

Does Diversity Matter? Measuring the Impact of High School Diversity on Freshman GPA

Mo Yin S. Tam and Gilbert W. Bassett Jr.

At the heart of arguments for affirmative action in university admissions are various claims about ethnic diversity. One assertion is that a diverse student body improves the quality of the educational experience: all students learn more. Further, a diverse educational experience better prepares students for the pluralistic society in which they will live. Previous studies examining these issues have been based on informal and survey methods. To better assess the impact of diversity we utilize a data set that allows us to measure student performance at the University of Illinois at Chicago (UIC) as a function of the diversity of a student's high school. Do students from diverse high schools do better in the ethnically diverse environment at UIC? After controlling for other factors that affect GPA, such as ACT, high school rank, and high school quality, we find significant diversity impacts. Depending on the diversity measure, a student from a very diverse high school has an expected first semester GPA that is a one-fourth to one-half point higher than a student from a nondiverse high school. The diversity impacts tend to be greater for students in the lower tail of the GPA distribution. There are also large gender differences with females helped most by diversity. Although the results represent outcomes at only one university, they nevertheless serve as a starting point for quantitatively assessing the impact of a diverse learning environment.

Introduction

Among the arguments for affirmative action in university admissions is the claim that a diverse student body creates a beneficial learning environment. In its June 23, 2003, ruling, the U.S. Supreme Court upheld the policy of University of Michigan Law School to use race in its admissions decisions "to further a compelling interest in obtaining the educational benefits that flow from a diverse student body." The claim is that diversity benefits all students, minorities and nonminorities alike. It enhances classroom learning directly, and it prepares students for the pluralistic society in which they will live and work after graduation.

Numerous studies have reached alternative conclusions regarding the impact of diversity. For a summary and analysis of 300 such studies, see Orfield and Whitley (1999), Smith (1997), and Bowen and Bok (1998). Gurin (1999, Section IV summary) analyzes student data from University of Michigan and the Cooperative Institutional Research Program (CIRP) and draws the conclusion that "students learn more

and think in deeper, more complex ways in a diverse educational environment." She also asserts that students "who experienced the most racial and ethnic diversity in classroom settings and in informal interactions with peers showed the greatest engagement in active thinking processes, growth in intellectual engagement and motivation, and growth in intellectual and academic skills." Gurin, Dey, Hurtado, and Gurin (2002) provide additional empirical evidence and consideration of theoretical models that link diversity to positive educational outcomes. On the other hand, Rothman, Lipset, and Nevitte (2003) show that no statistically significant correlation exists between perception of improved educational quality and student body diversity. A variation on this theme has been the claim that because race is a fundamental feature of life, students from a more diverse learning environment will be better prepared for work and citizenship after graduation.¹ All of these studies have been based on surveys. The claims and conclusions have been subjected to criticisms, including the shortcomings of self-reported perception, imperfect or selected recall of experiences, and pressure to conform to socially appropriate norms.

In this article, we present a nonsurvey-based statistical analysis of the relation between high school diversity and learning outcomes at the University of Illinois at Chicago (UIC). UIC itself is ethnically diverse, being ranked sixth nationally in 2003 by *U.S. News & World Reports* among all national universities with doctoral programs.² On the other hand, the ethnic composition of high schools of students at UIC ranges widely, from those with a single group to ones with an almost equal distribution among African American, Asian, Caucasian, and Latino students.

Performance at UIC is measured by first semester GPA.³ We consider the impact of diversity after controlling for other factors that affect performance. These other factors include (1) ACT score, (2) high school rank, and (3) high school quality as measured by the average ACT score of all students who took the test at the high school. Diversity is measured both by the ethnic composition of a high school and also its diversity relative to UIC.

We find large diversity impacts. Depending on the diversity measure, a student from a very diverse high school is predicted to have a first semester GPA at UIC that is a full one-fourth to one-half point higher than a student from a nondiverse high school. Regression quantile results show diversity impacts tend to be greater for students at the lower tail of the GPA distribution. Finally, we find large gender differences, with females helped most by diversity. Although the findings are for one university, they are suggestive of positive impacts due to diversity.

We define two diversity measures in section II. The first is an absolute diversity index, indicating the diversity of a high school. The second is a relative measure, assessing a high school's diversity relative to UIC. Section III describes the various data sets that were merged in order to conduct the study. Section IV presents the diversity estimates, and Section V describes gender differences in the effect of diversity. We discuss further results in Section VI.

