

RESEARCH REPORT

Racial and Ethnic Representation in Postsecondary Education

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June 2020



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Acknowledgments

This report was funded by the Joyce Foundation and Lumina Foundation. We are grateful to them and to all our funders, who make it possible for Urban to advance its mission.

The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders. Funders do not determine research findings or the insights and recommendations of Urban experts. Further information on the Urban Institute’s funding principles is available at urban.org/fundingprinciples.

We thank Wil Del Pilar, Kristin Blagg, and Matthew Chingos for helpful feedback on earlier drafts of this report.

Executive Summary

Whether a person receives a college degree determines her outcomes in adulthood, including her job prospects, wages, ability to create generational wealth, and quality of life. But there are large gaps in postsecondary attainment based on race or ethnicity, gaps that at least partly account for pervasive and enduring gaps in economic outcomes. It is therefore important to understand how different racial and ethnic groups are represented in postsecondary education.

This report examines representativeness in higher education using a new measure that compares each college's racial and ethnic demographics with the demographics of the surrounding area. This approach measures whether each racial or ethnic group is over- or underrepresented at individual colleges as well as groups of colleges (e.g., selective colleges).

We first use this measure to assess national patterns of racial and ethnic representation in higher education in 2017. We also measure representativeness every year going back to 2009, allowing us to examine changes in different sectors.

We find pervasive patterns of over- and underrepresentation among different racial and ethnic groups at some groups of colleges in 2017:

- Black and Hispanic students are underrepresented at more selective universities, by 6 and 9 percentage points, respectively. More selective public and private universities have remarkably similar levels of representativeness for most groups.
- Black students are overrepresented in the for-profit college sector by 15 percentage points, but most other groups are underrepresented at these colleges.
- White and Asian students are overrepresented at more selective colleges, by 4 to 8 percentage points, depending on measurement assumptions.
- States do not vary much in their Black or Hispanic representation at less selective public universities. But some states—most of them in the South—have very high levels of Black underrepresentation at more selective public institutions.

Some of these patterns changed between 2009 and 2017:

- Hispanic students have consistently gained representation at less selective public colleges and community colleges.

- White overrepresentation at selective universities has decreased, especially in more selective public universities.
- For Black students, representation has been stagnant in all sectors. Deep gaps in representation between more selective universities and other universities are persistent nationally.
- Asian students had steady levels of approximately even representation in less selective colleges and overrepresentation in more selective ones.
- These national trends mask considerable variation between states. Black students have gained representation in northeastern colleges in recent years but have lost representation in other states. Hispanic students have seen gains in most states but to varying degrees.

Our main analysis focuses on the four largest racial and ethnic groups by total population: white, Hispanic, Black, and Asian. We also analyze smaller minority groups that are frequently overlooked in this type of work: Native Americans and Pacific Islanders:

- Native American students were consistently overrepresented at public two-year colleges and underrepresented at four-year colleges from 2009 to 2017. But national gaps in representation for this group are small.
- Pacific Islander representation has steadily declined at two-year colleges, and these students became increasingly overrepresented at four-year for-profit colleges from 2009 to 2017.

By documenting differences in representation by race or ethnicity and by sector, our findings generate useful descriptive evidence for education policymakers and local changemakers. State policymakers, campus administrators, and student advocates can use our estimates of recent changes in enrollment composition to monitor representation at individual colleges and universities.

Our results reflect a myriad of factors that help determine a college's student composition, such as institutional admissions and tuition policies, state appropriations for higher education, students' beliefs about the value of college and the return on education, local labor market demand fluctuations, and the composition of colleges' potential pool of students.

Our analysis of the composition of colleges' surrounding markets rules out the possibility that representation gaps could be caused by the composition of their location, but we cannot assign credit or blame for how a college performs on our representativeness measure to a specific cause. Our estimates should instead be interpreted as descriptive evidence of the enduring link between race or ethnicity and

opportunity in postsecondary education, and we hope these patterns highlight areas in which alarming trends persist and urgent improvement is necessary for racial equity.

Racial and Ethnic Representation in Postsecondary Education

Whether a person receives a college degree determines her outcomes in adulthood, including her job prospects, wages, ability to create generational wealth, and quality of life (Bound and Turner 2002; Brand and Xie 2010; Card 1993; Carnevale, Rose, and Cheah 2011; Oreopolus and Petronijevic 2013). The economy also requires an increasingly skilled workforce, given the pace of technological change (Goldin and Katz 2007). The personal and societal benefits of a college education create an imperative to increase college access and success for all students (Zimmerman 2014).

But some groups, such as white and some Asian students, pursue bachelor's and advanced degrees at higher rates than their peers from other racial or ethnic groups. And Black and Hispanic students pursue certificates and associate's degrees at higher rates than others (Arcidiacono and Koedel 2014). Colleges and the credentials they provide are not equal. More selective public and private institutions are vehicles for economic mobility that catapult low-income people to a higher rung on the socioeconomic ladder (Chetty et al., forthcoming), whereas community colleges and for-profit institutions have low completion rates and a high proportion of students who default on their student loans (Deming et al. 2016; Denning 2017). The enduring educational attainment gap between white students and students of other racial or ethnic groups reveals that not everyone can access a college education or obtain the same benefits of a college degree or credential.

In this report, we use publicly available data on college enrollment and local demographics to examine how well various racial and ethnic groups are represented in higher education. We compare institutions' demographics and the demographics of the surrounding areas to compute a measure of college representativeness. This measure reveals how much a racial or ethnic group is over- or underrepresented at a college or university. We use this metric to characterize the national distribution of racial and ethnic representation in higher education in 2017. We also construct this measure going back to 2009, allowing us to examine changes in different sectors of the postsecondary system. Our main analysis focuses on the four largest racial and ethnic groups by total population: Asian, Black, Hispanic, and white. But we also provide a separate analysis of smaller minority groups that are frequently overlooked in this type of work: Native Americans and Pacific Islanders.

Motivation

The US population is becoming more educated. Over the past two decades, the share of the population with a college degree has risen 13 percentage points (Espinosa et al. 2019). Although college enrollment rates among racial and ethnic minorities has increased 15 percentage points, major gaps persist between the educational attainment of white people and that of people of color (Espinosa et al. 2019).

In a 2017 report on the status of educational attainment, the American Council on Education found that even though the US was diversifying, Hispanics were among the lowest-educated residents, along with Native Americans. On the other end of the spectrum, Asian Americans are one the fastest-growing populations and make up the largest share of educated residents at 30.7 percent (Espinosa et al. 2019). Along with changing demographics, the US has also experienced shifts in postsecondary options. This includes the expansion of for-profit and online degree options. Although students have more paths to choose from, trends in college enrollment and degree attainment continue to show concentrations of different racial and ethnic groups at certain types of institutions (Bastedo, Altbach, and Gumport 2016).

As the educational attainment gap between racial and ethnic groups persists (or widens), the trends in the types of credentials students receive and institutions where they enroll diverges as well. Native American, Black, and Hispanic students make up a high share of students enrolled in certificate programs (Espinosa et al. 2019), whereas white and Asian students make up most of the students enrolled into bachelor's degree programs. Pacific Islander and Black students are disproportionately enrolled in private for-profit institutions, while white and Asian students make up the largest share of students attending public or private nonprofit four-year institutions. Finally, two-year public institutions enroll a disproportionate share of Hispanic, Native American, and Black students.

With a growing number of jobs requiring a college credential and growing evidence of the connection between a college education and a person's quality of life (Baker, Klasik, and reardon 2018), it is imperative to increase educational attainment across all racial and ethnic groups.

The underlying causes of these diverging postsecondary paths and outcomes are varied and complex. They include opportunities and structural barriers associated with a student's background, state and federal policy decisions, and institutional policies. Students who attend well-resourced primary and secondary schools are more likely to attend a college or university that is also well resourced and has higher-than-average student outcomes. Giving high school students access to counselors, college-level coursework, and other supports would increase their college options (Wolniak and Engberg 2007).

State and federal policies can improve or hinder college access. States can control tuition pricing of public institutions within their states or can institute a statewide cost subsidy for residents who decide to enroll in a college in their state. States can also offer student loan relief for residents who graduate from college and decide to stay in the state. These policies improve college affordability and increase college access for low- and middle-income families. Colleges also have a lot of decisionmaking power that can help build or dismantle barriers to college, including recruiting in low-income areas, offering need-based aid, and increasing the college's capacity to serve a more diverse student body.

Literature Review

There is an emerging empirical literature on racial and ethnic representation in postsecondary education. Research organizations have released reports highlighting racial and ethnic representation, or the lack thereof, in US colleges and universities. Overall, these reports tell a similar message: Black and Hispanic students are widely underrepresented at four-year public institutions.

In 2019, The Education Trust produced two reports (Nichols and Schak, n.d.; Schak et al. 2019) exploring Black and Hispanic student representation at public state colleges and universities. Both reports compare Black and Latino student enrollment with the state's Black and Hispanic population. The reports focus on Black representation at community and technical colleges, public four-year institutions, and selective public four-year institutions. The reports also look at Black and Hispanic representation among students who complete a degree. The authors compare these representation measures across states and compute a representation gap measure between Black and white students. Both reports excluded states that had Hispanic or Black population shares lower than the national average. Both reports found that Black and Hispanic students are underrepresented at most public institutions, regardless of selectivity.

The Center on Education and the Workforce at Georgetown University produced a report on Black and Hispanic representation at public institutions, with an emphasis on selective public institutions (Carnevale et al. 2018). The analysis compared enrollment at public institutions across various groups with the state's college-age population (ages 18 to 24). The authors find that from 2005 to 2015, Hispanic representation increased at selective public institutions in most states included in the analysis, except for Massachusetts. They also estimate that from 2005 to 2015, Black representation decreased at selective public institutions in half the states included in the analysis. In the other states, Black representation increased or did not change.

The Institute of Higher Education Policy published a report analyzing gaps in higher education enrollment and completion at public flagship institutions in the Great Lakes region (Eckerson Peters and Voight 2018). The authors analyzed access and completion at these institutions by race or ethnicity and socioeconomic status. Their main findings highlighted the enrollment and completion gaps between white students and minority students and between high-income and low-income students. The report found that all six public flagship institutions in the Great Lakes region had enrollment and completion gaps by race or ethnicity and socioeconomic status. Enrollment of students of color has increased over the past 30 years, but compared with the state population, Black students are still underrepresented.

The Center for American Progress released a report on Black and Hispanic representation at “top public research universities” (Baylor 2016). The report compares the share of students attending the top public institutions of a state with the share of Black or Hispanic students who attend those same institutions. Baylor finds that states with low Black or Hispanic enrollment at these top public institutions also have large shares of Black and Hispanic students and high Black and Hispanic enrollment at community colleges. Baylor’s report reaffirms our understanding of the lack of representation of racial and ethnic minorities at more selective public colleges, but it adds little to the conversation about whether these public institutions are representative of their state or relevant market.

Altogether, these reports reveal a singular message: Black and Hispanic representation at selective public colleges and universities does not match the Black and Hispanic representation in the state population. The consistency of their results emphasizes the gaps in college enrollment and degree attainment.

Our study intends to contribute to this growing literature. First, we take a data-based approach to determine the relevant population of potential students to compare with college composition. Thus far, studies have used state-level racial and ethnic composition to estimate representativeness. Although this is adequate for state flagship institutions, it is an arbitrary choice for a basis of comparison. We use data on the distances students typically travel to attend institutions to define “college markets” as a basis of comparison.

Second, we report estimates of representativeness for all sectors. Doing so is necessary to better assess potential explanations for any problems we may document. Comparing higher education sectors may help us form hypotheses regarding the causes of underrepresentation.

Third, we report trends for all sectors nationally and by state. Doing so allows us to examine which sectors have improved or worsened nationally and whether certain states have fared better or worse

than the national average. Fourth, we provide an auxiliary analysis for Native Americans and Pacific Islanders, acknowledging the importance of taking as many groups as is feasible in an analysis of racial and ethnic representation. Finally, we conduct several robustness tests to assess how much our results may be caused by our assumptions and data limitations.

Measurement Framework and Data

We aim to measure how much a college's enrollment is representative of its relevant pool of potential students. In this section, we describe the data sources we use and provide a working definition of college "representativeness" and "relevant pool."

We measure the composition of a college's enrollment using the Integrated Postsecondary Education Data System (IPEDS), a system of interrelated surveys conducted annually by the US Department of Education's National Center for Education Statistics. IPEDS gathers information from every college, university, and technical and vocational institution that participates in federal student financial aid programs. We obtain the IPEDS files for 2009–17 via the Urban Institute's Education Data Portal.

IPEDS files include Carnegie classifications of institutional selectivity, the categorization of universities into three groups: nonselective, selective, and more selective.¹ These classifications are based on quartiles of the distribution of enrollees' SAT or ACT scores and the share of applicants that are admitted. To understand the types of colleges in each of these broad groups, appendix table A.1 presents a selected list of colleges in each category, separate for public institutions and nonprofit private institutions. The Carnegie classifications categorize "selective" colleges as having at least two-thirds of their first-time, full-time freshmen score between 18 and 21 on the ACT or SAT equivalent.² "More selective" applies to colleges that had at least two-thirds of their freshmen students score higher than 21, and "nonselective" applies to open-admissions schools. Classifications for test-optional schools were based on their admissions rates.

Using the IPEDS data on the universe of Title IV–eligible postsecondary institutions, we observe total degree-seeking undergraduate fall enrollment by race or ethnicity, institution type, and geocoded institution locations. We use these data to compute the "composition" of an institution's total enrollment, namely the share of enrollment of each racial or ethnic group as reported by IPEDS. We acknowledge that these racial and ethnic categories are not comprehensive nor fully describe a person's experiences, but we aim to take a first pass at exploring these issues in a comprehensive manner and

using the available data. Future research should explore the nuances of racial identity and structural racism and how they affect postsecondary access.³

The key measurement challenge for our study is to assess whether a college's enrollment composition is representative. To do so, we need to define the relevant pool of potential students, or a *college's market*. In most of our analysis, we define college markets in the most transparent, data-driven way possible, using data on the distance a college's actual students travel. We first categorize institutions based on their level (i.e., two year or four year) and on the urbanicity of their location (i.e., urban, suburban, or rural). For each college level and urbanicity type, we observe the distribution of distance between students' homes and colleges, using estimates from the National Postsecondary Student Aid Study (NPSAS), obtained from National Center for Education Statistics' PowerStats.⁴

We interpret these data as the distance from home that most students are willing to travel to attend an institution. We define a college's market as the radius surrounding the institution using the 75th percentile of the distribution distance between student residences and colleges for each college level and urbanicity type. For four-year colleges, this rule results in a 121-mile radius for urban colleges, a 139-mile radius for suburban colleges, and a 181-mile radius for rural colleges. For two-year colleges, the radii are 15 miles for urban colleges, 31 miles for suburban colleges, and 34 miles for rural colleges. When computing the composition of the markets these radii define, we do not include tracts outside the state of the college in question. We do this because public colleges are primarily interested in serving in-state students. We also apply this restriction to private colleges to ensure any comparisons we make between sectors are consistent and well defined.

