

Getting Across the Finish Line: Boosting Completion Rates for Underrepresented Groups

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The Problem

	Enrollment Rates	Completion Rates	Population with Bachelors	Household Wealth
White	38%	66%	42%	187k
Black	37%	44%	28%	14k
Hispanic	33%	58%	21%	32k



Theories of the Completion Gap

- Peer Effects
- Role Model Effects
- Student Resources
- University Resources

What has the Literature Found?

- Mixed results for peer effects
- Different timeframes
- Small samples
- Different sets of variables – possible endogeneity from omitted variable bias



Hypotheses to test

- 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 Set

- 9,805 observations, 2011-2018
- 1,493 institutions
- Integrated Postsecondary Education Data System (IPEDS)

Dependent Variables

- 4 Dependent Variables:
 - Black 6-year graduation rates
 - Hispanic 6-year graduation rates
 - (Black/White) ratio of graduation rates
 - (Hispanic/White) ratio of graduation rates

Independent Variables

- Peer: % Black students, % Hispanic students
- Role model: % Black faculty, % Hispanic faculty
- Faculty quality: Faculty salary, % FT faculty
- Other variables: open admissions, White grad rate, tuition, endowment, Pell %, Grad debt, Non-grad debt, School population, Year

Methodology

- Each dependent variable tested with OLS and institution level fixed effects
- 3 different models for each dependent variable.
 - Peer effects without role model effects
 - Role model effects without peer effects
 - Both peer and role model effects

Stratifications

- By student enrollment size: <5k, 5-15k, >15k
- By Black student enrollment: <10%, >10%
- By Hispanic Student enrollment: <10%, >10%

Results

- Peer effects disappear when role model are included
- Role model effects stay significant
- Faculty salaries and FT faculty impact Black completion but not Hispanic completion

More Results

- Tuition and endowments increase completion rates and reduce gaps – OLS, not FE
- Completion rates for other groups are a significant factor

Stratified Results

- Enrollment size: peer effects at larger institutions, role model effects at smaller institutions
- 10% group size: some evidence of more role model effects for <10% and peer effects for >10%.

Implications

- Evidence of omitted variable bias
- Recruiting a diverse student body will not work unless the complimentary investments are made in faculty hiring
- Highest returns to diverse faculty hiring in smaller, less diverse institutions
- Some tradeoff between peer and role model effects

Thank you!