I. Diversity Measures

The Absolute Diversity Index (AbD). Social indices defined in terms of interaction probabilities have a long history (see, e.g., Blau, 1960). The one we use follows

the method of *U.S. News & World Reports* for its campus diversity rankings (see Meyer & McIntosh, 1992). It is based on the probability that two students selected at random will have different ethnic backgrounds.

Consider four ethnic groups (Asian, African American, Caucasian, and Latino) in a student body. Let P_A , P_{AA} , P_C and P_L denote respectively the percentage of students in each of the groups.⁴ Let P be the probability a student picked at random will meet another student of a different ethnic group. P can be represented as follows:

$$P = 1 - (P_A^2 + P_{AA}^2 + P_C^2 + P_L^2). \tag{1}$$

The value of P ranges from 0 (when the student body consists of a single ethnic group) to 0.75 when the student body has equal proportion among the four groups. The absolute diversity index (AbD) we use is obtained by normalizing P so that it ranges between 0 and 1. The closer the value is to 1, the more diverse the student population. AbD is calculated as follows:

$$AbD = P/n^A, \tag{2}$$

where n^A is the normalization factor, which with four groups gives $n^A = 0.75$.

Relative Diversity Measures (RelD). The relative diversity measure assesses the “diversity distance” between a high school and UIC. It is based on a group-by-group comparison of ethnic group proportions. RelD is defined as follows:

$$RelD_j = |P_{A,UIC} - P_{A,j}| + |P_{AA,UIC} - P_{AA,j}| + |P_{C,UIC} - P_{C,j}| + |P_{L,UIC} - P_{L,j}|, \tag{3}$$

for high school j , where P_A , P_{AA} , P_C , and P_L , as defined above, are respectively the proportion of Asian American, African American, Caucasian, and Latino students. Hence, RelD takes account of group-by-group differences between a high school and UIC. Notice that, unlike AbD, the value of RelD for an all-Black high school is larger than for an all-White high school. This happens because there is a higher percentage of White than Black students at UIC.⁵ A student from an all-Black high school is, in this sense, further away from UIC than a student from an all-White school. The smaller the value of $RelD_j$, the more similar is high school relative to UIC in terms of diversity. It has a value of 0 when the ethnic/racial composition of high school j is exactly the same as UIC.

II. Data Set

Our data set links observations on UIC students (where we know GPA and high school origin) with a comprehensive data set on Illinois high school characteristics that includes the ethnic proportion of students. The UIC student data is the 1994 freshmen cohort data. It includes information on gender, ethnicity, ACT, high school percentile rank (HSPR), and high school origin. This is linked to the IGAP (Illinois Goal Assessment Program) data, which provides comprehensive data on public high schools in Illinois, including their ethnic composition. The 1,661 UIC freshman students from public high schools are matched to their high schools using the 1996 IGAP data. (The analysis therefore excludes UIC students from parochial and private schools as well as those from public high schools outside of Illinois).⁶ The