We acknowledge that the way we define markets could affect our results. Some colleges, such as state flagships, aim to serve their entire state. The natural college market for these colleges is the state, which is the most common definition of college market used in this research (Carnevale et al. 2019; Schak et al. 2019). Further, more selective private institutions, such as Ivy League universities, are frequently evaluated using a national benchmark. Thus, in many cases, it makes sense to depart from our distance radius approach and use a different definition for a college's potential pool of students, but this comes at a cost.

The fundamental trade-off we face when defining college markets is that tailoring the representation measure to best match each college decreases the degree of comparability between different types of colleges. We cannot improve one without hurting the other. Consider the extreme case in which we tailor the market definitions so that each college is compared with a different population. What could we make of the difference in representativeness between two colleges? The

difference could be because of enrollment differences or entirely because of our definitions of their markets. It would be difficult to parse out these two explanations without accessing the underlying data, which defeats the purpose of creating the index. We thus err on the side of ease of comparability and aggregation, using the NPSAS radius definitions described above. But we present a robustness analysis to different definitions of college markets, which we describe below.

The next step in constructing a college representativeness measure is to observe the demographics of the population living within a college's market. To do so, we bring in data from the US Census Bureau's American Community Survey (ACS) five-year estimates, measured at the census tract level, as reported by the IPUMS National Historical Geographic Information System. Thus, when we mention the 2009 composition of a college's market, this refers to 2005–09 ACS estimates, when we report 2017 market composition estimates, this refers to 2013–17 ACS estimates, and so on. The only exception to this rule is 2010, the year for which estimates come from the full-count decennial census. For each college in the data, we observe its geocoded location and collect census tracts whose centroid (average location) is within the college's market radius.⁵ To be safe, we also construct measures based on several market definitions, including counties, states, and regions.

We then measure the composition of the market defined by the radius, using the population of 18-to-24-year-olds for four-year universities and the population of 18-to-54-year-olds for two-year colleges. We use different age groups based on institution level, acknowledging the literature documenting that nontraditional-age students are more likely to attend two-year colleges than four-year colleges (Radford, Cominale, and Skomsvold 2015). But maximizing age inclusivity comes with a trade-off. The wider the age range in our market definition, the more likely it is that our measures will be biased toward reporting underrepresentation for groups that are overrepresented in older age groups (white students) and that are increasingly unlikely to be populations seeking to improve their human capital. Still, our main results on broad national and state patterns are not sensitive to changes in the age range of our market definitions, but measures for individual colleges may be sensitive to these changes.

There is another potential concern for bias in our measures, one that is harder to handle than the age composition of our counterfactuals (the college markets). Because selective colleges intentionally restrict their relevant pool or market to exclude students without sufficient academic achievement (as measured by admissions offices using test scores and high school grades), our counterfactual might be off for selective colleges. For instance, if a certain group tends to have low SAT or ACT scores in a selective college's market, our measure of representativeness may be biased toward showing underrepresentation of that group. The issue here is that we cannot restrict the pool of potential

students to those with the academic qualifications to enter such institutions, as there are no data sources of student college readiness reported with granularity sufficient for our purposes.

We acknowledge this limitation in our analysis, but our measures are still informative and useful for several reasons. First, many selective public colleges state in their missions that they intend to serve their community and their state. As such, they are still accountable to enroll a representative student body. Second, there is a movement away from the use of standardized exam scores in college admissions, toward the use of more holistic measures such as student background and extracurricular activities. Our work provides relevant evidence for this debate. Finally, we contend that the variance of observed gaps in representation between less selective and more selective colleges across states suggests that readiness gaps cannot fully explain our results.

Our measure of college representativeness is simply defined as the difference in the share of college enrollment from a given group and the group's share of the college market population. If this measure is *zero*, the group's enrollment share at a college equals that group's share of the population in the college's market, or *perfect representation* of that group. If the measure is *positive*, the group's enrollment share is larger than its share of the population in the college's market. We thus interpret positive values of this measure as evidence of a group's *overrepresentation* in a given institution. Finally, if the measure is *negative*, the group's enrollment share at an institution is lower than its share of the market's population, implying that the group is *underrepresented* at the institution. Of course, because of potential measurement error, we are careful not to overinterpret small positive or negative values in our measure and instead focus on describing robust tendencies in the data.

Finally, we select the analysis sample using the following criteria:

- We exclude private two-year nonprofit colleges because they are uncommon.
- We exclude colleges that focus on distance education.
- We exclude colleges whose enrollment drops below 30 students during the study period.
- We exclude colleges that exist for only four or fewer years in the IPEDS data.
- We exclude colleges in US territories.

Table 1 details the summary statistics of our sample for four-year colleges in 2010, 2013, and 2016. The share of public and private institutions has remained consistent, regardless of selectivity. We see more movement when looking at the share of four-year colleges in rural, suburban, and urban areas. From 2010 to 2016, the share of students attending four-year colleges in rural areas has declined, while

the shares in suburban and urban areas have increased. By racial or ethnic group from 2010 to 2016, we see increases in college enrollment and population growth for Hispanic and Asian residents but declines for white residents. This is consistent with previously reported trends in postsecondary participation and US population changes, where Hispanic and Asian populations are growing, Black populations are remaining fairly stagnant, and white populations are declining (Espinosa et al. 2019).

TABLE 1

Summary Statistics of Estimation Sample, Four-Year Colleges

	2010	2013	2016
Selectivity			
<i>Nonselective</i>			
Public	8%	8%	8%
Private nonprofit	4%	4%	4%
For-profit	5%	5%	4%
<i>Selective</i>			
Public	36%	36%	36%
Private nonprofit	12%	12%	12%
<i>More selective</i>			
Public	23%	23%	24%
Private nonprofit	13%	12%	13%
Institution type			
HBCU	3%	3%	2%
Tribal college or university	0%	0%	0%
Land grant institution	14%	14%	15%
Title IV	100%	100%	100%
Urbanicity			
Rural	11%	7%	6%
Suburban	29%	31%	31%
Urban	60%	61%	63%
Enrollment			
Total enrollment	14,174	14,348	15,637
Asian	6%	6%	7%
American Indian	1%	1%	1%
Black	12%	12%	12%
Hispanic	10%	12%	14%
Multiracial	2%	3%	4%
Other	10%	9%	8%
Pacific Islander	0%	0%	0%
White	60%	58%	55%
Market			
Asian	4%	4%	5%
American Indian	1%	1%	1%
Black	14%	14%	14%
Hispanic	15%	16%	17%
Multiracial	3%	3%	4%
Other	6%	5%	5%
Pacific Islander	0%	0%	0%
White	57%	57%	55%
N	1,912	1,978	1,897

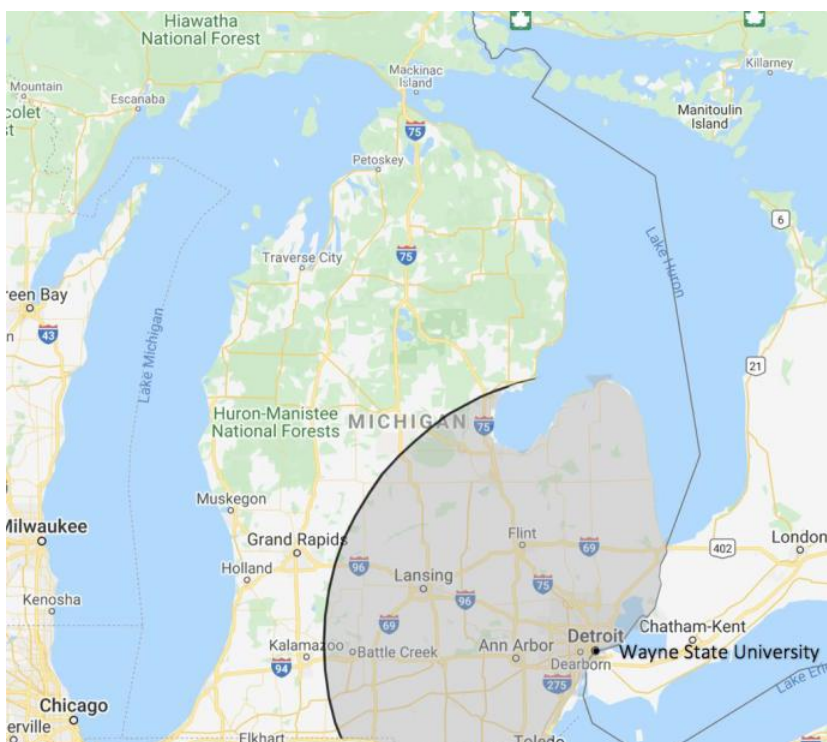
Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: HBCU = historically Black college or university. Observations are weighted by total enrollment.

An Illustrative Example

To fix ideas, we begin with an example. Wayne State University is a selective public university in Detroit. This public four-year institution is in an urban area and has a 121-mile commuting radius. Figure 1 shows a map providing intuition of the area encompassing Wayne State's market. According to our method, Wayne State serves the entire Detroit metropolitan area, including the nearby cities of Ann Arbor, Lansing, and Flint. The market essentially covers most of the state. It would also cover Cleveland, Ohio, but our procedure constrains markets to be defined within states.

FIGURE 1
Wayne State University's Commuting Market



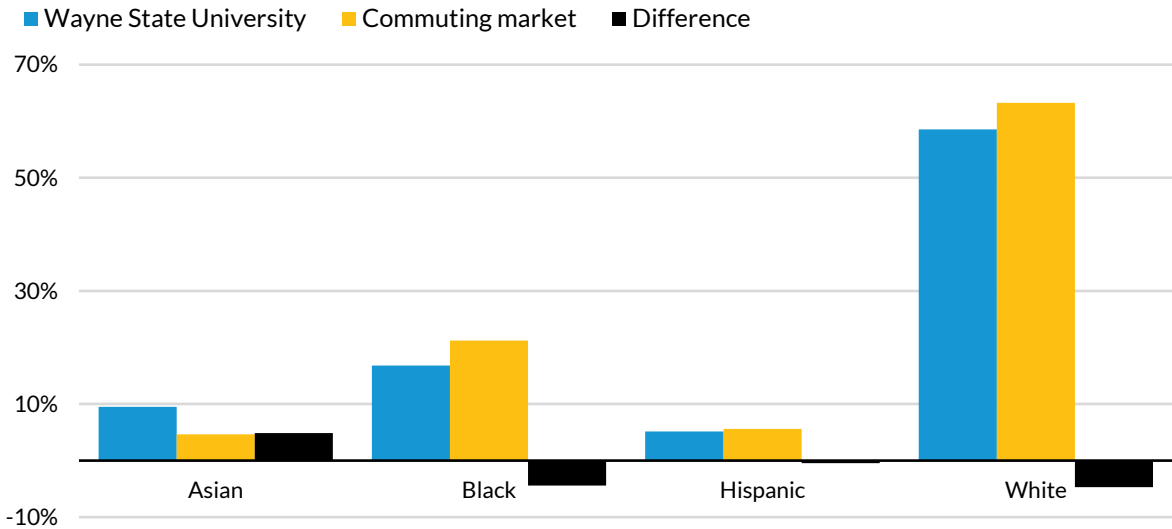
Source: Google Maps.

Note: The commuting radius for public four-year schools is 121 miles.

Figure 2 shows the racial and ethnic composition of Wayne State's enrollment and the composition of its commuting market in 2017, using the American Community Survey's five-year estimate (2012–17) for census tracts within the radius. Wayne State's enrollment composition (for the four largest racial and ethnic groups) is 59 percent white, 17 percent Black, 10 percent Asian, and 5 percent Hispanic. In comparison, the 121-mile radius surrounding Wayne State is 63 percent white, 21 percent Black, 5 percent Asian, and 6 percent Hispanic. The difference between the college and market shares for each

group describes the college’s representativeness relative to its surrounding area. White and Black students are somewhat underrepresented at Wayne State, by about 4.5 percentage points for both. Hispanic students are pretty well represented with a differential of -0.4 percentage points, and Asian students are overrepresented by about 5 percentage points.