Table 1 Descriptive Statistics

	Observations	Mean	Std. Dev.	Min	Max
<i>Dependent Variables</i>					
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
<i>Peer Effects</i>					
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
<i>Role Model Effects</i>					
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
<i>Other Independent Variables</i>					
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*** (0.0162)		-0.0354 (0.0242)	-0.0717 (0.0749)		-0.0723 (0.0751)
Percent Hispanic Students	0.0263** (0.0120)		-0.0457** (0.0196)	0.1855** (0.0825)		0.1761** (0.0829)
Percent Black Faculty		0.1237*** (0.0252)	0.1562*** (0.0387)		-0.0087 (0.0987)	-0.0149 (0.0988)
Percent Hispanic Faculty		0.1343*** (0.0435)	0.2039*** (0.0667)		0.2213 (0.1387)	0.1949 (0.1393)
Faculty Salary		0.0040*** (0.0010)	0.0044*** (0.0010)		-0.0002 (0.0031)	-0.0003 (0.0031)
Percent Full-Time Faculty		0.0084 (0.0064)	0.0077 (0.0064)		0.0057 (0.0118)	0.0062 (0.0118)
Black Grad Rate	0.2595*** (0.0125)	0.2445*** (0.0128)	0.2448*** (0.0129)	0.0899*** (0.0122)	0.0905*** (0.0122)	0.0891*** (0.0122)
White Grad Rate	0.5716*** (0.0185)	0.5651*** (0.0189)	0.5608*** (0.0191)	0.3453*** (0.0267)	0.3486*** (0.0267)	0.3469*** (0.0267)
Open Admissions	0.0032 (0.0062)	0.0033 (0.0063)	0.0023 (0.0063)	0.0195 (0.0147)	0.0197 (0.0147)	0.0191 (0.0147)
Tuition	0.0012*** (0.0003)	0.0010*** (0.0003)	0.0011*** (0.0003)	0.0006 (0.0008)	0.0003 (0.0008)	0.0005 (0.0008)
Endowment	0.0110*** (0.0012)	0.0094*** (0.0013)	0.0094*** (0.0013)	-0.0012 (0.0040)	-0.001 (0.0040)	-0.001 (0.0040)
Pell	0.0002 (0.0183)	0.0033 (0.0160)	0.0236 (0.0185)	0.0837** (0.0397)	0.0876** (0.0383)	0.0826** (0.0398)
Graduates Debt	-0.0280*** (0.0071)	-0.0211*** (0.0073)	-0.0233*** (0.0073)	0.0179 (0.0192)	0.0189 (0.0192)	0.0177 (0.0192)
Non-Graduates Debt	0.0054 (0.0066)	0.0019 (0.0066)	0.0034 (0.0066)	-0.0006 (0.0087)	0 (0.0087)	-0.0006 (0.0087)
School Population	-0.0097*** (0.0016)	-0.0130*** (0.0016)	-0.0130*** (0.0016)	0.0246* (0.0136)	0.0242* (0.0138)	0.0245* (0.0138)
Year	-0.0015** (0.0006)	-0.0020*** (0.0006)	-0.0018*** (0.0006)	0.0003 (0.0009)	0.0012 (0.0009)	0.0002 (0.0010)
Constant	3.2688*** (1.2672)	4.1765*** (1.2728)	3.8287*** (1.2789)	-0.7117 (1.7885)	-2.4931 (1.7776)	-0.5169 (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*** (0.0568)		0.0279 (0.0784)	0.13 (0.1766)		0.1219 (0.1768)
Percent Hispanic Students	0.0699* (0.0357)		-0.0593 (0.0498)	0.2036 (0.1943)		0.1999 (0.1952)
Percent Black Faculty		0.5479*** (0.0973)	0.5030*** (0.1419)		-0.5658** (0.2324)	-0.5757** (0.2325)
Percent Hispanic Faculty		0.3296*** (0.1146)	0.4426*** (0.1561)		0.4834 (0.3267)	0.454 (0.3279)
Faculty Salary		-0.0032 (0.0024)	-0.0027 (0.0025)		-0.0075 (0.0074)	-0.0072 (0.0074)
Percent Full-Time Faculty		0.0142 (0.0166)	0.012 (0.0167)		0.0301 (0.0277)	0.0301 (0.0278)
Black/White Grad Ratio	0.3789*** (0.0259)	0.3643*** (0.0254)	0.3642*** (0.0253)	0.3226*** (0.0135)	0.3214*** (0.0135)	0.3213*** (0.0135)
Open Admissions	0.0723*** (0.0201)	0.0623*** (0.0206)	0.0615*** (0.0206)	0.0684** (0.0346)	0.0630* (0.0346)	0.0620* (0.0346)