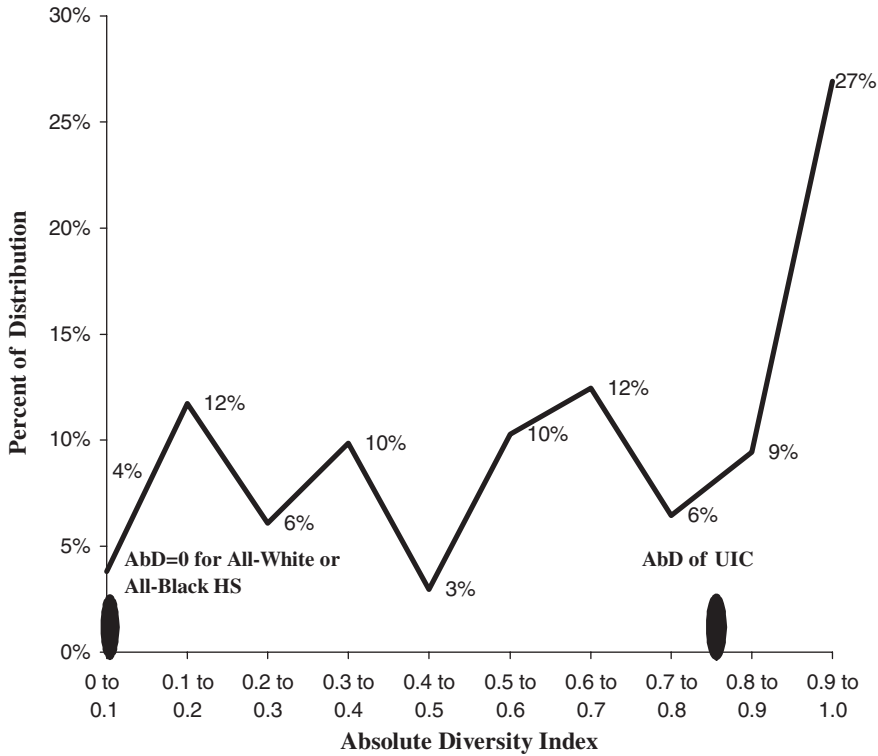


Figure 1. Distribution of Absolute Diversity (AbD) Index of Public High Schools of UIC Fall 1994 Freshmen.

1,661 students come from 188 different schools. The high school ethnic data was used to calculate the two diversity measures described above.

The Absolute Diversity Index (AbD)

Using (2), the absolute diversity index for UIC (AbD_{UIC}) in the fall semester of 1996 has a value of 0.88. The absolute diversity index of the 188 high schools ranges from 0 to 0.997. Of the 188 high schools, 91% are less diverse than UIC, and students from these schools make up 67% of the 1,661 students in our data set. Figure 1 illustrates the distribution of the absolute diversity index of public high school of the UIC fall 1994 freshmen.

Relative Diversity Measure (RelD)

As indicated above, RelD accounts for group-by-group differences between a high school and UIC. Hence, RelD for an all-Black high school is larger than that for an all-White high school (because, as mentioned earlier, UIC has a higher percentage of White than Black students). Specifically, the value of RelD for an all-Black

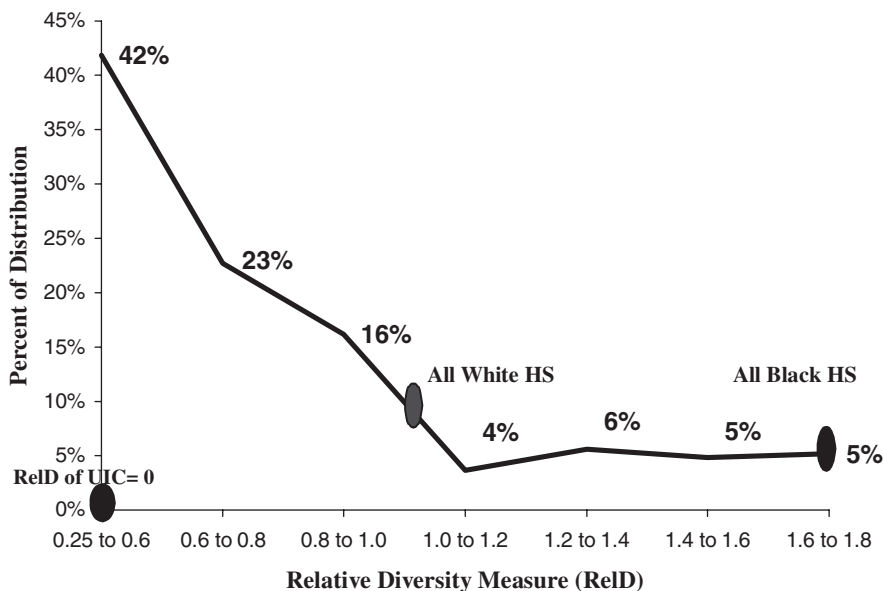


Figure 2. Distribution of the Relative Diversity Measure (RelD) of Public High Schools of UIC Fall 1994 Freshmen.

high school is 1.78, whereas that for an all-White high school is 0.995. Figure 2 illustrates the distribution of RelD for the fall 1994 UIC students. The range of the distribution is from 0.25 to 1.78.

