School Integration and the Open Door Philosophy:
Rethinking the Economic and Racial Composition of Community Colleges

SARA GOLDRICK-RAB and PETER KINSLEY

There is longstanding and widespread interest in the relationship between the student composition of American schools and the outcomes they achieve, traceable to the famous finding of the Coleman Report that "the social composition of the student body is more highly related to achievement, independent of the student's own social background, than is any school factor."[1] African American and low-income students in particular appear to benefit academically from attending more-integrated schools.[2] While reasons for the seemingly positive influence of integration continue to be debated, segregation is nevertheless generally considered unacceptable in primary and secondary schooling, even as social class and race continues to segregate schools' surrounding neighborhoods.[3] Opportunities for learning, peer cultures, teacher quality and attitudes are all demonstrably constrained when students are confined to different spaces according to their family and cultural backgrounds. Thus, while the politics of desegregation are entrenched, efforts to decouple the composition of neighborhoods from the composition of schools continue, many decades after *Brown v. Board of Education*.[4]

The situation in postsecondary education is quite different. When it comes to the composition of colleges and universities, far less attention is paid to whether school-level integration by social class or race is *achieved*; rather the common focus is on *opportunity* for participation. In other words, the emphasis is typically placed on whether students from different backgrounds face similar chances of admission to institutions of higher education, rather than whether they experience and benefit from integrated learning environments once enrolled. This is likely partly attributable to societal norms treating K–12 schooling as a right and college as a privilege. It is also due to the widely accepted process of selective admissions shaping the college prospects of about one-fourth of American undergraduates.[5] But even at community colleges led with an "open door" philosophy, accessible by everyone in the neighborhood or district (irrespective, even, of high school graduation status), assessments of integration are rarely conducted.[6] Instead, the friendlier term "diversity" is used as a term of assessment, drawing attention to how *many* minority and/or low-income students are represented, rather than to the *relative* representation of groups strongly denoted by the term *integration*.[7]

If we accept the lessons from K–12 education that an integrated student body is preferable to a segregated student body when it comes to opportunities for learning, then we must confront the fact that *most of the nation's colleges and universities are highly segregated*.[8] Many states have perpetuated what expert Clifton Conrad calls "dual and unequal systems" of public higher education, in which historically black colleges and universities (HBCUs) remain under-resourced and threatened when compared with historically white colleges and universities.[9] Academic analyses of this problem tend to focus on the four-year sector, perhaps because access to the baccalaureate is a critical point for upward social mobility.[10] But the fact remains that in many parts of the United States, community colleges often enroll more Pell-eligible students and racial/ethnic minorities than many elite universities put together. For this, community colleges are typically praised for their diversity while elite universities are derided for a lack of diversity. Yet, in both cases, while the causes differ, *segregation* defines their student composition and corresponding opportunities for learning. The contribution of selective admissions policies and the use of test scores in creating this segregation is the subject of many other papers; in this one, we consider the dynamics of segregation among community colleges, where doors are wide open.

We focus on community colleges since they are the most affordable and accessible starting point in higher education, and thus the most

common place for first-generation and racial/ethnic minority students to enter the postsecondary arena.[11] The research evidence pointing to the benefits of integration suggests that these are precisely the kinds of students who *most benefit* from participation in inclusive environments.[12] Growing up in segregated neighborhoods, children from disadvantaged backgrounds seem to excel when placed into K–12 schooling with children from more-advantaged backgrounds, and given that community college education is often essentially a continuation of K–12 schooling there is little reason to expect the effects would be differ in that setting. The problem is that the challenges facing K–12 schools in achieving integration are also faced by community colleges, but policymakers do far less to ensure that integration occurs. As inherently neighborhood institutions, community colleges are mission-driven to serve and represent their geographic regions. They fulfill this task: *we find that more than three-quarters of the variation in racial composition among community colleges is directly attributable to the racial composition of their surrounding geographic locales.* Given this tight relationship between housing and school integration, until neighborhoods are integrated, most community colleges will not be, absent affirmative steps.[13]

In this paper we document the extent of segregation in the nation's community colleges, and consider its relationship to neighborhood segregation. We further compare the organizational and institutional characteristics of community colleges enrolling segregated versus integrated student bodies, documenting many of the same sorts of resource disparities in the postsecondary setting that are well-documented in K–12. Then, we turn to lessons from analyses of documents written by community colleges (for the Aspen Prize for Community College Excellence) and interviews we conducted with community colleges that are more integrated than their surrounding counties would anticipate. Our results suggest that some communities are taking actions to diversify four-year institutions, steps that have the side effect of also better integrating community colleges. While recruiting more low-income and racial/ethnic minority high school graduates for four-year institutions rather than community colleges might reduce overall community college enrollment (desirable in some states due to crowding), it also effectively balances out the representation of students in both two-year and four-year settings, driving down the representation of poor and minority students at community colleges and increasing their representation at four-year public institutions. While such a strategy is not without substantial cost (for example, more financial aid is needed to finance a four-year

education) and difficulty (for example, students must gain admission to four-year institutions), as well as other challenges (such as the geographic availability of four-year opportunities), it may result in more integrated and thus seemingly preferable learning environments in both spaces. Reforms in high schools, such as those aimed at improving the academic match between students and colleges, would seem likely to propel further moves in this direction.[14]

RESEARCH QUESTIONS

In order to consider the relationship between integration and the open-door policies of American community colleges, we ask the following questions: (1) What proportion of community colleges is economically and/or racially diverse? (2) How do the organizational characteristics of integrated community colleges compare to those that are segregated? (3) How well does geographic racial/ethnic and social class composition predict student body composition on those dimensions in community colleges? (4) How do the actual and expected student body composition (based on geography) at community colleges compare? How many community colleges appear out of sync with their geographic regions in a direction leaning toward more integration rather than segregation? (5) What factors seem to contribute to the ability of community colleges to achieve more integrated student bodies than expected?

METHODOLOGY

We examine these questions with national community college institutional data from the National Center for Education Statistics' 2010 Integrated Postsecondary Education Data System (IPEDS), merged with county-level data from the U.S. Census Bureau's 2010 American Community Survey. In addition, we supplement the analysis for the fifth question with data on a subset of community colleges from around the nation assembled by the Aspen Institute for its annual Prize for Community College Excellence competition, and a set of informal interviews conducted with institutions identified as outliers in the analysis for question four.[15] IPEDS data are limited for community colleges because IPEDS misses many students, but we use these data in the absence of anything better.

