-derived dataset contains variables on school characteristics, student body characteristics, location characteristics, and the race/ethnicity composition of the student body for 1,739 schools, 1,663 of which have an undergraduate program (see Figure 1 for spatial distribution of schools). Schools are disaggregated by undergraduate, graduate,

¹Institutions were dropped from the data set if: total enrollment was under 500 students and the number of domestic students at a given level of study was under 50; they do not grant a bachelor’s degree or higher; are not Title IV schools; are for-profit, or are classified as administrative units.

professional student categories. Over time IPEDS has used different ways of classifying students by race or ethnicity. This analysis uses the derived fall enrollment numbers, which provide information for the largest number of schools by the following race and ethnicity categories:

- White, non-Hispanic
- Black, non-Hispanic
- Asian and Hawaiian/Pacific Islander, non-Hispanic
- American Indian and Alaska Native (AIAN), non-Hispanic
- Hispanic
- Other, including two or more other races

The second set of data used in the analysis comes from the U.S. Census Bureau's estimates program for the 2000 to 2008 period (Census Bureau, 2009). The estimates data contain the July 1 county population, broken down by age and race/ethnicity and therefore provide the best data for the time period at the state and county level for age-specific population by race and ethnicity. Since minority population growth at all ages may well mask growth trends specific to the college-age population, this paper uses the estimates data to create state and county-level measures for race and ethnicity of the population under 25. Age 25 is the breakpoint typical used by the Census Bureau for measuring educational attainment of the population; by then, most individuals who will attain a college education will have reached that goal. Moreover, using the population under 25 allows for the wider variation in "typical" college age that may exist among minority groups. Finally, the smaller the county-level age group, by race and ethnicity, the smaller the resulting numbers; using all members of a particular race/ethnic group under 25 results in fewer missing population values for counties.

Measuring Diversity

A variety of measures exists to measure the uniformity or diversity of a group with a given number of sub-categories. This paper uses a standardized entropy index. A primary advantage of the entropy index is that it is easily interpreted and also allows for comparison across schools or counties.

The entropy index is commonly used in demographic or regional economic studies to measure the degree of uniformity in a distribution (Plane and Rogerson, 1994). The basic computation is:

$$H = - \sum_{k=1}^n [(E_k/E) \ln(E_k/E)]$$

where E_k represents the population of each subgroup and E the population of the total group. This entropy index value, denoted H , is often standardized by:

$$H^* = H / \ln n$$

where n in this case is six, so that its values range between zero and one, with one indicative of equal representation in the population of all subgroups². Figure 2 presents histograms of the distribution of the standardized entropy index for each level of study.

Model and Variables

As described in the conceptual framework, student diversity at U.S. four-year colleges and universities is hypothesized to be a function of institutional characteristics, locational characteristics, and local population composition. To measure the relative importance of each factor, Ordinary Least Squares regression models are estimated as such:

$$Diversity_i = \beta_0 + \beta_1 Characteristics_i + \beta_2 Geography_i + \beta_3 Population_i + \varepsilon_i$$

where the unit of observation i is the higher education institution, explanatory variables can be categorized into the three sets of variables above, and ε is an error term. Institutional characteristics controlled for in the model include whether a school is public or private, has a religious affiliation, and its total enrollment (see Table 1 for a detailed list of variables). In addition, measures for cost and the proportion of undergraduates receiving Pell Grant aid are included, as are measures of admission selectivity, also for undergraduates. The *In-State* variable measures the proportion of first year students coming from inside the state, which serves as a proxy for the enrollment “reach” of the school. The percent of non-traditional students (those aged 25-64) at the school are also controlled for, as is the fact that historically black (HBCUs) and tribal schools will have lower student diversity by design. Finally, the importance of international students on campus is included as a measure for the cosmopolitan outlook of the school, in that schools with more international students may also be perceived as more diversity-friendly overall.

