# Getting Across the Finish Line: How to Boost Completion Rates for Underrepresented Student Groups

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## Abstract

There remains a gap in college completion rates for Black and Hispanic students. Universities have focused on creating a diverse student body (peer effects), a diverse faculty (role model effects) and on providing resources to boost completion rates. This paper tests these effects in a panel data set of 9,800 observations from 1,493 universities over 2011-2018. Regression results show peer effects disappear when role model effects are included suggesting that previous literature testing only peer effects could be suffering from omitted variable bias. Faculty salaries and the percentage of full-time faculty are also highly significant in helping close the gap.

Keywords: Black, Hispanic, College, Graduation, Completion

JEL: I23, I24, J15

## Introduction

Like many nations, the United States has income and wealth disparities by race and ethnicity. The median household wealth for White, Black and Hispanic households in the United States are $187k, $14k, and $32k, respectively (U.S. Census Bureau, 2022a). These disparities are propagated by racial gaps in education. In the context of this paper, college will refer to a Bachelor's degree. The percentages of White, Black and Hispanic adults with Bachelor's degrees are 42, 28 and 21 percent, respectively (U.S. Census Bureau, 2022b). While the focus of

this paper is the United States, gaps exist for racial/ethnic groups in many countries including Australia, New Zealand and the United Kingdom (Scott, 2005; Wilson, 2015; Yorke, 2001; Yorke and Thomas, 2003). These university completion gaps are consistent with differences in high school completion rates. Black-White completion gaps were over 15% in 1965 before narrowing to 9.6% in 1986 (Evans, Garthwaite and Moore, 2016). But with the crack epidemic and increased incarceration, the gaps had increased back to 1965 levels by the late 1990s (Evans, Garthwaite and Moore, 2016). The effects are not gender-neutral, with there being a much larger gap for Black men than for Black women (Heckman and LaFontaine, 2010). These gaps persist despite there being a large return to education for both Black men and for Black women (Neal, 2005).

Educational gaps are important as there is a large financial return to a college education. In the United States, completing a Bachelor's degree has a median lifetime return of over 300k with some majors having cumulative lifetime returns of over $1 million (Cooper. 2021). There are gains to society from people earning college degrees as well. Higher education can result in higher incomes for individuals, less risky behaviors and improve health outcomes (Holzer and Baum, 2017; Oreopoulos and Salvanes, 2011). College graduates pay more in taxes, are more likely to vote and are less likely to commit crimes (Trostel, 2010; Lochner and Moretti, 2004; Milligan et al., 2004). The percentage of individuals with some college completed living in poverty in the United States is 11% while it is only 4% for those with a completed Bachelor's degree (Long, 2018).

These gaps in educational attainment have persisted despite increases in the college enrollments of Black and Hispanic students. The percentage of 18-24 year old White, Black and Hispanic students enrolled in college in the United States are 38, 37 and 33 percent, respectively

(NCES, 2023). Unfortunately, enrollments are only one piece of the puzzle; the other is college completion rates. Only 60% of undergraduate students complete their degree by the end of six years (Causey et al., 2020). This discrepancy becomes more severe when looking at racial gaps in completion rates. For four year institutions, only 44% of Black students and 58% of Hispanic students completed college after 6 years, compared to 66% of White students (NCES, 2021). While smaller, there is still a completion gap at two-year institutions (Causey et al., 2020; Shapiro et al., 2017). Rising enrollment rates will not address the disparities in income/wealth if the college completion gap is not remedied.

There are competing theories to explain the completion gap. These include a lack of a diverse student body for support (peer effects), lack of a diverse faculty (role model effects) and resource constraints. These theories have yielded sometimes conflicting results from different samples and timeframes. This paper utilizes a large panel data set across 1,493 universities from 2011-2018 to test these theories via regression analyses. The paper's results show the important of having a diverse group of full-time faculty which supports the role model hypothesis. Analyses show that peer effects become insignificant after accounting for role model effects. This suggests that previous peer effect studies which did not include faculty variables could suffer from omitted variable bias. However, there were some peer effects found for institutions with larger total student enrollments and/or a higher percentage of underrepresented students. This paper has implications for university leaders and policy makers attempting to close the completion gaps. Recruiting a diverse student body may not be enough to accomplish this goal, investments will need to be made in faculty. And the impact of peer effects will vary significantly based on the type of institution being studied.

## Literature Review

There are many factors which impact college completion rates. Peer effects have been examined to see whether or not having peers of the same racial/ethnic group increases the likelihood of college completion. There is a similar theory regarding faculty from the same group which is called the role model effect. There are also a variety of other factors, like student background and resources, which have been studied for their impact on college performance and completion rates.

### *Peer Effect*

The peer effect has had mixed results in the literature. Zimmerman and Winston (2004) found that peer effects were not equal across the student body. They found that top students were unaffected by the SAT scores of their roommates but that middle performing students could be brought down by roommates with low scores (Zimmerman and Winston, 2004). These results are consistent with other papers which find peer effects occurring at the roommate level (Sacerdote, 2001; Stinebrickner and Stinebrickner, 2006; Zimmerman, 2003). However, this is not universal as some studies have not found a significant roommate effect (Foster, 2006; Lyle, 2007).

A study using IPEDS data from 2008-2011 found that peer effects were not a significant predictor of Latinx college completion rates, except at Historically Black Colleges and Universities (Capers, 2019). Capers (2019) found graduation rates of White students to be the biggest indicator of Latinx graduation rates (Capers, 2019). Peer academic effects were found in a study at a university in Italy (Brunello, De Paola and Scoppa, 2010). Griffith and Rask (2014) found there was a peer effect at a liberal arts college but little effect at a large university. In their study, the peer effect was found to be strongest for male and minority students (Griffith and Rask, 2014). Using data from a small, selective private liberal arts college, Ficano (2012) found

no evidence of peer effects when academic ability was taken into account. However, it was found that there is a peer effect with a male peer influence on males, but none with females when controlled on their own gender level (Ficano, 2012). These gender specific peer effects are consistent with results from peer effects found in elementary schools (Jahanshahi, 2017).

Academic performance is an important avenue for impacting retention and graduation rates. Efforts to create a positive peer group environment can be challenging. As found through an experiment at the U.S. Air Force Academy to try and create "optimal" peer groups, college students are free to form their own social groups, regardless of administrative design (Carrell, Sacerdote and West, 2013). Students can find their peer groups among roommates, classmates, athletics and/or Greek life (Sacerdote, 2001). Peer groups are not necessarily from students of the same year at the institution as people can form groups with students from adjacent cohorts, with evidence of this effect being found for elementary schools in Texas (Hoxby, 2000). Research from the UK has suggested that foreign students are not a significant peer group for native born university students (Costas-Fernandez, Morando, and Holford, 2023). It could also be the case that having more people from your peer group could lower your academic outcomes, as was found for some Black students in Texas K-12 schools (Hanushek, Kain and Rivkin, 2009; Hanushek and Rivkin, 2009).

Manski (1993) proposes that when studying the impact of peer groups' outcomes on individual outcomes there could be endogeneity bias. Manski (1993) terms this the reflection problem (Sacerdote, 2011). This is one motivation for using the presence of students from the same peer group at the institution rather than using the academic outcomes of peers. The outcomes for individual students do not affect the overall composition of the student body of a university, but they could affect peers' academic outcomes.

There has been considerable research into peer effects on non-academic outcomes. A number of studies have found an influence of peers' drug and/or alcohol usage on an individual's behavior (DeSimone, 2007; Duncan et al., 2005; Gaviria and Raphael, 2001; Kooreman, 2003). Similar influences have been found for peers on smoking behaviors (Argys and Rees, 2008; Evans, Oates, and Schwab, 1992; Mihaly, 2008; Wilson, 2007). Peers' behavior may affect an individual's likelihood of cheating as well (Carrell, Malmstrom, and West, 2008).

*Role Model Effect*

There is a widespread belief in academia that faculty of underrepresented groups are helpful as mentors and examples of success to students from the same groups and can thus increase student achievement (Antonio, 2003). Role models in the university environment operate differently than in K-12 education. In early education, students are assigned to a teacher for most of their education. In middle and secondary school education, students are assigned to several teachers throughout the day. By contrast, in the university setting students choose their own courses (and faculty) rather than being assigned to them. This makes students free to seek out role models among university faculty. The impact of role models in university education becomes a function of students' actions seeking out faculty role models in their studies.

There is significant, but sometimes mixed, evidence in the literature that groups of university students are seeking out same group role models among faculty. Using data from 176 institutions in 2008, researchers found evidence of positive role model effects for Black students but not for other groups (Koch and Zahedi, 2018). A study using data from the Political Science department at Brigham Young University found that 88.3% of women who had male TAs were expected to complete a political science course, compared to 96.3% of women who had female TAs (Butler and Christensen, 2003). However, this role model effect did not extend to course

performance (Butler and Christensen, 2003). A positive correlation was found between faculty diversity and completion rates of minority students in a panel study of 64 universities (Stout et al., 2018). Fairlie, Hoffman and Oreopoulos (2014) found evidence of the role model effect for community college students. Faculty mentoring is an important avenue for the role model effect. While, of course, faculty of any race/ethnicity can serve as mentors for any student there is an additional level of empathy and connection from people being from the same group (Milem, 2003). This connection has been found to increase completion rates for Black/Hispanic students who take courses from Black/Hispanic faculty members (Contreras and Gilbert, 2015; Stout et al., 2017). Diverse faculty serve as mentors for students from underrepresented groups and were even found to increase enrollment in STEM programs (Abraham and Bartlebaugh, 2021; Bitar, Montague and Ilano, 2022).