Addressing the first two research questions requires enumerating the number and characteristics of community colleges at various levels of

economic and racial integration nationally, and then comparing college characteristics across these levels. Next, we address research question three by using OLS regression models to consider whether it is possible to explain levels of compositional diversity solely utilizing observable geographic characteristics of the communities in which the institutions are located.[16] These analyses provide some insight into the potential for community colleges to alter existing levels of segregation as a matter of institutional policy.

We then use the geographic models to predict the level of expected integration for each college, which we compare to the actual level of integration at the college. We subsequently sort community colleges into categories based on whether they are more or less integrated than expected. Setting aside any normative or value judgments, we consider whether greater integration seems to be achieved through an overrepresentation of advantaged (that is, middle income and/or white) students, an overrepresentation of disadvantaged students, or an underrepresentation of disadvantaged students. In each case, representation is a relative term, and comparisons are made to communities. Finally, we leverage qualitative data from the Aspen Prize applications along with data from informal interviews conducted with specific "outlier" colleges to examine how these colleges seem to differ from the others in terms of how they define student success, use data, construct policies and practices, and create diversity.[17]

DEFINING INTEGRATION

For many decades, policymakers, lawyers, practitioners, educators, and parents have fought over what constitutes an "integrated" school. While many can agree that integration implies a "balance" of some kind, the inherent relativity of the term and its political connotations make it hard to arrive at a clear and uncontroversial definition. Yet definitions are critical for the creation of comparisons, and thus we undertake them here in the spirit of knowingly quantifying the possibly unquantifiable— for pragmatic reasons, if nothing else.

A college's level of economic integration is based on the proportion of first-time, full-time, degree-seeking students receiving a Pell Grant. This is the best available measure and yet is a highly flawed proxy for low-income representation at an institution because it is affected by Free Application for Federal Student Aid (FAFSA) completion rates, inconsistent methods used by community colleges to determine first-time and

degree-seeking students, and the fact that only a fraction of community college students enroll full-time.[18] More straightforward is a college's level of racial integration which we base on the proportion of racial or ethnic minority students in the entire student body.[19]

A simple assessment of integration using the *average* characteristics of all community colleges suggests that 52 percent of their students receive Pell, and 33 percent are racial/ethnic minorities (Table 1). However, these averages conceal considerable meaningful variation *among* institutions. To describe that range and how it relates to segregation and integration, we examined prior studies in K–12 education and higher education to determine cut-points that could be used to determine whether a given level of racial and low-income enrollment could be said to be effectively segregated or integrated. Unfortunately, we found little guidance in the higher education literature, which has traditionally approached the issue of college racial profile through comparisons of historically black institutions (HBI) and predominately white institutions (PWI)—essentially, whether or not a college includes majority non-Hispanic white students. Studies of racial integration in K–12, on the other hand, typically examine the equitable distribution of minority populations within school districts—an approach with limited applicability to community colleges due to their more sparse geographic distribution and fundamentally different governance structures. After trying several strategies for breaking down the school-level proportions into groups, including various cut points relative to the national means of our measures, we settled on a relatively straightforward approach: dividing the national distributions of proportion Pell and minority enrollment into quartiles. In the end, we feel that this approach does the best job of balancing statistical power, face validity, and ease of data interpretation. It also offers the benefit of remaining grounded in how community colleges actually perform regarding their enrollment of minority and low-income students while also allowing for more subjective judgments of integration at the national level.

Using this approach, the data suggest that about *half of the nation's community colleges are economically integrated,* with the representation of Pell recipients at those colleges ranging between 47 percent and 58 percent (Table 1, quartiles 2 and 3). One-fourth of community colleges are economically elite (in relative terms), with advantaged students (those not receiving Pell) constituting 68 percent of the student body. Fully 25 percent of community colleges are predominantly poor, with nearly three in four students receiving the Pell Grant.

TABLE 1
Community College Characteristics by Proportion Pell Receipt Among First-Time, Full-Time Students

	Total		Quartile 1		Quartile 2		Quartile 3		Quartile 4		Comparison	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F-value	Sig.
N	(966)		(250)		(257)		(237)		(222)			
Enrollment Composition (%)												
Total enrollment	7461.96	7401.38	10584.37	8650.14	7973.22	7887.03	6180.47	5801.61	4721.92	5124.35	30.28	***
Pell (first-time, full-time)	51.89	15.85	32.06	7.39	47.36	3.09	57.93	3.22	73.02	7.57	2176.00	***
Minority (±)	32.53	22.67	30.17	15.91	28.80	19.46	28.41	21.63	43.93	29.13	26.52	***
Female	58.08	7.47	55.79	6.34	56.63	8.32	58.68	6.26	61.69	7.38	31.57	***
Full-time	45.31	14.02	40.27	12.65	43.84	13.49	47.09	13.48	50.77	14.43	26.10	***
Full-time, first-time degree seeking	12.77	7.17	10.95	7.17	12.58	7.49	13.49	6.23	14.28	7.33	9.73	***
Cost of Attendance ($)												
Total cost of attendance	15116.15	3178.21	15906.98	3183.11	15076.48	3261.27	15016.52	2669.81	14387.42	3395.46	9.12	***
Instructional Offerings (%)												
Occupational	97.31	16.19	98.00	14.03	98.05	13.84	97.05	16.97	95.95	19.77	0.88	
Academic	96.58	18.17	99.20	8.93	97.28	16.31	98.31	12.91	90.99	28.70	9.84	***
Distance learning	98.03	13.89	97.60	15.34	98.44	12.40	100.00	0.00	95.95	19.77	3.44	**
Weekend/evening programs	61.80	48.61	66.80	47.19	59.92	49.10	59.92	49.11	60.36	49.03	1.19	
Remedial services	99.48	7.18	99.20	8.93	99.61	6.24	100.00	0.00	99.10	9.47	0.78	

(continued)

TABLE 1

Community College Characteristics by Proportion Pell Receipt Among First-Time, Full-Time Students (continued)