III. Diversity Impacts

We consider the impact of diversity after controlling for a number of other factors that affect GPA. These other factors include the student’s ACT score and class rank, gender, racial/ethnic background, whether their school is in Chicago,⁷ and whether the high school has a measure of high quality.⁸ High school quality is measured by the average ACT score of all the students who took the test at the school. Hence the linear regression model used to test the hypotheses has the following variables, is the following:

$$GPA = f(\text{ACT}, \text{HSPR}, \text{Gender}, \text{Ethnic}, \text{Chicago}, \text{HSACT}, D), \tag{4}$$

where ACT = student’s ACT scores; HSPR = student’s high school percentile ranking; Gender is a gender dummy (Gender = 1 for female students); Ethnic is a group of ethnic/racial dummies (W = 1 for Caucasian students, B = 1 for African American, A = 1 for Asian, L = 1 for Latino; 0 otherwise); Chicago is a location dummy (Chicago = 1 if the high school is in Chicago); HSACT = average ACT score of all students who took the test in the student’s high school; and D = the absolute or relative diversity index.

Table 1. Least Squares Regression Results

	Absolute Diversity Model (Equation (4) with D = AbD)	Relative Diversity Model (Equation (4) with D = RelD)
Cons	-1.09 (-3.28)	-0.59 (-1.63)
ACT	0.05 (6.00)	0.05 (6.03)
HSPR	0.01 (9.38)	0.01 (9.51)
HSACT	0.11 (7.86)	0.09 (6.75)
CHICAGO	0.10 (1.46)	0.15 (2.34)
Af. Am	-0.05 (-0.30)	0.03 (0.16)
Asian	0.14 (0.96)	0.14 (0.92)
Caucasian	0.17 (1.13)	0.16 (1.08)
Latino	0.03 (0.19)	0.05 (0.32)
Female	0.03 (0.70)	0.04 (0.74)
AbD	0.23 (2.59)	
RelD		-0.27 (-3.46)
Adj R2	0.1924	0.195
N	1637	1637

t-statistics are indicated in parenthesis below the coefficient estimates.

Absolute Diversity Impacts

Using our model (Equation 4), we first obtain the absolute diversity impacts with AbD as the diversity measure. We run a linear expectation regression and then a number of regression quantiles at various quantiles from 0.05 to 0.95 (for discussion of regression quantiles and applications, see Koenker & Bassett, 1978, and Koenker & Hallock, 2001).

The first column of Table 1 shows the least squares regression results. The estimate of the coefficient of AbD has a value of 0.23. Its corresponding t statistic of 2.59 indicates that it is statistically significant at the 5% level. The positive sign of the coefficient estimate means that student performance increases with diversity. Because the value of the absolute diverse index ranges from 0 to 1, the absolute diversity impact on GPA can be represented by the value of the coefficient estimate. It means that a student from the most diverse high school has an expected GPA about one-fourth points (0.23) higher than a student from the least diverse high school (all-Black or all-White). Because the number of students from all-White or all-Black high schools is small, this impact value has to be interpreted with caution. Nonetheless, it provides an indication of the positive absolute diversity impact.⁹

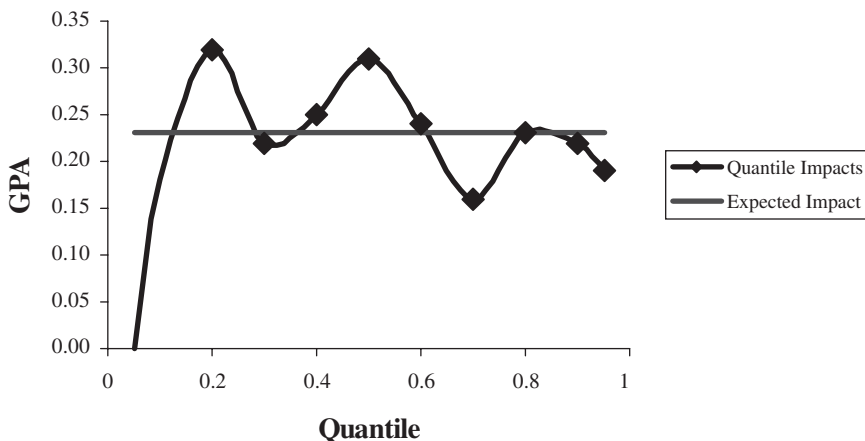


Figure 3. Absolute Diversity (AbD) Impacts: GPA Differential of a Student from the Most Diverse versus from an All-White or All-Black High School (diamonds on graph indicate estimates significant at 5%).