FIGURE 2
2017 Composition of Wayne State University and Its Commuting Market



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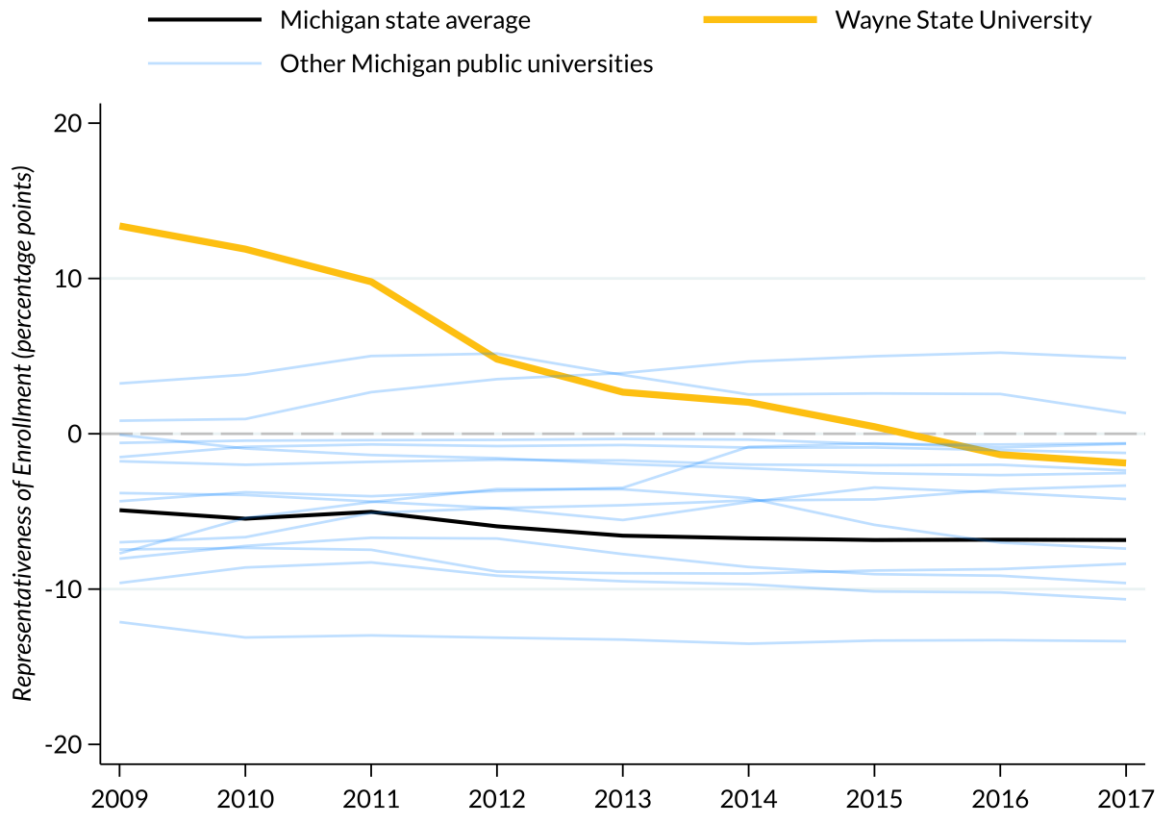
Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Wayne State’s status quo of racial and ethnic representation in 2017 is relevant for the school’s current admissions and recruiting policies, but policymakers can also learn a lot about colleges by studying how representation has evolved. Figure 3 shows Wayne State’s trend in Black student representation annually from 2009 until 2017 (in yellow). For reference, the figure also reports the trends in Black student representation for every other Michigan public college (blue), as well as the average of these institution-level trends (black). In 2009, Wayne State had the highest Black student representation of all public schools in the state with about 11 percentage points. This was driven by the fact that its enrollment and market were 32 percent and 21 percent Black, respectively, back then.

Over the next seven years, Wayne State’s Black enrollment share fell steadily while the Black share of the population remained stable. The drop in Wayne State’s Black student enrollment share was not driven by changes in total enrollment at the school but instead by a change in the racial and ethnic composition of its enrollment. Today, Wayne State is in the middle of the pack when it comes to Black student representation. Most public universities in Michigan under enroll Black students relative to the

demographics of their markets, with a state average of about -5 percentage points, which appears steady through the recent decade. Wayne State used to stand out in its service to Black students, but this is no longer the case. Further work is needed to understand and normatively evaluate what happened.

FIGURE 3
Annual Black Student Representation at Wayne State University
Relative to other Michigan public universities



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Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Note: State averages are weighted by total enrollment.

Racial and Ethnic Representation at US Colleges in 2017–18

Our dataset allows us to analyze racial and ethnic representation for all US postsecondary institutions. In this section, we analyze average representation at most US colleges in 2017–18, the most recent year for which we can construct the necessary data. All averages reported in this section, as is true of every statistic in this report, use total enrollment weights. For national averages, this means the unit of analysis is a student, such that for national averages, our estimates apply to the average student attending college in the US. For brevity, we often still refer to the “average college” in our analysis, understanding that enrollment weights are used in all computations.

We are interested in measuring how much colleges are representative of their local markets, using the metrics we defined above. We begin with four-year colleges by sector. We make two comparisons. First, we look at the share of a given group in universities versus their markets across different sectors. This allows us to compare how well students are represented at colleges in different sectors, relative to the composition of the local pool of potential students. Making sure our evaluation accounts for the market composition means we can study whether different types of colleges are in markets with different racial or ethnic mixes. Next, we look at differences in representation within a single sector by race or ethnicity, providing a more complete picture of inequities in each sector.

Table 2 presents our estimates. We report the 2017 national average racial and ethnic composition of universities and their markets, as well as the average difference between them, our measure of representativeness. Panel A shows inclusive (nonselective) institutions, separately for public, private nonprofit, and for-profit institutions. Panels B and C report estimates for selective and more selective institutions (according to the Carnegie classifications).⁶

We first look at Black and Hispanic representation in public universities. The markets of public universities have an average Black population share (ages 18 to 24) of 13.1 to 14.1 percent, regardless of college selectivity. For potential Hispanic students, the story is different. Nonselective public universities are in markets where 24.7 percent of the potential pool is Hispanic. On the other hand, selective and more selective public university markets are both only about 17 percent Hispanic, suggesting that these colleges tend to be in areas with a smaller Hispanic population share than nonselective public universities. It is important to account for this when assessing representativeness by selectivity.

Average Black and Hispanic enrollment at nonselective public universities is 14 percent and 25.9 percent, respectively. Relative to the average share for these universities' markets, Black and Hispanic students are well represented at these institutions. The average difference (representativeness) is 0.8 percentage points for Black students and 1.2 percentage points for Hispanic students. This means these students are well represented and perhaps slightly overrepresented at these institutions. The patterns are similar for selective public institutions, in which representativeness is -0.8 percentage points for both groups, suggesting that Black and Hispanic students are reasonably well represented at these universities, if perhaps slightly underrepresented.

At more selective colleges, the story is different. The average more selective US public college is 5.6 percent Black and 11.4 percent Hispanic. Compared with the composition of their markets, these enrollment shares constitute unambiguous evidence of Black and Hispanic underrepresentation at these institutions. The representativeness index for Black students is -8.5 percentage points and for Hispanics students is -5.1 percentage points. This means that on average, more selective universities need to raise the Black enrollment share by at least 8 percentage points and the Hispanic share by 5 percentage points to become representative. Notably, these conclusions are not sensitive to our definition of markets. If we used the country's racial and ethnic composition as a counterfactual, these broad conclusions would remain qualitatively intact. Nationally, the Black population share of 18-to-24-year-olds is 14 percent, and the Hispanic share is 20 percent.

Black and Hispanic representation at public universities is in sharp contrast with that of white and Asian students. First, the white share of public universities' markets increases with selectivity, suggesting that the country's most selective public colleges are in areas with high shares of white residents. Second, more selective universities unambiguously overrepresent white and Asian students, by 4.6 and 5.6 percentage points, respectively. Moreover, white students are somewhat underrepresented at nonselective public universities (-1.9 percentage points) but are well represented at selective public universities (-1.0 percentage points), whereas Asian students are essentially perfectly represented at nonselective public universities (-0.1 percentage points) and slightly overrepresented at selective public universities (1.7 percentage points).

At private nonprofit universities, patterns of representation are similar to the state of affairs in public universities, though they differ in interesting ways. Even though nonselective private colleges tend to be considerably more expensive (at least in terms of sticker price) and tend to be in markets with high white population shares, Black students are about evenly represented for the nonselective (1.6 percentage points) and selective (1.4 percentage points) sectors. But Black students are severely underrepresented at more selective private universities (-8.3 percentage points), essentially to the

same extent as they are in more selective public universities. This is perhaps surprising, as public universities' missions often state that they intend to serve the population of their state. The fact that enrollment outcomes for more selective public and private universities are similar is evidence that many public institutions do no better than private entities at meeting their public mandate.

For the other groups shown in table 2, the similarity in representation between public and private universities is greater. White and Asian students are represented to the same degree at both public and private universities to about the same extent. One exception is that both Asian and white students are somewhat underrepresented at selective private colleges, by -3.2 and -1.4 percentage points, respectively. In addition, Asian students are overrepresented at both public and private more selective universities but to a lesser extent at private colleges.

Panel A in table 2 (nonselective institutions) also reports representativeness measures for for-profit four-year colleges. The markets of for-profit colleges have, on average, almost the same racial and ethnic composition as the markets of nonselective public universities. But the average composition of for-profit college enrollment is different from the composition of public universities. Nationally, enrollment at four-year for-profit colleges is 38.7 percent white, 14.1 percent Hispanic, 26.9 percent Black, and 3.6 percent Asian. The overrepresentation of Black students at for-profit colleges is the most severe we have reported thus far (14.9 percentage points). Meanwhile, both white and Hispanic students are greatly underrepresented at these colleges, while Asian students are only slightly so.

The diverging patterns of Black student overrepresentation at for-profit colleges and underrepresentation at selective universities shows that care is needed to interpret our measure of representativeness normatively. In interpreting these measures of representation, we must account for sector trends in student outcomes, including for-profit colleges' disproportionately high rates of student loan default (Deming et al. 2016; Denning 2017). It is natural to assume both these statistics reflect a problem in higher education for Black students, even though the representative measures point in opposite directions.⁷

TABLE 2

2017 National Average Racial and Ethnic Composition of Universities and Their Markets

	PANEL A. NONSELECTIVE								
	Public			Private Nonprofit			For-Profit		
	College	Market	Diff.	College	Market	Diff.	College	Market	Diff.
White	44.4%	46.3%	-1.9 p.p.	52.3%	55.8%	-3.5 p.p.	38.7%	45.7%	-7.0 p.p.
Hispanic	25.9%	24.7%	1.2 p.p.	13.4%	16.1%	-2.7 p.p.	14.1%	24.5%	-10.4 p.p.
Black	14.0%	13.2%	0.8 p.p.	15.3%	13.7%	1.6 p.p.	26.9%	12.0%	14.9 p.p.
Asian	4.6%	4.8%	-0.1 p.p.	3.5%	4.9%	-1.3 p.p.	3.6%	5.4%	-1.8 p.p.
N	116	116	116	340	340	340	176	176	176

	PANEL B. SELECTIVE					
	Public			Private Nonprofit		
	College	Market	Diff.	College	Market	Diff.
White	53.5%	54.4%	-1.0 p.p.	56.6%	59.8%	-3.2 p.p.
Hispanic	16.6%	17.4%	-0.8 p.p.	10.4%	13.3%	-2.9 p.p.
Black	13.4%	14.2%	-0.8 p.p.	15.9%	14.5%	1.4 p.p.
Asian	6.2%	4.5%	1.7 p.p.	2.9%	4.3%	-1.4 p.p.
N	332	332	332	503	503	503

	PANEL C. MORE SELECTIVE					
	Public			Private Nonprofit		
	College	Market	Diff.	College	Market	Diff.
White	59.7%	55.1%	4.6 p.p.	59.1%	54.8%	4.4 p.p.
Hispanic	11.4%	16.5%	-5.1 p.p.	10.3%	16.3%	-5.9 p.p.
Black	5.6%	14.1%	-8.5 p.p.	5.4%	13.7%	-8.3 p.p.
Asian	10.5%	4.8%	5.6 p.p.	9.1%	5.4%	3.7 p.p.
N	115	115	115	296	296	296

Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: p.p. = percentage points. Observations are weighted by total institution enrollment in all models.

As we discuss in the measurement framework section, a potential worry with the estimates reported in table 2 is that our definitions of college markets are not sufficiently tailored to colleges in different sectors. This concern is valid, given that many higher education institutions draw students from places well outside the NPSAS-based radius we defined (Hoxby 2009). It makes sense that demographics at state flagship universities should be compared with state demographics and that demographics at more selective private colleges be compared with national demographics. There is no perfect way to define college markets in a comprehensive fashion, as we attempt to do here. But the question remains of whether our findings are entirely driven by our measurement choices.

We address this concern in table 3, which reports 2017 national representativeness estimates of our seven four-year college sectors across eight definitions of “market” that go from smaller to larger geographies: counties, metropolitan areas, two versions of our NPSAS-based radius—one that remains within states (the definition we adopt in the rest of the report) and one that can cross state boundaries—

states, subregions of the country (as defined by the Census Bureau), regions, and the country as a whole. Most notable in this table is that our conclusions are not particularly sensitive to the definition of the college market. This is most apparent for our representativeness estimates for Black and Asian students. For these two groups, we would reach the same qualitative takeaway regardless of market definition for every single sector, and estimates are contained within a tight bandwidth as market definitions vary.

For white and Hispanic students, redefining college markets affects our estimates, but our takeaways from comparisons between these groups and across sectors are the same when we hold market definitions constant. That is, even though our point estimates change when we redefine markets, the sign of the gap in representation remains fixed. The direction of the estimate changes suggest that certain types of colleges are in areas of the country where some groups are overrepresented.

Consider more selective private universities. If we define markets as metropolitan areas, we would conclude that white students are overrepresented by 4.6 percentage points and Hispanic students are underrepresented by 5.8 percentage points. If we instead use the nation as a whole to define markets for these colleges, we would estimate white overrepresentation at 8.6 percentage points and Hispanic underrepresentation at 9.5 percentage points. Although the magnitude of the estimates is very different, we would still arrive at the same qualitative finding of white overrepresentation and Hispanic underrepresentation. What changes is our estimate of how severe the problem might be. The reason magnitudes change is that more selective colleges tend to be in areas of the country where a higher share of the college-age population is white, such as Boston.

We thus are not worried that our qualitative conclusions could be driven by our measurement assumptions. But to be sure, we provide a robustness analysis for most results we report.

