New Evidence on Recent Changes in College Applications, Admissions, and Enrollments

Focus on the Fall 2021 Admissions Cycle

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Executive Summary

The Admissions Research Consortium (ARC) is a collaborative research initiative that aims to help participating institutions gain insight into their own and their peers' admissions processes and outcomes, as well as changes in student behavior influenced by the covid-19 pandemic. Guided by a Core Advisory Committee (with representatives from the Association for Institutional Research [AIR], American Association of Collegiate Registrars and Admissions Officers [AACRAO], National Student Clearinghouse [NSC], and senior admission and enrollment practitioners) and a Research Advisory Committee composed of academic and institutional researchers, evidence and insights from ARC will inform future practice and policy in the years following the pandemic. This Research Brief presents initial evidence from ARC on changes in application, admission, and enrollment trends in the fall 2021 college application cycle compared to prior years, and evidence on applicants' decisions about whether or not to submit their test scores for consideration in the college admissions process.

Over 50 colleges, representing a range of selective public and private nonprofit four-year institutions in the U.S., provided data on their applications, admissions, and enrollments from fall 2018 to fall 2021. This information was merged with College Board assessment data to enable research on how college-going trends and outcomes were affected by pandemic-related disruptions. The data and analyses presented in this Research Brief are meant to inform admissions practitioners of point-in-time trends across a subset of institutions. The evidence does not necessarily generalize to all higher education institutions, nor should the patterns documented in fall 2021 be viewed as definitively stable in future years given the potential on-going and lasting effects of the pandemic on both students and institutions. ARC will continue as a multi-year research initiative to better understand longer-term trends and outcomes. Our research efforts will continue to rely on data from ARC institutions, expand to examine data that more broadly represent all higher education institutions, and incorporate findings from other researchers working in this space.

Three themes emerged from the initial analyses of the fall 2021 college application cycle.

Theme 1: Between fall 2020 and fall 2021, the number of applications, offers of admission, and students enrolled increased at institutions participating in ARC, and at rates above and beyond prior years. Nearly all student subgroups experienced increases in applications, offers of admission, and enrollment between fall 2020 and fall 2021.

Applications to ARC institutions increased 17.8% between fall 2020 and fall 2021, with application growth experienced by 96% of ARC institutions and across all types of ARC

institutions. While application growth outpaced growth in offers of admission and growth in enrollment, offers of admission from ARC institutions increased by 6.2% between fall 2020 and fall 2021, with admissions growth experienced by 65% of ARC institutions and across all types of ARC institutions except for More Selective Private ARC institutions. Enrollment in ARC institutions increased by 7.9% between fall 2020 and fall 2021, with increases in all types of institutions and enrollment growth experienced by 84% of ARC institutions.

Applications to ARC institutions grew for all student subgroups between fall 2020 and fall 2021. Admissions offers from ARC institutions also grew for all student subgroups except international students and students from the lowest two high school GPA quintiles. Enrollment at ARC institutions grew between fall 2020 and fall 2021 for all student subgroups except those from the lowest two high school GPA quintiles.

Theme 2: The composition of ARC applicants, admits, and enrollees, as measured by the proportional representation of student subpopulations, changed very little between fall 2018 and fall 2021, although there is variation across ARC institutions.

While applications to ARC institutions grew 17.8% last year, the share of under-represented minority (URM) student applications to ARC institutions remained flat at 26% over time due to similar growth in URM and non-URM student applications. The share of URM students among admitted students to ARC institutions rose roughly 1 percentage point to 26% in fall 2021 after being flat at 25% in prior years. URM student representation among enrolled students at ARC institutions increased by 0.5 percentage point each year since fall 2018, which suggests there was no overall break from prior trends between fall 2020 and fall 2021. Considerable variation in minority student representation exists across ARC institutions, with roughly half of institutions experiencing increases and the other half experiencing decreases in URM student representation between fall 2020 and fall 2021. Of the four ARC segments, More Selective Private ARC institutions experienced the largest growth in the share of URM enrollees between fall 2020 and fall 2021.

Among the various proxies for lower-socioeconomic status (first generation, low-income, and students from more disadvantaged neighborhoods), ARC institutions experienced either no change or decreases over time in the representation of lower-socioeconomic status students. As with URM student representation, there is considerable variation across ARC institutions such that roughly half of institutions experienced increases and half experienced decreases in lower-socioeconomic status student representation between fall 2020 and fall 2021. Across all types of ARC institutions, More Selective Private ARC institutions experienced the largest growth in the share of lower-socioeconomic status enrollees between fall 2020 and fall 2021.

Theme 3: Approximately half of applications to ARC institutions in fall 2021 included SAT/ACT scores that students chose to disclose, another 30% of applications withheld SAT scores, and roughly 20% had no recorded SAT score but may have withheld an ACT score. Students' SAT scores (relative to the college to which they apply) are the strongest single predictor of their decision to disclose a score in the application process.

Among the nearly 1.5 million applications to ARC institutions for fall 2021 entry, nearly 50% disclosed an SAT/ACT score, while nearly 30% withheld an SAT score and 20% had no recorded SAT score. Test score disclosers had higher average test scores and higher average high school grades than test score withholders.