Tuition	-0.0001 (0.0006)	-0.0001 (0.0006)	-0.0001 (0.0006)	0.0019 (0.0018)	0.0016 (0.0018)	0.0018 (0.0018)
Endowment	0.0056** (0.0028)	0.0058* (0.0033)	0.0055 (0.0033)	-0.0105 (0.0095)	-0.011 (0.0095)	-0.0107 (0.0095)
Pell	0.1055** (0.0481)	0.1341*** (0.0392)	0.1386*** (0.0509)	0.0813 (0.0936)	0.1084 (0.0903)	0.0794 (0.0937)
Graduates Debt	0.0092 (0.0183)	0.0102 (0.0187)	0.0064 (0.0189)	0.0682 (0.0452)	0.0685 (0.0452)	0.0667 (0.0452)
Non-Graduates Debt	-0.0121 (0.0147)	-0.0128 (0.0145)	-0.011 (0.0146)	-0.012 (0.0206)	-0.0104 (0.0206)	-0.0099 (0.0206)
School Population	-0.0160*** (0.0038)	-0.0176*** (0.0038)	-0.0174*** (0.0038)	-0.0138 (0.0320)	-0.0051 (0.0323)	-0.0074 (0.0324)
Year	-0.0024* (0.0014)	-0.0021 (0.0014)	-0.0019 (0.0014)	-0.0032 (0.0021)	-0.0007 (0.0021)	-0.0021 (0.0024)
Constant	5.3561* (2.8256)	4.8104* (2.8392)	4.4208 (2.8622)	6.7338 (4.1823)	1.7393 (4.1457)	4.4427 (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*** (0.0131)		0.0685*** (0.0203)	-0.1794*** (0.0676)		-0.1708** (0.0676)
Percent Hispanic Students	0.1203*** (0.0133)		0.0031 (0.0209)	0.2847*** (0.0744)		0.2644*** (0.0747)
Percent Black Faculty		0.2331*** (0.0180)	0.1527*** (0.0286)		0.0132 (0.0890)	0.0046 (0.0890)
Percent Hispanic Faculty		0.2621*** (0.0447)	0.2773*** (0.0676)		0.4657*** (0.1250)	0.4250*** (0.1254)
Faculty Salary		0.0139*** (0.0010)	0.0139*** (0.0010)		0.0081*** (0.0028)	0.0078*** (0.0028)
Percent Full-Time Faculty		0.0227*** (0.0061)	0.0216*** (0.0062)		0.0269** (0.0106)	0.0277*** (0.0106)
Hispanic Grad Rate	0.2596*** (0.0130)	0.2397*** (0.0131)	0.2399*** (0.0131)	0.0732*** (0.0099)	0.0736*** (0.0099)	0.0723*** (0.0099)
White Grad Rate	0.6096*** (0.0187)	0.5633*** (0.0192)	0.5682*** (0.0194)	0.3058*** (0.0241)	0.3104*** (0.0241)	0.3077*** (0.0241)
Open Admissions	-0.0438*** (0.0062)	-0.0386*** (0.0062)	-0.0379*** (0.0063)	-0.0076 (0.0132)	-0.0078 (0.0133)	-0.0085 (0.0133)
Tuition	0.0013*** (0.0003)	0.0011*** (0.0003)	0.0011*** (0.0003)	-0.0002 (0.0007)	-0.0006 (0.0007)	-0.0003 (0.0007)
Endowment	0.0096*** (0.0012)	0.0046*** (0.0013)	0.0044*** (0.0013)	0.0023 (0.0036)	0.0029 (0.0036)	0.0026 (0.0036)
Pell	-0.1594*** (0.0181)	-0.0849*** (0.0160)	-0.1058*** (0.0182)	0.0763** (0.0359)	0.0738** (0.0346)	0.0732** (0.0358)
Graduates Debt	-0.0514*** (0.0068)	-0.0350*** (0.0068)	-0.0356*** (0.0069)	-0.0061 (0.0173)	-0.0063 (0.0173)	-0.0079 (0.0173)
Non-Graduates Debt	-0.0112* (0.0066)	-0.0172*** (0.0066)	-0.0175*** (0.0066)	-0.0032 (0.0079)	-0.0035 (0.0079)	-0.0048 (0.0079)
School Population	-0.0021 (0.0016)	-0.0106*** (0.0016)	-0.0104*** (0.0016)	0.0231* (0.0123)	0.0163 (0.0124)	0.0176 (0.0124)
Year	-0.0024*** (0.0006)	-0.0034*** (0.0006)	-0.0035*** (0.0006)	-0.0005 (0.0008)	-0.0006 (0.0008)	-0.0020** (0.0009)
Constant	5.2251*** (1.2405)	7.2823*** (1.2363)	7.3552*** (1.2404)	1.0842 (1.6138)	1.3098 (1.6030)	4.1369** (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*** (0.0411)		0.1058* (0.0595)	-0.3099** (0.1397)		-0.2907** (0.1398)
Percent Hispanic Students	0.3137*** (0.0351)		0.0546 (0.0493)	0.3657** (0.1537)		0.3282** (0.1543)