Geography variables included in the model include a set of dummy variables for the urban setting of the school, the distance to the closest community college as well as the number of community colleges in the state, and state and region controls. Demographic composition is measured for the population under 25 at the state and county levels. County diversity – so the overall mix of young people – is included, as is the county’s total population change in the 2000-2008 period³. At the state level, the proportions of black and Hispanic youth are included, as are interaction terms that allow for the black and Hispanic effects to vary by the proportion of in-state students attending a particular school.

²The entropy index is incalculable when a zero is recorded for any subgroup. In those cases, a one was substituted for the zero. All descriptive statistics and models were also done using the interaction index, another common statistics for measuring diversity in a population. The results were broadly similar and are available upon request.

³County-level youth diversity is measured by the interaction index, another common statistic used to account for diversity within a group.

Descriptive Analysis of Student Body Diversity

Student diversity depends on the level of student and whether a school is public or private (Table 2). Average student diversity increases with level of study or at least remains the same between undergraduate and graduate institutions. At all levels, however, private institutions appear to have more diverse student bodies, on average, than public institutions. Although this may seem counter-intuitive, private institutions often have the funds available to actively recruit minority students. In addition, while most public schools draw students mainly from within the state (an advantage from a student diversity perspective only if your state population is racially/ethnically diverse), private institutions may attract students from a larger geographical area, thereby including more minority students. For undergraduates, religious affiliation (which means the school *must* be private) means a school is less diverse than those with no religious affiliation (Table 3). Since religious schools often draw from a selected portion of the population for students, it is not surprising that they might be less diverse than public schools, whose mission is nominally to serve all.

Table 2 also classifies mean student diversity based on a school's regional location in the U.S. and level of study. Across all three types of study, the highest average student diversities are to be found in western states, which are among the most diverse in the country. Schools in the Plains states have the lowest levels of student diversity at all levels of study, but as these states are some of the most racially and ethnically homogenous in the country, this is not surprising. New England states, which are demographically not very diverse, possess universities with middle-of-the-road levels of student body diversity. So student body diversity appears to be related to regional demographic diversity, but the possibility exists that some regions, less endowed with an indigenously diverse population, may import college students from other regions and thus gain an advantage. Thus, student body diversity is higher than the underlying county-level youth diversity in the region⁴. An exception is the Southeast and the Southwest, where undergraduate student diversity is less than the average youth diversity in the region, reflecting the lower access to higher education that some minorities, Hispanics in particular, experience. Across all regions, diversity increases with level of study. The total pool of students post undergraduate education shrinks, which allows the relatively fewer minority students to occupy a larger share of the total student body. In addition, since Asians students are typically well represented in graduate and professional programs, their influence on student diversity at these levels of study is likely large.

Turning attention to school diversity and urban location, on average, undergraduate diversity is higher in urban locations than in non-city locations. The least diverse student bodies can be found at schools located in distant or remote rural areas, which may be a function of either geography or local population composition.

An assumption of this paper is that school diversity depends on the diversity of the local population. Schools located in areas with low population diversity will, in essence, have to "import" students from other parts of the country in order to boost the diversity of their

⁴Average county diversity figures are shown in Figure 4 and are available in tabular form upon request.

student bodies. In order to understand the spatial variation in college student diversity, it is helpful, then, to look at where youth diversity is, on the American landscape. One of the main demographic change stories of the past decade has been the increase in the Hispanic population in the U.S. Changes in the location of Hispanic youth has implications for representation of that population in higher education – above and beyond the compelling accessibility issues related to high school completion or academic preparedness: schools located in areas with few Hispanic youth must recruit from longer distances in order to bolster their on-campus Hispanic student presence. For example, Figure 3 shows the spatial distribution of the Hispanic youth population in 2008. Represented here are counties with above and below average percentages of Hispanic youth – where the mean is 3.75 percent. Some states, such as Maine or Montana, have no counties with above-average proportions of young Hispanics, which is likely to be related to the numbers of Hispanic college students in those states and potentially overall student diversity on college campuses there.