Quantile regression estimates of the coefficient of the absolute diverse index are listed in the first row of Table 2. We also list the least squares estimate at the beginning of the row for comparison. Most of the quantile estimates are significant at a 5% level. Again, since the value of AbD ranges from 0 to 1, the coefficient estimates at various quantiles can be interpreted as the absolute diversity impacts at various parts of the distribution of GPA. These results show that the absolute diversity impacts tend to be more pronounced at the bottom of the GPA distribution. For example, the diversity impact at the 0.2 conditional quantile is 0.32, whereas the diversity impact at the 0.95 conditional quantile is 0.19.

Figure 3 illustrates the absolute diversity impacts for the linear expectation regression as well as for regression quantiles. The LS estimate is the same for all quantiles and is indicated by the horizontal line. The quantile impacts are seen to be more pronounced at the lower end of the GPA distribution.

Relative Diversity Impacts

To obtain the relative diversity impacts, we use RelD as the diversity. We consider least squares and a number of quantile regressions at various quantile values for the relative diversity model.

Regression results for the relative diversity model are listed in the second column of Table 1. The coefficient estimate for RelD is -0.27 , and its t statistic of -3.46 indicates that it is statistically significant at the 5% level. Because the value of RelD decreases with an increase in similarity between the high school and UIC, the negative sign for RelD indicates that a student from a high school more like UIC is predicted to perform better.

Because the value of RelD is 0.995 for an all-White high school and its value is 1.78 for an all-black high school, the coefficient estimate for RelD has to be

Table 2. Diversity Impacts on GPA

	LS	Q (0.05)	Q (0.1)	Q (0.2)	Q (0.3)	Q (0.4)	Q (0.5)	Q (0.6)	Q (0.7)	Q (0.8)	Q (0.9)	Q (0.95)
AbD Impacts: GPA differential of a student from the most diverse high school versus one from either an all-white or all-black high school	0.23*	0.00	0.18	0.32*	0.22*	0.25*	0.31*	0.24*	0.16*	0.23*	0.22*	0.19*
ReID Impacts:												
GPA differential of student from a high school as diverse as UJC versus one from an all-white high school	0.27*	0.20	0.27	0.38*	0.32*	0.34*	0.32*	0.33*	0.28*	0.21*	0.18	0.15*
GPA differential of student from a high school as diverse as UJC versus one from an all-black high school	0.48*	0.36	0.47	0.68*	0.57*	0.60*	0.56*	0.59*	0.50*	0.37*	0.32	0.27*

* = significant at 5%.

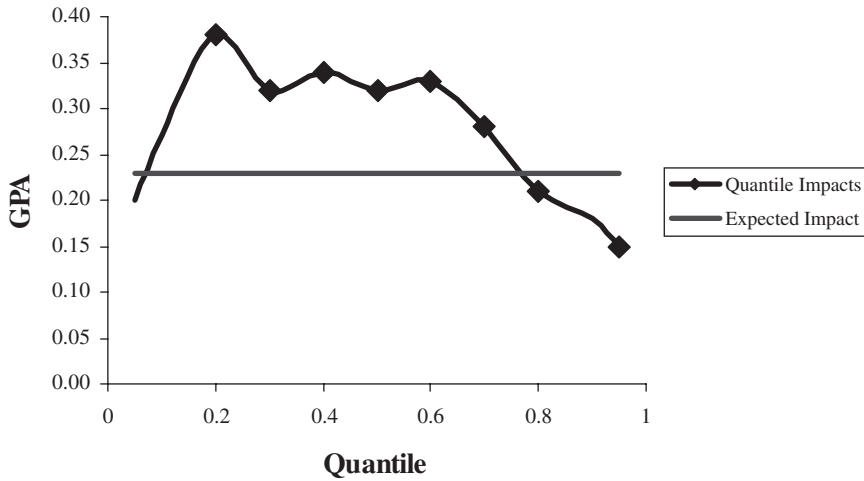


Figure 4. Relative Diversity (RelD) Impacts: GPA Differential of a Student from a High School as Diverse as UIC versus from an All-White High School (diamonds on graph indicate quantile estimates significant at 5%).

multiplied by the corresponding value to indicate the full range of diversity impacts. Specifically, the relative diversity impact for an all-White high school is 0.27 (obtained by multiplying -0.27 by -0.995). On the other hand, the relative diversity impact for an all-Black high school is 0.48 (obtained by multiplying -0.27 by -1.78). The relative diversity impact results show that a student from a high school as diverse as UIC has an expected GPA of more than one-fourth point (0.27) higher than a student from an all-White high school and about one-half point (0.48) higher than a student from an all-Black high school. Again, the number of students from all-White or all-Black high schools is small, and the impact estimates have to be interpreted with care. But they provide some indication of positive relative diversity impacts.