TABLE 3

Average 2017 Representation at Four-Year Colleges, by Sector

Robustness check to varying definitions of college markets

	WHITE								HISPANIC							
	County	Metro area	NPSAS Radius		State	Subregion	Region	Nation	County	Metro area	NPSAS Radius		State	Subregion	Region	Nation
			Within state	Cross state							Within state	Cross state				
NS pub.	-0.1	-2.5	-1.9	-2.4	-4.2	-3.8	-4.2	-6.2	1.1	1.4	1.2	1.2	4.3	3.1	4.6	6.0
NS priv.	-2.1	-2.2	-3.5	-2.3	-4.3	-3.5	-3.0	1.7	-3.1	-3.1	-2.7	-3.3	-2.2	-2.7	-3.3	-6.4
S pub.	-0.6	-0.8	-1.0	-0.4	0.2	1.6	2.7	2.9	-0.4	-1.0	-0.8	-1.1	-1.7	-2.5	-3.1	-3.3
S priv.	-2.4	-1.2	-3.2	-1.1	-2.4	0.8	2.8	6.0	-2.8	-3.7	-2.9	-3.6	-3.4	-5.3	-6.7	-9.4
MS pub.	0.9	0.8	4.6	5.5	6.4	8.0	8.0	9.2	-2.3	-2.7	-5.1	-5.5	-6.2	-7.4	-7.6	-8.5
MS priv.	8.3	4.6	4.4	4.5	4.8	4.9	5.7	8.6	-6.6	-5.8	-5.9	-6.3	-6.4	-6.9	-7.3	-9.5
FP	-3.7	-5.7	-7.0	-7.6	-8.6	-12.5	-9.3	-11.9	-12.3	-10.5	-10.4	-10.1	-9.9	-6.6	-8.4	-5.8

	BLACK								ASIAN							
	County	Metro area	NPSAS Radius		State	Subregion	Region	Nation	County	Metro area	NPSAS Radius		State	Subregion	Region	Nation
			Within state	Cross state							Within state	Cross state				
NS pub.	-0.9	1.0	0.8	1.5	0.4	1.1	0.1	0.0	0.2	0.2	-0.1	-0.2	-0.4	-0.3	-0.5	-0.4
NS priv.	0.5	1.2	1.6	1.7	1.6	1.7	1.7	1.3	-1.5	-1.4	-1.3	-1.5	-1.3	-1.5	-1.3	-1.5
S pub.	-1.3	-0.5	-0.8	-1.0	-0.8	-1.0	-1.0	-0.6	1.4	1.7	1.7	1.7	1.8	1.6	1.4	1.2
S priv.	0.3	0.5	1.4	0.7	1.4	0.8	0.9	1.9	-1.2	-1.0	-1.4	-1.6	-1.5	-1.7	-1.8	-2.1
MS pub.	-7.0	-6.6	-8.5	-8.6	-8.9	-9.0	-8.8	-8.4	3.7	4.2	5.6	5.6	5.7	5.7	5.7	5.5
MS priv.	-10.6	-8.4	-8.3	-7.9	-8.2	-8.0	-8.2	-8.6	2.6	3.3	3.7	3.6	3.7	3.8	3.8	4.1
FP	14.6	13.6	14.9	14.9	15.3	15.3	15.5	12.9	-3.0	-2.0	-1.8	-1.7	-1.4	-1.2	-2.1	-1.4

Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: FP = for-profit; MS = more selective; NPSAS = National Postsecondary Student Aid Study; NS = nonselective; S = selective. All values are percentage points.

We want to assess whether average differences in representation across sectors are statistically significant and robust to controlling for individual college characteristics. We therefore estimate multivariate regression models of our representativeness metric, generating standard errors for our estimates of representation gaps and adjusting our estimates for two important control variables. The first set of controls are state indicators, or *state fixed effects*. These ensure our estimated differences between sectors are not caused by, say, selective institutions being more concentrated in certain parts of the country. If it is also the case that states with many top colleges have higher education policies that affect representativeness, one could say that the comparisons in table 2 are unfair because they confound differences in state policy. Controlling for state indicators takes care of this.

The second control variable in the regression is market composition by race or ethnicity. The idea here is to restrict comparisons to colleges in markets of similar composition. Doing so further reaffirms that any conclusion we make about the differences in representation across university sectors are driven by differences in the racial and ethnic composition of the potential pool of students. For instance, if selective private colleges are more likely to be in markets with high shares of white students, we may want to make sure to compare them only with colleges in demographically similar markets, because one could claim that not doing so constitutes a bad comparison.

Nonetheless, a potential technical concern with including the market share as a control in the model is that the dependent variable in the regression is the representativeness metric, itself a linear function of this market share. But because of the way ordinary least squares regressions work, we would get the same estimates if we used racial and ethnic enrollment shares as the dependent variable—rather than representativeness—on the same set of regressors, without changing market composition. As such, we can interpret the coefficients in these models as differences in a racial or ethnic group’s enrollment share by sector, among universities in markets with similar population shares for that group.

Figure 4 presents our estimates of adjusted representativeness gaps across university sectors. The omitted category is nonselective public universities, which are fairly representative of most groups (table 2). This means the estimates are interpreted relative to the representativeness of the nonselective public sector. The estimates at the top correspond to nonselective private universities. Controlling for state effects and market composition, representation at these institutions is statistically no different from that in the nonselective public sector for white, Black, and Asian students. Hispanic students, on the other hand, are significantly underrepresented in this sector, by about 5 percentage points.

At for-profit four-year colleges, starkly disparate patterns of representation emerge, confirming our basic findings in table 2. Among colleges in markets with similar Black population shares, higher shares of Black student enrollment can be found at for-profit colleges than at public nonselective colleges by about 11 percentage points. This is in sharp contrast to white and Hispanic students, whose enrollment shares at for-profit colleges are about 10 percentage points lower. Asian students are still underrepresented at for-profit universities (by only 1 or 2 percentage points) relative to public nonselective universities.

The story is different for selective public universities, which see the same racial and ethnic representation as nonselective public universities. Our estimates for white students are positive, suggesting slight overrepresentation, but we cannot reject that this coefficient is actually zero. For Black and Hispanic students, our point estimates suggest small underrepresentation that is also insignificantly different from zero. Asian students, on the other hand, are slightly overrepresented at selective public institutions relative to nonselective public institutions. Although this difference is small, it is sufficiently precise to reject the null hypothesis that it is zero.

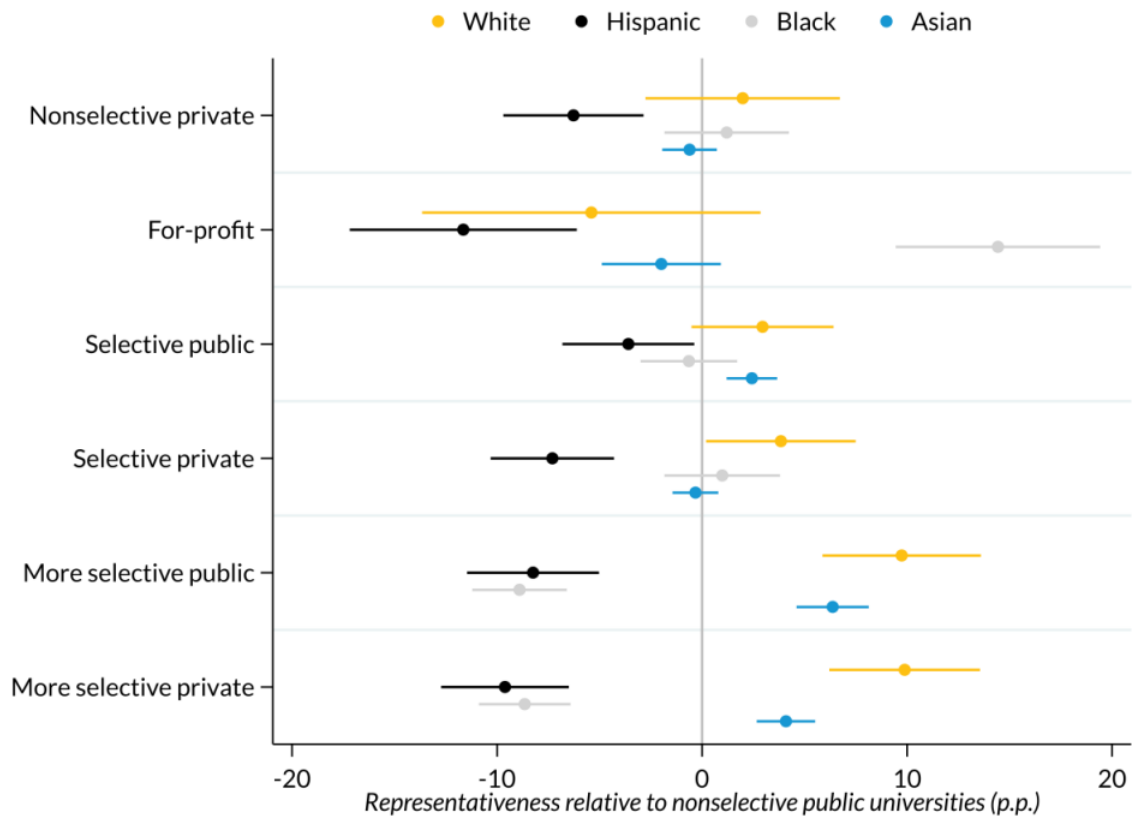
Estimates for selective private nonprofit universities paint a similar picture to the one at public selective universities, with one notable exception. Hispanic students are considerably (and statistically significantly) underrepresented, as was the case at nonselective private universities. Thus, a recurring result in our analysis is that, nationally, the Hispanic population is not well represented at private universities. Black and Asian students, in contrast, are just as represented in private selective universities as they are at public nonselective ones, and white students are only slightly overrepresented at these colleges, even after controlling for differences in the white share of college markets.

At more selective universities, there are little to no differences between public and private universities, and the representation gaps are stark and statistically significant. Just as we saw in the basic mean comparisons in table 2, Black students (–10 percentage points) and Hispanic students (–7.5 percentage points) are severely underrepresented at more selective universities. This is in sharp contrast to the representation of white and Asian students. White students are overrepresented at more selective universities by about 10 percentage points, a similar magnitude to the underrepresentation of Black students. Asian students are overrepresented at these colleges by 4 to 6 percentage points.

Put together, these findings reveal, stress-test, and confirm what multiple studies have documented. Compared with less selective universities, Black and Hispanic students are

underrepresented in the country's more selective colleges. White and Asian students, on the other hand, are overrepresented in these institutions. Moreover, Black students are severely overrepresented at for-profit colleges. The robustness analysis presented here ensures these estimates are not driven by differences in the composition of colleges' potential pool of students.

FIGURE 4
2017 Compositional Differences across College Sectors, Controlling for Market Composition
Relative to nonselective public universities



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Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: p.p = percentage points. Observations are weighted by total enrollment. Model includes state indicators and market racial and ethnic composition as a control.

Table 4 reports our estimates of the average representativeness of two-year colleges, both public (i.e., community colleges) and for-profit. We do not report estimates for nonprofit private two-year colleges because there are so few of them. There are two notable differences between our university and community college estimates. First, the radii are much smaller. According to the NPSAS, 75 percent

of community college students reside between 15 and 34 miles from their college, depending on urbanicity. Therefore, the radii defining our markets for community colleges are about a fourth of the radius length used for universities. Second, when analyzing two-year colleges, we use a more inclusive age definition for potential pool of students (ages 18 to 54) as opposed to the 18-to-24 range we used for our university market definitions. We thus caution readers that making direct comparisons between our two-year estimates and four-year estimates may be invalid because our measurement approaches are different.

Community colleges are often thought to be the most inclusive of their local communities because of their low barriers to entry, their founding principles, and their names. But table 4 shows that, nationally, community colleges in 2017 were 44 percent white, 26 percent Hispanic, 14 percent Black, and 6 percent Asian when their surrounding markets were 50 percent white, 21 percent Hispanic, 13 percent Black, and 7 percent Asian. White students are fairly underrepresented and Hispanic students are moderately overrepresented in community colleges. Moreover, Black and Asian students are essentially evenly represented at community colleges. In the section below, we show that these patterns are part of a relatively recent trend.

We also report average representativeness estimates for for-profit two-year colleges in table 4. The average market composition of for-profit colleges is similar to that of community colleges. One exception is that for-profit college markets have a slightly higher Black population share, by about 2 percentage points. This indicates that for-profit colleges might choose locations to strategically target Black communities. Such strategic behavior from these colleges would not be surprising, given the evident overrepresentation of Black students at these colleges. Black students are overrepresented by 11.4 percentage points at two-year for-profit colleges, whereas white students are underrepresented by 14.6 percentage points. For Hispanic and Asian students, the representativeness estimates are considerably less dramatic (2.6 percentage points and -2.0 percentage points, respectively).

Overall, our estimates suggest that community colleges are fairly representative of their communities, though Hispanic students are slightly overrepresented and white students are underrepresented. But at two-year for-profit colleges, Black students are massively overrepresented and white students are severely underrepresented. Given the large disparities in affordability and outcomes between these two types of colleges, we must analyze the two-year sector to further understand the causes and impacts of these disparate patterns of racial and ethnic representativeness. The fact that Black students are so intensely overrepresented in the for-profit sector is worrisome, given the extensive literature documenting poor student loan repayment outcomes and little labor market return on degrees granted at these institutions (Deming et al. 2016; McMillan Cottom 2017).

TABLE 4

2017 Average Racial and Ethnic Composition of Two-Year Colleges and Their Markets

	Public			For-Profit		
	College	Market	Diff.	College	Market	Diff.
White	44.1%	49.5%	-5.3 p.p.	34.7%	49.3%	-14.6 p.p.
Hispanic	26.3%	21.3%	5.0 p.p.	23.6%	21.0%	2.6 p.p.
Black	14.0%	12.5%	1.5 p.p.	26.1%	14.7%	11.4 p.p.
Asian	5.9%	6.7%	-0.8 p.p.	3.7%	5.8%	-2.0 p.p.
N	1,014	1,014	1,014	546	546	546

Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: p.p. percentage points. College observations are weighted by total enrollment.

University Representativeness by State

The estimates of national average college representativeness presented above describe the current state of racial and ethnic representation in US colleges. This allows stakeholders and policymakers to assess whether entire higher education sectors need federal policy reform to address inequities in student representation. Nevertheless, many important aspects of higher education policy are determined by state and institution policy. We therefore report on the representativeness of public universities by state. For succinctness and because of the large disparities documented in the national analysis, we focus on Black and Hispanic representation in public colleges of differing selectivity.

We study state disparities while controlling for the potential confounding factors caused by differences in market composition that may be correlated with college selectivity. We do so by estimating a linear model of representativeness as a function of college selectivity indicators interacted with state indicators and controlling for market composition. We do this to improve the robustness of our findings to critiques akin to the ones described above. In short, these controls ensure our findings are not driven by differences between colleges markets but by differences between colleges in similarly composed areas.

Figure 5 presents our estimates. The left panel shows the constant coefficients on the state indicators, which correspond to mean-adjusted levels of representation at nonselective and selective public colleges by state. The right panel presents coefficients on the interaction between state fixed effects and an indicator for more selective colleges, thus capturing the state-adjusted gap in representation between more selective colleges versus others. We estimate two models, one for Black students and one for Hispanic students. Because we are most interested in representation gaps at more selective universities, we exclude the 13 states that do not have public institutions in this category. We also drop states with only one or two public universities.⁸

Notable on the left panel is the tight bandwidth within which the adjusted average representativeness of states' nonselective and selective public universities varies. Although Black and Hispanic students tend to be both slightly under- and overrepresented at nonselective and selective colleges by state, these gaps in representation tend to be small. Deviation from perfect representation seldom exceeds a magnitude of 5 percentage points for either group. Less selective universities in California and New York have higher shares of Hispanic enrollment than their markets, signifying overrepresentation. Similarly, Black students in Maryland and North Carolina tend to be overrepresented in less selective schools. Overall, no state stands out with respect to underrepresenting historically underrepresented minorities at nonselective and selective public universities.