Percent Black Faculty		0.7859*** (0.0647)	0.6708*** (0.0968)		-0.0988 (0.1839)	-0.1093 (0.1839)
Percent Hispanic Faculty		0.7106*** (0.1118)	0.6470*** (0.1510)		0.9139*** (0.2582)	0.8635*** (0.2591)
Faculty Salary		0.0224*** (0.0025)	0.0222*** (0.0026)		0.0168*** (0.0058)	0.0162*** (0.0058)
Percent Full-Time Faculty		0.0465*** (0.0132)	0.0466*** (0.0134)		0.0521** (0.0219)	0.0534** (0.0219)
Hispanic/White Grad Ratio	0.2900*** (0.0259)	0.2719*** (0.0247)	0.2717*** (0.0247)	0.2021*** (0.0084)	0.2011*** (0.0084)	0.2008*** (0.0084)
Open Admissions	-0.1447*** (0.0172)	-0.1316*** (0.0172)	-0.1305*** (0.0173)	0.0117 (0.0274)	0.0098 (0.0274)	0.0091 (0.0274)
Tuition	0.0024*** (0.0006)	0.0013** (0.0006)	0.0013** (0.0006)	-0.0006 (0.0014)	-0.0012 (0.0014)	-0.0008 (0.0014)
Endowment	0.0149*** (0.0034)	0.0011 (0.0041)	0.0012 (0.0042)	0.0081 (0.0075)	0.0091 (0.0075)	0.0087 (0.0075)
Pell	-0.3912*** (0.0432)	-0.1916*** (0.0380)	-0.2376*** (0.0425)	0.1592** (0.0741)	0.1437** (0.0714)	0.1519** (0.0741)
Graduates Debt	-0.0574*** (0.0153)	-0.0262* (0.0154)	-0.0245 (0.0154)	0.0357 (0.0358)	0.0337 (0.0357)	0.032 (0.0357)
Non-Graduates Debt	-0.0033 (0.0126)	-0.0205* (0.0124)	-0.0221* (0.0124)	-0.0178 (0.0163)	-0.0188 (0.0163)	-0.0208 (0.0163)
School Population	-0.0026 (0.0033)	-0.0164*** (0.0032)	-0.0164*** (0.0032)	0.0396 (0.0254)	0.026 (0.0256)	0.0284 (0.0256)
Year	-0.0053*** (0.0014)	-0.0063*** (0.0013)	-0.0066*** (0.0014)	-0.0043** (0.0017)	-0.0057*** (0.0017)	-0.0073*** (0.0019)
Constant	11.5350*** (2.8344)	13.5132*** (2.6526)	14.0674*** (2.7026)	8.4259** (3.3091)	11.1933*** (3.2769)	14.5787*** (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** (0.0313)	0.0568 (0.0362)	0.1130** (0.0448)	-0.0848 (0.1059)	-0.2321* (0.1380)	0.1688 (0.1551)
Percent Hispanic Students	-0.0945*** (0.0243)	0.0343 (0.0322)	0.0916*** (0.0266)	0.1923 (0.1173)	0.1239 (0.1312)	-0.0207 (0.1134)
Percent Black Faculty	0.2392*** (0.0506)	0.0304 (0.0495)	0.1977 (0.1212)	0.0581 (0.1264)	-0.5911*** (0.2219)	-0.2856 (0.3370)
Percent Hispanic Faculty	0.2318*** (0.0810)	0.1933** (0.0954)	0.0175 (0.0599)	0.1908 (0.1883)	0.0671 (0.2768)	0.4595** (0.2187)
Faculty Salary	0.0063*** (0.0016)	0 (0.0012)	0.0017 (0.0013)	-0.0049 (0.0051)	0.001 (0.0037)	0.0054 (0.0034)
Percent Full-Time Faculty	0.0005 (0.0083)	0.0191* (0.0101)	0.0299** (0.0119)	-0.0034 (0.0158)	0.033 (0.0203)	0.0363* (0.0207)
Black Grad Rate	0.2230*** (0.0153)	0.2567*** (0.0236)	0.3339*** (0.0230)	0.0820*** (0.0157)	0.0931*** (0.0253)	0.1433*** (0.0243)
White Grad Rate	0.5183*** (0.0254)	0.6088*** (0.0289)	0.6270*** (0.0265)	0.3023*** (0.0352)	0.4955*** (0.0478)	0.5965*** (0.0566)
Open Admissions	0.0058 (0.0091)	0.0029 (0.0089)	0.0115 (0.0087)	0.0479** (0.0221)	-0.0289 (0.0179)	0.0499* (0.0257)
Tuition	0.0015*** (0.0004)	0.0012*** (0.0004)	-0.0007 (0.0007)	0.0006 (0.0011)	0.0016 (0.0012)	0.0011 (0.0010)
Endowment	0.0105*** (0.0020)	0.0082*** (0.0016)	0.0041** (0.0019)	-0.0026 (0.0067)	-0.0025 (0.0058)	-0.0021 (0.0044)
Pell	0.0217 (0.0252)	-0.0466 (0.0288)	-0.0541** (0.0272)	0.0647 (0.0552)	0.1210* (0.0666)	0.1785*** (0.0644)