*Other Factors*

There are several other variables which could impact completion rates. Using data from 25 states over 1997 to 2004, Sjoquist and Winters (2015) found merit aid programs had no significant effect on college attendance and degree completion based on race/ethnicity. Researchers examining the Massachusetts Adams Scholarship found it increased enrollment into public colleges in Massachusetts, but could potentially decrease the amount of money these colleges were receiving and thus affect their resources (Cohodes and Goodman, 2014). Another study of financial resources found that educational tax benefits increase the likelihood of completing college in six years, and that this effect is most prominent at four-year and private institutions (Elsayed, 2016). Gandara and Rutherford (2020) found that performance based funding makes schools more selective and limits access to college for underrepresented

minorities; it is associated with lower enrollment of Black, Hispanic, and First Generation students.

The cost of college tuition is a complex variable as it could either decrease or increase completion rates for underrepresented groups of students. The cost of tuition listed by universities is not necessarily what individual students pay to attend a school. And universities which charge higher tuition can have more resources to allocate towards financial aid and other support programs. Some research has found a positive correlation between tuition costs and completion rates (Doan et al., 2020). In addition, some universities have large endowments that subsidize costs, allowing for their net cost of attendance to be much lower than the listed tuition cost (Doan et al., 2020). University resources can make a difference in completion rates. For example, students in the Dell Scholars Program were found to be more likely to earn their bachelor's degree on time (Page et al., 2016). Studies of randomized control trial experimental programs offered by universities to low-income students have found a positive impact on completion rates (Dawson et al., 2020). The offering of College Level Examination Program (CLEP) has a positive relationship with completion rates as well (Boatman et al., 2019).

*Gap in the Literature*

The literature on this topic has approached the completion gap question from different perspectives such as peer effects, role model effects and resources. Studies tend to consider these factors separately with samples that are often limited in size and/or timeframe. This paper addresses gaps in the literature by testing these factors together in a large, panel setting. This avoids the potential issues of omitted variable bias from examining the factors separately. If there is a problem of endogeneity (omitted variable bias), then the results for the peer and role model effects should vary based on whether they are tested separately or together. Using a panel

data set will allow for also testing the impact of factors within institutions over time rather than relying solely on cross-sectional effects. This leads to the following four hypotheses which will be tested in the paper.

*Hypotheses Tested*

H1: The impact of the peer effects will vary based on whether role model effects are included in the model or not.

H2: The impact of the role model effects will vary based on whether peer effects are included in the model or not.

H3: Universities which invest more in their faculty, as measured by salaries and full-time status, will have higher completion rates for Black and Hispanic students.

H4: Universities which have more financial resources, as measured by tuition and endowments, will have higher completion rates for Black and Hispanic students.

**Data and Variables**

The panel dataset used for this analysis comprises 9,800 observations from the period 2011 to 2018 for 1,493 public and private four-year institutions across the United States. Given the unique nature of community colleges, the sample is restricted to four-year institutions. The variables are taken from the Integrated Postsecondary Education Data System (IPEDS) which is run by the National Center of Education Statistics (NCES). There are four dependent variables in the analyses. The first two dependent variables are Hispanic and Black college graduation rates. The variables $G_{i,t}^{H}$ and $G_{i,t}^{B}$ are the percentage of Hispanic and Black students who graduate college within six years of enrollment at the institution. These are measures of college completion rates. It should be noted that this is a completion rate from the specified institution. This does not take account of students transferring and graduating from a different institution. As such, it is a measure of retention until graduation. As the retention of students from

underrepresented groups is a precondition for them graduating from the institution and a goal in its own right, this measure is reasonable to use in this context. The other two dependent variables are defined as ratios of graduation rates as compared to White graduation rates at the same institution. The variable ($G_{i,t}^{H}/G_{i,t}^{W}$ ) is the ratio of Hispanic to White graduation rates. There is a similarly defined variable ($G_{i,t}^{B}/G_{i,t}^{W}$ ) for the ratio of Black to White graduation rates. These two ratio dependent variables are measures of the completion gap.

There are several independent variables. The peer effects are measured by two variables for the percentage of the student body which are Hispanic and the percentage which are Black. These variables are measured for the entire institution for the sample year.[1] The role model effects are represented by two variables for the percentage of full-time faculty which are Hispanic and the percentage which are Black. The percentage of faculty which are full-time and faculty salaries (monthly, in thousands of dollars) are the variables for faculty quality/investment in faculty. University resources are represented by tuition (in thousands of dollars) and the size of the university endowment (in logs). There are three control variables for student financial constraints: the percentage of the student body on Pell grants, the average debt of graduates from the school (in logs) and the average debts of students who do not graduate from the school (in logs). There are control variables for university quality (if the school is open admissions or not), the number of students at the school (in logs) and year (as a time trend). The sample includes only institutions with total enrollments of at least 500 students. Open admissions schools admit all applicants, regardless of their academic records. Descriptive statistics for the dependent and independent variables are in Table 1.

[1] As a robustness check, we also tested adjacent years of peer data through leads and lags. Results were robust.

**Methodology**

The paper's hypotheses are tested using Ordinary Least Squares (OLS) and Fixed Effects (FE) models.[2] OLS and Fixed Effects models are used for all four of the dependent variables. Each of the dependent variables is regressed using three different arrangements of independent variables. The first arrangement of independent variables includes peer effects but not role model effects. The second arrangement includes role model effects but not peer effects. The third arrangement of independent variables includes both peer and role model effects. The overall setup is four dependent variables tested using OLS and Fixed Effects with three arrangements of independent variables (models). This results in three OLS and three fixed effects regressions for each of the four dependent variables. This makes a total of total of 12 OLS and 12 fixed effects regressions.

The OLS regression equations are:

(1) $G_{i,t}^{H} = \beta_0 + \beta_1 P_{i,t} + +\beta_2 R_{i,t} + \beta_3 X_{i,t} + \beta_4 y_t + \varepsilon_{i,t}$

(2) $G_{i,t}^{B} = \beta_0 + \beta_1 P_{i,t} + +\beta_2 R_{i,t} + \beta_3 X_{i,t} + \beta_4 y_t + \varepsilon_{i,t}$

(3) $G_{i,t}^{H}/G_{i,t}^{W} = \beta_0 + \beta_1 P_{i,t} + +\beta_2 R_{i,t} + \beta_3 X_{i,t} + \beta_4 y_t + \varepsilon_{i,t}$

(4) $G_{i,t}^{B}/G_{i,t}^{W} = \beta_0 + \beta_1 P_{i,t} + +\beta_2 R_{i,t} + \beta_3 X_{i,t} + \beta_4 y_t + \varepsilon_{i,t}$

Where $G_{i,t}^{H}$ ,$G_{i,t}^{B}$ and $G_{i,t}^{W}$are the graduation rates for Hispanic, Black and White students, respectively for year *t* and institution *i*. Equations 1 and 2 are testing the Hispanic and Black graduation (completion) rates. Equations 3 and 4 have the ratio of graduation rates as their dependent variables. The peer effects ($P_{i,t}$), role model ($R_{i,t}$) and other independent variables ($X_{i,t}$) are vectors of variables which vary by year and institution. Included in each equation is

[2] Fixed effects is chosen over random effects based on the results of a Hausman test which suggests random effects could be biased.

also a time trend ($y_t$) and Huber-White corrected standard errors ($\varepsilon_{i,t}$). Variance Inflation Factor tests were run for each equation to test for multicollinearity. The highest VIF result was 5.3, with the majority of equations being under 4. This suggests that multicollinearity is not a significant problem. The variable *year* is included to account for time trends.

The fixed effects regression is similar to the OLS equation with the inclusion of institution level fixed effects ($\gamma_i$). The Fixed Effects regression equations are:

(5) $G_{i,t}^{H} = \beta_0 + \beta_1 P_{i,t} + +\beta_2 R_{i,t} + \beta_3 X_{i,t} + \beta_4 y_t + \gamma_i + \varepsilon_{i,t}$

(6) $G_{i,t}^{B} = \beta_0 + \beta_1 P_{i,t} + +\beta_2 R_{i,t} + \beta_3 X_{i,t} + \beta_4 y_t + \gamma_i + \varepsilon_{i,t}$

(7) $G_{i,t}^{H}/G_{i,t}^{W} = \beta_0 + \beta_1 P_{i,t} + +\beta_2 R_{i,t} + \beta_3 X_{i,t} + \beta_4 y_t + \gamma_i + \varepsilon_{i,t}$

(8) $G_{i,t}^{B}/G_{i,t}^{W} = \beta_0 + \beta_1 P_{i,t} + +\beta_2 R_{i,t} + \beta_3 X_{i,t} + \beta_4 y_t + \gamma_i + \varepsilon_{i,t}$

As discussed at the beginning of this section, each of the eight equations is run with three different arrangements of the model. Table 2 includes results for all three arrangements of Equations (1) and (5), the Hispanic graduation rates tested through OLS and Fixed Effects models. Table 3 includes the similar results for the Hispanic/White graduation ratio, Equations (3) and (7). Black graduation rates are in Table 4 using Equations (2) and (6). The Black/White graduation ratios of Equations (4) and (8) are in Table 5.