Looking solely at the distribution of youth diversity across U.S. counties (Figure 4), it is apparent that a path of lower diversity stretches from the Northeast of the country through the Midwest and into the upper Plains states. Disruption in the pattern occurs mainly in counties that can be identified as urban, although other, rare, pockets of youth diversity may be discerned in these parts of the country. Such a great deal of variation in youth diversity exists at the county level that it seems almost intuitive that schools located in the more diverse areas are likely also more diverse, and vice versa. Indeed, as the figure indicates, many of the more diverse schools are located in the more diverse portions of the country. However, there are clear exceptions to this generalization and other factors must also be at work.

If most students go to school in their state of residence (and the IPEDS data on first year student state of residence confirm this), it follows that areas with higher proportions of minorities and higher overall race and ethnic diversity should see that diversity reflected in the student body populations of local universities – assuming the ideal case that all individuals under 25 are equally likely to go on to a four year college. In fact, the correlation between undergraduate diversity (H^*) and the youth diversity of the surrounding county is about 0.53. At the graduate level of study, the association climbs to 0.56 (0.60 for the total population), and then recedes to 0.50 for professional students.

Explaining Student Diversity

To parse out the effects of location, demography, and institution characteristics, institution-level regression models are estimated as described above. All models were estimated via OLS and estimates were tested for heteroskedastic errors as well as omitted variable bias. In all models, controls were included for selected metropolitan areas (CBSAs) containing multiple institutions.

Undergraduate diversity

Table 3 presents model results for undergraduate student body diversity. Two models are estimated, each with the undergraduate standardized entropy index (H^*) as the dependent

variable. One includes regional and the other state dummy variables, since the use of state variables precludes the inclusion of state-level demographic variables.

In both models, the included variables account for well over 60 percent of the variation in student diversity across the 911 schools in the dataset that provided all information for all variables.⁵ According to the models, public schools are more diverse than private schools, holding other factors constant, and more non-traditionally aged students are associated with higher levels of student diversity. Smaller schools are less diverse than the largest ones, although the gap closes as school size increases. In either model, religious affiliation of a school decreases the estimated entropy index by 0.03. Model results suggest that more selective schools tend to be more diverse, as measured by both the admissions rate and the admissions yield. Schools that are choosy have the liberty of drawing from a far wider geographical area; less selective schools may have more minorities, but they will tend to be less mixed in student body – less diverse. The international outlook variable, which measures the number of international students relative to domestic students at the undergraduate level of study, is positive and significant for all models; the more international undergraduates on campus, the more diverse the domestic undergraduate student body. It would seem that schools that are receptive to international students are also attractive to native minority students (or vice versa).

Model results indicate that geography matters, but not to the extent that school characteristics do. This may partly be due to the coarseness of the variables included in the final models.⁶ Relative to suburban locations, both city and rural locations are associated with lower levels of undergraduate diversity. The effect remains, however, even when county and state demographic characteristics are included. Perhaps rural locations are seen to be less friendly to minority students or the costs associated with getting to those schools are too high.

The regional reach of a school, measured by the percent of first year students coming from within the state, is not statistically significant in Model 1, but once local and regional demographic variables are included, the effect is negative and statistically significant. If schools draw their students primarily from within the state, perhaps they tend to be viewed as more narrow in outlook and therefore draw a less diverse student body. More likely, a high percent of in-state students reflects a smaller catchment area for a particular school, which then results in lower overall student diversity. Many parts of the U.S. have high minority populations, but relatively few can be said to be diverse.

Once institution and geography are controlled for, the impact of demographic variables is strong and statistically significant as measured by overall county level youth diversity, but not for state Hispanic or African-American youth populations. The interaction terms included in Model 2 for the proportion of in-state students and the state's African-American and Hispanic youth populations hark back to the discussion of Figures 3 and 4 in the

⁵Although the descriptive statistics include over 1,600 undergraduate programs, the number of schools providing information on particular institution characteristics is much smaller.