	Total		Quartile 1		Quartile 2		Quartile 3		Quartile 4		Comparison	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F-value	Sig.
Student Services (%)												
Academic/career counseling	99.79	4.55	100.00	0.00	100.00	0.00	99.58	6.50	99.55	6.71	0.74	
Student employment assistance	92.24	26.77	94.80	22.25	94.94	21.96	90.72	29.08	87.84	32.76	3.93	**
On-campus day care	51.86	49.99	64.40	47.98	55.25	49.82	46.84	50.01	39.19	48.93	11.56	***
On-campus housing	23.29	42.29	15.20	35.97	25.29	43.55	31.65	46.61	21.17	40.94	6.62	***
Meal plan	20.08	40.08	13.20	33.92	22.18	41.63	26.58	44.27	18.47	38.89	4.95	***
Financial Aid Receipt (first-time, full-time students)												
Average pell amount	4266.79	513.58	4134.56	543.25	4168.59	417.18	4342.29	478.12	4448.76	550.59	20.87	***
Percent receiving federal loans	23.56	21.40	15.88	15.68	27.45	21.36	29.76	21.86	21.10	23.50	22.60	***
Average amount of federal loan	4428.73	1202.51	4295.25	1048.45	4483.56	1175.45	4621.29	1192.16	4279.59	1434.70	3.61	**
Staffing												
Student-to-faculty ratio	21.39	6.60	22.05	6.50	21.47	7.26	21.24	5.49	20.68	6.95	1.74	
Student to administrative/ managerial ratio	234.13	231.78	253.92	207.32	243.13	233.67	215.90	175.91	220.90	297.98	1.47	
Student to support staff ratio	186.67	671.32	348.12	1193.37	186.43	483.30	121.28	274.27	82.01	94.90	7.26	***
Average nine-month instructional staff salary ($)	57021.55	14048.71	65346.51	15460.31	57243.54	12684.75	54015.52	12234.19	50599.76	10795.43	56.75	***
All staff percent minority (‡)	27.31	21.16	29.16	19.19	23.62	19.46	22.23	17.43	34.60	26.71	6.28	***

Instructional staff percent minority (‡)	23.74	20.33	25.98	20.13	20.19	17.03	19.31	16.83	29.59	25.52	5.12	***
Revenues												
Core revenues ($ million)	53.70	50.25	72.71	58.89	56.43	50.89	45.18	39.02	38.24	41.95	22.90	***
Revenues from tuition and fees per FTE ($)	1939.45	1191.31	2146.09	1331.70	2130.18	1169.92	1876.68	1007.82	1552.69	1132.21	13.20	***
Tuition and fees as percent of core revenues	16.92	10.13	19.07	11.74	18.18	9.22	16.92	8.97	13.05	9.30	16.67	***
Revenues from state appropriations per FTE ($)	3217.80	1949.61	3093.63	2205.12	3234.98	1815.43	3127.03	1665.99	3434.63	2065.32	1.43	
State appropriations as percent of core revenues	27.57	13.10	26.65	14.33	27.82	12.92	27.19	11.88	28.74	13.09	1.10	
Revenues from local appropriations per FTE ($)	1649.12	3264.91	2305.86	2526.97	2039.04	5174.98	1292.14	2157.03	836.96	1347.50	10.37	***
Local appropriations as percent of core revenues	12.95	15.65	19.96	18.54	13.90	15.61	10.11	13.17	6.97	10.64	33.42	***
Expenditures												
Core expenses ($ million)	48.77	46.01	66.37	54.44	51.31	45.74	40.31	34.52	35.03	39.79	23.23	***
Instruction expenses per FTE ($)	4763.31	2020.16	4891.47	2010.06	5020.94	2631.74	4465.30	1528.80	4637.55	1592.00	3.76	**
Instruction expenses as a percent of total core	44.56	8.80	46.72	8.77	45.63	9.22	43.46	7.43	42.08	8.95	13.93	***
Academic support expenses per FTE ($)	955.47	839.29	1002.10	652.58	1010.32	1198.88	851.66	518.08	949.83	790.54	1.83	
Academic support expenses as percent of total	8.74	4.55	9.58	5.06	8.81	4.37	8.22	3.96	8.27	4.64	4.74	***

TABLE 1
Community College Characteristics by Proportion Pell Receipt Among First-Time, Full-Time Students (*continued*)

	Total		Quartile 1		Quartile 2		Quartile 3		Quartile 4		Comparison	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*F-value*	*Sig.*
Student support expenses per FTE ($)	1221.84	918.00	1156.41	596.68	1289.05	1134.62	1168.28	856.39	1274.64	993.85	1.40	
Student support expenses as percent of total core	11.10	5.20	10.90	3.62	11.22	4.83	11.23	6.45	11.05	5.62	0.22	
Institutional support expenses per FTE ($)	1776.52	1317.07	1875.22	1316.41	1783.48	1669.03	1640.11	969.61	1802.35	1164.49	1.34	
Institutional support expenses as percent of core	15.84	6.04	16.90	6.95	15.43	5.25	15.48	6.11	15.50	5.61	3.48	**

Notes: Q1 = 0–41 percent Pell receipt; Q2 = 42–52 percent Pell receipt; Q3 = 53–63 percent Pell receipt; Q4 = 64–100 percent Pell receipt. One-way ANOVA test for mean differences; **.05; ***.01.

‡ n=374

± Students of unknown race removed from total enrollment when calculating minority percentages

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 2010.

The story with regard to race/ethnicity is even more troubling. Just *25 percent of community colleges approach racial integration*, with the representation of racial/ethnic minorities averaging 36.5 percent (Table 2, quartile 3). Another quarter of all community colleges are comprised of predominantly white students, with minorities constituting just 8 percent of the student body. Another 25 percent are predominantly minority, where 65 percent of students at the colleges are racial/ethnic minorities.[20] The remaining quarter is in-between—not integrated, yet not strongly segregated either.

CHARACTERISTICS OF INTEGRATED COMMUNITY COLLEGES

How do integrated and segregated community colleges differ from one another? Tables 1 and 2 present the relevant comparisons, and we first focus primarily on the differences between quartiles 2 and 3 versus 1 and 4 with regard to economic integration (Table 1), and then quartile 3 versus all others with regard to racial integration (Table 2).[21]

More economically and racially integrated institutions tend to be of moderate size—between 6,000 and 9,000 students—while predominantly poor institutions are smaller, and predominantly minority institutions are notably larger (and urban).

It is fairly uncommon for community colleges to be compositionally integrated on multiple dimensions. Apart from those with the most affluent student bodies, community colleges exhibit racial integration at levels close to the national average (about one-third minority enrollment). Similarly, only community colleges with the highest proportions of minority students (quartile 4) have rates of Pell receipt notably higher than the national average (about one-half Pell enrollment). Economically and/or racially integrated institutions are also somewhat more integrated in terms of gender when compared to institutions with the highest proportions of minority or low-income students (this means they have a smaller fraction of women, who tend to dominate colleges and universities).