As a way of testing the robustness of the model and to yield additional insights, stratified sample analyses are also run. The sample is tested based on stratification by number of full-time enrolled students. The sample is separated into small (<5k students), medium (5k-15k students), and large (>15k students) institutions. Student size will impact the potential size of same group peers and the number of potential same group faculty. Larger institutions may have more resources to devote to DEI related efforts; however, the environment in a small college may improve opportunities for role model mentorship. The existing literature on peer and role model

effects come from universities of varying sizes. This stratification analysis may help to reconcile some of the conflicting results from the literature. These results are in Tables 6-9. The second test is stratifying the sample based on whether the institution has more/less than 10% of their student body in the relevant group (Black or Hispanic with the corresponding dependent variable). This is tested to check whether there is a critical value necessary for peer effects to become significant, rather than the linear effects assumed in the literature. These results are in Tables 10-13.

**Main Results**

There is significant support for the first hypothesis that peer effects will vary based on whether role model effects are included. Peer effects show significance for both Black and Hispanic students when role model factors are excluded. But the impact of peer effects mostly disappears when faculty diversity variables (role model effects) are included in the model. Having students from the same racial/ethnic group are insignificant in most of the regressions after taking into account having faculty members from the same group. This suggests that models which test student effects without faculty variables could be suffering from omitted variable bias.

The second hypothesis is not supported by the empirical results. Role model effect variables, the percentage of Black and Hispanic faculty, are consistently significant whether student (peer) variables are included or not. Role model effects have a significant impact on completion rates for Black and Hispanic students. This is found for both absolute completion rates and ratios; so not only are completion rates rising but they are helping to narrow the gap. The third hypothesis regarding the impact of faculty quality is supported for Black students' completion rates but not for Hispanic students. Faculty salaries and the percentage of full-time

faculty are important factors for Black students' college completion. Having higher paid, full-time faculty appears to be helping increase Black students' completion rates and to reduce the Black/White completion gap.

Not surprisingly, completion rates for Black and Hispanic students are also positively related to schools doing well with completion rates for other groups of students. And there is evidence to suggest that when schools are closing the completion gap for one group, they are also making progress with other groups' gaps. Another factor impacting closing the gaps are university resources, the fourth hypothesis. Evidence suggests that schools which can charge higher tuition and/or have larger endowments have resources which are helping the completion rates of Black and Hispanic students. However, this effect is found only in the OLS but not in the fixed effects analyses. This suggests the fourth hypothesis is capturing the difference between resource rich and resource poor universities, rather than changes in resources for universities over time. It could require a longer timeframe to see evidence of the change in resources within a university over time impacting completion rates.

*Results by Enrollment Size*

The analysis stratified by enrollment size yielded some interesting insights. The OLS results found peer effects for Hispanic students primarily at the largest institutions. This suggests that Hispanic students may have an easier time finding peer groups at larger institutions. For Hispanic faculty, role model effects are found at small schools for the OLS and at large schools for fixed effects. This suggests a larger role model effect at smaller institutions where there might be more opportunities for faculty-student interaction but that over time within institutions there are indeed role model effects at larger institutions. The percentage of full-time faculty are

more significant at medium and larger institutions versus at smaller universities with regards to Hispanic student completions.

For Black student completions, there was a more significant peer effect at larger institutions under OLS, similar to the results for Hispanic students. Also similarly, the faculty role model effects were primarily at smaller institutions. Contrary to the results for Hispanic students, the percentage of full-time faculty was more significant at smaller rather than at larger schools. Also, for Black students there was a strong positive effect from faculty salaries across all enrollment sizes.

*Results by Student Body Diversity*

There are some interesting differences in results based on whether there are 10% more/less Hispanic students in the student body. For institutions with fewer than 10% Hispanic students, the faculty role models are significant with peer effects being insignificant or negative. For institutions with greater than 10% Hispanic students, the faculty role model effects are insignificant and peer effects are positive and significant. For institutions with fewer than 10% Black students, there is evidence of role model effects from both Black and/or Hispanic faculty for Black students. For institutions with greater than 10% Black students, there is some evidence of peer effects but it is not consistent. Overall, this suggests a more powerful role for peer effects in larger institutions and a certain tradeoff between role model and peer effects.

## Conclusion

This paper makes contributions to both literature and practice. One of the clear lessons for the literature is that testing peer effects cannot be done without including role model effects. Including student variables without the faculty variables is likely to produce results which are

statistically biased. Studies need to take a more comprehensive approach with student, faculty and institutional factors all included. This paper also contributes to the literature on significant role model effects by increasing the generalizability of the results through a larger data set.

The results in this paper provide guidance for decision makers interested in boosting diversity among the student body at their universities. With resources being limited, universities need to focus on the highest impact approaches to increasing the success of their underrepresented student populations. The analyses suggest that the hiring of a well-compensated, full-time diverse faculty is especially crucial to the success of Black students. The same strategies may not work with all groups of underrepresented students as can be seen in the differences between the results for Black and Hispanic students' completion rates and gaps. Different strategies will be needed for different groups of students.

Putting resources towards attracting a diverse student body may provide disappointing results if complimentary investments in faculty are not made by institutions. Bringing in a diverse student body is not the same as graduating a diverse student body. Faculty hiring and career development is a multi-year process suggesting that this needs to be a part of institutions long-run strategic plans. The increase in part-time faculty members among institutions has added to this gap, with faculty from underrepresented groups disproportionately working as part-time rather than full-time faculty members (Colby, 2023). This suggests that institutions' diversity numbers in terms of total faculty may be misleading and not as effective in terms of Black and Hispanic student retention because it is comprised of many part-time faculty members. It is worth noting that the sample in this paper had less than 10% *combined* Black and Hispanic full-time faculty members. This suggest one possible strategy for institutions being the fostering and

development of promising, diverse part-time faculty members with the goal of converting their positions into full-time faculty members.

The paper has implications for how the academy provides guidance to institutions on promoting better retention and completion outcomes for students from underrepresented groups. In particular, the advice needs to be different based on the size of the institution. There is some tradeoff found between peer and role model effects. Institutions with large enrollments (and large underrepresented student populations) may find smaller returns from investing resources in faculty diversity recruiting versus student recruiting efforts. Hiring diverse faculty seems to have the highest returns at smaller institutions and/or colleges with smaller student populations from underrepresented groups. These findings suggest important avenues of future research on this topic. The question of whether there is a "critical mass" in terms of peer group effectiveness versus faculty role modelling seems promising. An in-depth study focused exclusively on how these mechanisms work at small versus large institutions could also be valuable to the literature and profession.

**Tables**

Table 1 Descriptive Statistics

| | Observations | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| *Dependent Variables* | | | | | |
| Hispanic Grad Rate | 9,800 | 0.513 | 0.213 | 0.029 | 1.000 |
| Black Grad Rate | 9,800 | 0.443 | 0.224 | 0.009 | 1.000 |
| Hispanic/White Grad Ratio | 9,800 | 0.898 | 0.350 | 0.096 | 10.000 |
| Black/White Grad Ratio | 9,800 | 0.755 | 0.315 | 0.047 | 9.001 |
| *Peer Effects* | | | | | |
| Percent Black Students | 9,800 | 0.122 | 0.150 | 0.001 | 0.972 |
| Percent Hispanic Students | 9,800 | 0.108 | 0.115 | 0.000 | 0.949 |
| *Role Model Effects* | | | | | |
| Percent Black Faculty | 9,800 | 0.052 | 0.091 | 0.000 | 0.782 |
| Percent Hispanic Faculty | 9,800 | 0.036 | 0.042 | 0.000 | 0.977 |
| Faculty Salary (monthly, thousands) | 9,800 | 7.931 | 2.152 | 1.334 | 22.924 |
| Percent Full-time faculty | 9,800 | 0.683 | 0.241 | 0.005 | 1.000 |
| *Other Independent Variables* | | | | | |
| White Grad Rate | 9,800 | 0.580 | 0.183 | 0.016 | 1.000 |
| Open Admissions | 9,800 | 0.083 | 0.275 | 0.000 | 1.000 |
| Tuition (thousands) | 9,800 | 18.999 | 7.430 | 1.081 | 49.515 |
| Endowment (log) | 9,800 | 17.783 | 1.821 | 0.000 | 24.393 |
| Pell Student (%) | 9,800 | 0.348 | 0.137 | 0.061 | 0.985 |
| Graduates Debt (log) | 9,800 | 9.970 | 0.294 | 8.054 | 10.666 |
| Non-graduates debt (log) | 9,800 | 8.964 | 0.275 | 7.650 | 10.137 |
| School Population (log) | 9,800 | 8.197 | 1.052 | 6.217 | 11.292 |
| Year (time trend) | 9,800 | 2014.722 | 2.30 | 2011 | 2018 |