⁶Neither distance to community college nor the total number of community colleges in the state had a statistically significant impact on school diversity in the initially estimated models and neither variable was included in the final models.

previous section: student diversity is strongly and positively affected by the sheer availability of minority youth in the state.

Graduate Student Diversity

Compared to the undergraduate student models, the ability of the included covariates to explain graduate student diversity is lower (Table 4). This is at least partly because fewer variables are available to explain graduate student diversity. It is also more complex to predict graduate student diversity. It may well be the case that local demographic characteristics matter most, if students look around for a graduate program that is close to them in spatial terms. The model results shown in Table 4 indicate that, indeed, county and state demographic characteristics are influential in determining how diverse a school's graduate student body will be. Higher proportions of Asians, and overall youth diversity, are associated with higher levels of graduate student diversity.

Looking at the included institutional characteristics, it can be seen that, in the case of graduate students, private schools are more diverse than public schools. This is in contrast to the undergraduate case above, in which public schools were more diverse than private schools. Similar to the undergraduate case above, though, religious affiliation has a negative impact on graduate student diversity. The size of international graduate student enrollment (measured with the International Outlook variable) is positive and – as in the undergraduate case – smaller schools are less diverse than the largest ones. Urban/rural location appears to be irrelevant once demographic characteristics are controlled for. These results suggest that although the actual location of the school may not be important, the local demographic characteristics of the youth population do matter, as do institutional characteristics such as size and religious affiliation.

Professional Program Diversity

The fit of the models for professional student diversity (Table 4) is poorer than that of the graduate student models and fewer variables are statistically significant. This is not surprising in the sense that the population drawn to professional school programs may be more diverse in terms of age and background characteristics than for the other two levels of study. In the professional student case, county level demographic characteristics appear to be less important than they were for either the undergraduate or the graduate case, with the exception of the county Asian youth population. County youth diversity – or the overall racial and ethnic mix of county youth – plays no significant role in how diverse an institution's professional student body might be. At the state level, the proportion of state Hispanic youth is positively and statistically significantly correlated with student diversity. It is difficult to believe that the relationship between shares of Hispanic youth and professional student diversity are directly linked. More likely, there is some aspect of the types of places with large youth Hispanic population that influences student diversity.

As in the undergraduate and graduate student models, the geographic location of the school is unimportant once demographic variables are included. In terms of institutional characteristics, higher levels of international students and larger school size are associated

with higher student diversity, while religious affiliation has a negative impact. A school's public or private status has no impact on professional student diversity.

Conclusions

This paper presents both descriptive and analytical assessments of the relative contributions of location, demographic characteristics, and institutional characteristics to student diversity, measured at the undergraduate, graduate, and professional levels of study. As producers of human capital, universities are beneficial to regional economic growth. Racial and ethnic diversity may also convey economic benefits to both firms and regions. It stands to reason, then, that regions possessing universities with diverse students bodies may doubly benefit. Rather than exploring the attraction various types of universities in different locations may have for minority students (which would also be a useful approach), this paper explores how student diversity varies across the United States and which factors explain how a diverse a school's student body may be.

At all levels of study, religious affiliation appears to decrease student diversity, holding other factors constant. Although it might be tempting to view this result through a lens of discrimination (and this may well be part of the explanation), it is likely the case that religious schools draw from narrower demographics, that may tend to consist of one race or ethnicity more than others. This would result in lower overall student diversity. In contrast, the effect of public versus private schools on diversity depends on the level of study: the effect of being a public school is positive at the undergraduate level, but negative at the graduate and professional levels. The role of international students on campus appears to be a beneficial one; the higher the ratio of international to domestic students, the higher the school's student diversity, perhaps reflecting more progressive and proactive policies at those institutions. Naturally, the relationship may run the other way; it could be that international students are attracted to more diverse schools.