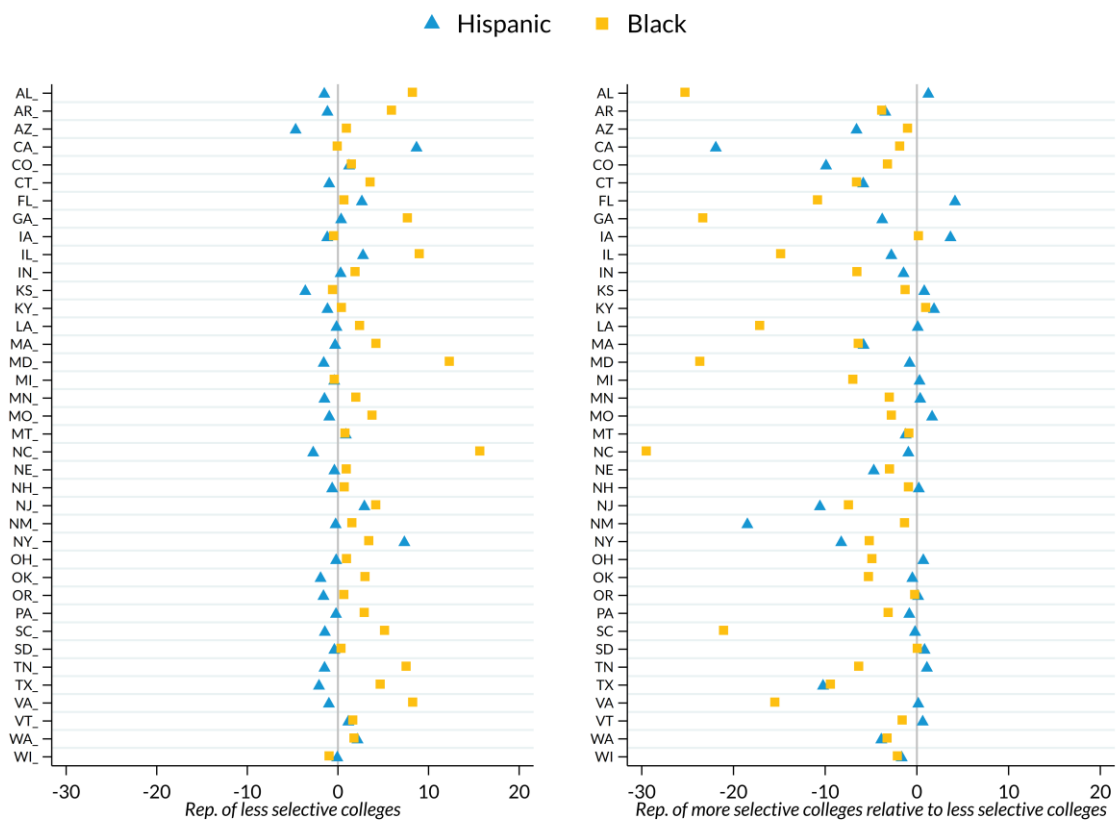
The same is not true for more selective public universities, a category for which a few states are outliers with serious minority underrepresentation. The right panel of figure 5 shows that, compared with nonselective and selective universities, more selective universities vary considerably by state in Black and Hispanic representation. Black students are underrepresented at the top public universities in most states, but a few states are outliers in this regard: Alabama, Georgia, Maryland, North Carolina, and South Carolina. In these states, Black students are underrepresented at more selective public colleges by more than 20 percentage points, adjusting for local market composition. The magnitude of these estimates implies an alarming rate of underrepresentation, especially given that these states have decent Black representation at less selective public colleges.⁹

For Hispanic students, the status quo of representation at more selective public universities in different states varies to a lesser degree than for Black students. In half of the states, Hispanic students are just as well represented at more selective colleges than at less selective ones. Nonetheless, a few states have noticeable problems with Hispanic representation. Top public universities in California, Colorado, New Jersey, New Mexico, and New York have considerably lower shares of Hispanic enrollment than less selective colleges in markets with similar Hispanic population shares. Once again, this indicates that these states have worse problems with Hispanic representation, which is a troubling finding that warrants further investigation into admissions practices at more selective colleges. We also interpret this as evidence that representation gaps at elite institutions is likely not caused by a lack of high-achieving Hispanic high school graduates, because this mechanism does not explain such wide variation between states.

Overall, the patterns in figure 5 establish that there is very little variation in the representativeness of Black and Hispanic students at less selective public universities across states. Although most states could do more to enroll higher shares of Black students, underrepresentation is modest in most states.

In contrast, representation at more selective public universities varies considerably by state. A handful of states, most of them in the Deep South, have severe Black representation gaps between more selective and less selective colleges. The same goes for Hispanic students, though many states do enroll representative shares of Hispanic students, and Hispanic representation gaps in outlier states tend to be less severe than that of Black students.

FIGURE 5
State Differences in Black and Hispanic Representation at Public Colleges
Controlling for racial and ethnic local market composition



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Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: Values are in percentage points. Observations are weighted by total enrollment. “Less selective” here is the contrast to “more selective” and encompasses nonselective and selective schools.

Changes in College Representativeness over Time

The analysis above describes current racial and ethnic representativeness in higher education institutions. We now examine changes from 2009 to 2017. We aim to establish how much representation different groups have gained or lost in different sectors. Undergoing such a longitudinal analysis, however, requires that we revisit our data sources to ensure we account for all appropriate measurement considerations.

IPEDS is frequently used to study changes in college enrollment, but because of changes in reporting standards, we must exercise caution when determining enrollment trends by race or ethnicity. First, the delineation of racial and ethnic categories has changed. 2010 was the first year in which IPEDS (and most government-provided data sources) reported disaggregated figures for Pacific Islanders or multiracial people (“two or more races”). Second, changes in reporting standards may change the number of institutions in some sectors and years. The changes we observe in total number of institutions are thus a combination of college openings and closures and entry into or exit from the IPEDS data because of reporting changes. This is especially an issue for the for-profit sector, for which there are abrupt swings in the total number of institutions over time, even when restricting our sample to Title IV-eligible institutions.

In terms of the data we use to compute the racial and ethnic composition of the potential pool of students (i.e., the college market), there are other concerns we have when studying changes. Because we employ census tract-level data to compute local market composition, we make use of ACS five-year estimates for small geographic regions. When we report a college’s market composition for 2017, we use 2012–17 ACS data that average out changes over this five-year period. Looking at changes using these data is akin to computing a moving average using a five-year window. This has the mechanical effect of attenuating any estimates we make of annual changes in local market composition. We keep this in mind as we assess the robustness of our results. A separate but related issue is that there is no ACS for 2010 because 2010 was a decennial census year. For 2010, we use the full count of the population, instead of ACS data, to compute market compositions. This difference in sample between years should also be kept in mind when interpreting the evidence in our longitudinal analysis.

We begin by reporting changes in representation at four-year nonprofit colleges (figure 6). White students, the largest racial group by enrollment, have been overrepresented at more selective universities over the entire study period. In the early 2010s, white overrepresentation (by 10 percentage points) was largest at more selective public universities. But white overrepresentation at more selective public colleges steadily declined from 2009 to 2017. Today, more selective public

colleges look like more selective private colleges, where white students have been steadily overrepresented by 5 percentage points over time.

White students have also seen decreasing representation at selective public universities. At the beginning of the study period, white students were moderately overrepresented at these colleges, but their representation has declined at almost the same rate as it has at more selective public universities so that today, white students are slightly underrepresented at these schools. We see a similar trend at selective private schools but starting from lower levels. In 2009, white students were well represented at these colleges, but they have lost representation over time. At nonselective colleges, trends have been flat and levels have been steadily negative, suggesting that white students have been underrepresented at these schools for some time.

For Hispanic students, national trends in representation at most nonprofit university sectors has increased. Figure 6 shows that in 2009, Hispanic students were underrepresented in every sector. But they have gained considerable ground at nonselective institutions, especially at public universities, where Hispanic students are now represented remarkably well. Hispanic students are represented almost as well at selective public universities. The evidence also suggests similar increases in representation at nonselective and selective private institutions. But at more selective institutions, gains in Hispanic representation have been flatter, albeit still positive and slightly greater at public than at private universities.

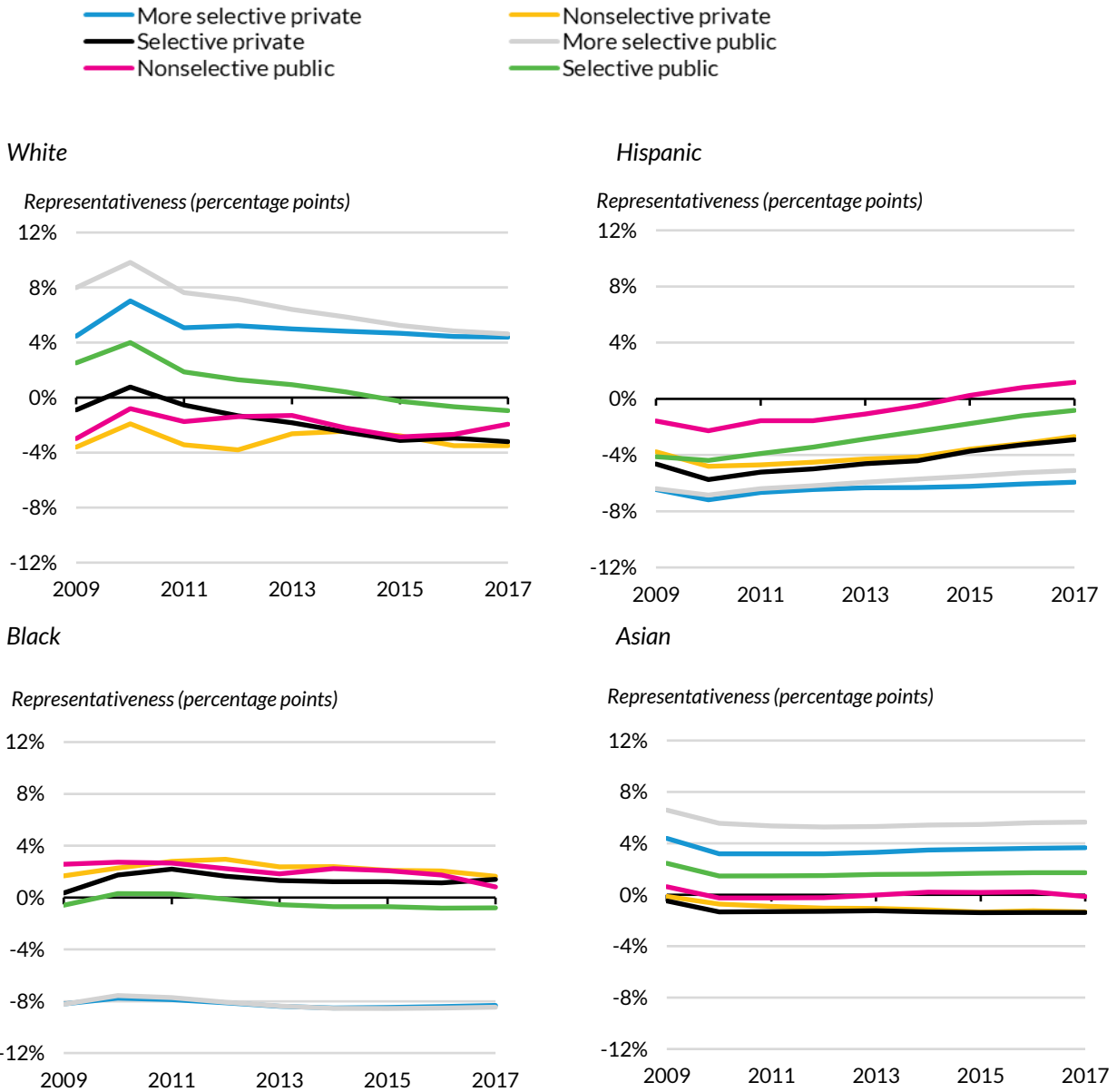
Black representation in the nation's universities has seen essentially no change since 2010. Black students have been, and continue to be, massively underrepresented at more selective institutions. Public and private colleges differ very little. Black representation at more selective private and public universities have tracked each other with remarkable accuracy, remaining steady at about -8 percentage points. At less selective colleges (i.e., selective and nonselective colleges), Black representation has been steady and positive or near zero (perfect representation), regardless of institutional control. Interestingly, unlike any of the other three racial and ethnic groups analyzed in figure 6, Black representation is approximately equal across less selective sectors. Thus, for Black students, large representation gaps at more selective colleges constitute the entire problem.

Trends for Asian students have also been largely flat. Their representation in most university sectors remained positive from 2009 to 2017. In line with the results above, Asian overrepresentation is greatest at more selective public universities, followed by more selective private universities, and public selective universities. Nonselective private institutions have had near-zero negative and steady Asian representation.

FIGURE 6

National Trends in College Representation, by Sector

At four-year nonprofit postsecondary institutions



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Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Note: Observations are weighted by total enrollment.

As mentioned above, our reported trends have potential problems. One is that the change in college market composition is mechanically attenuated by the nature of the ACS data we used to construct these estimates. Because the IPEDS data on college enrollment do not have this problem, the trends

reported in figure 6 may be biased. The direction of this bias depends on whether the racial or ethnic group's population share in a market is increasing or decreasing. Another problem with our estimates of market composition changes is the inherent noisiness in the ACS data at tract level. Measurement error in our annual market population share estimates stemming from sampling error leads to attenuation bias toward zero in our estimates of market changes.

To test the robustness of our findings to these potential threats, we conduct a regression analysis estimating adjusted trends in representation by university sector (appendix table A.4). These tests do not allow us to establish the accuracy of our estimates of representativeness changes for any one college, but they help us assess the robustness of our findings regarding differences in representativeness changes between sectors. We regress representativeness on a linear time trend interacted with university sectors and include a control for market composition. We essentially estimate differences in trends by sector among colleges with similar annual market composition. We also estimate models with college fixed effects that assume that market measurement error is fixed over time. We also report estimates for models controlling for both college effects and market composition, but these are not our preferred estimates, as they exacerbate potential measurement error in the ACS data. The coefficients in these models are interpreted as the annual adjusted gain (or loss) in representation in a given four-year college sector.