Table 2. Hispanic College Graduation Rates, 2011-2018

| | OLS | OLS | OLS | FE | FE | FE |
|---|---|---|---|---|---|---|
| Percent Black Students | 0.0635*** | | -0.0354 | -0.0717 | | -0.0723 |
| | (0.0162) | | (0.0242) | (0.0749) | | (0.0751) |
| Percent Hispanic Students | 0.0263** | | -0.0457** | 0.1855** | | 0.1761** |
| | (0.0120) | | (0.0196) | (0.0825) | | (0.0829) |
| Percent Black Faculty | | 0.1237*** | 0.1562*** | | -0.0087 | -0.0149 |
| | | (0.0252) | (0.0387) | | (0.0987) | (0.0988) |
| Percent Hispanic Faculty | | 0.1343*** | 0.2039*** | | 0.2213 | 0.1949 |
| | | (0.0435) | (0.0667) | | (0.1387) | (0.1393) |
| Faculty Salary | | 0.0040*** | 0.0044*** | | -0.0002 | -0.0003 |
| | | (0.0010) | (0.0010) | | (0.0031) | (0.0031) |
| Percent Full-Time Faculty | | 0.0084 | 0.0077 | | 0.0057 | 0.0062 |
| | | (0.0064) | (0.0064) | | (0.0118) | (0.0118) |
| Black Grad Rate | 0.2595*** | 0.2445*** | 0.2448*** | 0.0899*** | 0.0905*** | 0.0891*** |
| | (0.0125) | (0.0128) | (0.0129) | (0.0122) | (0.0122) | (0.0122) |
| White Grad Rate | 0.5716*** | 0.5651*** | 0.5608*** | 0.3453*** | 0.3486*** | 0.3469*** |
| | (0.0185) | (0.0189) | (0.0191) | (0.0267) | (0.0267) | (0.0267) |
| Open Admissions | 0.0032 | 0.0033 | 0.0023 | 0.0195 | 0.0197 | 0.0191 |
| | (0.0062) | (0.0063) | (0.0063) | (0.0147) | (0.0147) | (0.0147) |
| Tuition | 0.0012*** | 0.0010*** | 0.0011*** | 0.0006 | 0.0003 | 0.0005 |
| | (0.0003) | (0.0003) | (0.0003) | (0.0008) | (0.0008) | (0.0008) |
| Endowment | 0.0110*** | 0.0094*** | 0.0094*** | -0.0012 | -0.001 | -0.001 |
| | (0.0012) | (0.0013) | (0.0013) | (0.0040) | (0.0040) | (0.0040) |
| Pell | 0.0002 | 0.0033 | 0.0236 | 0.0837** | 0.0876** | 0.0826** |
| | (0.0183) | (0.0160) | (0.0185) | (0.0397) | (0.0383) | (0.0398) |
| Graduates Debt | -0.0280*** | -0.0211*** | -0.0233*** | 0.0179 | 0.0189 | 0.0177 |
| | (0.0071) | (0.0073) | (0.0073) | (0.0192) | (0.0192) | (0.0192) |
| Non-Graduates Debt | 0.0054 | 0.0019 | 0.0034 | -0.0006 | 0 | -0.0006 |
| | (0.0066) | (0.0066) | (0.0066) | (0.0087) | (0.0087) | (0.0087) |
| Schoool Population | -0.0097*** | -0.0130*** | -0.0130*** | 0.0246* | 0.0242* | 0.0245* |
| | (0.0016) | (0.0016) | (0.0016) | (0.0136) | (0.0138) | (0.0138) |
| Year | -0.0015** | -0.0020*** | -0.0018*** | 0.0003 | 0.0012 | 0.0002 |
| | (0.0006) | (0.0006) | (0.0006) | (0.0009) | (0.0009) | (0.0010) |
| Constant | 3.2688*** | 4.1765*** | 3.8287*** | -0.7117 | -2.4931 | -0.5169 |
| | (1.2672) | (1.2728) | (1.2789) | (1.7885) | (1.7776) | (2.0473) |
| R-squared | 0.62 | 0.62 | 0.62 | 0.48 | 0.53 | 0.47 |
| Observations | 9800 | 9800 | 9800 | 9800 | 9800 | 9800 |
| F-Statistic | 1948.71 | 1821.02 | 1721.83 | 26.57 | 22.53 | 20.07 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 3. Hispanic/White College Graduation Ratio, 2011-2018

| | OLS | OLS | OLS | FE | FE | FE |
|---|---|---|---|---|---|---|
| Percent Black Students | 0.3095*** | | 0.0279 | 0.13 | | 0.1219 |
| | (0.0568) | | (0.0784) | (0.1766) | | (0.1768) |
| Percent Hispanic Students | 0.0699* | | -0.0593 | 0.2036 | | 0.1999 |
| | (0.0357) | | (0.0498) | (0.1943) | | (0.1952) |
| Percent Black Faculty | | 0.5479*** | 0.5030*** | | -0.5658** | -0.5757** |
| | | (0.0973) | (0.1419) | | (0.2324) | (0.2325) |
| Percent Hispanic Faculty | | 0.3296*** | 0.4426*** | | 0.4834 | 0.454 |
| | | (0.1146) | (0.1561) | | (0.3267) | (0.3279) |
| Faculty Salary | | -0.0032 | -0.0027 | | -0.0075 | -0.0072 |
| | | (0.0024) | (0.0025) | | (0.0074) | (0.0074) |
| Percent Full-Time Faculty | | 0.0142 | 0.012 | | 0.0301 | 0.0301 |
| | | (0.0166) | (0.0167) | | (0.0277) | (0.0278) |
| Black/White Grad Ratio | 0.3789*** | 0.3643*** | 0.3642*** | 0.3226*** | 0.3214*** | 0.3213*** |
| | (0.0259) | (0.0254) | (0.0253) | (0.0135) | (0.0135) | (0.0135) |
| Open Admissions | 0.0723*** | 0.0623*** | 0.0615*** | 0.0684** | 0.0630* | 0.0620* |
| | (0.0201) | (0.0206) | (0.0206) | (0.0346) | (0.0346) | (0.0346) |
| Tuition | -0.0001 | -0.0001 | -0.0001 | 0.0019 | 0.0016 | 0.0018 |
| | (0.0006) | (0.0006) | (0.0006) | (0.0018) | (0.0018) | (0.0018) |
| Endowment | 0.0056** | 0.0058* | 0.0055 | -0.0105 | -0.011 | -0.0107 |
| | (0.0028) | (0.0033) | (0.0033) | (0.0095) | (0.0095) | (0.0095) |
| Pell | 0.1055** | 0.1341*** | 0.1386*** | 0.0813 | 0.1084 | 0.0794 |
| | (0.0481) | (0.0392) | (0.0509) | (0.0936) | (0.0903) | (0.0937) |
| Graduates Debt | 0.0092 | 0.0102 | 0.0064 | 0.0682 | 0.0685 | 0.0667 |
| | (0.0183) | (0.0187) | (0.0189) | (0.0452) | (0.0452) | (0.0452) |
| Non-Graduates Debt | -0.0121 | -0.0128 | -0.011 | -0.012 | -0.0104 | -0.0099 |
| | (0.0147) | (0.0145) | (0.0146) | (0.0206) | (0.0206) | (0.0206) |
| Schoool Population | -0.0160*** | -0.0176*** | -0.0174*** | -0.0138 | -0.0051 | -0.0074 |
| | (0.0038) | (0.0038) | (0.0038) | (0.0320) | (0.0323) | (0.0324) |
| Year | -0.0024* | -0.0021 | -0.0019 | -0.0032 | -0.0007 | -0.0021 |
| | (0.0014) | (0.0014) | (0.0014) | (0.0021) | (0.0021) | (0.0024) |
| Constant | 5.3561* | 4.8104* | 4.4208 | 6.7338 | 1.7393 | 4.4427 |
| | (2.8256) | (2.8392) | (2.8622) | (4.1823) | (4.1457) | (4.7987) |
| R-squared | 0.15 | 0.16 | 0.16 | 0.14 | 0.07 | 0.08 |
| Observations | 9800 | 9800 | 9800 | 9800 | 9800 | 9800 |
| F-Statistic | 27.41 | 29.80 | 26.38 | 54.22 | 46.58 | 40.47 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 4. Black College Graduation Rates, 2011-2018