Economically integrated community colleges tend to have more full-time students compared to institutions enrolling more economically advantaged students. They are also more likely to have academic offerings, offer student employment assistance, on-campus childcare, and/or on-campus housing and meals plans, compared to institutions that are segregated because of an overrepresentation of Pell recipients.

TABLE 2
National Community College Characteristics by Proportion Racial Minority/Hispanic Enrollment

	Total		Quartile 1		Quartile 2		Quartile 3		Quartile 4		Comparison	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F-value	Sig.
N	(966)		(242)		(241)		(242)		(241)			
Enrollment Composition (%)												
Total enrollment	7461.96	7401.38	4144.74	2983.30	7345.12	5997.95	8743.52	8805.39	9622.88	8946.40	27.60	***
Pell (first-time, full-time)	51.89	15.85	54.13	12.20	45.75	13.60	48.47	16.53	59.21	17.12	38.62	***
Minority	32.53	22.67	8.38	3.45	20.71	4.21	36.52	5.19	64.62	15.20	1982.44	***
Female	58.08	7.47	57.43	7.56	57.44	6.97	57.97	7.26	59.48	7.91	4.09	***
Full-time	45.31	14.02	49.52	12.71	45.77	12.68	44.00	13.52	41.93	15.88	13.23	***
Full-time, first-time degree seeking	12.77	7.17	14.64	6.86	13.18	7.33	12.27	7.20	10.99	6.82	11.47	***
Cost of Attendance ($)												
Total cost of attendance	15116.15	3178.21	14773.29	3339.25	15050.09	3275.21	15346.85	3136.74	15288.19	2940.88	1.60	
Instructional Offerings (%)												
Occupational	97.31	16.19	97.93	14.25	99.17	9.09	96.28	18.96	95.85	19.98	2.17	
Academic	96.58	18.17	99.59	6.43	97.51	15.61	94.63	22.59	94.61	22.64	4.34	***
Distance learning	98.03	13.89	99.17	9.07	97.93	14.28	98.35	12.78	96.68	17.95	1.35	
Weekend/evening programs	61.80	48.61	59.09	49.27	60.58	48.97	57.02	49.61	70.54	45.68	3.71	**
Remedial services	99.48	7.18	99.59	6.43	99.59	6.44	99.59	6.43	99.17	9.09	0.20	

Student Services (%)												
Academic/career counseling	99.79	4.55	100.00	0.00	99.59	6.44	99.59	6.43	100.00	0.00	0.67	
Student employment assistance	92.24	26.77	92.15	26.95	94.61	22.64	91.32	28.21	90.87	28.86	0.93	
On-campus day care	51.86	49.99	43.80	49.72	56.43	49.69	46.69	49.99	60.58	48.97	6.17	***
On-campus housing	23.29	42.29	29.34	45.63	27.80	44.89	21.49	41.16	14.52	35.31	6.26	***
Meal plan	20.08	40.08	24.79	43.27	24.07	42.84	18.60	38.99	12.86	33.55	4.68	***
Financial Aid Receipt (first-time, full-time students)												
Average pell amount	4266.79	513.58	4196.60	468.41	4178.40	530.39	4329.50	525.75	4362.67	505.33	8.06	***
Percent receiving federal loans	23.56	21.40	37.96	21.45	27.43	20.77	18.33	18.21	10.49	13.82	95.80	***
Average amount of federal loan	4428.73	1202.51	4473.26	1194.42	4491.79	1100.52	4400.86	1228.66	4324.05	1302.32	0.77	
Staffing												
Student-to-faculty ratio	21.39	6.60	19.25	5.35	20.73	4.90	21.84	5.71	23.73	8.89	21.00	***
Student to administrative/managerial ratio	234.13	231.78	206.87	219.45	208.96	180.67	244.30	196.56	276.49	304.72	4.96	***
Student to support staff ratio	186.67	671.32	84.63	112.61	123.28	282.04	245.72	1033.96	294.00	786.15	5.22	***
Average nine-month instructional staff salary ($)	57021.55	14048.71	52843.04	8660.73	57382.04	12415.76	57333.12	15674.54	60526.71	16934.64	12.64	***
All staff percent minority (‡)	27.31	21.16	10.14	14.43	16.43	15.77	25.30	12.32	49.06	16.88	124.12	***
Instructional staff percent minority (‡)	23.74	20.33	11.01	18.47	14.83	16.25	21.25	13.28	41.49	17.94	66.14	***

TABLE 2
National Community College Characteristics by Proportion Racial Minority/Hispanic Enrollment (*continued*)

	Total (n = 983)		Quartile 1		Quartile 2		Quartile 3		Quartile 4		Comparison	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F-value	Sig.
Revenues												
Core revenues ($ million)	53.70	50.25	32.28	21.39	54.14	42.80	61.14	59.65	67.32	59.88	23.92	***
Revenues from tuition and fees per FTE ($)	1939.45	1191.31	2354.24	1264.31	2319.44	1216.46	1743.48	978.27	1341.46	972.47	45.98	***
Tuition and fees as percent of core revenues	16.92	10.13	19.74	9.78	20.54	10.62	16.10	9.42	11.30	7.83	47.78	***
Revenues from state appropriations per FTE ($)	3217.80	1949.61	3311.88	1721.56	3076.44	1942.54	3289.64	2073.53	3192.23	2044.34	0.73	
State appropriations as percent of core revenues	27.57	13.10	27.43	11.48	26.02	13.15	28.95	13.08	27.88	14.43	2.08	
Revenues from local appropriations per FTE ($)	1649.12	3264.91	1485.53	2572.31	1719.68	2471.12	1586.64	2115.89	1805.84	5057.69	0.45	
Local appropriations as percent of core revenues	12.95	15.65	10.64	14.80	13.74	16.40	13.50	16.53	13.91	14.62	2.37	
Expenditures												
Core expenses ($ million)	48.77	46.01	29.55	19.96	48.79	38.44	55.65	54.77	61.15	55.20	23.20	***
Instruction expenses per FTE ($)	4763.31	2020.16	4988.51	1909.22	4843.49	1610.90	4597.43	1665.64	4624.49	2694.75	2.05	
Instruction expenses as a percent of total core	44.56	8.80	44.72	9.09	46.24	8.49	45.69	8.20	41.60	8.72	13.92	***