Graduates Debt	-0.0325*** (0.0107)	-0.0232** (0.0110)	0.0229** (0.0113)	0.0186 (0.0301)	0.0205 (0.0243)	-0.0071 (0.0210)
Non-Graduates Debt	0.0002 (0.0087)	0.0041 (0.0098)	-0.003 (0.0096)	0.0028 (0.0122)	-0.0191 (0.0143)	-0.0052 (0.0115)
School Population	-0.0283*** (0.0041)	-0.0180*** (0.0055)	-0.0167** (0.0084)	0.0315 (0.0218)	0.0177 (0.0264)	-0.0620*** (0.0219)
Year	-0.0028*** (0.0009)	-0.0007 (0.0008)	-0.0013 (0.0008)	-0.0005 (0.0015)	0.0024 (0.0017)	0.0022 (0.0015)
Constant	6.0757*** (1.8543)	1.7164 (1.6009)	2.431 (1.6130)	0.9864 (2.9092)	-4.8687 (3.2615)	-3.7038 (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 (0.0987)	0.052 (0.1167)	0.7048** (0.3286)	-0.0872 (0.2439)	-0.8475** (0.3491)	2.9652*** (0.4765)
Percent Hispanic Students	-0.1662*** (0.0608)	0.1343 (0.0874)	0.3660*** (0.1145)	0.327 (0.2702)	-0.0958 (0.3300)	-0.0699 (0.3496)
Percent Black Faculty	0.7451*** (0.1827)	0.2156 (0.1868)	-0.6669 (0.7507)	-0.6001** (0.2909)	-1.3098** (0.5619)	-2.0273* (1.0511)
Percent Hispanic Faculty	0.5506*** (0.1959)	0.3575 (0.4248)	-0.2648 (0.2545)	0.3441 (0.4340)	0.2761 (0.7000)	1.8790*** (0.6818)
Faculty Salary	-0.0035 (0.0041)	-0.0079** (0.0032)	0.0046 (0.0044)	-0.0222* (0.0119)	0.0001 (0.0094)	0.0339*** (0.0105)
Percent Full-Time Faculty	-0.0001 (0.0204)	0.0528* (0.0282)	-0.0902 (0.0858)	0.016 (0.0363)	0.071 (0.0514)	0.0384 (0.0645)
Black/White Grad Ratio	0.3419*** (0.0308)	0.4120*** (0.0453)	0.4947*** (0.0957)	0.2944*** (0.0178)	0.3544*** (0.0230)	0.4380*** (0.0355)
Open Admissions	0.0568** (0.0287)	0.0584** (0.0264)	0.1254* (0.0665)	0.1409*** (0.0509)	-0.0619 (0.0452)	0.0063 (0.0800)
Tuition	0.0007 (0.0009)	0.0006 (0.0009)	-0.0038** (0.0018)	0.0024 (0.0024)	0.0003 (0.0030)	0.0013 (0.0033)
Endowment	0.0006 (0.0051)	0.0102** (0.0050)	0.0045 (0.0052)	-0.0186 (0.0154)	-0.0101 (0.0148)	0.0035 (0.0137)
Pell	0.1699*** (0.0636)	0.0521 (0.0793)	-0.3134* (0.1658)	-0.0612 (0.1273)	0.7054*** (0.1682)	-0.0801 (0.2003)
Graduates Debt	-0.0304 (0.0265)	0.0136 (0.0255)	0.1550** (0.0605)	0.0894 (0.0695)	0.0698 (0.0614)	-0.1004 (0.0652)
Non-Graduates Debt	-0.0163 (0.0194)	-0.0222 (0.0223)	-0.0231 (0.0228)	0.0035 (0.0281)	-0.0289 (0.0361)	-0.0327 (0.0358)
School Population	-0.0392*** (0.0097)	-0.0443*** (0.0135)	0.0092 (0.0217)	0.0431 (0.0501)	-0.0002 (0.0667)	-0.4592*** (0.0682)
Year	-0.0022 (0.0020)	-0.0002 (0.0020)	-0.0062** (0.0026)	-0.0016 (0.0034)	0.0048 (0.0041)	-0.002 (0.0046)
Constant	5.7601 (4.1011)	1.2583 (3.8645)	11.5785** (4.8876)	3.1296 (6.6862)	-9.3825 (8.1634)	9.8052 (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 (0.0255)	0.2682*** (0.0335)	0.2849*** (0.0619)	-0.1939** (0.0948)	-0.1832 (0.1210)	-0.2557 (0.1963)
Percent Hispanic Students	-0.0445* (0.0269)	0.0621* (0.0360)	0.0879** (0.0391)	0.2799*** (0.1050)	0.2359** (0.1149)	0.0742 (0.1436)
Percent Black Faculty	0.2088*** (0.0354)	0.0103 (0.0450)	-0.4136** (0.1657)	0.0627 (0.1132)	-0.4030** (0.1947)	-0.0441 (0.4267)
Percent Hispanic Faculty	0.3513*** (0.0858)	0.1955 (0.1344)	-0.0656 (0.0789)	0.5079*** (0.1687)	-0.1766 (0.2427)	0.1064 (0.2774)
Faculty Salary	0.0186*** (0.0017)	0.0052*** (0.0014)	0.0077*** (0.0018)	0.0107** (0.0046)	-0.0017 (0.0033)	0.0103** (0.0043)