Qualitatively speaking, all the main results on trends reported in figure 6 are robust to our validity tests. Our preferred estimates suggest that, annually, Hispanic students have gained between 0.16 and 0.29 percentage points a year in representation at more selective colleges and 0.23 to 0.44 percentage points a year at less selective colleges. White students, on the other hand, have lost 0.24 to 0.65 percentage points a year in overrepresentation at more selective colleges and 0.42 and 0.59 percentage points a year at less selective colleges. Moreover, in most models of Asian and Black student representation, we cannot reject the hypothesis that annual changes in their representation have been null over the study period for most sectors. Although we find significant estimates for a mixed bag of these coefficients, there are no consistent patterns. One exception is a consistently significant estimate of a slight annual decrease in representation at less selective private colleges for Asian students. Still, the plurality of evidence suggests that there have not been remarkable changes in Asian or Black representation during our study period.

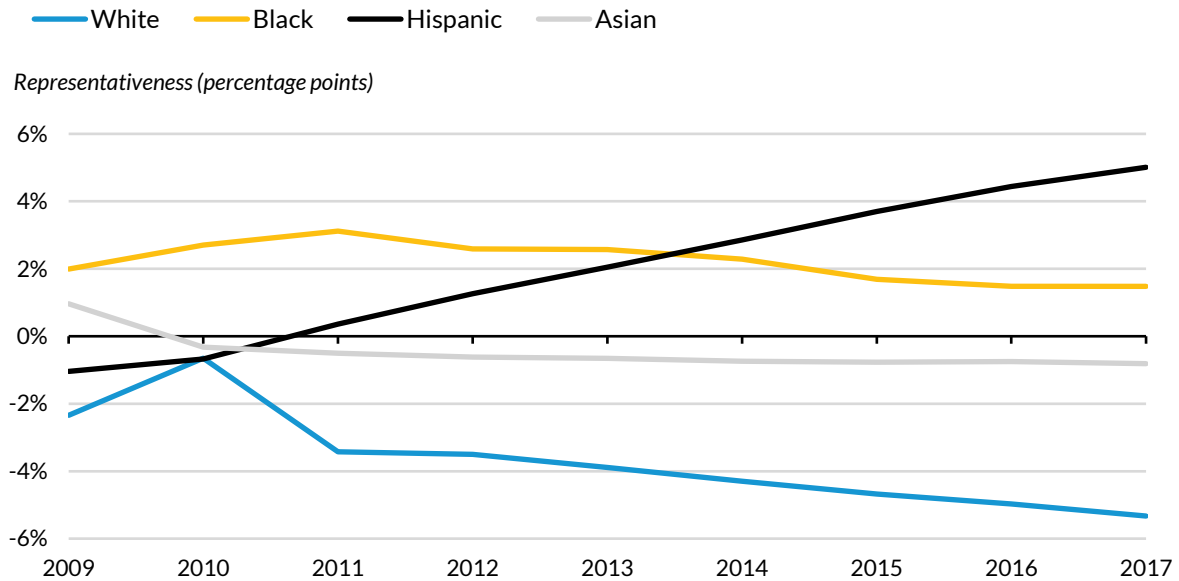
We next examine trends in representation at community colleges for the four largest racial and ethnic groups by enrollment (figure 7). Most noticeably, Hispanic students have consistently gained representation at community colleges every year. They have gained almost 1 percentage point a year in representation at these inclusive institutions. This growth rate is in line with our findings on Hispanic

representation gains in less selective public universities, which saw increases of similar magnitude during this period. Moreover, this growth is almost entirely driven by growth in their average enrollment share at these colleges (about 10 percentage points over the eight-year period). The average Hispanic share in markets has also increased but to a lesser degree (about 5 percentage points between 2009 and 2017). In 2009, Hispanic students were slightly underrepresented at community colleges, and by 2017, their average enrollment share was 5 percentage points higher than their share of the population in the surrounding area (a 30-mile radius).

White students have also seen visible changes in representation. They have consistently seen representation losses during the study period, putting them in the range of underrepresentation. This is in line with our findings for white student representation at public four-year colleges. But at community colleges, white students have seen *increases in underrepresentation*, and at four-year colleges, they have seen *decreases in overrepresentation*. Representation for white students was about -2 percentage points in 2009 and -5 percentage points in 2017.

Trends in Asian and Black representation have been flat for community colleges, as was the case for four-year colleges. Black students have consistently been marginally overrepresented at community colleges since 2009, although there were some losses, of about 1.5 percentage points, from 2011 to 2017. Asian students were steadily represented, though there is a slightly negative trend, at community colleges during this period, with their representation index ranging within an absolute deviation of perfect representation of less than 1 percentage point.

FIGURE 7
National Trends in Representation at Community Colleges
Two-year public institutions



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Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Note: Observations are weighted by total enrollment.

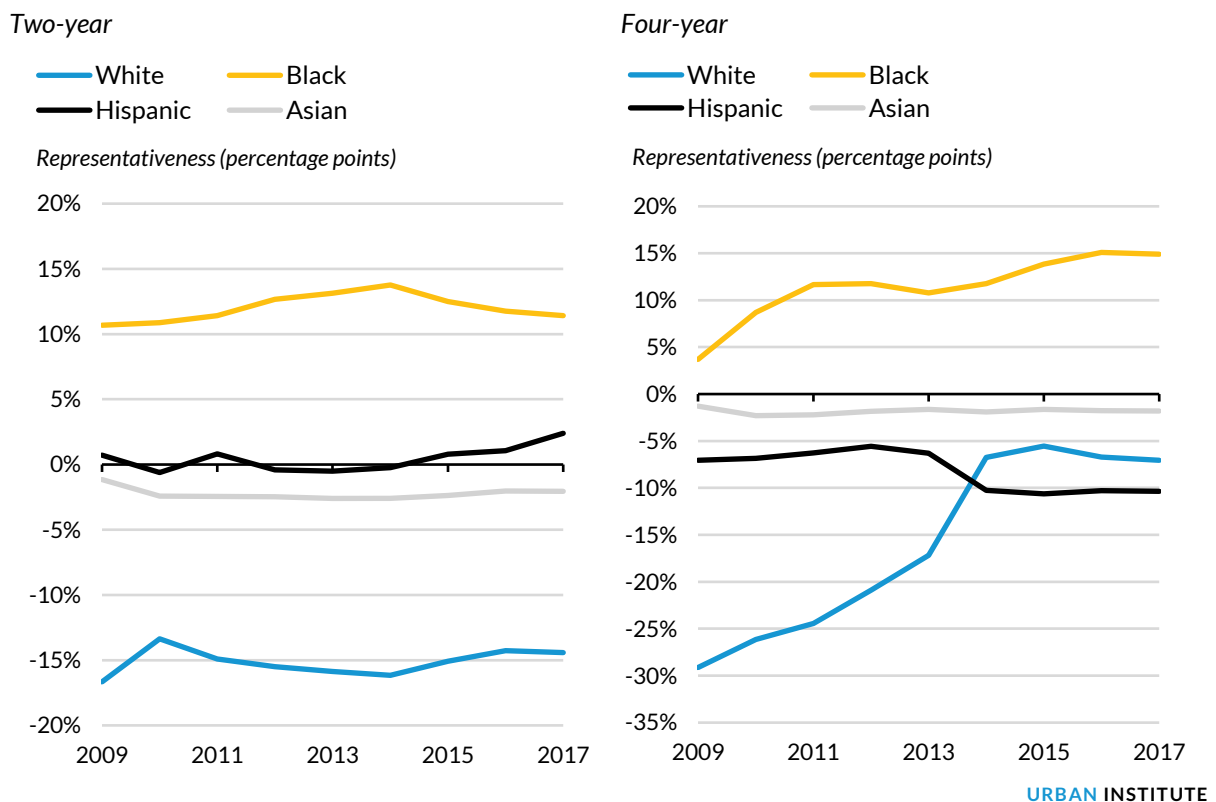
We conclude our analysis of national trends with an examination of the for-profit sector (figure 8). Before doing so, however, we advise caution when interpreting these findings because the sample of for-profit institutions changes dramatically, much more than any other type of college in our data, especially in the for-profit four-year sector.¹⁰ Some of this may be because of our sample restrictions—we focus on schools that are observed for at least four years in the data, and for-profit colleges are known to sometimes open and close quickly (Deming, Goldin, and Katz 2012)—but we also find suggestive evidence that for-profit college reporting practices have changed in the IPEDS data.¹¹ Thus, part of the changes in representativeness presented here may be driven by changes in the sample, a concern that does not apply to our previous estimates.

The left panel of figure 8 shows trends at two-year for-profit institutions. For the four largest racial and ethnic groups, there has not been much change in representation. Black students have been consistently overrepresented at these colleges. Their representation increased slightly until 2014, when it began trending down. White students have been consistently underrepresented at two-year for-profit colleges, with little to no change. Hispanic and Asian students were well represented in these

institutions during our study period, and Hispanic students have increased their presence in these schools over the last four years in the sample.

The right panel shows our estimates of racial and ethnic representation in the four-year for-profit sector between 2009 and 2017. Although white students used to be very underrepresented in these institutions, their underrepresentation has steadily decreased, such that they now have higher representation at these institutions than Hispanic students. Black students used to be only slightly overrepresented at these colleges, but since 2009, they have become increasingly overrepresented in this sector. On the other hand, Hispanic students, who used to be slightly underrepresented, have become more underrepresented. For Asian students, representation was near zero and negative consistently over the study period.

FIGURE 8
National Trends in Representativeness at For-Profit Two-Year and Four-Year Colleges



Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: Observations are weighted by total enrollment.

Altogether, our analysis of national trends in college representativeness generates three broad conclusions. First, Hispanic students have gained considerable ground in representation at less selective

public four-year colleges and community colleges. Over our eight-year study period, they have gained more than 5 percentage points in representation at these colleges. Progress in Hispanic representation is also present but to a lesser degree. Second, white students have seen decreases in overrepresentation at more selective public colleges and have seen increases in underrepresentation at less selective public universities and community colleges. Third, Black and Asian representation has been relatively flat across most higher education sectors. Black students have been steadily and massively underrepresented at more selective institutions and about evenly represented in every other sector. In contrast, they are becoming increasingly overrepresented in the four-year for-profit college sector. Asian students have been steadily overrepresented at more selective institutions and selective public institutions and about evenly represented in other college sectors.

State-Specific Trends in College Representativeness

Our analysis of trends in racial and ethnic representation in higher education has thus far focused on characterizing differences by sector on a national scale. We now analyze trends in college representativeness by state. To keep our analysis succinct, we report adjusted state-level trends by sector for the two groups for whom we have documented large patterns of underrepresentation in certain sectors: Black and Hispanic students.

We estimate adjusted state-level trends by estimating models of group representation that are both state and sector specific. In each model, we use a time trend and a set of college fixed effects as explanatory variables. Because of concerns of measurement error in within-college changes in local market composition, we do not include market composition as a control. We report the estimates of the coefficients on the time trend, interpreted as an *adjusted annual change in representation in a given state and sector*, that accounts for time-invariant differences in colleges' levels of representativeness and fixed differences in market composition. We estimate models only for nonprofit four-year colleges, split into six sectors by control and selectivity.

Table 8 presents our estimates for the adjusted annual change in representativeness from 2009 to 2017 for each state. The left panel shows estimates for Black students, and the right panel presents estimates for Hispanic students. Rows list state names, and columns list the six nonprofit four-year college sectors we examine. We leave cells blank if there have been no statistically significant annual changes in representativeness or if no colleges in this sector and state have been open throughout our study period. When there are significant changes, the cells report our estimate of the adjusted change. Blue indicates positive changes, and red indicates negative changes.

There has been little to no discernible change in Black representation in higher education nationally, but many states have seen significant changes. Connecticut, New Hampshire, and Pennsylvania have all seen increased Black representation in multiple sectors. Connecticut's selective colleges, for instance, have seen annual growth of 0.4 to 0.5 percentage points. Nonetheless, Connecticut's more selective colleges have seen no significant change. In contrast, universities in Florida, North Carolina, Ohio, and Texas have seen annual declines in Black representation from 2009 to 2017. All of Ohio's public four-year colleges have seen recent declines in Black representation, with losses concentrated at less selective schools, 0.5 to 0.7 percent annually.

Next, we present our state estimates of adjusted annual changes in Hispanic representation across four-year sectors, shown in the right panel of table 8. In almost every state, Hispanic students have seen gains—at least marginal ones—in more than one sector. In some states, improvements have been remarkable. California, Colorado, Illinois, New Jersey, New York, Oregon, and Texas have all seen relatively large increases (0.4 to 1.8 percentage points annually) in Hispanic representation in more than two sectors. In particular, less selective public colleges in California have seen some of the largest annual gains in Hispanic representation, on the order of 1.6 to 1.8 percentage points a year.

The table also highlights places that have seen less progress or even decline in Hispanic representation. Notably, more selective private universities in Arizona and selective private universities in Nevada have seen large annual losses in Hispanic representation of about 1 percentage point a year. Moreover, increases in Hispanic representation have been consistently stagnant or relatively low across multiple college sectors in Alabama, New Mexico, Ohio, Tennessee, and Virginia.

These estimates of state-specific trends in minority representation at different types of universities should be useful to state policymakers and advocates alike. We need more research to determine how much differences in state trends reflect heterogeneity in state higher education policy versus other factors such as differences in trends in the K-12 system and local labor market fluctuations.