Academic support expenses per FTE ($)	955.47	839.29	928.50	595.07	955.79	582.01	862.97	484.15	1075.00	1370.19	2.71 **
Academic support expenses as percent of total	8.74	4.55	8.40	4.69	9.10	4.68	8.60	3.97	8.86	4.83	1.10
Student support expenses per FTE ($)	1221.84	918.00	1182.77	730.92	1232.72	722.57	1109.25	719.66	1363.07	1331.93	3.29 ***
Student support expenses as percent of total core	11.10	5.20	10.67	5.92	11.40	4.57	10.72	4.35	11.63	5.72	2.10
Institutional support expenses per FTE ($)	1776.52	1317.07	1911.29	1140.29	1707.06	868.59	1621.14	947.21	1867.24	1989.04	2.58
Institutional support expenses as percent of core	15.84	6.04	16.77	7.34	15.90	5.04	15.66	5.58	15.02	5.87	3.49 **

Notes: Minority includes: African American, Hispanic, Native American, Pacific Islander, Mixed Race/Ethnicity. Students of unknown race removed from total when calculating minority quartiles. Q1 = 2–14 percent minority; Q2 = 14–28 percent minority; Q3 = 28–46 percent minority; Q4: 46–100 percent minority. One-way ANOVA test for mean differences; ** .05; *** .01.

‡ n=374

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 2010.

However, in other regards, economically integrated community colleges appear to have fewer resources than predominantly poor institutions—for example, their student-to-support staff ratios are notably higher. On the other hand, they tend to have higher staff salaries and more core revenue, especially from local appropriations (though much lower than at institutions with fewer Pell recipients).

Compared to predominantly minority serving community colleges, racially integrated community colleges (Table 2, quartiles 4 versus 3) have higher percentages of full-time, first-time degree-seeking students, are more likely to offer on-campus housing and meal plans, and are less likely to offer on-campus daycare. Far more of their students have federal loans. There are far fewer students per faculty member, administrative, and support staff, but the average staff salary is lower. They have fewer external sources of revenue and rely more on tuition. They have fewer expenses and devote a larger fraction of the core budget to instruction.

Compared to predominantly white institutions (quartiles 1 versus 3), racially integrated colleges have fewer full-time students, are less likely to have academic offerings, are more likely to offer daycare but less likely to offer on-campus housing and meal plans, and have far fewer resources per student. In other words, the more minority students a college enrolls, the fewer organizational advantages it enjoys.

Turning next to comparisons among segregated institutions, we find sharp differences between those that are heavily affluent and/or non-Hispanic white, compared to those that enroll predominantly poor and/or racial-ethnic minority students. Community colleges serving overwhelmingly minority populations are much larger than those serving largely non-Hispanic white students (average total enrollment of 9,623 versus 4,145). Compared to staff at predominantly white institutions, staff members at predominately minority institutions—particularly instructional staff—are far more likely to be from minority backgrounds themselves.[22] Community colleges with a high proportion of minority students also have much higher ratios of students to faculty, staff, and administrators. For example, there are on average 85 students per support staff member at predominantly white community colleges, compared with 294 students per support staff member at predominantly minority community colleges. However, the opposite is true when it comes to economic segregation: institutions that are wealthier, with fewer Pell recipients, have much larger student-to-staff ratios, compared to those with very high percentages of Pell recipients.

Even though predominately minority institutions are larger and thus generate more revenue, the amount of per-FTE revenue from tuition and fees generated at predominately white institutions is nearly double that of the revenue generated per FTE at minority-serving community colleges. Moreover, institutions serving wealthier students gain far more money from local appropriations than those serving large proportions of Pell recipients, which is unsurprising given the relative wealth of their communities. That said, the data available suggest that both types of institutions allocate their revenue in similar ways.

GEOGRAPHIC INTEGRATION AND COMMUNITY COLLEGE INTEGRATION: TIGHTLY LINKED

To what degree does the level of integration or segregation at community colleges reflect geographic constraints? In other words, given that theory and research suggests advantages to educating students in more integrated settings, it is useful to consider what generates such integration.

To examine this, we model the relationships between county-level measures of population composition and measures of community college student composition. The analytic strategy utilizes multivariate regression models with ordinary least squares as the estimator. To adjust for unobserved factors at the state level such as policies that may influence the practices of all community colleges in the state regarding enrollment of minority and/or low-income students, we run all of our models using state fixed effects. To aid in interpretation of our results we report the standardized coefficient for each of our predictors—interpreted as the expected standard deviation change in the outcome resulting from a standard deviation increase in the predictor—which allows for a direct comparison of effect sizes across all variables in the model.

Table 3 presents the results of two models in which we estimate the proportion of first-time, full-time Pell enrollment at community colleges, first using county-level measures of integration, and then controlling for urbanicity and a select group of institutional characteristics—cost, size, and HBCU or Native American tribal affiliation. The results indicate that more than half (56 percent) of the variation in the representation of Pell recipients among community colleges is attributable to this limited set of factors. In fact, most of the variation in community colleges' economic composition can be predicted based solely on knowing the percent of low-income, minority, and female adults in their counties, along with the unemployment rate.

TABLE 3
OLS Regression Models Predicting Proportion
First-Time, Full-Time Pell Enrollment

	Model 1			Model 2		
	Beta	R.S.E.	Sig.	Beta	R.S.E.	Sig.
County-Level						
Percent low-income	0.512	0.038	***	0.459	0.043	***
Percent minority	−0.003	0.038		−0.022	0.043	
Percent female	0.005	0.034		0.029	0.031	
Unemployment rate	0.107	0.039	***	0.107	0.035	***
Urbanicity						
Rural-serving medium area				−0.158	0.085	
Rural-serving large area				−0.291	0.104	***
Suburban				−0.335	0.107	***
Urban				0.056	0.118	
Institution-Level						
Total cost of attendance				0.018	0.032	
Total enrollment				−0.098	0.031	***
HBCU or tribal affiliation				0.877	0.215	***
Constant	−0.690	0.084	***	−0.405	0.118	***
N	966			945		
R-Squared	0.507			0.562		

Notes: Standardized coefficients; robust standard errors; state fixed effects to adjust for state-level unobservable factors. Rural-serving small area is urbanicity reference.
   .05; *.01

Geography plays an even stronger role with regard to the racial composition of community colleges. Table 4 shows that fully 81 percent of variation in racial composition among students at community colleges is predicted by the percent of low-income, minority, and female adults in their surrounding counties, coupled with the unemployment rate. Knowing some additional institutional information helps explain the variation in composition a bit more, but it is clear that the degree to which racial/ethnic minority students are represented at community colleges depends