Similarly, we obtain the relative diversity impacts at various quantiles by multiplying the regression quantile estimates by -0.995 and -1.78 respectively. These impacts are shown in the second and the third row of Table 2. Most of the quantile impacts are significant at the 5% level. Like the absolute diversity impacts described above, the relative impacts tend to be larger for students with lower GPA. For example, the relative diversity impact is 0.38 at 0.3 quantile compared to 0.21 at the 0.8 quantile for the all-White school comparison.

Figure 4 illustrates the GPA impact comparing the first semester GPA of a student from a high school as diverse as UIC with that of one from an all-White high school, holding all other student characteristics constant.

IV. Gender

In this section, we consider the diversity impacts for female and male students. The gender distribution at UIC is similar to other universities, with female students constituting about 55% of the fall 1994 cohort under study.¹⁰

Table 3. Regression Results, by Gender

	Female		Male	
	Absolute Diversity Model (Equation (4) with D = AbD)	Relative Diversity Model (Equation (4) with D = RelD)	Absolute Diversity Model (Equation (4) with D = AbD)	Relative Diversity Model (Equation (4) with D = RelD)
Cons	-1.54 (-3.59)	-0.82 (-1.73)	-0.32 (-0.60)	-0.24 (-0.42)
ACT	0.05 (4.81)	0.05 (4.96)	0.05 (3.78)	0.05 (3.78)
HSPR	0.01 (7.27)	0.02 (7.42)	0.01 (5.82)	0.01 (5.87)
HSACT	0.12 (7.31)	0.11 (6.09)	0.07 (3.39)	0.07 (3.12)
CHICAGO	0.13 (1.42)	0.21 (2.65)	0.11 (0.94)	0.07 (0.70)
Af. Am	-0.01 (-0.05)	0.05 (0.26)	-0.05 (-0.19)	-0.02 (-0.06)
Asian	0.06 (0.34)	0.04 (0.20)	0.29 (1.27)	0.28 (1.24)
Caucasian	0.19 (0.97)	0.14 (0.75)	0.22 (0.95)	0.22 (0.96)
Latino	0.03 (0.17)	0.04 (0.20)	0.09 (0.39)	0.10 (0.43)
AbD	0.38 (3.55)		-0.07 (-0.46)	
RelD		-0.37 (-3.93)		-0.06 (-0.44)
Adj R2	0.2488	0.2511	0.1317	0.1317
N	929	929	708	708

t-statistics are indicated in parenthesis below the coefficient estimates.

We find significantly different results for male and female students. For male students, there is almost no diversity impact. In contrast, female students have diversity impacts that are large and significant for both the absolute and relative measures. Table 3 shows the regression results. The first and second columns are for the absolute and relative diversity models for female students, respectively, whereas the third and fourth columns are for the absolute and relative diversity models for male students, respectively. The estimates are significant for females, but they are not statistically significant for males.

For female students, the regression results for the absolute diversity model show that a female student from a diverse high school has an expected GPA 0.38 higher than a female student from an all-Black or all-White high school, again controlling for other factors influencing GPA.

The regression results for the relative diversity model show that a female student from a high school as diverse as UIC has an expected GPA more than one-third point (0.37 obtained by multiplying -0.37 by -0.995) higher than a female student from an all-White high school and about two-thirds point (0.66 obtained by multiplying -0.37 by -1.78) higher than a female students from an all-black high school.