TABLE 5

Adjusted State Trends in Black Representation, by Sector

Scaled as estimated annual percentage-point change

	Black						Hispanic					
	Nonselective		Selective		More Selective		Nonselective		Selective		More Selective	
	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.
AL	-0.8						0.2		0.2	0.2	0.3	
AK							0.3			-0.5		
AZ			0.6	-0.2					0.8	0.8		-0.9
AR			0.6				0.3	1.2	0.2	0.3	0.3	0.2
CA	-0.4		-0.1		-0.1		1.8	0.8	1.6	0.5	0.4	
CO			-0.1	0.5	-0.1		0.5		0.7	0.5	0.2	
CT	0.1		0.4	0.5		-0.1	0.5		0.7	0.5	0.2	
DE					-0.4				0.2			
DC							0.9	1.5				0.6
FL	-0.3				-0.3	-0.2	0.4		0.2		0.5	-0.3
GA			-0.4				0.7	0.3	0.3	0.2	0.2	0.4
HI									0.7			
ID	0.1								0.4			
IL			0.4	-0.2	-0.2		0.3	0.6	0.9	0.8		0.5
IN	-0.4			-0.2	-0.2		0.4		0.2	0.3	0.1	0.2
IA			-0.1	0.1		0.1		0.3			0.4	0.3
KS		0.6		0.4				0.3	0.2	0.4	0.2	-0.3
KY		-0.5		0.2				0.2	0.1		0.3	0.4
LA	-0.4							0.7	0.2		0.3	0.6
ME		-0.1	0.2				0.3		0.1	-0.1		0.3
MD					0.2	0.3	0.2		0.1	0.3	0.2	0.4
MA			0.3		-0.1	-0.1		0.2	0.4	0.2	-0.1	
MI					-0.2	0.2		0.2	0.1			0.5
MN	0.4			0.1						0.3	0.1	0.2
MS			-0.4			0.6		0.1	0.1			
MO					-0.2	-0.1			0.1			0.1
MT	0.1		0						0.1	0.3		
NE	0.4			0.3			0.2	0.4	0.3	0.4		0.3
NV		-1.7	-0.1				1.5	0.8	0.9	-1.1		
NH	0.2	0.1		1.2	-0.1	-0.1			0.1	0.3		
NJ			0.2			-0.2		0.4	0.7	1.0		
NM	-0.2											
NY		0.1			0.2	0.1	0.7		1.0	0.4	0.5	0.1
NC	-1.3			-0.3				0.2	0.3	0.2		0.3
ND				-0.4					0.2	-0.1		0.5
OH	-0.7		-0.5		-0.2		0.1	0.2		0.1	0.1	0.2
OK							0.3		0.3	0.3	0.4	
OR			0.0		0.0				0.3	0.6	0.6	0.4
PA	0.5	0.4		0.2	-0.2		0.2		0.1	0.1		
RI	0.4			0.7			1.2			0.2		
SC		-0.5	0.7					0.4	0.1	0.1	0.2	0.3

	Black						Hispanic					
	Nonselective		Selective		More Selective		Nonselective		Selective		More Selective	
	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.
SD		1.0					0.5	0.1	-0.3	0.2	0.1	
TN		0.5		0.2	-0.1		0.2	0.1	0.2	0.2	0.3	
TX	-0.2		-0.3	-0.4	-0.1			0.6	0.5	0.4	0.4	
UT							0.4					
VT			0.6	-0.2					0.4		0.3	
VA		0.4		0.2	0.2		0.4	0.1	0.2	0.2	0.2	
WA			0.1	-0.1	-0.1	-0.1	0.6	0.5	0.3			
WV		0.4		0.7			0.1		0.2			
WI					-0.1		0.5	0.3	0.3		0.4	
WY					0.0							

Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: States are alphabetized by their full names, not by their postal abbreviations. College observations are weighted by total enrollment. Empty cells denote lack of data or annual changes not significantly different from zero.

Analysis of Smaller Groups

Although Native Americans and Pacific Islanders make up a smaller share of the US population relative to the racial and ethnic groups we included in our main analysis, and although our results show smaller changes in representation over the years for Native Americans and Pacific Islanders, including them in this discussion of higher education representation is important. They often sit at the margins of discussions about college access and degree attainment, but degree attainment within these communities lags behind that of their white peers. To close educational attainment gaps that persist between white communities and many communities of color, all groups should be included in these conversations. Our current understanding of US Pacific Islanders is that population growth has remained stagnant (Espinosa et al. 2019). There have been pockets of population growth for the Native American population in Alaska, New Mexico, and South Dakota (Espinosa et al. 2019).

For this analysis, we restricted our sample to include only states with populations that are at least 1 percent Native American or Pacific Islander. Applying this population threshold and excluding US territories—where 16 percent of Pacific Islanders enrolled in college in 2016 (Teranishi et al. 2019)—from our estimation sample leaves us with a smaller number of institutional observations. This restriction could lead us to underestimate representation for both Pacific Islanders and Native Americans.

TABLE 6

Native American and Pacific Islander Representation, 2017

	PANEL A. FOUR-YEAR COLLEGES								
	Public			Private Nonprofit			For-Profit		
	College	Market	Diff.	College	Market	Diff.	College	Market	Diff.
Native American	2%	3%	-1 p.p.	1%	2%	-1 p.p.	1%	3%	-2 p.p.
Pacific Islander	3%	6%	-3 p.p.	8%	9%	-1 p.p.	29%	10%	19 p.p.
N	113	113	113	148	148	148	38	38	38

	PANEL B. TWO-YEAR COLLEGES					
	Public			For-Profit		
	College	Market	Diff.	College	Market	Diff.
Native American	3%	2%	1 p.p.	4%	2%	2 p.p.
Pacific Islander	5%	8%	-3 p.p.	1%	2%	-1 p.p.
N	251	251	251	89	89	89

Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: Observations are weighted by total enrollment.

Trends in Higher Education Representation for Native Americans

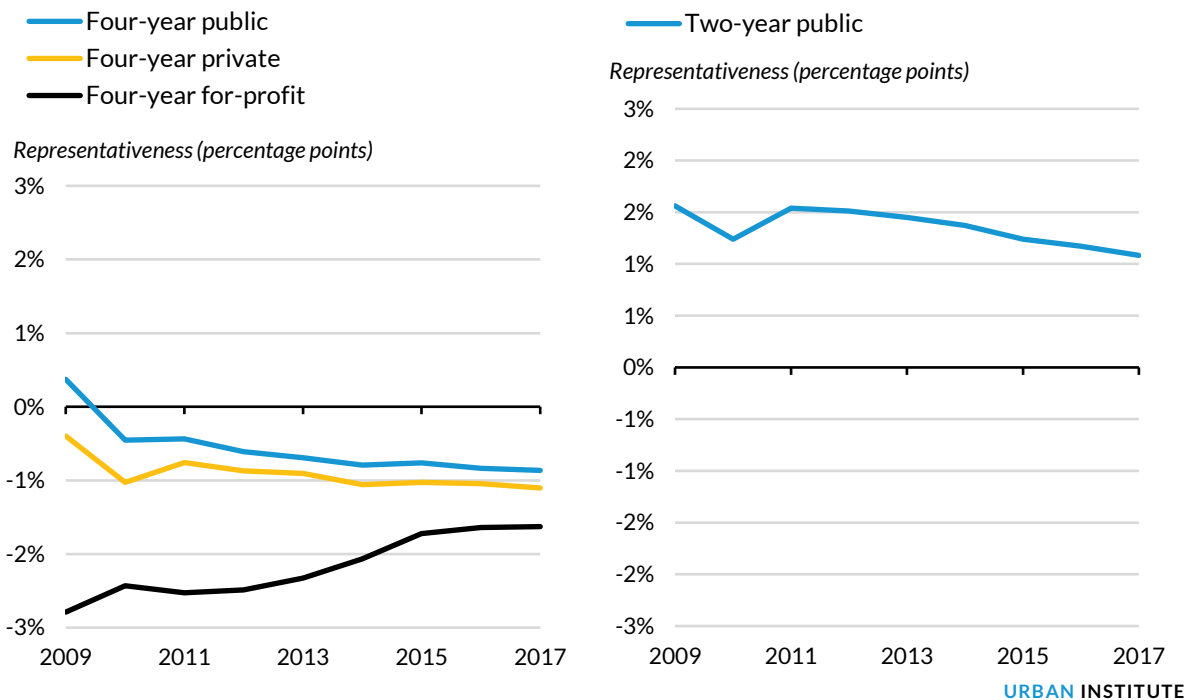
To look at Native American representation, we established a population threshold of 1 percent to ensure that each state had a sufficient number of indigenous residents. The threshold restricted our analysis to 15 states. Alaska, Arizona, Idaho, Minnesota, Montana, North Carolina, North Dakota, New Mexico, Nevada, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming met or passed the threshold from 2009 to 2017. Using the same representativeness measure described in the Measurement Framework and Data section, in the most recent year of our sample, we see that Native American students are generally represented to slightly underrepresented at four-year colleges. But at two-year colleges, Native American students are overrepresented, especially at public two-year colleges (table 6). Native American representation at two-year public colleges has remained stagnant since 2009, with a slight decline starting in 2013 (figure 9). Representation at public and private nonprofit institutions has fallen since 2009, and representation at for-profit four-year institutions has consistently increased over the same period.

When parsing out representation at four-year colleges by selectivity, we see Native American students are slightly overrepresented at nonselective and selective public schools and slightly underrepresented at private nonprofit schools, regardless of selectivity, and at more selective public schools in 2017. Compared with 2009, Native American students were slightly overrepresented at nonselective and selective public schools and nonselective private schools and were slightly underrepresented at selective private schools and more selective public and private schools. An important point of emphasis is that Native American students have become more underrepresented at

more selective public and private four-year schools since 2009, but their representation at for-profit schools has increased since 2009.

In contrast, Native American students remained overrepresented at two-year public schools from 2009 to 2017. Although tribal colleges and universities (TCUs) play an integral role in educating indigenous and rural populations, TCUs compose too small a share of the college options to be the potential cause of sustained Native American overrepresentation at two-year public schools. When examining representation without considering tribal colleges, average Native American representation at two-year public colleges drops 0.01 percentage points from 2009 to 2017. Within our estimation sample, TCUs make up less than 1 percent of our institutional sample, and when we further restrict our sample using the population threshold, TCUs make up 3 percent of our institutional sample. In 2017, the majority of colleges operating in our further restricted sample are two-year public colleges (40 percent) and four-year private nonprofit colleges (23 percent), and this distribution of college options does not change drastically when we look back to 2009. TCUs are mostly two-year public schools, but in 2017, there were only 19 public two-year TCUs out of 243 public two-year schools in the restricted sample.

FIGURE 9
National Trends in Native American Representation, by Sector



Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Note: Observations are weighted by total enrollment.

Trends in Higher Education Representation for Pacific Islanders

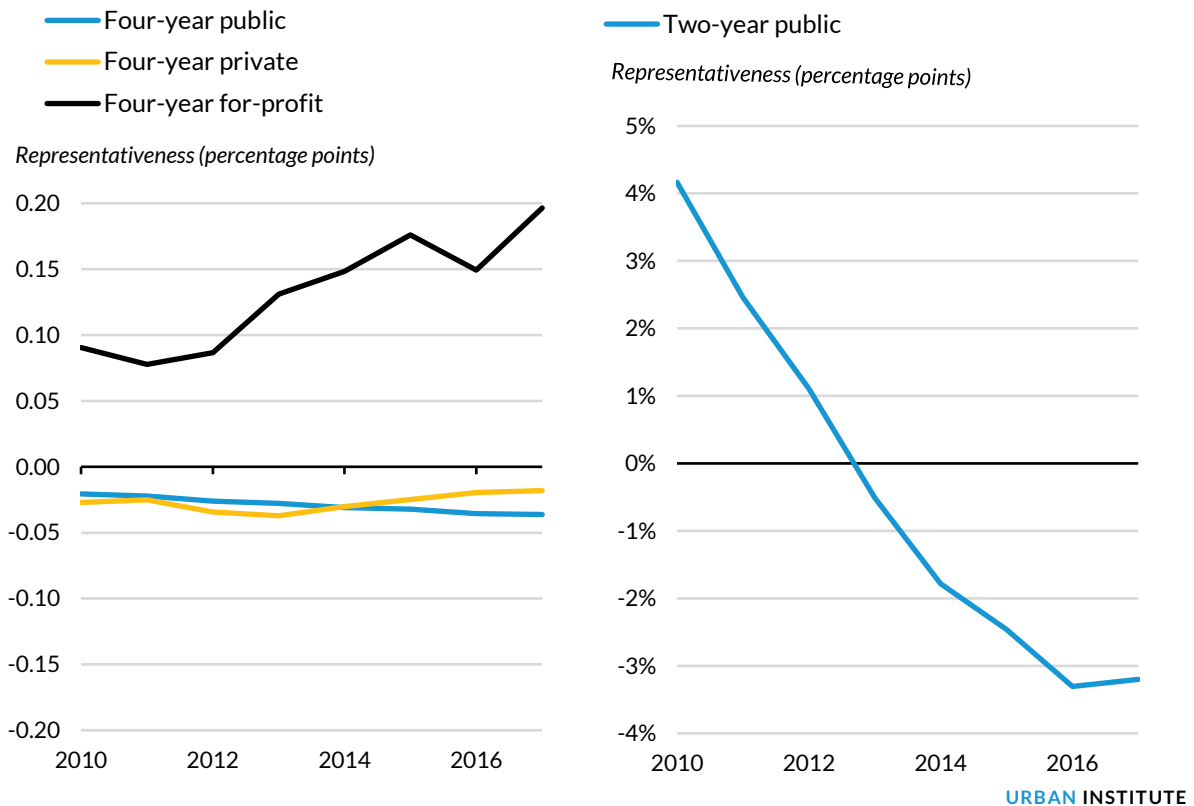
We restricted our analysis of Pacific Islanders to states where they made up at least 1 percent of the population. This threshold restricted our sample to two states from 2010 to 2017: Hawaii and Alaska. Although Pacific Islanders represent a smaller portion of the US population, they make up 10 percent of the population within our estimation sample in Hawaii. Table 6 shows that Pacific Islanders are generally represented across all institutional types and sectors, with slight overrepresentation at four-year for-profit schools in 2017.

Figure 10 shows that Pacific Islanders' slight underrepresentation at public and private nonprofit schools has remained constant since 2010, but their overrepresentation has increased at four-year for-profit schools. They have become slightly less represented at two-year public schools. Although our sample of institutions is small, it contains nonselective and selective public four-year options and one selective private nonprofit option but no more selective public or private schools. From 2009 to 2017, Pacific Islanders remained slightly underrepresented, regardless of selectivity, at the public four-year schools and private nonprofit schools.

It is important to highlight that even though representation has remained constant or declined at public and private nonprofit schools, Pacific Islander overrepresentation has increased at for-profit four-year schools.

FIGURE 10

National Trends in Pacific Islander Representation, by Sector



Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: Observations are weighted by total enrollment.