Percent Full-Time Faculty	0.0209*** (0.0078)	0.008 (0.0106)	0.0072 (0.0170)	0.0343** (0.0141)	0.0082 (0.0178)	-0.0289 (0.0262)
Hispanic Grad Rate	0.2029*** (0.0144)	0.3183*** (0.0285)	0.7237*** (0.0438)	0.0658*** (0.0126)	0.0716*** (0.0195)	0.2296*** (0.0389)
White Grad Rate	0.5308*** (0.0246)	0.6044*** (0.0334)	0.2674*** (0.0469)	0.2792*** (0.0315)	0.3757*** (0.0422)	0.4830*** (0.0738)
Open Admissions	-0.0256*** (0.0087)	-0.0456*** (0.0092)	-0.0540*** (0.0144)	-0.0105 (0.0198)	0.016 (0.0157)	-0.023 (0.0326)
Tuition	0.0014*** (0.0004)	0.0001 (0.0004)	0.0014* (0.0008)	-0.0006 (0.0009)	0.0012 (0.0010)	-0.0016 (0.0013)
Endowment	0.0069*** (0.0020)	0.0058*** (0.0019)	-0.0108*** (0.0025)	0.0002 (0.0060)	0.0101** (0.0051)	-0.0062 (0.0056)
Pell	-0.0967*** (0.0240)	-0.1495*** (0.0320)	-0.1074*** (0.0391)	0.0795 (0.0495)	-0.0194 (0.0585)	0.0401 (0.0818)
Graduates Debt	-0.0342*** (0.0097)	-0.0364*** (0.0105)	-0.0450*** (0.0172)	-0.0028 (0.0270)	-0.0129 (0.0213)	-0.0402 (0.0265)
Non-Graduates Debt	-0.0190** (0.0084)	-0.0115 (0.0104)	-0.0028 (0.0151)	-0.0023 (0.0109)	-0.0449*** (0.0125)	-0.0303*** (0.0145)
School Population	-0.0241*** (0.0039)	-0.0144** (0.0062)	0.0248*** (0.0088)	0.0098 (0.0195)	0.0036 (0.0231)	-0.0507* (0.0278)
Year	-0.0050*** (0.0009)	-0.0012 (0.0009)	-0.0011 (0.0011)	-0.0040*** (0.0013)	0.0029** (0.0015)	0.002 (0.0019)
Constant	10.5723*** (1.7395)	2.8115 (1.8704)	2.4909 (2.1378)	8.1142*** (2.6049)	-5.2509* (2.8593)	-2.7929 (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 (0.0742)	0.4447*** (0.1154)	0.4852*** (0.1371)	-0.3141* (0.1874)	-0.3757 (0.3200)	-1.3538*** (0.3963)
Percent Hispanic Students	-0.0082 (0.0616)	0.032 (0.0899)	0.1083 (0.0840)	0.4211** (0.2076)	0.2383 (0.3021)	0.1217 (0.2870)
Percent Black Faculty	0.6814*** (0.1137)	0.5196*** (0.1831)	-0.6764 (0.4258)	-0.0997 (0.2237)	-0.9051* (0.5147)	0.3149 (0.8644)
Percent Hispanic Faculty	0.7241*** (0.1900)	0.8903** (0.4071)	0.2313 (0.2210)	0.9996*** (0.3333)	-0.2441 (0.6409)	-0.5206 (0.5616)
Faculty Salary	0.0284*** (0.0042)	0.0130*** (0.0030)	0.0162*** (0.0036)	0.0212** (0.0091)	0.0064 (0.0086)	0.0121 (0.0087)
Percent Full-Time Faculty	0.0397** (0.0163)	0.0231 (0.0267)	0.0821** (0.0411)	0.0657** (0.0279)	0.0499 (0.0471)	-0.0574 (0.0529)
Hispanic/White Grad Ratio	0.2321*** (0.0264)	0.4612*** (0.0412)	0.4249*** (0.1023)	0.1739*** (0.0105)	0.2971*** (0.0193)	0.2952*** (0.0240)
Open Admissions	-0.0878*** (0.0252)	-0.1653*** (0.0254)	-0.2313*** (0.0380)	0.0024 (0.0392)	0.0933** (0.0413)	-0.0341 (0.0657)
Tuition	0.0015* (0.0008)	0.0006 (0.0009)	0.0048*** (0.0013)	-0.0013 (0.0019)	0.0008 (0.0028)	-0.002 (0.0027)
Endowment	-0.0019 (0.0065)	0.007 (0.0048)	-0.0104** (0.0051)	0.0043 (0.0118)	0.0267** (0.0135)	-0.0111 (0.0112)
Pell	-0.2072*** (0.0556)	-0.3336*** (0.0769)	-0.2131** (0.0893)	0.1544 (0.0978)	-0.0628 (0.1547)	0.1126 (0.1644)
Graduates Debt	-0.0255 (0.0213)	-0.0226 (0.0257)	-0.1331*** (0.0340)	0.0372 (0.0534)	0.0433 (0.0563)	-0.0372 (0.0536)
Non-Graduates Debt	-0.0183 (0.0156)	-0.021 (0.0229)	-0.005 (0.0275)	-0.012 (0.0216)	-0.0909*** (0.0330)	-0.0519* (0.0293)