Both descriptive statistics and model results suggest that many factors, both institutional as well demographic, affect student diversity at every level of study. Local demographic characteristics alone are important but insufficient to explain institution-level variations in student diversity. Geographic factors appear to play a smaller role, once the demographic composition of the location has been netted out.

A look at the residuals for undergraduate student diversity (Table 3, Model 2) indicates that the estimated models do quite a good job explaining diversity for a range of schools in a range of places. Many of the undergraduate schools that are more diverse than predicted seem to fall into two broad categories. The first is those schools with national name recognition (e.g. Dartmouth College and Massachusetts Institute of Technology), which suggests that these types of schools may be more successful at attracting students from other parts of the country, since selectivity, cost, and private school status are already controlled for in the model. The second group of schools, which includes universities like Fayetteville State University in North Carolina and SUNY Binghamton in New York, are those that may act disproportionately as magnets for minority students across their states. Other schools are much less diverse than predicted. Given the variables included in the model Chicago State

University and the University of Alabama, for example, are predicted to be much more diverse than they actually are. In the absence of a key explanatory variable not included in the model, this result suggests these types of schools may want to take a closer look at formal and informal barriers to student diversity that may exist.

In terms of education policy, the results suggest further research on the ways in which institutional characteristics hinder the development of a diverse student body, since these are clearly important. They also suggest that schools located in regions with ethnically and racially homogeneous populations will find the creation of a diverse student body more challenging, unless their higher degree of selectivity allows them to attract students from outside the region. One definite conclusion that can be teased from these results is that intellectual stimulation, in terms of the selectivity of the school, its enrollment size, and the “international outlook” of its student body, is very positively correlated with higher levels of student diversity. Causality is difficult to ascertain, but in general terms this finding challenges the typical perception of a “diverse” school looks like or could be.

The results for both graduate and professional students are clearly more exploratory in nature than those for undergraduates. Although understanding of the undergraduate student dynamics may be more important, future research should further develop explanations for student diversity at the graduate and professional levels of study. In addition, all models were estimated using Ordinary Least Squares and although estimates were tested for omitted variable bias, a more sophisticated modeling approach might find more nuanced results. This research in some ways leaves more questions that it answers, especially in terms of the role of place in student diversity. If cities are racially and ethnically diverse, what else is it about them that makes schools located there less diverse than those located in the suburbs?

In closing, the coming wave of demographic change in the U.S. in younger age cohorts (i.e. future college attendees) is likely to upset the current geography of racial and ethnic minorities; the Hispanic population, in particular, shows evidence of new spatial patterns of growth. The same can be said for overall youth population change. These changes will affect the absolute numbers of young people living in proximity to particular schools, as well as the demographic mix of those potential college-goers. The scope for research on education, diversity, and economic growth is therefore wide open.

References

- Alesina A, Ferrara EI. Ethnic Diversity and Economic Performance. *Journal of economic literature*. 2005; 43(no. 3):762–800.
- Audretsch D, Dohse D, Niebuhr A. Cultural Diversity and Entrepreneurship: A Regional Analysis for Germany. *The Annals of Regional Science*. 2010:1–31.
- Dissart JC. Regional Economic Diversity and Regional Economic Stability: Research Results and Agenda. *International Regional Science Review*. 2003; 26(no. 4):423.
- Easterly W. The Middle Class Consensus and Economic Development. *Journal of economic growth*. 2001; 6(no. 4):317–35.
- Faggian A, McCann P. Universities, Agglomerations and Graduate Human Capital Mobility. *Tijdschrift voor economische en sociale geografie*. 2009; 100(no. 2):210–23.
- Florida R, Gates G. Technology and Tolerance: The Importance of Diversity to High-Technology Growth. *Research in Urban Policy*. 2003; 9:199–219.