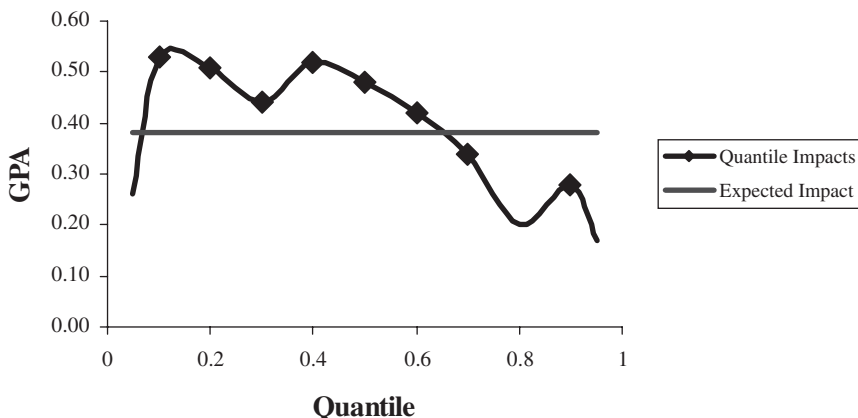


Figure 5. Absolute Diversity (AbD) Impacts: GPA Differential of a Student from the Most Diverse versus from an All-White or All-Black High School Female (diamond on graph indicate quantile estimates significant at 5%).

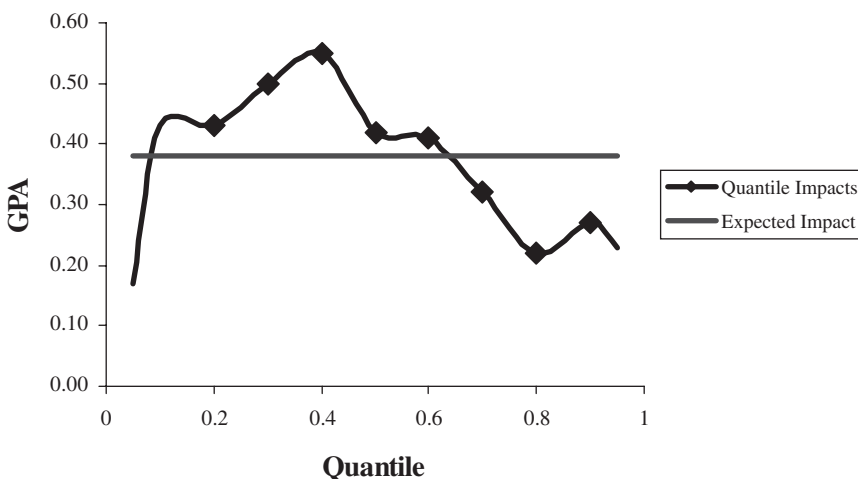


Figure 6. Relative Diversity (RelD) Impacts: GPA Differential of Student from a High School as Diverse as UIC versus from an All-White High School Female (diamond on graph indicate quantile estimates significant at 5%).

The absolute diversity impacts and relative diversity impacts for female and male students at various quantiles are indicated in Tables 4 and 5, respectively. Again, the estimates are significant for female students. For them, the absolute diversity impacts have values of more than one-half point in the lower quantiles (0.50 for $Q = 0.3$ and 0.55 for $Q = 0.4$), whereas about one-fourth point at the higher quantiles. Similarly, the relative diversity impacts for female students are greater at lower quantiles. The absolute and relative diversity impacts for female students are illustrated respectively in Figures 5 and 6.

Table 4. Diversity Impacts on GPA, Female

	LS	Q (0.05)	Q (0.1)	Q (0.2)	Q (0.3)	Q (0.4)	Q (0.5)	Q (0.6)	Q (0.7)	Q (0.8)	Q (0.9)	Q (0.95)
AbD Impacts: GPA differential of a student from the most diverse high school versus one from either an all-white or all-black high school	0.38*	0.26	0.53*	0.51*	0.44*	0.52*	0.48*	0.42*	0.34*	0.20	0.28*	0.17
ReID Impacts:												
GPA differential of a student from a high school as diverse as UIC versus one from an all-white high school	0.37*	0.17	0.43	0.43*	0.50*	0.55*	0.42*	0.41*	0.32*	0.22*	0.27*	0.23
GPA differential of a student from a high school as diverse as UIC versus one from an all-black high school	0.66*	0.31	0.76	0.77*	0.88*	0.97*	0.75*	0.74*	0.58*	0.40*	0.48*	0.40

* = significant at 5%.