School Population	-0.0394*** (0.0081)	-0.0086 (0.0132)	0.0376** (0.0164)	0.0321 (0.0385)	-0.0269 (0.0611)	0.0134 (0.0572)
Year	-0.0082*** (0.0019)	-0.0043* (0.0022)	-0.0014 (0.0021)	-0.0099*** (0.0026)	-0.0008 (0.0038)	0.0018 (0.0038)
Constant	17.5276*** (3.7460)	9.1998** (4.3892)	4.072 (4.0261)	19.6149*** (5.1320)	2.3286 (7.4766)	-2.0692 (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 (0.0301)	-0.1453*** (0.0365)	-0.1141 (0.1042)	-0.1254 (0.0992)
Percent Hispanic Students	-0.4501*** (0.0917)	0.0297 (0.0237)	0.0927 (0.2345)	0.1448* (0.0740)
Percent Black Faculty	0.1048** (0.0457)	0.2245*** (0.0554)	-0.0081 (0.1406)	-0.0489 (0.1165)
Percent Hispanic Faculty	0.4193*** (0.1383)	0.0914 (0.0752)	0.5641** (0.2499)	-0.1373 (0.1156)
Faculty Salary	0.0038** (0.0017)	0.0052*** (0.0010)	-0.0031 (0.0052)	0.0029 (0.0029)
Percent Full-Time Faculty	0.0022 (0.0092)	0.0102 (0.0074)	0.0087 (0.0170)	-0.0039 (0.0131)
Black Grad Rate	0.2408*** (0.0168)	0.2595*** (0.0173)	0.0921*** (0.0169)	0.0714*** (0.0146)
White Grad Rate	0.5567*** (0.0272)	0.5590*** (0.0250)	0.3620*** (0.0387)	0.3083*** (0.0281)
Open Admissions	0.0012 (0.0094)	0.0082 (0.0070)	0.0276 (0.0232)	0.009 (0.0141)
Tuition	0.0011*** (0.0004)	0.0019*** (0.0004)	0.0003 (0.0011)	0.0015* (0.0008)
Endowment	0.0099*** (0.0019)	0.0073*** (0.0015)	-0.0031 (0.0057)	0.0022 (0.0052)
Pell	-0.0006 (0.0280)	0.0159 (0.0222)	0.1724*** (0.0579)	-0.0491 (0.0455)
Graduates Debt	-0.0318*** (0.0108)	-0.0217** (0.0089)	0.0041 (0.0305)	0.0227 (0.0184)
Non-Graduates Debt	0.0003 (0.0090)	0.0036 (0.0080)	0.0055 (0.0125)	-0.0248** (0.0100)
School Population	-0.0167*** (0.0024)	-0.0071*** (0.0020)	0.0133 (0.0204)	0.0380** (0.0149)
Year	-0.0014 (0.0009)	-0.0020*** (0.0007)	0.0004 (0.0015)	0.0023* (0.0013)
Constant	3.0683* (1.7764)	4.0604*** (1.4776)	-0.7388 (3.0162)	-4.6974* (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 (0.1004)	-0.1117 (0.0933)	-0.0562 (0.2421)	-0.1416 (0.2467)
Percent Hispanic Students	-1.1167*** (0.2262)	0.1918*** (0.0662)	0.0703 (0.5446)	0.2159 (0.1840)
Percent Black Faculty	0.4292*** (0.1653)	0.4275** (0.2128)	-0.3236 (0.3266)	-0.6752** (0.2894)
Percent Hispanic Faculty	0.44 (0.3198)	0.271 (0.1778)	1.2577** (0.5806)	-0.1943 (0.2869)
Faculty Salary	-0.003 (0.0043)	0.002 (0.0023)	-0.019 (0.0120)	0.0021 (0.0072)
Percent Full-Time Faculty	-0.0154 (0.0237)	0.0314* (0.0190)	0.0414 (0.0396)	-0.0222 (0.0326)
Black/White Grad Ratio	0.3805*** (0.0333)	0.3456*** (0.0342)	0.3353*** (0.0183)	0.2872*** (0.0171)
Open Admissions	0.0573* (0.0312)	0.0818*** (0.0228)	0.0479 (0.0539)	0.0495 (0.0351)
Tuition	0.0004 (0.0009)	0.0016** (0.0008)	0.0027 (0.0026)	0.0018 (0.0020)
Endowment	0.0034 (0.0050)	0.0038 (0.0036)	-0.019 (0.0133)	0.0043 (0.0129)
Pell	0.1229* (0.0744)	0.0272 (0.0593)	0.2125 (0.1345)	0.0305 (0.1132)
Graduates Debt	-0.0288 (0.0276)	0.0232 (0.0234)	0.022 (0.0710)	0.0974** (0.0458)
Non-Graduates Debt	-0.0086 (0.0203)	-0.025 (0.0169)	0.0183 (0.0290)	-0.0679*** (0.0248)
School Population	-0.0214*** (0.0056)	-0.0086* (0.0046)	0.0069 (0.0473)	-0.0166 (0.0370)