- Franklin RS. Benchmarking student diversity at public universities in the United States: accounting for state population composition. *The Annals of Regional Science*. 2011;10.1007/s00168-011-0454-4
- Hurtado S. Linking Diversity with the Educational and Civic Missions of Higher Education. *The Review of Higher Education*. 2006; 30(no. 2):185–96.
- Jayakumar UM. Can Higher Education Meet the Needs of an Increasingly Diverse and Global Society? Campus Diversity and Cross-Cultural Workforce Competencies. *Harvard Educational Review*. 2008; 78(no. 4):615–51.
- Kodrzycki YK. Migration of Recent College Graduates: Evidence from the National Longitudinal Survey of Youth. *New England Economic Review*. 2001:13–34.
- Mak J, Moncur JET. Interstate Migration of College Freshmen. *The Annals of Regional Science*. 2003; 37(no. 4):603–12.
- Niebuhr A. Migration and Innovation: Does Cultural Diversity Matter for Regional R&D Activity? *Papers in Regional Science*. 2010; 89(no. 3):563–85.
- Ottaviano GIP, Peri G. The Economic Value of Cultural Diversity: Evidence from US Cities. *Journal of Economic Geography*. 2006; 6(no. 1):9.
- Plane, D.; Rogerson, P. *The Geographical Analysis of Population: With Applications to Planning and Business*. Wiley; 1994.
- Quigley JM. Urban Diversity and Economic Growth. *The Journal of Economic Perspectives*. 1998; 12(no. 2):127–38.
- U.S. Census Bureau. Annual Estimates of the Resident Population by Sex, Race, and Hispanic Origin for States; April 1, 2000 to July 1, 2009; 2009. Available at <http://www.census.gov/popest/counties/asrh/CC-EST2009-alldata.html>

Figure 1.
Public and Private, Non-Profit Colleges and Universities, United States, 2008.
Source: National Center for Education Statistics, IPEDS.

Figure 2.
Distribution of H* Diversity Index by Level of Study.

Figure 3.

Distribution of Hispanic Youth, U.S. Counties, 2008.

Source: U.S. Census Bureau, Estimates Program. The percent of the county population that is Hispanic and under 25; U.S. mean was 3.75 in 2008.

Figure 4.
Undergraduate Diversity and County-Level Youth Diversity, 2008.
Only least (red circles) and most (blue circles) diverse schools are shown on the map.
County diversity is for the population under 25. Data Source: U.S. Census Bureau, Estimates Program.

Table 1

Description of Variables.

Variable	Name	Description
School/Student Characteristics:	Public School	Indicates whether a school is public (1) or private (0)
	Religious Affiliation	Indicates whether a school has a religious affiliation
	In-State	Proportion of first year students who lived in-state at time of admission
	Pell Grant	Proportion of eligible undergraduates receiving Pell Grants (financial aid in the form of grants)
	Admissions Yield	Percent of admitted students who enrolled
	Admissions Rate	Percent of applicants who are admitted
	Costs	Total price for in-state students living on campus
	Non-Traditional Students	Percent of undergraduate enrollment aged 25-64
	Institution Size	Set of categorical variables capturing total number of enrolled students at a school
	Historically Black School	Indicator variable for schools that are “Historically Black Colleges or Universities,” or HBCUs
	International Outlook	Ratio of international students to domestic students (international students are classified as their own race/ethnicity in the IPEDS data) at each level of study
	Entropy Index	Measure of uniformity – or diversity – in the student body, calculated at each level of study: undergraduate, graduate, professional and for counties
Location:	Urban/Rural Continuum	Indicator variables for city-suburb-town-rural location
	State	Indicator variables for the state in which a school is located
	Region	Indicator variables for the region of the county in which a school is located ⁷
	Select CBSA Location	
Area Demography:	County Black Youth	Proportion of 2008 county population under age 25 that is black, non-Hispanic
	County Hispanic Youth	Proportion of 2008 county population under age 25 that is Hispanic
	County Asian Youth	Proportion of 2008 county population under age 25 that is Asian, non-Hispanic
	County Youth Diversity	Interaction index for the county population under 25, 2000
	State Black Youth	Proportion of 2008 state population under age 25 that is black, non-Hispanic
	State Hispanic Youth	Proportion of 2008 state population under age 25 that is Hispanic