| | OLS | OLS | OLS | FE | FE | FE |
|---|---|---|---|---|---|---|
| Percent Black Students | 0.1863*** | | 0.0685*** | -0.1794*** | | -0.1708** |
| | (0.0131) | | (0.0203) | (0.0676) | | (0.0676) |
| Percent Hispanic Students | 0.1203*** | | 0.0031 | 0.2847*** | | 0.2644*** |
| | (0.0133) | | (0.0209) | (0.0744) | | (0.0747) |
| Percent Black Faculty | | 0.2331*** | 0.1527*** | | 0.0132 | 0.0046 |
| | | (0.0180) | (0.0286) | | (0.0890) | (0.0890) |
| Percent Hispanic Faculty | | 0.2621*** | 0.2773*** | | 0.4657*** | 0.4250*** |
| | | (0.0447) | (0.0676) | | (0.1250) | (0.1254) |
| Faculty Salary | | 0.0139*** | 0.0139*** | | 0.0081*** | 0.0078*** |
| | | (0.0010) | (0.0010) | | (0.0028) | (0.0028) |
| Percent Full-Time Faculty | | 0.0227*** | 0.0216*** | | 0.0269** | 0.0277*** |
| | | (0.0061) | (0.0062) | | (0.0106) | (0.0106) |
| Hispanic Grad Rate | 0.2596*** | 0.2397*** | 0.2399*** | 0.0732*** | 0.0736*** | 0.0723*** |
| | (0.0130) | (0.0131) | (0.0131) | (0.0099) | (0.0099) | (0.0099) |
| White Grad Rate | 0.6096*** | 0.5633*** | 0.5682*** | 0.3058*** | 0.3104*** | 0.3077*** |
| | (0.0187) | (0.0192) | (0.0194) | (0.0241) | (0.0241) | (0.0241) |
| Open Admissions | -0.0438*** | -0.0386*** | -0.0379*** | -0.0076 | -0.0078 | -0.0085 |
| | (0.0062) | (0.0062) | (0.0063) | (0.0132) | (0.0133) | (0.0133) |
| Tuition | 0.0013*** | 0.0011*** | 0.0011*** | -0.0002 | -0.0006 | -0.0003 |
| | (0.0003) | (0.0003) | (0.0003) | (0.0007) | (0.0007) | (0.0007) |
| Endowment | 0.0096*** | 0.0046*** | 0.0044*** | 0.0023 | 0.0029 | 0.0026 |
| | (0.0012) | (0.0013) | (0.0013) | (0.0036) | (0.0036) | (0.0036) |
| Pell | -0.1594*** | -0.0849*** | -0.1058*** | 0.0763** | 0.0738** | 0.0732** |
| | (0.0181) | (0.0160) | (0.0182) | (0.0359) | (0.0346) | (0.0358) |
| Graduates Debt | -0.0514*** | -0.0350*** | -0.0356*** | -0.0061 | -0.0063 | -0.0079 |
| | (0.0068) | (0.0068) | (0.0069) | (0.0173) | (0.0173) | (0.0173) |
| Non-Graduates Debt | -0.0112* | -0.0172*** | -0.0175*** | -0.0032 | -0.0035 | -0.0048 |
| | (0.0066) | (0.0066) | (0.0066) | (0.0079) | (0.0079) | (0.0079) |
| Schoool Population | -0.0021 | -0.0106*** | -0.0104*** | 0.0231* | 0.0163 | 0.0176 |
| | (0.0016) | (0.0016) | (0.0016) | (0.0123) | (0.0124) | (0.0124) |
| Year | -0.0024*** | -0.0034*** | -0.0035*** | -0.0005 | -0.0006 | -0.0020** |
| | (0.0006) | (0.0006) | (0.0006) | (0.0008) | (0.0008) | (0.0009) |
| Constant | 5.2251*** | 7.2823*** | 7.3552*** | 1.0842 | 1.3098 | 4.1369** |
| | (1.2405) | (1.2363) | (1.2404) | (1.6138) | (1.6030) | (1.8441) |
| R-squared | 0.65 | 0.66 | 0.66 | 0.41 | 0.56 | 0.43 |
| Observations | 9800 | 9800 | 9800 | 9800 | 9800 | 9800 |
| F-Statistic | 2075.60 | 2093.70 | 1843.73 | 26.55 | 23.33 | 21.64 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 5. Black/White College Graduation Ratio, 2011-2018

| | OLS | OLS | OLS | FE | FE | FE |
|---|---|---|---|---|---|---|
| Percent Black Students | 0.5253*** | | 0.1058* | -0.3099** | | -0.2907** |
| | (0.0411) | | (0.0595) | (0.1397) | | (0.1398) |
| Percent Hispanic Students | 0.3137*** | | 0.0546 | 0.3657** | | 0.3282** |
| | (0.0351) | | (0.0493) | (0.1537) | | (0.1543) |
| Percent Black Faculty | | 0.7859*** | 0.6708*** | | -0.0988 | -0.1093 |
| | | (0.0647) | (0.0968) | | (0.1839) | (0.1839) |
| Percent Hispanic Faculty | | 0.7106*** | 0.6470*** | | 0.9139*** | 0.8635*** |
| | | (0.1118) | (0.1510) | | (0.2582) | (0.2591) |
| Faculty Salary | | 0.0224*** | 0.0222*** | | 0.0168*** | 0.0162*** |
| | | (0.0025) | (0.0026) | | (0.0058) | (0.0058) |
| Percent Full-Time Faculty | | 0.0465*** | 0.0466*** | | 0.0521** | 0.0534** |
| | | (0.0132) | (0.0134) | | (0.0219) | (0.0219) |
| Hispanic/White Grad Ratio | 0.2900*** | 0.2719*** | 0.2717*** | 0.2021*** | 0.2011*** | 0.2008*** |
| | (0.0259) | (0.0247) | (0.0247) | (0.0084) | (0.0084) | (0.0084) |
| Open Admissions | -0.1447*** | -0.1316*** | -0.1305*** | 0.0117 | 0.0098 | 0.0091 |
| | (0.0172) | (0.0172) | (0.0173) | (0.0274) | (0.0274) | (0.0274) |
| Tuition | 0.0024*** | 0.0013** | 0.0013** | -0.0006 | -0.0012 | -0.0008 |
| | (0.0006) | (0.0006) | (0.0006) | (0.0014) | (0.0014) | (0.0014) |
| Endowment | 0.0149*** | 0.0011 | 0.0012 | 0.0081 | 0.0091 | 0.0087 |
| | (0.0034) | (0.0041) | (0.0042) | (0.0075) | (0.0075) | (0.0075) |
| Pell | -0.3912*** | -0.1916*** | -0.2376*** | 0.1592** | 0.1437** | 0.1519** |
| | (0.0432) | (0.0380) | (0.0425) | (0.0741) | (0.0714) | (0.0741) |
| Graduates Debt | -0.0574*** | -0.0262* | -0.0245 | 0.0357 | 0.0337 | 0.032 |
| | (0.0153) | (0.0154) | (0.0154) | (0.0358) | (0.0357) | (0.0357) |
| Non-Graduates Debt | -0.0033 | -0.0205* | -0.0221* | -0.0178 | -0.0188 | -0.0208 |
| | (0.0126) | (0.0124) | (0.0124) | (0.0163) | (0.0163) | (0.0163) |
| Schoool Population | -0.0026 | -0.0164*** | -0.0164*** | 0.0396 | 0.026 | 0.0284 |
| | (0.0033) | (0.0032) | (0.0032) | (0.0254) | (0.0256) | (0.0256) |
| Year | -0.0053*** | -0.0063*** | -0.0066*** | -0.0043** | -0.0057*** | -0.0073*** |
| | (0.0014) | (0.0013) | (0.0014) | (0.0017) | (0.0017) | (0.0019) |
| Constant | 11.5350*** | 13.5132*** | 14.0674*** | 8.4259** | 11.1933*** | 14.5787*** |
| | (2.8344) | (2.6526) | (2.7026) | (3.3091) | (3.2769) | (3.7909) |
| R-squared | 0.2 | 0.22 | 0.23 | 0.05 | 0.12 | 0.06 |
| Observations | 9800 | 9800 | 9800 | 9800 | 9800 | 9800 |
| F-Statistic | 108.31 | 151.61 | 132.15 | 55.68 | 48.51 | 42.67 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 6. Hispanic College Graduation Rates by Enrollment Size, 2011-2018

| | OLS-Small | OLS-Medium | OLS-Large | FE-Small | FE-Medium | FE-Large |
|---|---|---|---|---|---|---|
| Percent Black Students | -0.0700** | 0.0568 | 0.1130** | -0.0848 | -0.2321* | 0.1688 |
| | (0.0313) | (0.0362) | (0.0448) | (0.1059) | (0.1380) | (0.1551) |
| Percent Hispanic Students | -0.0945*** | 0.0343 | 0.0916*** | 0.1923 | 0.1239 | -0.0207 |
| | (0.0243) | (0.0322) | (0.0266) | (0.1173) | (0.1312) | (0.1134) |
| Percent Black Faculty | 0.2392*** | 0.0304 | 0.1977 | 0.0581 | -0.5911*** | -0.2856 |
| | (0.0506) | (0.0495) | (0.1212) | (0.1264) | (0.2219) | (0.3370) |
| Percent Hispanic Faculty | 0.2318*** | 0.1933** | 0.0175 | 0.1908 | 0.0671 | 0.4595** |
| | (0.0810) | (0.0954) | (0.0599) | (0.1883) | (0.2768) | (0.2187) |
| Faculty Salary | 0.0063*** | 0 | 0.0017 | -0.0049 | 0.001 | 0.0054 |
| | (0.0016) | (0.0012) | (0.0013) | (0.0051) | (0.0037) | (0.0034) |
| Percent Full-Time Faculty | 0.0005 | 0.0191* | 0.0299** | -0.0034 | 0.033 | 0.0363* |
| | (0.0083) | (0.0101) | (0.0119) | (0.0158) | (0.0203) | (0.0207) |
| Black Grad Rate | 0.2230*** | 0.2567*** | 0.3339*** | 0.0820*** | 0.0931*** | 0.1433*** |
| | (0.0153) | (0.0236) | (0.0230) | (0.0157) | (0.0253) | (0.0243) |
| White Grad Rate | 0.5183*** | 0.6088*** | 0.6270*** | 0.3023*** | 0.4955*** | 0.5965*** |
| | (0.0254) | (0.0289) | (0.0265) | (0.0352) | (0.0478) | (0.0566) |
| Open Admissions | 0.0058 | 0.0029 | 0.0115 | 0.0479** | -0.0289 | 0.0499* |
| | (0.0091) | (0.0089) | (0.0087) | (0.0221) | (0.0179) | (0.0257) |
| Tuition | 0.0015*** | 0.0012*** | -0.0007 | 0.0006 | 0.0016 | 0.0011 |
| | (0.0004) | (0.0004) | (0.0007) | (0.0011) | (0.0012) | (0.0010) |
| Endowment | 0.0105*** | 0.0082*** | 0.0041** | -0.0026 | -0.0025 | -0.0021 |
| | (0.0020) | (0.0016) | (0.0019) | (0.0067) | (0.0058) | (0.0044) |
| Pell | 0.0217 | -0.0466 | -0.0541** | 0.0647 | 0.1210* | 0.1785*** |
| | (0.0252) | (0.0288) | (0.0272) | (0.0552) | (0.0666) | (0.0644) |
| Graduates Debt | -0.0325*** | -0.0232** | 0.0229** | 0.0186 | 0.0205 | -0.0071 |
| | (0.0107) | (0.0110) | (0.0113) | (0.0301) | (0.0243) | (0.0210) |
| Non-Graduates Debt | 0.0002 | 0.0041 | -0.003 | 0.0028 | -0.0191 | -0.0052 |
| | (0.0087) | (0.0098) | (0.0096) | (0.0122) | (0.0143) | (0.0115) |
| Schoool Population | -0.0283*** | -0.0180*** | -0.0167** | 0.0315 | 0.0177 | -0.0620*** |
| | (0.0041) | (0.0055) | (0.0084) | (0.0218) | (0.0264) | (0.0219) |
| Year | -0.0028*** | -0.0007 | -0.0013 | -0.0005 | 0.0024 | 0.0022 |
| | (0.0009) | (0.0008) | (0.0008) | (0.0015) | (0.0017) | (0.0015) |
| Constant | 6.0757*** | 1.7164 | 2.431 | 0.9864 | -4.8687 | -3.7038 |
| | (1.8543) | (1.6009) | (1.6130) | (2.9092) | (3.2615) | (2.9821) |
| R-squared | 0.51 | 0.84 | 0.92 | 0.35 | 0.54 | 0.85 |
| Observations | 6159 | 2427 | 1214 | 6159 | 2427 | 1214 |
| F-Statistic | 613.25 | 1514.00 | 1130.31 | 8.34 | 15.57 | 31.91 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 7. Hispanic/White Graduation Ratio by Enrollment Size, 2011-2018