TABLE 4
OLS Regression Models Predicting Proportion Minority Enrollment

	Model 1			Model 2		
	Beta	R.S.E.	Sig.	Beta	R.S.E.	Sig.
County-Level						
Percent low-income	−0.088	0.026	***	−0.089	0.027	***
Percent minority	0.903	0.027	***	0.830	0.028	***
Percent female	−0.020	0.022		0.005	0.018	
Unemployment rate	0.019	0.025		0.010	0.024	
Urbanicity						
Rural-serving medium area				−0.087	0.044	**
Rural-serving large area				−0.108	0.055	
Suburban				−0.056	0.061	
Urban				0.121	0.069	
Institution-Level						
Total cost of attendance				−0.009	0.018	
Total enrollment				−0.006	0.019	
HBCU or tribal affiliation				1.051	0.164	***
Constant	−0.021	0.050		0.072	0.064	
N	966			945		
R-Squared	0.810			0.849		

Notes: Standardized coefficients; robust standard errors; state fixed effects to adjust for state-level unobservable factors. Rural-serving small area is urbanicity reference.
    .05; *.01

quite substantially on whether they live in the surrounding county. In other words, county-level segregation is a very strong predictor of community college segregation.

Given the demonstrably strong relationship between county and community college demographics, few community colleges are unexpectedly integrated. To capture the degree to which unexpected integration does occur, we conduct a residual value analysis. Using the full regression models in Tables 5 and 6 we calculate the predicted enrollment of Pell and minority students at each college and then subtracted those values

	N	Mean	SD	Min	Max
TABLE 5					
Residual Analysis of Pell Grant Enrollment					
A. Pell Residual Summary Statistics by Group					
Group 1	132	−16.92	5.99	−39.72	−10.59
Group 2	341	−4.53	2.99	−10.44	0.00
Group 3	345	4.80	2.89	0.04	10.44
Group 4	127	16.70	6.06	10.49	48.16
Total	945				
B. Percent Pell Distribution Across Residual Groups					
Group 1	132	36.20	13.81	5.00	74.00
Group 2	341	46.35	12.33	19.00	98.00
Group 3	345	57.11	11.92	26.00	86.00
Group 4	127	69.56	12.06	44.00	100.00
Total	945				

Notes: Group 1: Residual value more than 1 SD below the mean; Group 2: Residual value within 1 SD below the mean; Group 3: Residual value within 1 SD above the mean; Group 4: Residual value more than 1 SD above the mean.

from the achieved enrollment proportions to arrive at a residual value. A negative residual indicates that a college is enrolling fewer poor or minority students than geography would predict, while a positive value indicates the opposite. Greater integration could be achieved from either positive or negative residuals; there is no inherently preferred value from a normative perspective, but rather would depend on where a college falls in terms of its predicted level of segregation. We distinguish between four groups based on their degree of deviance from the expected level of integration: (1) substantial deviance (>1 standard deviation below the mean) tilting toward the integration of more advantaged students, (2) slight deviance (<1 SD below the mean) tilting toward the integration of more advantaged students, (3) slight deviance tilting toward integration of more disadvantaged students, and (4) substantial deviance tilting toward integration of more disadvantaged students.

As noted earlier, about half of the nation's community college enroll balanced student bodies with approximately equal numbers of Pell recipients and non-recipients (Table 1). These analyses suggest that

TABLE 6
Residual Analysis of Racial/Ethnic Minority Enrollment

	Obs	Mean	SD	Min	Max
A. Pell Residual Summary Statistics by Group					
Group 1	91	−16.17	6.12	−34.79	−9.06
Group 2	456	−2.85	2.51	−9.02	0.67
Group 3	276	4.35	2.75	0.71	10.37
Group 4	122	18.16	8.50	10.48	50.97
Total	945				
B. Percent Minority Across Residual Groups					
Group 1	91	33.17	16.25	4.45	85.73
Group 2	456	23.20	17.78	1.71	100.00
Group 3	276	35.32	20.28	3.79	94.90
Group 4	122	62.79	21.31	17.91	98.28
Total	945				

Notes: Group 1: residual value more than 1 SD below the mean; Group 2: residual value within 1 SD below the mean; Group 3: residual value within 1 SD above the mean; Group 4: residual value more than 1 SD above the mean.

some of this is due to about 27 percent of community colleges enrolling far more or less Pell recipients than geography would dictate (Table 5, Panel A). Approximately half of those colleges enroll more (13 percent), and half enroll less (14 percent). But there is less deviation at community colleges with regard to enrollment of race/ethnic minority students, and correspondingly a lower degree of racial integration. Just 23 percent of community colleges have a racial/ethnic composition out of step with their geography. Thirteen percent have an over-segregation of minority students in their schools, while 10 percent of institutions enroll a less-segregated student body than geography alone would predict. (Table 6, Panel B).

INTEGRATION: HAPPENSTANCE OR ACHIEVED?

Are greater-than-expected levels of integration in community college the result of a happy coincidence or intentional action? This is a critical question that is clearly difficult to answer. However, next we leverage

the limited amount of qualitative data we have available to try and provide some insights.

In writing applications for the national Aspen Prize for community colleges, institutions attempt to put their best foot forward and describe their approaches to serving students. A close textual analysis of their applications, focused on the "outlier" institutions whose college composition deviates from the geographic norm, suggests that community college administrators are conscious of the composition of their student bodies, and in particular are conscious when their composition is unusual. Institutions with disproportionate numbers of minority and/or low-income students are more likely to explicitly report using quantitative measures to assess institutional diversity, perhaps because they are more conscious of that attribute and may be getting attention for it, or perhaps are concerned about it. For example, one college notes that "directors, chairs, and other staff use special Institutional Research studies to plan and improve programs: such as high school draw by race/ethnicity; placement test results by entry status, race/ethnicity, and high school; and retention rates by campus, gender, and race/ethnicity." These schools are also more likely than non-outlier institutions to mention having external partnerships specifically aimed at underrepresented populations. The discourse used by community colleges in their applications to Aspen also varies in relation to the actual versus expected level of integration among students at their schools. Community colleges that enrolled somewhat more Pell recipients than their surrounding area would predict tend to emphasize the greater representation of economically disadvantaged and first-generation students, highlighting that attribute for readers. For example, one such college administrator notes that his institution "prizes" the "diversity" of its students.