Year	0.0006 (0.0020)	-0.0040** (0.0017)	-0.0004 (0.0035)	-0.0009 (0.0033)
Constant	-0.0484 (3.9746)	8.4712** (3.3653)	1.3174 (6.9732)	2.22 (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*** (0.0893)	0.1611*** (0.0250)	-0.3176 (0.2392)	-0.0672 (0.0577)
Percent Hispanic Students	0.0062 (0.0340)	0.0179 (0.0273)	0.3468*** (0.1182)	0.1419 (0.0890)
Percent Black Faculty	0.5466*** (0.1038)	-0.0049 (0.0307)	-0.1175 (0.2006)	0.063 (0.0758)
Percent Hispanic Faculty	0.2672** (0.1191)	0.2461*** (0.0772)	0.4394** (0.1821)	0.1986 (0.1515)
Faculty Salary	0.0120*** (0.0014)	0.0128*** (0.0017)	0.0087** (0.0039)	0.0064* (0.0038)
Percent Full-Time Faculty	0.0214** (0.0097)	0.0095 (0.0075)	0.0276* (0.0166)	0.0222* (0.0115)
Hispanic Grad Rate	0.2381*** (0.0201)	0.2118*** (0.0158)	0.0666*** (0.0151)	0.0841*** (0.0110)
White Grad Rate	0.6328*** (0.0275)	0.4884*** (0.0271)	0.5199*** (0.0434)	0.1650*** (0.0228)
Open Admissions	-0.0306*** (0.0101)	-0.0482*** (0.0078)	-0.0248 (0.0251)	-0.0085 (0.0127)
Tuition	0.0009** (0.0004)	0.0003 (0.0004)	-0.0005 (0.0011)	-0.0004 (0.0008)
Endowment	0.0035* (0.0019)	0.0052*** (0.0017)	0.0029 (0.0061)	0.003 (0.0036)
Pell	-0.0759*** (0.0280)	-0.0810*** (0.0239)	0.0874 (0.0637)	0.0590* (0.0348)
Graduates Debt	-0.0559*** (0.0100)	-0.0006 (0.0101)	-0.0298 (0.0277)	0.0099 (0.0186)
Non-Graduates Debt	-0.0137 (0.0084)	-0.0226** (0.0102)	-0.0057 (0.0110)	0.0011 (0.0102)
School Population	-0.0178*** (0.0023)	0.0024 (0.0026)	-0.0012 (0.0232)	0.0293** (0.0131)
Year	-0.0035*** (0.0008)	-0.0019** (0.0009)	-0.0029** (0.0014)	-0.001 (0.0011)
Constant	7.7586*** (1.6568)	3.7437** (1.7669)	6.0743** (2.8702)	1.815 (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*** (0.1980)	0.4332*** (0.0838)	-0.4202 (0.4199)	-0.1825 (0.1746)
Percent Hispanic Students	0.0699 (0.0654)	0.0902 (0.0695)	0.5544*** (0.2074)	0.2128 (0.2695)
Percent Black Faculty	0.9463*** (0.2736)	0.3253*** (0.1162)	0.0141 (0.3528)	-0.062 (0.2293)
Percent Hispanic Faculty	0.5390*** (0.2053)	0.6176*** (0.2272)	0.8649*** (0.3202)	0.5979 (0.4584)
Faculty Salary	0.0210*** (0.0034)	0.0230*** (0.0040)	0.0154** (0.0069)	0.0184 (0.0116)
Percent Full-Time Faculty	0.0396** (0.0190)	0.0244 (0.0184)	0.0416 (0.0293)	0.0564 (0.0348)
Hispanic/White Grad Ratio	0.2958*** (0.0507)	0.2553*** (0.0261)	0.0923*** (0.0140)	0.2604*** (0.0111)
Open Admissions	-0.1034*** (0.0270)	-0.1550*** (0.0224)	-0.0633 (0.0442)	0.045 (0.0384)
Tuition	0.0011 (0.0008)	0.001 (0.0010)	-0.0011 (0.0019)	-0.0012 (0.0023)
Endowment	-0.0008 (0.0070)	0.0063 (0.0041)	0.0086 (0.0107)	0.0139 (0.0108)
Pell	-0.2262*** (0.0581)	-0.1859*** (0.0703)	0.2037* (0.1119)	0.1285 (0.1055)
Graduates Debt	-0.0542*** (0.0201)	-0.003 (0.0248)	-0.0328 (0.0486)	0.0992* (0.0562)
Non-Graduates Debt	-0.0118 (0.0143)	-0.0309 (0.0240)	-0.0097 (0.0193)	-0.0434 (0.0310)
School Population	-0.0291*** (0.0040)	0.0043 (0.0056)	-0.0173 (0.0407)	0.0628 (0.0396)
Year	-0.0061*** (0.0017)	-0.0057** (0.0023)	-0.0073*** (0.0025)	-0.0070** (0.0034)
Constant	13.5953*** (3.3290)	11.8093*** (4.5131)	15.4833*** (5.0026)	12.9651** (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