| | OLS-Small | OLS-Medium | OLS-Large | FE-Small | FE-Medium | FE-Large |
|---|---|---|---|---|---|---|
| Percent Black Students | -0.0344 | 0.052 | 0.7048** | -0.0872 | -0.8475** | 2.9652*** |
| | (0.0987) | (0.1167) | (0.3286) | (0.2439) | (0.3491) | (0.4765) |
| Percent Hispanic Students | -0.1662*** | 0.1343 | 0.3660*** | 0.327 | -0.0958 | -0.0699 |
| | (0.0608) | (0.0874) | (0.1145) | (0.2702) | (0.3300) | (0.3496) |
| Percent Black Faculty | 0.7451*** | 0.2156 | -0.6669 | -0.6001** | -1.3098** | -2.0273* |
| | (0.1827) | (0.1868) | (0.7507) | (0.2909) | (0.5619) | (1.0511) |
| Percent Hispanic Faculty | 0.5506*** | 0.3575 | -0.2648 | 0.3441 | 0.2761 | 1.8790*** |
| | (0.1959) | (0.4248) | (0.2545) | (0.4340) | (0.7000) | (0.6818) |
| Faculty Salary | -0.0035 | -0.0079** | 0.0046 | -0.0222* | 0.0001 | 0.0339*** |
| | (0.0041) | (0.0032) | (0.0044) | (0.0119) | (0.0094) | (0.0105) |
| Percent Full-Time Faculty | -0.0001 | 0.0528* | -0.0902 | 0.016 | 0.071 | 0.0384 |
| | (0.0204) | (0.0282) | (0.0858) | (0.0363) | (0.0514) | (0.0645) |
| Black/White Grad Ratio | 0.3419*** | 0.4120*** | 0.4947*** | 0.2944*** | 0.3544*** | 0.4380*** |
| | (0.0308) | (0.0453) | (0.0957) | (0.0178) | (0.0230) | (0.0355) |
| Open Admissions | 0.0568** | 0.0584** | 0.1254* | 0.1409*** | -0.0619 | 0.0063 |
| | (0.0287) | (0.0264) | (0.0665) | (0.0509) | (0.0452) | (0.0800) |
| Tuition | 0.0007 | 0.0006 | -0.0038** | 0.0024 | 0.0003 | 0.0013 |
| | (0.0009) | (0.0009) | (0.0018) | (0.0024) | (0.0030) | (0.0033) |
| Endowment | 0.0006 | 0.0102** | 0.0045 | -0.0186 | -0.0101 | 0.0035 |
| | (0.0051) | (0.0050) | (0.0052) | (0.0154) | (0.0148) | (0.0137) |
| Pell | 0.1699*** | 0.0521 | -0.3134* | -0.0612 | 0.7054*** | -0.0801 |
| | (0.0636) | (0.0793) | (0.1658) | (0.1273) | (0.1682) | (0.2003) |
| Graduates Debt | -0.0304 | 0.0136 | 0.1550** | 0.0894 | 0.0698 | -0.1004 |
| | (0.0265) | (0.0255) | (0.0605) | (0.0695) | (0.0614) | (0.0652) |
| Non-Graduates Debt | -0.0163 | -0.0222 | -0.0231 | 0.0035 | -0.0289 | -0.0327 |
| | (0.0194) | (0.0223) | (0.0228) | (0.0281) | (0.0361) | (0.0358) |
| Schoool Population | -0.0392*** | -0.0443*** | 0.0092 | 0.0431 | -0.0002 | -0.4592*** |
| | (0.0097) | (0.0135) | (0.0217) | (0.0501) | (0.0667) | (0.0682) |
| Year | -0.0022 | -0.0002 | -0.0062** | -0.0016 | 0.0048 | -0.002 |
| | (0.0020) | (0.0020) | (0.0026) | (0.0034) | (0.0041) | (0.0046) |
| Constant | 5.7601 | 1.2583 | 11.5785** | 3.1296 | -9.3825 | 9.8052 |
| | (4.1011) | (3.8645) | (4.8876) | (6.6862) | (8.1634) | (9.0438) |
| R-squared | 0.14 | 0.31 | 0.29 | 0.02 | 0.04 | 0.09 |
| Observations | 6159 | 2427 | 1214 | 6159 | 2427 | 1214 |
| F-Statistic | 16.33 | 20.72 | 13.18 | 20.46 | 19.10 | 17.82 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 8. Black College Graduation Rates by Enrollment Size, 2011-2018

| | OLS-Small | OLS-Medium | OLS-Large | FE-Small | FE-Medium | FE-Large |
|---|---|---|---|---|---|---|
| Percent Black Students | -0.0068 | 0.2682*** | 0.2849*** | -0.1939** | -0.1832 | -0.2557 |
| | (0.0255) | (0.0335) | (0.0619) | (0.0948) | (0.1210) | (0.1963) |
| Percent Hispanic Students | -0.0445* | 0.0621* | 0.0879** | 0.2799*** | 0.2359** | 0.0742 |
| | (0.0269) | (0.0360) | (0.0391) | (0.1050) | (0.1149) | (0.1436) |
| Percent Black Faculty | 0.2088*** | 0.0103 | -0.4136** | 0.0627 | -0.4030** | -0.0441 |
| | (0.0354) | (0.0450) | (0.1657) | (0.1132) | (0.1947) | (0.4267) |
| Percent Hispanic Faculty | 0.3513*** | 0.1955 | -0.0656 | 0.5079*** | -0.1766 | 0.1064 |
| | (0.0858) | (0.1344) | (0.0789) | (0.1687) | (0.2427) | (0.2774) |
| Faculty Salary | 0.0186*** | 0.0052*** | 0.0077*** | 0.0107** | -0.0017 | 0.0103** |
| | (0.0017) | (0.0014) | (0.0018) | (0.0046) | (0.0033) | (0.0043) |
| Percent Full-Time Faculty | 0.0209*** | 0.008 | 0.0072 | 0.0343** | 0.0082 | -0.0289 |
| | (0.0078) | (0.0106) | (0.0170) | (0.0141) | (0.0178) | (0.0262) |
| Hispanic Grad Rate | 0.2029*** | 0.3183*** | 0.7237*** | 0.0658*** | 0.0716*** | 0.2296*** |
| | (0.0144) | (0.0285) | (0.0438) | (0.0126) | (0.0195) | (0.0389) |
| White Grad Rate | 0.5308*** | 0.6044*** | 0.2674*** | 0.2792*** | 0.3757*** | 0.4830*** |
| | (0.0246) | (0.0334) | (0.0469) | (0.0315) | (0.0422) | (0.0738) |
| Open Admissions | -0.0256*** | -0.0456*** | -0.0540*** | -0.0105 | 0.016 | -0.023 |
| | (0.0087) | (0.0092) | (0.0144) | (0.0198) | (0.0157) | (0.0326) |
| Tuition | 0.0014*** | 0.0001 | 0.0014* | -0.0006 | 0.0012 | -0.0016 |
| | (0.0004) | (0.0004) | (0.0008) | (0.0009) | (0.0010) | (0.0013) |
| Endowment | 0.0069*** | 0.0058*** | -0.0108*** | 0.0002 | 0.0101** | -0.0062 |
| | (0.0020) | (0.0019) | (0.0025) | (0.0060) | (0.0051) | (0.0056) |
| Pell | -0.0967*** | -0.1495*** | -0.1074*** | 0.0795 | -0.0194 | 0.0401 |
| | (0.0240) | (0.0320) | (0.0391) | (0.0495) | (0.0585) | (0.0818) |
| Graduates Debt | -0.0342*** | -0.0364*** | -0.0450*** | -0.0028 | -0.0129 | -0.0402 |
| | (0.0097) | (0.0105) | (0.0172) | (0.0270) | (0.0213) | (0.0265) |
| Non-Graduates Debt | -0.0190** | -0.0115 | -0.0028 | -0.0023 | -0.0449*** | -0.0303** |
| | (0.0084) | (0.0104) | (0.0151) | (0.0109) | (0.0125) | (0.0145) |
| Schoool Population | -0.0241*** | -0.0144** | 0.0248*** | 0.0098 | 0.0036 | -0.0507* |
| | (0.0039) | (0.0062) | (0.0088) | (0.0195) | (0.0231) | (0.0278) |
| Year | -0.0050*** | -0.0012 | -0.0011 | -0.0040*** | 0.0029** | 0.002 |
| | (0.0009) | (0.0009) | (0.0011) | (0.0013) | (0.0015) | (0.0019) |
| Constant | 10.5723*** | 2.8115 | 2.4909 | 8.1142*** | -5.2509* | -2.7929 |
| | (1.7395) | (1.8704) | (2.1378) | (2.6049) | (2.8593) | (3.7765) |
| R-squared | 0.58 | 0.82 | 0.85 | 0.40 | 0.44 | 0.78 |
| Observations | 6159 | 2427 | 1214 | 6159 | 2427 | 1214 |
| F-Statistic | 735.47 | 1328.05 | 650.48 | 10.00 | 14.75 | 18.12 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 9. Black/White Graduation Ratio by Enrollment Size, 2011-2018