Table 5. Diversity Impacts on GPA, Male

	LS	Q (0.05)	Q (0.1)	Q (0.2)	Q (0.3)	Q (0.4)	Q (0.5)	Q (0.6)	Q (0.7)	Q (0.8)	Q (0.9)	Q (0.95)
AbD Impacts: GPA differential of a student from the most diverse high school versus one from either an all-white or all-black high school	-0.07	-0.19	-0.21	0.05	0.10	-0.19	-0.14	-0.10	-0.01	-0.07	-0.18	-0.22
RelD Impacts:												
GPA differential of a student from a high school as diverse as UJC versus one from an all-white high school	0.06	0.15	-0.05	0.13	0.21	-0.07	0.08	0.01	0.03	0.00	-0.10	-0.24
GPA differential of a student from a high school as diverse as UJC versus one from an all-black high school	0.10	0.27	-0.09	0.24	0.37	-0.13	0.13	0.03	0.06	-0.01	-0.18	-0.42

* = significant at 5%.

V. Discussion

Does diversity improve learning outcomes? To address this key question, most previous studies have used survey data, often criticized because of respondents having imperfect recollections or responses that are viewed as socially acceptable. In this article, we consider the impacts of diversity on first semester GPA using non-survey student data. Because our analysis is based on cross-sectional data, grade inflation does not affect results. We find that, depending on the diversity measure, a student, minority or nonminority, from a diverse as compared to a nondiverse high school has a one-fourth to one-half point higher GPA.

We also find students at the lower end of the conditional GPA distributions benefit more from diversity. Further, there is a significant gender difference. Female students are helped most by diversity. Why do female students benefit more from the diverse educational experience? Future research needs to explore this gender difference.

It is important to note that our model for predicting GPA is similar to others in that there is a low signal-to-noise ratio. The noise means there is a far from a one-to-one correspondence between test scores, much less between diversity and GPA. The R^2 that is less than 0.20 means many students with low test scores and low predicted GPA end up with high GPAs, and conversely. On the other hand, we do observe a positive signal indicating an overall positive association between GPA and the variables in our model including diversity.

Although our findings are for only one institution, they represent a significant first step in assessing claims about diversity. Our absolute diversity impact results are consistent with the claim that students gain from a diverse study environment. Our relative absolute diversity impact results support the assertion that students who are familiar with the diverse environment at college (because they come from high school similar to UIC in diversity) are able to do better. Because UIC is itself diverse, a question for future research is whether similar results would be found in a less diverse setting.

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Notes

We want to thank two reviewers for their comments on an earlier version of the paper.

1. Gurin (1999) asserts that "they [students] are better prepared to become active participants in our pluralistic, democratic society once they leave such a setting." In addition, 65 fortune 500 companies (including Microsoft, Coca Cola, General Motors, Steelcase, PepsiCo and Exelon) told the Supreme Court in April 2003 in defense of the University of Michigan case that they needed future employees who would have the experience of working with people from different background. A Mr. Mehrberg of Exelon indicated that "we believe they (students) will be better equipped to work in the global environment, in diverse communities, if they are educated in an environment of diversity" (Glater, 2003, Section IV, Summary and Conclusions).

2. See the following Web site: http://www.usnews.com/usnews/edu/college/rankings/brief/natudoc/natudoc_campdiv_brief.php
3. Studies have shown that there is a very high correlation between students' first semester GPA in college and their eventual graduation from the college (see Tam & Sukhatme, 2003). Also, a significant percentage of UIC students might transfer to other colleges before graduation. For the 1994 freshmen cohort, about 17% left UIC in good academic standing. We therefore would not use graduation rate or 4-year GPA in our study.
4. These are the four major racial/ethnic groups of students. For high schools with more groups than these four ethnic groups (such as Native American and foreign students), the percentage of each of these four groups will be normalized so that the sum ($P_A + P_{AA} + P_C + P_L$) is 1.
5. The racial/ethnic distribution of u-graduate (total = 16,290) at UIC in fall 1996 are 0.3% Native American, 10.4% African American, 19.6% Asian, 16.8% Latino, 47.7% Caucasian, 1.9% Foreign, 3.3% Unknown (available from <http://www.dria.uic.edu/sdb/sdb96/TWESIX.html>).
6. 1,661 constitutes 65% of the total freshmen cohort of 2,572 students.
7. Chicago is considered a separate factor because relatively more students go to private high school in Chicago than in other areas of Illinois.
8. Tam and Sukhatme (2003) show that high school quality is an important factor affecting student performance at college.
9. For comparison, in order for GPA to increase by one-fourth point, the ACT score must increase by about 5 points (from 22 to 27, say), and high school rank is increased by about 25% (from the 50th to 75th percentile).
10. The gender proportion of the 1,661 students from the fall 1994 feeder public schools is also very similar (female: 56%, male: 44%).

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