By contrast, colleges disproportionately enrolling advantaged students say far less in their applications about the composition of their institutions and do not describe any particular programs addressing composition. But in many cases these institutions are nonetheless more integrated than other community colleges, even when not explicitly emphasizing that fact.

While such observations are useful for thinking about the potential role of specific practices and attitudes in creating integrated student bodies, we went a step further and undertook informal phone interviews with fourteen community colleges where the enrollment of Pell recipients and racial/ethnic minority students in our data was more integrated or balanced than predicted by geography. Bringing this observation to the

attention of college staff, we posed the question: "What might contribute to this integration?" After frequently having to define the term *integration,* about three-quarters of the administrators provided a common answer: the answer lay in the actions of the K–12 school district, particularly with regard to where students were being sent to college. Some community colleges, it seems, achieve racial or economic integration because a disproportionate number of minority or low-income high school graduates are encouraged to attend four-year institutions rather than community colleges. This is consistent with efforts in some districts to ensure that students suited for four-year colleges attend them; particularly those who will most benefit from four-year college attendance. This re-sorting engenders greater balance, and seems to be more common in communities with more resources and strong college preparatory planning in the high schools. Such scenarios can lead to the patterns described earlier, where for example more integrated community colleges have more full-time students on academic tracks (a higher proportion of high school graduates are prepared for full-time work; those at the community college are the place-bound rather than strictly sorted by race or social class). A side effect is that the federal services targeted to economically disadvantaged students are less likely to be found, reducing the number of available staff at the institution (consistent with findings presented earlier).

CONCLUDING THOUGHTS

The primary contribution of this paper is to draw attention to the student composition of community colleges in ways that are cognizant of the important discussions occurring in K–12 education over the past fifty years. It makes little sense to assess the quality of learning environments in such very different ways up and down the educational pipeline. If an economically and racially integrated learning environment is helpful for promoting student achievement, it needs to become a stronger focus and concern in postsecondary education. Of course it is central to discussion of affirmative action policies as they relate to selective, elite institutions, and there have been court cases in several states regarding the support of historically black colleges and universities—but these are conversations affecting a small subset of college students. The vast majority of students attend non-selective institutions, such as community colleges, where the level of "diversity" equates with segregation—not integration.

Admittedly, we raise more challenges and problems than solutions in this paper, partly because of the lack of information with which to

do more. This is an area in need of significantly more theorizing and conceptual work, as well as empirical analysis. We need to consider the multiple ways to assess and define isolation in postsecondary education and operationalize the tipping points at which the benefits of integrated environments are achieved. And, while we have provided some starting hypotheses derived from qualitative research, more ideas about how integration could be effectively achieved are needed.

For example, we hypothesize that while the institutions we interviewed did not mention this, integration could be achieved by reducing the difference in costs of attendance between community colleges and four-year institutions. This should reduce the degree to which economically disadvantaged students and those who are loan averse (disproportionately Latinos) are constrained to community colleges and feel freer to choose four-year institutions.

The open door philosophy embraced by community colleges serves a crucial function—ensuring that the colleges reflect their communities. But it also brings challenges; the key one being that the problems of those communities resulting from neighborhood segregation and the concentration of poverty are simply transferred up the educational pipeline. Segregated community colleges not only receive fewer monetary resources, but they likely produce less student learning. That is a problem in need of a worthy solution.

NOTES

1. James S. Coleman et al., *Equality of Educational Opportunity* (Washington, D.C.: U.S. Government Printing Office, 1966), 325.

2. Eric A. Hanushek, John F. Kain, and Steven G. Rivkin, "New Evidence of *Brown v. Board of Education:* The Complex Effects of School Racial Composition on Achievement," NBER Working Paper #8741, National Bureau of Economic Research, 2002. Amy Stuart Wells, Jennifer Jellison Holme, Anita Tijerina Revilla, and Awo Korantemaa Atanda, *Both Sides Now: The Story of School Desegregation's Graduates* (Berkeley: University of California Press, 2008).

3. For a flavor of the debate over the mechanisms undergirding the positive impacts of integration on student outcomes across the K–16 spectrum, see the following examples of recent work in the area: Sara Baker, Adalbert Mayer, and Steven L. Puller, "Do More Diverse Environments Increase the Diversity of Subsequent Interaction? Evidence from Random Dorm Assignment," *Economics Letters* 110, no. 2 (2011): 110–12. Johanne Boisjoly, Greg J. Duncan, Michael Kremer, Dan M. Levy, and Jacque Eccles, "Empathy or Antipathy? The Impact of Diversity," *American Economic Review* 96, no. 5 (2006): 1890–1905. Braz Camargo,

Ralph Stinebrickner, and Todd Stinebrickner, "Interracial Friendships in College," *Journal of Labor Economics* 28, no. 4 (2010): 861–92. Peter Hinrichs, "The Effects of Attending a Diverse College," *Economics of Education Review* 30, no. 2 (2010): 332–41.

4. Amy Stuart Wells, Jacquelyn Duran, and Terrenda White, "Refusing to Leave Desegregation Behind: From Graduates of Racially Diverse Schools to the Supreme Court," *Teachers College Record,* 2008. Amy Stuart Wells and Erica Frankenberg, "The Public Schools and the Challenge of the Supreme Court's Integration Decision," *Phi Delta Kappan* 89, no. 3 (2007): 178–88.

5. Paul Attewell and David E. Lavin, "The Other 75%: College Education Beyond the Elite," Weinberg Seminar Remarks, April 15, 2008. Data are from the Beginning Postsecondary Students Longitudinal Study.

6. We acknowledge that the open door applies only to the very initial point of enrollment. Placement testing means that students are sorted and denied access to a variety of programs almost immediately after that point, and fiscal constraints leading to full classes often diminish the value of the open door entirely.

7. There are exceptions. For example, the NAACP is currently pursuing a lawsuit in Georgia charging that the state has a "dual system of higher education" and has failed to desegregate its historically black and white colleges and universities. *Georgia State Conference of NAACP Branches et al. v. State of Georgia et al.,* Georgia Middle District Court, Case 1:2010cv00041, http://www.courthousenews. com/2010/04/07/NAACP.pdf

8. We acknowledge that this is a big "if." The literature on the effects of integration on schooling outcomes has not grappled sufficiently with selection bias and also has not accounted for the seemingly positive results of fully or nearly segregated schooling, such as that occurring in historically black colleges and universities (HCBUs). By drawing attention to the levels of segregation in community colleges we do not intend in this paper to suggest a new normative focus that would cast HBCU or Hispanic serving institutions or tribal colleges as problematic. First, we note that many of these institutions are in fact substantially integrated by race/ ethnicity, but also more importantly that they are segregated by virtue of explicit mission and origins—not defacto by neighborhood composition. The effects are therefore likely different as well.