| | OLS-Small | OLS-Medium | OLS-Large | FE-Small | FE-Medium | FE-Large |
|---|---|---|---|---|---|---|
| Percent Black Students | -0.0228 | 0.4447*** | 0.4852*** | -0.3141* | -0.3757 | -1.3538*** |
| | (0.0742) | (0.1154) | (0.1371) | (0.1874) | (0.3200) | (0.3963) |
| Percent Hispanic Students | -0.0082 | 0.032 | 0.1083 | 0.4211** | 0.2383 | 0.1217 |
| | (0.0616) | (0.0899) | (0.0840) | (0.2076) | (0.3021) | (0.2870) |
| Percent Black Faculty | 0.6814*** | 0.5196*** | -0.6764 | -0.0997 | -0.9051* | 0.3149 |
| | (0.1137) | (0.1831) | (0.4258) | (0.2237) | (0.5147) | (0.8644) |
| Percent Hispanic Faculty | 0.7241*** | 0.8903** | 0.2313 | 0.9996*** | -0.2441 | -0.5206 |
| | (0.1900) | (0.4071) | (0.2210) | (0.3333) | (0.6409) | (0.5616) |
| Faculty Salary | 0.0284*** | 0.0130*** | 0.0162*** | 0.0212** | 0.0064 | 0.0121 |
| | (0.0042) | (0.0030) | (0.0036) | (0.0091) | (0.0086) | (0.0087) |
| Percent Full-Time Faculty | 0.0397** | 0.0231 | 0.0821** | 0.0657** | 0.0499 | -0.0574 |
| | (0.0163) | (0.0267) | (0.0411) | (0.0279) | (0.0471) | (0.0529) |
| Hispanic/White Grad Ratio | 0.2321*** | 0.4612*** | 0.4249*** | 0.1739*** | 0.2971*** | 0.2952*** |
| | (0.0264) | (0.0412) | (0.1023) | (0.0105) | (0.0193) | (0.0240) |
| Open Admissions | -0.0878*** | -0.1653*** | -0.2313*** | 0.0024 | 0.0933** | -0.0341 |
| | (0.0252) | (0.0254) | (0.0380) | (0.0392) | (0.0413) | (0.0657) |
| Tuition | 0.0015* | 0.0006 | 0.0048*** | -0.0013 | 0.0008 | -0.002 |
| | (0.0008) | (0.0009) | (0.0013) | (0.0019) | (0.0028) | (0.0027) |
| Endowment | -0.0019 | 0.007 | -0.0104** | 0.0043 | 0.0267** | -0.0111 |
| | (0.0065) | (0.0048) | (0.0051) | (0.0118) | (0.0135) | (0.0112) |
| Pell | -0.2072*** | -0.3336*** | -0.2131** | 0.1544 | -0.0628 | 0.1126 |
| | (0.0556) | (0.0769) | (0.0893) | (0.0978) | (0.1547) | (0.1644) |
| Graduates Debt | -0.0255 | -0.0226 | -0.1331*** | 0.0372 | 0.0433 | -0.0372 |
| | (0.0213) | (0.0257) | (0.0340) | (0.0534) | (0.0563) | (0.0536) |
| Non-Graduates Debt | -0.0183 | -0.021 | -0.005 | -0.012 | -0.0909*** | -0.0519* |
| | (0.0156) | (0.0229) | (0.0275) | (0.0216) | (0.0330) | (0.0293) |
| Schoool Population | -0.0394*** | -0.0086 | 0.0376** | 0.0321 | -0.0269 | 0.0134 |
| | (0.0081) | (0.0132) | (0.0164) | (0.0385) | (0.0611) | (0.0572) |
| Year | -0.0082*** | -0.0043* | -0.0014 | -0.0099*** | -0.0008 | 0.0018 |
| | (0.0019) | (0.0022) | (0.0021) | (0.0026) | (0.0038) | (0.0038) |
| Constant | 17.5276*** | 9.1998** | 4.072 | 19.6149*** | 2.3286 | -2.0692 |
| | (3.7460) | (4.3892) | (4.0261) | (5.1320) | (7.4766) | (7.4291) |
| R-squared | 0.17 | 0.44 | 0.37 | 0.06 | 0.01 | 0.07 |
| Observations | 6159 | 2427 | 1214 | 6159 | 2427 | 1214 |
| F-Statistic | 70.01 | 78.18 | 31.43 | 21.92 | 18.45 | 12.39 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 10. Hispanic College Graduation Rate by 10% Hispanic Student Enrollment, 2011-2018

| | OLS <10% | OLS >10% | FE <10% | FE >10% |
|---|---|---|---|---|
| Percent Black Students | 0.0112 | -0.1453*** | -0.1141 | -0.1254 |
| | (0.0301) | (0.0365) | (0.1042) | (0.0992) |
| Percent Hispanic Students | -0.4501*** | 0.0297 | 0.0927 | 0.1448* |
| | (0.0917) | (0.0237) | (0.2345) | (0.0740) |
| Percent Black Faculty | 0.1048** | 0.2245*** | -0.0081 | -0.0489 |
| | (0.0457) | (0.0554) | (0.1406) | (0.1165) |
| Percent Hispanic Faculty | 0.4193*** | 0.0914 | 0.5641** | -0.1373 |
| | (0.1383) | (0.0752) | (0.2499) | (0.1156) |
| Faculty Salary | 0.0038** | 0.0052*** | -0.0031 | 0.0029 |
| | (0.0017) | (0.0010) | (0.0052) | (0.0029) |
| Percent Full-Time Faculty | 0.0022 | 0.0102 | 0.0087 | -0.0039 |
| | (0.0092) | (0.0074) | (0.0170) | (0.0131) |
| Black Grad Rate | 0.2408*** | 0.2595*** | 0.0921*** | 0.0714*** |
| | (0.0168) | (0.0173) | (0.0169) | (0.0146) |
| White Grad Rate | 0.5567*** | 0.5590*** | 0.3620*** | 0.3083*** |
| | (0.0272) | (0.0250) | (0.0387) | (0.0281) |
| Open Admissions | 0.0012 | 0.0082 | 0.0276 | 0.009 |
| | (0.0094) | (0.0070) | (0.0232) | (0.0141) |
| Tuition | 0.0011*** | 0.0019*** | 0.0003 | 0.0015* |
| | (0.0004) | (0.0004) | (0.0011) | (0.0008) |
| Endowment | 0.0099*** | 0.0073*** | -0.0031 | 0.0022 |
| | (0.0019) | (0.0015) | (0.0057) | (0.0052) |
| Pell | -0.0006 | 0.0159 | 0.1724*** | -0.0491 |
| | (0.0280) | (0.0222) | (0.0579) | (0.0455) |
| Graduates Debt | -0.0318*** | -0.0217** | 0.0041 | 0.0227 |
| | (0.0108) | (0.0089) | (0.0305) | (0.0184) |
| Non-Graduates Debt | 0.0003 | 0.0036 | 0.0055 | -0.0248** |
| | (0.0090) | (0.0080) | (0.0125) | (0.0100) |
| Schoool Population | -0.0167*** | -0.0071*** | 0.0133 | 0.0380** |
| | (0.0024) | (0.0020) | (0.0204) | (0.0149) |
| Year | -0.0014 | -0.0020*** | 0.0004 | 0.0023* |
| | (0.0009) | (0.0007) | (0.0015) | (0.0013) |
| Constant | 3.0683* | 4.0604*** | -0.7388 | -4.6974* |
| | (1.7764) | (1.4776) | (3.0162) | (2.5853) |
| R-squared | 0.54 | 0.82 | 0.46 | 0.64 |
| Observations | 6500 | 3300 | 6500 | 3300 |
| F-Statistic | 702.30 | 1553.46 | 9.79 | 19.82 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 11. Hispanic/White Graduation Ratio by 10% Hispanic Student Enrollment, 2011-2018