⁷Regions are defined as such: Great Lakes: Illinois, Indiana, Michigan, Ohio, Wisconsin. Southwest: AZ NM OK TX, Rocky Mountains: CO ID MT UT WY, New England: CT ME MA NH RI VT, Plains: IA KS MN MO NE ND SD, Southeast: AL AR FL GA KY LA MS NC SC TN VA WV, Mid East: DE DC MD NJ NY PA, Far West: AK CA HI NV OR WA.

Variable	Name	Description
	In-State*Black	Interaction term for the proportion of in-state students and the proportion of the state's youth population that is black
	In-State*Hispanic	Interaction term for the proportion of in-state students and the proportion of the state's youth population that is Hispanic

Table 2

Institutional Student Body Diversity by Select Characteristics, 2008.

	Entropy Index (H*)		
	Undergraduate	Graduate	Professional
Private	0.47 (0.19)	0.50 (0.16)	0.55 (0.16)
	1,030	736	153
Public	0.45 (0.18)	0.45 (0.16)	0.51 (0.15)
	633	506	111
Secular	0.48 (0.18)	0.48 (0.16)	0.54 (0.15)
	1,059	834	194
Religious Affiliation	0.42 (0.18)	0.46 (0.16)	0.52 (0.16)
	604	408	70
New England	0.50 (0.18)	0.47 (0.15)	0.51 (0.18)
	143	110	18
Mid-East	0.49 (0.20)	0.48 (0.18)	0.59 (0.14)
	329	266	48
Great Lakes	0.40 (0.15)	0.43 (0.14)	0.52 (0.14)
	269	193	40
Plains	0.37 (0.13)	0.38 (0.12)	0.40 (0.14)
	177	121	23
Southeast	0.41 (0.17)	0.44 (0.14)	0.48 (0.13)
	407	276	67
Southwest	0.54 (0.15)	0.55 (0.13)	0.58 (0.15)
	123	99	26
Rocky Mountains	0.44 (0.13)	0.43 (0.09)	0.45 (0.08)
	48	32	9
West	0.65 (0.14)	0.63 (0.15)	0.66 (0.12)
	167	145	33
City Location	0.50 (0.19)	0.51 (0.16)	0.55 (0.15)
	793	664	178
Non-City Location	0.43 (0.17)	0.43 (0.16)	0.51 (0.15)
	870	578	86
Not Rural	0.47 (0.18)	0.48 (0.16)	0.54 (0.15)
	1,498	1,151	250
Rural	0.38 (0.17)	0.41 (0.15)	0.43 (0.12)
	165	91	14
Total	0.46 (0.18)	0.48 (0.16)	0.53 (0.15)
	1,663	1,242	264

Reported H* statistics represent the mean value across all institutions in a particular category; standard deviations are in parentheses and counts are in the second row.

Table 3

The Role of Location and School Characteristics for Undergraduate Diversity.