9. "News from Educational Leadership and Policy Analysis: Clif Conrad's Truth-Telling and Testifying," *Learning Connections,* Spring-Summer 2012, http://news. education.wisc.edu/news-publications/newsletter/archive/2012-spring-summer/ clif-conrad-testifying.

10. Economists, for example, have written some of the very small number of empirical studies of segregation in higher education and focus exclusively on four-year institutions. See Charles T. Clotfelter, *After Brown: The Rise and Retreat of School Desegregation* (Princeton N.J.: Princeton University Press, 2004). Also Peter Hinrichs, "An Empirical Analysis of Racial Segregation in Higher Education," paper presented at the Association for Public Policy Analysis and Management Fall

Conference November 8-10, 2012, Baltimore, Maryland, http://www9.georgetown.edu/faculty/plh24/Hinrichs_segregation_092012.pdf.

11. Sara Goldrick-Rab,"Challenges and Opportunities for Improving Community College Student Outcomes," *Review of Educational Research* 80, no. 3 (2010): 437–69.

12. See endnote 2.

13. The same issue exists in K–12 education. See Roslyn Arlin Mickelson, "The Reciprocal Relationship between Housing and School Integration," National Coalition on School Diversity, September 2011, http://www.school-diversity.org/pdf/DiversityResearchBriefNo7.pdf.

14. For example, see "Projects: The College Match Program: Overview," MDRC, http://www.mdrc.org/project/college-match-program#featured_content.

15. More information on IPEDS is available at the National Center for Education Statistics website, http://nces.ed.gov/ipeds & www.aspenccprize.org. All geographic measures come from the 2010 American Community Survey five-year estimates. More information is available at the U.S. Census FactFinder website, http://factfinder2.census.gov. With regard to the Aspen Prize, during 2010–11, Aspen solicited an array of information from community colleges applying for its $1 million prize. Specifically, 120 institutions were selected to compete and provide information through a lengthy questionnaire in which they described a "specific range of student success data as well as [provided] narratives from college leaders describing concrete examples of practices that have led to excellent student outcomes." Since all of the institutions involved consented to the use of that information for research purposes, data for this study included both IPEDS institutional measures for nearly all community colleges nationally, coupled with detailed questionnaire data from the Aspen sample. Institutions invited to compete for the Aspen Prize were explicitly selected based on IPEDS information regarding "institutional performance, improvement, and equity on student retention and completion measures" (round 2 application instructions). Thus, the competition targeted institutions displaying recent improvements in the success of racial minority and low-income students, though a range remains among these in terms of their overall levels of diversity.

16. We primarily used geographic predictors and not organizational predictors because these are arguably endogenous to the outcome of interest—the degree of diversity. For example, colleges may choose to offer more transfer or degree programs in response to their student population, rather than attracting specific students because of those programs.

17. Participation in the Aspen competition is nonrandom and the ninety-nine institutions in the subsample differ from the national sample in several ways. We nonetheless use the data as best we can to gain insights into college activities. We code the qualitative survey data using the software package Dedoose utilizing responses to the following questions posted by Aspen to participating colleges: (1) *Institutional Mission: In approximately 100 words, describe your mission, the*

populations you serve, and the programs you offer. Here, we are primarily interested in how the college characterized the racial or ethnic composition of the population served, and whether the mission included an explicit mention of diversity. (2) *External Partners: On no more than one page total, please list external entities (including individual and consortia from K–12, business, non-profit, research, four-year colleges or other sectors) with which your community college is engaged in partnerships that are important to the student outcomes your institution has achieved. Provide a brief explanation (no more than 50 words for each) of the role these partnerships have played at your institution.* We code responses for any indication that partnerships are explicitly undertaken to either in response to diversity or to create diversity. (3) *In 500 or fewer words, summarize the specific programs or factors that you believe have contributed to success in student completion, improvements over time in student completion, or specific achievements demonstrated in your completion data.* We code responses for how success is defined (including any mentions of diversity), as well as programs explicitly undertaken to either in response to diversity or to create diversity. (5) *In one page or less, please provide a statement explaining why your community college has achieved excellent student outcomes, is positioned to continue improving such outcomes in the future, and should win the Aspen Prize for Community College Excellence.* We code responses for how success is defined and any discussion of specific diversity policies and practices in these closing statements.

18. The IPEDS includes two very different institutional measures of Pell receipt. The first represents percent Pell receipt among all students at the institution, while the second is limited to full-time, first-time, degree-seeking students. Although the latter measure only includes a fraction of students who attend community colleges, the proportion of Pell recipients among this group is significantly larger than among all undergraduates. We know that each year part-time students, older students and independent students are far less likely to complete the FAFSA than more "traditional" students even though many would be eligible to receive the grant (Mark Kantrowitz, "Analysis of Why Some Students Do Not Apply for Financial Aid," April 27, 2009, http://www.finaid.org/educators/20090427CharacteristicsOfNon Applicants.pdf). We therefore decided to use the full-time, first-time, degree-seeking measure as the more conservative and realistic representation of low-income enrollment at an institution.

19. We defined minority students as those who are neither non-Hispanic white nor Asian. When calculating institutional percentages of racial/ethnic minority enrollment we removed all students categorized as "race/ethnicity unknown" from the total enrollment number before using it as our denominator. This "unknown" category ranged from 0 to 9,833 students per institution, but had a median value of 167. We made the decision to remove these students from our race/ethnicity calculations rather than make assumptions regarding their race/ethnicity which would have been little more than guesswork on our part.

20. We use the term racial/ethnic minority in the sense that African American, Latino, Asian, and Native American students still comprise a numerical minority of the total school population, and white students are still numerically a majority of the student enrollment.

21. We were initially suspicious that findings showing large differences across groups may have been heavily influenced by the 112 California colleges in our sample—fully 12 percent of the total. We therefore ran a second round of comparisons excluding these colleges but found no differences in the pattern of comparisons, only in the individual point estimates.

22. In the 2010 IPEDS, reporting of staff race was voluntary and only 39 percent of the colleges in our sample actually did so. Because reporting was likely non-random within the sample, caution should be exercised in the generalizability of the observed group comparisons.