| | OLS <10% | OLS >10% | FE <10% | FE >10% |
|---|---|---|---|---|
| Percent Black Students | 0.0875 | -0.1117 | -0.0562 | -0.1416 |
| | (0.1004) | (0.0933) | (0.2421) | (0.2467) |
| Percent Hispanic Students | -1.1167*** | 0.1918*** | 0.0703 | 0.2159 |
| | (0.2262) | (0.0662) | (0.5446) | (0.1840) |
| Percent Black Faculty | 0.4292*** | 0.4275** | -0.3236 | -0.6752** |
| | (0.1653) | (0.2128) | (0.3266) | (0.2894) |
| Percent Hispanic Faculty | 0.44 | 0.271 | 1.2577** | -0.1943 |
| | (0.3198) | (0.1778) | (0.5806) | (0.2869) |
| Faculty Salary | -0.003 | 0.002 | -0.019 | 0.0021 |
| | (0.0043) | (0.0023) | (0.0120) | (0.0072) |
| Percent Full-Time Faculty | -0.0154 | 0.0314* | 0.0414 | -0.0222 |
| | (0.0237) | (0.0190) | (0.0396) | (0.0326) |
| Black/White Grad Ratio | 0.3805*** | 0.3456*** | 0.3353*** | 0.2872*** |
| | (0.0333) | (0.0342) | (0.0183) | (0.0171) |
| Open Admissions | 0.0573* | 0.0818*** | 0.0479 | 0.0495 |
| | (0.0312) | (0.0228) | (0.0539) | (0.0351) |
| Tuition | 0.0004 | 0.0016** | 0.0027 | 0.0018 |
| | (0.0009) | (0.0008) | (0.0026) | (0.0020) |
| Endowment | 0.0034 | 0.0038 | -0.019 | 0.0043 |
| | (0.0050) | (0.0036) | (0.0133) | (0.0129) |
| Pell | 0.1229* | 0.0272 | 0.2125 | 0.0305 |
| | (0.0744) | (0.0593) | (0.1345) | (0.1132) |
| Graduates Debt | -0.0288 | 0.0232 | 0.022 | 0.0974** |
| | (0.0276) | (0.0234) | (0.0710) | (0.0458) |
| Non-Graduates Debt | -0.0086 | -0.025 | 0.0183 | -0.0679*** |
| | (0.0203) | (0.0169) | (0.0290) | (0.0248) |
| Schoool Population | -0.0214*** | -0.0086* | 0.0069 | -0.0166 |
| | (0.0056) | (0.0046) | (0.0473) | (0.0370) |
| Year | 0.0006 | -0.0040** | -0.0004 | -0.0009 |
| | (0.0020) | (0.0017) | (0.0035) | (0.0033) |
| Constant | -0.0484 | 8.4712** | 1.3174 | 2.22 |
| | (3.9746) | (3.3653) | (6.9732) | (6.3703) |
| R-squared | 0.15 | 0.26 | 0.08 | 0.15 |
| Observations | 6500 | 3300 | 6500 | 3300 |
| F-Statistic | 15.21 | 19.38 | 24.30 | 20.73 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 12. Black Graduation Rate by 10% Black Student Enrollment, 2011-2018

| | OLS <10% | OLS >10% | FE <10% | FE >10% |
|---|---|---|---|---|
| Percent Black Students | -0.4559*** | 0.1611*** | -0.3176 | -0.0672 |
| | (0.0893) | (0.0250) | (0.2392) | (0.0577) |
| Percent Hispanic Students | 0.0062 | 0.0179 | 0.3468*** | 0.1419 |
| | (0.0340) | (0.0273) | (0.1182) | (0.0890) |
| Percent Black Faculty | 0.5466*** | -0.0049 | -0.1175 | 0.063 |
| | (0.1038) | (0.0307) | (0.2006) | (0.0758) |
| Percent Hispanic Faculty | 0.2672** | 0.2461*** | 0.4394** | 0.1986 |
| | (0.1191) | (0.0772) | (0.1821) | (0.1515) |
| Faculty Salary | 0.0120*** | 0.0128*** | 0.0087** | 0.0064* |
| | (0.0014) | (0.0017) | (0.0039) | (0.0038) |
| Percent Full-Time Faculty | 0.0214** | 0.0095 | 0.0276* | 0.0222* |
| | (0.0097) | (0.0075) | (0.0166) | (0.0115) |
| Hispanic Grad Rate | 0.2381*** | 0.2118*** | 0.0666*** | 0.0841*** |
| | (0.0201) | (0.0158) | (0.0151) | (0.0110) |
| White Grad Rate | 0.6328*** | 0.4884*** | 0.5199*** | 0.1650*** |
| | (0.0275) | (0.0271) | (0.0434) | (0.0228) |
| Open Admissions | -0.0306*** | -0.0482*** | -0.0248 | -0.0085 |
| | (0.0101) | (0.0078) | (0.0251) | (0.0127) |
| Tuition | 0.0009** | 0.0003 | -0.0005 | -0.0004 |
| | (0.0004) | (0.0004) | (0.0011) | (0.0008) |
| Endowment | 0.0035* | 0.0052*** | 0.0029 | 0.003 |
| | (0.0019) | (0.0017) | (0.0061) | (0.0036) |
| Pell | -0.0759*** | -0.0810*** | 0.0874 | 0.0590* |
| | (0.0280) | (0.0239) | (0.0637) | (0.0348) |
| Graduates Debt | -0.0559*** | -0.0006 | -0.0298 | 0.0099 |
| | (0.0100) | (0.0101) | (0.0277) | (0.0186) |
| Non-Graduates Debt | -0.0137 | -0.0226** | -0.0057 | 0.0011 |
| | (0.0084) | (0.0102) | (0.0110) | (0.0102) |
| Schoool Population | -0.0178*** | 0.0024 | -0.0012 | 0.0293** |
| | (0.0023) | (0.0026) | (0.0232) | (0.0131) |
| Year | -0.0035*** | -0.0019** | -0.0029** | -0.001 |
| | (0.0008) | (0.0009) | (0.0014) | (0.0011) |
| Constant | 7.7586*** | 3.7437** | 6.0743** | 1.815 |
| | (1.6568) | (1.7669) | (2.8702) | (2.1855) |
| R-squared | 0.65 | 0.53 | 0.50 | 0.28 |
| Observations | 6214 | 3586 | 6214 | 3586 |
| F-Statistic | 1094.126 | 299.2363 | 15.60653 | 10.32098 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

Table 13. Black/White Graduation Ratio by 10% Black Student Enrollment, 2011-2018

| | OLS <10% | OLS >10% | FE <10% | FE >10% |
|---|---|---|---|---|
| Percent Black Students | -1.0627*** | 0.4332*** | -0.4202 | -0.1825 |
| | (0.1980) | (0.0838) | (0.4199) | (0.1746) |
| Percent Hispanic Students | 0.0699 | 0.0902 | 0.5544*** | 0.2128 |
| | (0.0654) | (0.0695) | (0.2074) | (0.2695) |
| Percent Black Faculty | 0.9463*** | 0.3253*** | 0.0141 | -0.062 |
| | (0.2736) | (0.1162) | (0.3528) | (0.2293) |
| Percent Hispanic Faculty | 0.5390*** | 0.6176*** | 0.8649*** | 0.5979 |
| | (0.2053) | (0.2272) | (0.3202) | (0.4584) |
| Faculty Salary | 0.0210*** | 0.0230*** | 0.0154** | 0.0184 |
| | (0.0034) | (0.0040) | (0.0069) | (0.0116) |
| Percent Full-Time Faculty | 0.0396** | 0.0244 | 0.0416 | 0.0564 |
| | (0.0190) | (0.0184) | (0.0293) | (0.0348) |
| Hispanic/White Grad Ratio | 0.2958*** | 0.2553*** | 0.0923*** | 0.2604*** |
| | (0.0507) | (0.0261) | (0.0140) | (0.0111) |
| Open Admissions | -0.1034*** | -0.1550*** | -0.0633 | 0.045 |
| | (0.0270) | (0.0224) | (0.0442) | (0.0384) |
| Tuition | 0.0011 | 0.001 | -0.0011 | -0.0012 |
| | (0.0008) | (0.0010) | (0.0019) | (0.0023) |
| Endowment | -0.0008 | 0.0063 | 0.0086 | 0.0139 |
| | (0.0070) | (0.0041) | (0.0107) | (0.0108) |
| Pell | -0.2262*** | -0.1859*** | 0.2037* | 0.1285 |
| | (0.0581) | (0.0703) | (0.1119) | (0.1055) |
| Graduates Debt | -0.0542*** | -0.003 | -0.0328 | 0.0992* |
| | (0.0201) | (0.0248) | (0.0486) | (0.0562) |
| Non-Graduates Debt | -0.0118 | -0.0309 | -0.0097 | -0.0434 |
| | (0.0143) | (0.0240) | (0.0193) | (0.0310) |
| Schoool Population | -0.0291*** | 0.0043 | -0.0173 | 0.0628 |
| | (0.0040) | (0.0056) | (0.0407) | (0.0396) |
| Year | -0.0061*** | -0.0057** | -0.0073*** | -0.0070** |
| | (0.0017) | (0.0023) | (0.0025) | (0.0034) |
| Constant | 13.5953*** | 11.8093*** | 15.4833*** | 12.9651** |
| | (3.3290) | (4.5131) | (5.0026) | (6.5975) |
| R-squared | 0.17 | 0.32 | 0.05 | 0.11 |
| Observations | 6214 | 3586 | 6214 | 3586 |
| F-Statistic | 94.38 | 39.54 | 5.57 | 39.33 |

Coefficients listed with standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

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