	Model 1	Model 2
Public School	0.0242 (0.0203)	0.0352 * (0.0196)
Religious Affiliation	-0.0329 *** (0.0108)	-0.0339 *** (0.0107)
In-State	0.0169 (0.0220)	-0.0721 ** (0.0365)
Pell Grant	0.143 *** (0.0357)	0.119 *** (0.0346)
Admissions Yield	-0.000744 *** (0.000272)	-0.000825 *** (0.000263)
Admissions Rate	-0.00145 *** (0.000229)	-0.00136 *** (0.000224)
College Costs	3.73e-06 *** (7.99e-07)	4.39e-06 *** (7.74e-07)
Non-Traditional Students	0.00310 *** (0.000317)	0.00318 *** (0.000306)
Size: Under 1,000 Students	-0.0728 *** (0.0197)	-0.0673 *** (0.0190)
Size: 1,000-4,999 Students	-0.0556 *** (0.0138)	-0.0549 *** (0.0136)
Size: 5,000-9,999 Students	-0.0375 *** (0.0135)	-0.0378 *** (0.0132)
Size: 10,000-19,999 Students	-0.0231 * (0.0135)	-0.0232 * (0.0132)
Historically Black School	-0.304 *** (0.0217)	-0.283 *** (0.0213)
International Outlook	0.362 *** (0.0849)	0.325 *** (0.0793)
City Location	-0.00720 (0.00838)	-0.0162 ** (0.00807)
Rural Location	-0.0137 (0.0132)	-0.0215 (0.0129) *
Select CBSA Controls	Yes	Yes
State Controls	Yes	No
County Pop. Change, 2000-2008	-0.000744 (0.000465)	-0.000755 * (0.000421)
County Youth Diversity	0.261 *** (0.0303)	0.302 *** (0.0282)
Region Controls	No	Yes
State Hispanic Youth		0.0498 (0.105)
State Black Youth		-0.125 (0.103)
In-State * Black		0.378 *** (0.137)

	Model 1	Model 2
In-State * Hispanic		0.308 ** (0.122)
Constant	0.537 *** (0.0891)	0.371 *** (0.0558)
Adj. R-squared	0.69	0.68

Notes: Dependent variable is standardized entropy index. Standard errors in parentheses.

p<0.01,

**
p<0.05,

*
p<0.1.

N=911. Omitted category on Size variable is 20,000 and up.

Table 4

The Role of Location and School Characteristics for Post-Graduate Diversity.

	Graduate	Professional
Public School	-0.0795 ^{***} (0.0100)	-0.0288 (0.0219)
Religious Affiliation	-0.0283 ^{***} (0.00910)	-0.0481 ^{**} (0.0211)
Size: Under 1,000 Students	-0.111 ^{***} (0.0168)	-0.0860 ^{***} (0.0300)
Size: 1,000-4,999 Students	-0.0752 ^{***} (0.0131)	-0.0550 ^{**} (0.0235)
Size: 5,000-9,999 Students	-0.0567 ^{***} (0.0133)	-0.0108 (0.0279)
Size: 10,000-19,999 Students	-0.0381 ^{***} (0.0136)	-0.0441 [*] (0.0244)
Historically Black School	-0.0609 ^{***} (0.0191)	-0.0210 (0.0535)
International Outlook	0.0333 ^{***} (0.00918)	0.445 ^{***} (0.171)
City Location	0.00139 (0.00769)	-0.00168 (0.0188)
Rural Location	0.0164 (0.0134)	-0.0188 (0.0359)
Select CBSA Controls	Yes	Yes
Region Controls	Yes	Yes
County Black Youth	0.120 ^{***} (0.0369)	0.0938 (0.0770)
County Hispanic Youth	0.0604 (0.0402)	0.187 (0.117)
County Asian Youth	0.226 ^{**} (0.105)	0.405 [*] (0.226)
County Youth Diversity	0.209 ^{***} (0.0349)	0.0520 (0.0909)
State Hispanic Youth	0.311 ^{***} (0.0550)	0.308 ^{**} (0.132)
State Black Youth	0.0414 (0.0696)	0.214 (0.168)
Constant	0.434 ^{***} (0.0272)	0.416 ^{***} (0.0606)
Observations	1,242	264
Adj. R-squared	0.50	0.42

Notes: Dependent variable is standardized entropy index.

p<0.01,**
p<0.05,*
p<0.1.