Conclusion

This study provides a comprehensive picture of racial and ethnic representation in higher education. Above all, our estimates confirm the large national gaps in Black and Hispanic representation at the nation’s more selective colleges. Our analysis also establishes that these gaps have been present and, in most cases, remained stagnant from 2009 to 2017. But these averages mask considerable heterogeneity between schools, as many colleges deviate from the national average.

Apart from documenting inequity at colleges on a national scale, this work provides college-level estimates of representativeness for almost every Title IV–eligible college in the country. Our hope is that changemakers can use these data to hold colleges accountable by highlighting differences in representation between racial and ethnic groups and across sectors, as well as recent changes in these indicators.

We have also studied representation in other sectors, providing a holistic picture of racial and ethnic differences in the country's postsecondary education system. We noted that Black students are overrepresented at for-profit colleges, a pattern we consider worrisome given emerging evidence of debilitating student loan repayment outcomes and the questionable value of for-profit college degrees in the labor market (Cellini and Turner 2019). We also documented that Hispanic students have steadily gained representation at less selective public universities and at community colleges, an encouraging sign that the country's largest minority group is seeing a higher presence in higher education.

Still, it is important to make clear what our estimates are and what they are not. College enrollment patterns by race or ethnicity are the result of interrelated factors, including admissions practices, state and federal policies, student beliefs about colleges, local labor market opportunities, and the location of colleges, which determines the composition of their potential pool of students. Our robustness analyses establish that representation gaps cannot be explained by differences in the composition of a college's potential pool of students. The estimates of representativeness we present are robust to multiple definitions of a college's market. To be sure, our estimates do change as we shift our assumptions, but the qualitative comparisons we make between college sectors and racial and ethnic groups are not affected by these shifts. Regression-based tests of the robustness of this claim further confirm it.

Our work effectively rules out that market composition is to blame for gaps in representation between colleges, but this work has little to say about other potential sources of variation in representation. Our estimates do not disentangle supply and demand factors that affect representation. For example, we cannot assess how much Black overrepresentation in for-profit colleges is caused by institutions' recruitment practices versus Black students' preferences, expectations, and constraints regarding higher education. More research is needed to understand how the combination of college admissions and tuition policies affect the representation of different groups.

There are also equity issues in higher education that this report does not cover. One important issue we do not cover is the potential of racial or ethnic stratification and inequity within institutions of higher education. Segregation within colleges may be important because field of study and labor market networks are important determinants of equity in postsecondary education and wealth in adulthood. We hope to address this subject in future work on equity in higher education.

Appendix

TABLE A.1

Examples of Four-Year Public and Nonprofit Private Colleges, by Selectivity

Public	Private
Panel A. Nonselective	
University of Arkansas at Little Rock	Greensboro College
University of Texas at El Paso	The Julliard School
West Virginia State University	Mary Baldwin University
University of Maryland, Baltimore	Regis University
University of Hawaii–West Oahu	Brandman University
Panel B. Selective	
University of Alabama at Birmingham	La Salle University
University of Michigan–Flint	Fisk University
North Carolina Central University	Pace University
University of North Florida	Gallaudet University
West Virginia University	Gardner-Webb University
Panel C. More selective	
Rutgers University–New Brunswick	Northeastern University
University of Washington	Cornell University
Auburn University	Rochester Institute of Technology
Ohio State University	Vanderbilt University
University of California, Berkeley	Rice University

Source: Integrated Postsecondary Education Data System.

TABLE A.2

Summary Statistics of Estimation Sample: Two-Year Colleges

	2010	2013	2016
Institution type			
Public	90%	91%	95%
For-profit	10%	9%	5%
HBCU	1%	0%	0%
Tribal college or university	0%	0%	0%
Land grant institution	0%	0%	0%
Title IV	100%	100%	100%
Urbanicity			
Rural	21%	13%	13%
Suburban	32%	36%	36%
Urban	47%	51%	52%
Enrollment			
Total enrollment	12,327	13,507	12,997
Asian	5%	5%	6%
American Indian	1%	1%	1%
Black	16%	16%	15%
Hispanic	18%	21%	25%
Multiracial	2%	3%	3%
Other	8%	6%	5%
Pacific Islander	0%	0%	0%
White	51%	48%	45%
Market			
Asian	6%	6%	6%
American Indian	1%	1%	1%
Black	12%	13%	13%
Hispanic	18%	19%	21%
Multiracial	2%	2%	3%
Other	7%	6%	6%
Pacific Islander	0%	0%	0%
White	53%	53%	50%
N	1,898	1,993	1,628

Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Note: HBCU = historically Black college or university.

TABLE A.3

Differences in Representation across University Sectors, 2017

	White			Black			Hispanic			Asian		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Private nonselective	0.10*** (0.03)	0.01 (0.02)	0.03 (0.02)	0.00 (0.02)	0.01 (0.01)	0.00 (0.01)	-0.14*** (0.03)	-0.05*** (0.02)	-0.06*** (0.02)	-0.01 (0.01)	-0.01*** (0.00)	-0.01* (0.01)
For-profit	-0.06 (0.04)	-0.07** (0.03)	-0.07*** (0.02)	0.11*** (0.02)	0.12*** (0.02)	0.11*** (0.02)	-0.11*** (0.03)	-0.08*** (0.02)	-0.08*** (0.02)	-0.01 (0.01)	-0.02*** (0.01)	-0.02** (0.01)
Public selective	0.10*** (0.03)	0.03 (0.02)	0.03* (0.02)	-0.01 (0.02)	-0.01 (0.01)	-0.01 (0.01)	-0.11*** (0.03)	-0.03* (0.02)	-0.02 (0.02)	0.02*** (0.01)	0.02*** (0.00)	0.02*** (0.00)
Private selective	0.13*** (0.03)	0.02 (0.02)	0.04** (0.02)	0.01 (0.02)	0.01 (0.01)	0.00 (0.01)	-0.17*** (0.03)	-0.06*** (0.01)	-0.06*** (0.01)	-0.01** (0.01)	-0.01*** (0.00)	-0.01 (0.00)
Public more selective	0.17*** (0.03)	0.09*** (0.02)	0.10*** (0.02)	-0.09*** (0.01)	-0.09*** (0.01)	-0.10*** (0.01)	-0.16*** (0.03)	-0.07*** (0.02)	-0.07*** (0.02)	0.06*** (0.01)	0.06*** (0.01)	0.06*** (0.01)
Private more selective	0.16*** (0.03)	0.08*** (0.02)	0.10*** (0.02)	-0.09*** (0.01)	-0.09*** (0.01)	-0.09*** (0.01)	-0.17*** (0.03)	-0.08*** (0.01)	-0.08*** (0.01)	0.05*** (0.01)	0.04*** (0.01)	0.04*** (0.01)
Market composition		0.83*** (0.03)	0.71*** (0.07)		0.82*** (0.05)	0.85*** (0.10)		0.93*** (0.04)	0.95*** (0.10)		1.22*** (0.08)	0.96*** (0.13)
Constant	0.43*** (0.03)	0.02 (0.02)		0.15*** (0.01)	0.04*** (0.01)		0.27*** (0.03)	0.05*** (0.01)		0.04*** (0.00)	-0.02*** (0.00)	
Mean at nonselective public schools	.514			.138			.177			.039		
State fixed effects			X			X			X			X
R ²	0.08	0.56	0.59	0.13	0.39	0.41	0.12	0.75	0.76	0.12	0.55	0.58
N	2,243	2,243	2,242	2,243	2,243	2,242	2,243	2,243	2,242	2,243	2,243	2,242

Source: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

TABLE A.4

Regression Adjusted National Trend in Representation across Four-Year College Categories

Scaled as estimated percentage-point change, 2009–17

	White				Hispanic			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Public nonselective trend	-0.27 (0.19)	-0.41** (0.20)	-0.30*** (0.06)	-0.69*** (0.06)	0.27** (0.11)	0.36*** (0.13)	0.38*** (0.03)	0.58*** (0.03)
Public selective trend	-0.45*** (0.13)	-0.59*** (0.14)	-0.47*** (0.03)	-0.83*** (0.03)	0.35*** (0.04)	0.44*** (0.04)	0.36*** (0.01)	0.50*** (0.02)
Public more selective trend	-0.49*** (0.17)	-0.65*** (0.15)	-0.50*** (0.04)	-0.89*** (0.04)	0.20** (0.08)	0.29*** (0.05)	0.21*** (0.02)	0.37*** (0.02)
Private nonselective trend	-0.37* (0.19)	-0.55*** (0.18)	-0.42*** (0.05)	-0.82*** (0.05)	0.19** (0.09)	0.29*** (0.08)	0.23*** (0.02)	0.40*** (0.02)
Private selective trend	-0.41*** (0.12)	-0.57*** (0.12)	-0.42*** (0.03)	-0.77*** (0.03)	0.25*** (0.04)	0.34*** (0.04)	0.25*** (0.01)	0.39*** (0.01)
Private more selective trend	-0.24* (0.13)	-0.40*** (0.11)	-0.24*** (0.04)	-0.67*** (0.04)	0.16*** (0.06)	0.25*** (0.04)	0.16*** (0.01)	0.32*** (0.01)
R^2	0.04	0.12	0.96	0.96	0.04	0.22	0.95	0.95
	Black				Asian			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Public nonselective trend	0.03 (0.17)	0.03 (0.17)	-0.07** (0.04)	-0.04 (0.04)	-0.07 (0.06)	-0.08 (0.06)	-0.07*** (0.02)	0.01 (0.03)
Public selective trend	-0.07 (0.13)	-0.07 (0.14)	-0.05** (0.02)	-0.01 (0.02)	-0.06* (0.03)	-0.07** (0.03)	-0.06*** (0.01)	0.01 (0.02)
Public more selective trend	-0.01 (0.10)	-0.01 (0.09)	-0.02 (0.02)	0.02 (0.01)	-0.04 (0.09)	-0.05 (0.09)	-0.04* (0.02)	0.05** (0.02)
Private nonselective trend	0.10 (0.11)	0.11 (0.11)	0.07*** (0.03)	0.11*** (0.02)	-0.09* (0.05)	-0.10* (0.05)	-0.14*** (0.02)	-0.06** (0.03)
Private selective trend	0.06 (0.11)	0.06 (0.11)	0.05*** (0.02)	0.09*** (0.02)	-0.10*** (0.02)	-0.11*** (0.02)	-0.09*** (0.01)	-0.00 (0.01)
Private more selective trend	-0.01 (0.06)	-0.01 (0.06)	-0.01 (0.01)	0.05*** (0.01)	-0.03 (0.04)	-0.04 (0.04)	-0.03*** (0.01)	0.05*** (0.02)
Market composition controls		X		X		X		X
College fixed effects			X	X			X	X
R^2	0.07	0.07	0.98	0.98	0.08	0.09	0.92	0.93
N	15,652	15,652	15,640	15,640	15,652	15,652	15,640	15,640

Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

Notes: College observations are weighted by total enrollment. Standard errors are clustered at the state level. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

TABLE A.5

Representativeness of Native Americans and Pacific Islanders, 2017

	PANEL A. FOUR-YEAR COLLEGES								
	Public			Private Nonprofit			For-Profit		
	College	Market	Diff.	College	Market	Diff.	College	Market	Diff.
Native American ^a	3.3	3.5	-0.2	1.5	2.3	-0.8	2.7	2.8	-0.4
Pacific Islander ^a	0.0	0.1	0.0	0.1	0.1	0.0	0.4	0.1	0.3
<i>N</i>	113	113	113	148	148	148	38	38	38

	PANEL B. TWO-YEAR COLLEGES					
	Public			For-Profit		
	College	Market	Diff.	College	Market	Diff.
Native American ^a	10.3	5.1	5.1	3.7	2.1	1.6
Pacific Islander ^a	0.1	0.1	0.0	0.0	0.0	0.0
<i>N</i>	251	251	251	89	89	89

Sources: Data from the Integrated Postsecondary Education Data System and the American Community Survey.

^aValues are in percentage points.

Notes

- ¹ “Undergraduate Profile Classification,” Carnegie Classification of Institutions of Higher Education, accessed March 17, 2020, https://carnegieclassifications.iu.edu/classification_descriptions/undergraduate_profile.php.
- ² “Undergraduate Profile Classification,” Carnegie Classification.
- ³ We exclude the groups “other” and “two or more races” from our analysis because of interpretation concerns and because the IPEDS and American Community Survey definitions of these groups may differ, which would bias the analysis.
- ⁴ We accessed PowerStats version 1.0 on November 8, 2019, to obtain estimates of the distribution of distance from a student’s home (in miles) to a NPSAS institution.
- ⁵ Geographic definitions of census tracts are held constant to 2010 census tract definitions, except for the 2009 estimates, which use 2000 census tract definitions. This leads to some discrepancy in college market definitions for the 2009 data, which is apparent in some of our figures.
- ⁶ “Undergraduate Profile Classification,” Carnegie Classification.
- ⁷ To check how historically Black colleges and universities (HBCUs) affected the representation of Black students, we ran the same analysis of our estimation sample without HBCUs, which excluded 89 institutions. We saw little to no change in representation at nonselective colleges and more selective public and private institutions. There were considerable declines in representation at selective colleges, where public institutions dropped from -0.8 percentage points to -3.2 percentage points and private institutions dropped from 1.4 percentage points to -2.0 percentage points.
- ⁸ The omitted states are Alaska, Delaware, Hawaii, Idaho, Maine, Mississippi, North Dakota, Nevada, Rhode Island, Utah, and West Virginia, Wyoming, and the District of Columbia.
- ⁹ The distribution of these more selective universities is as follows: two in Alabama, four in Georgia, four in Maryland, six in North Carolina, and three in South Carolina.
- ¹⁰ According to IPEDS, the number of four-year for-profit colleges increased 37 percent, from 177 to 242, from 2009 to 2013. Then, from 2013 to 2014, a single year, the number dropped to 192, or 21 percent. After this, the number of four-year for-profit colleges continued to decrease but less dramatically, with 176 institutions in 2017, about as many as in 2009.
- ¹¹ Total national enrollment in the for-profit sector each year does not vary nearly as dramatically in the IPEDS data as the number of institutions. We interpret this as suggestive evidence that for-profit colleges have changed their reporting practices in terms of how enrollments are assigned to different campuses. Notably, this still appears to be the case even after we throw out distance-education colleges (using both the IPEDS-provided flag, institutions with “online” in the name, and a hand-selected list after combing through the data), and colleges that are not Title IV-eligible. If the changes in these reporting practices are unequally distributed across the country, this may bias our estimates of average representativeness.

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