Regression analyses reveal that test score, relative to test scores at the college to which students apply, is the strongest determinant of a student's decision to disclose a score, where higher scoring students disclose scores at higher rates than lower scoring students, on average. High school grades and student demographics add little additional information about who discloses scores. Practically, these regression results imply that students with very similar test scores and high school grades make very similar score disclosure decisions when applying to ARC institutions regardless of other demographics like race/ethnicity, first generation status, socioeconomic status. Previously published differences in score disclosure patterns by race, parental education, and income are attributable to differences in academic achievement among score disclosers and withholders, for which those analyses were unable to control (Freeman et al., 2021).

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The Admissions Research Consortium (ARC)

The Admissions Research Consortium (ARC) is a collaborative research initiative that aims to help participating institutions gain insight into their own and their peers' admissions processes and outcomes, as well as changes in student behavior influenced by the covid-19 pandemic. Guided by a Core Advisory Committee (with representatives from the Association for Institutional Research [AIR], American Association of Collegiate Registrars and Admissions Officers [AACRAO], National Student Clearinghouse [NSC], and senior admission and enrollment practitioners) and a Research Advisory Committee composed of academic and institutional researchers, evidence and insights from ARC will inform future practice and policy in the years following the pandemic. This Research Brief presents initial evidence from ARC on changes in application, admission, and enrollment trends in the fall 2021 college application cycle compared to prior years.

Over 50 colleges, representing a range of selective public and private nonprofit four-year institutions in the U.S., provided data on their applications, admissions, and enrollments from fall 2018 to fall 2021. This information was merged with College Board assessment data to enable research on how college-going trends and outcomes were affected by pandemic-related disruptions. The data and analyses presented in this Research Brief are meant to inform admissions practitioners of point-in-time trends across a subset of institutions. The evidence does not necessarily generalize to all higher education institutions, nor should the patterns documented in fall 2021 be viewed as definitively stable in future years given the potential on-going and lasting effects of the pandemic on both students and institutions. ARC will continue as a multi-year research initiative to better understand longer-term trends and outcomes. Our research efforts will continue to rely on data from ARC institutions, expand to examine data that more broadly represent all higher education institutions, and incorporate findings from other researchers working in this space.

Guiding Principles for Interpreting ARC Data

There has never been a college application cycle like fall 2021. When examining changes brought about by the pandemic, it is critical to recognize the many things simultaneously affecting students and institutions: a global health crisis, a domestic economic crisis, learning losses, mental health challenges, changes in opportunities to take standardized assessments, and changes to college applications processes and practices including a near-universal shift to test optional admissions policies that allowed students the opportunity to choose whether to disclose or withhold their standardized test scores when applying. The ARC Core Advisory Committee and Research Advisory Committee members have cautioned about the importance of interpreting all data with care according to three principles.

1. **Avoid causal interpretations of descriptive, correlational data as well as confirmation bias.** With so many factors changing simultaneously, the analyses in this Brief describe the combined effect of all factors on students and colleges and do not provide causal evidence on the impact of any one factor on students or colleges. The data in this Brief are presented in a straight-forward manner and without interpretation that confirms any perspective or belief. The data are intended to fuel discussion and further research, both quantitative and qualitative.

2. **Be clear about what is not measurable or not visible in the data and where it is impossible to ensure that analyses are comparing apples to apples.** The pandemic created disruptions to learning, mental health, physical health, opportunities to test, etc. in ways that were not uniformly experienced – geographically, socioeconomically, or demographically. Most of these factors are likely to influence choices and outcomes, yet impossible to measure in existing data and thus may conflate results.

3. **Recognize the dynamic nature of the moment and avoid the urge to craft a definitive narrative based on one point in time or a single data point.** Because the impacts of the covid-19 pandemic are multi-dimensional and not uniformly experienced, the data in this Brief must be viewed as part of a larger story that is still unfolding as we continue to study (a) how the 2021 cohort progresses through college, (b) how future cohorts of students navigate the college-going process, and (c) how college policies and practices continue to change. The student and college behavior documented in this Brief is still evolving in response to the pandemic, longstanding educational disparities, and the interaction of those factors.

ARC Data Sample and Definitions

ARC Data Sample

In 2021, ARC institutions shared administrative data on applications, admissions, and enrollments from fall 2018 to fall 2021. These data, which also include a robust set of student demographic and academic variables, were merged to College Board assessment data to enable insight into students who disclosed and withheld SAT test scores in the first year of widespread test optional admissions policies brought on by the pandemic. This Research Brief provides initial evidence on student and college choices based on the combined dataset, which covers a sample of 51 four-year public and private nonprofit institutions.

We categorize these 51 institutions into four ARC institutional segments defined by institutions' sector and selectivity:[1]

- **More Selective Private Colleges**: 16 private institutions with admit rates below 25%
- **Selective Private Colleges**: 16 private institutions with admit rates above 25%
- **More Selective Public Colleges**: 10 public institutions with admit rates below 60%
- **Selective Public Colleges**: 9 public institutions with admit rates above 60%

ARC colleges in the More Selective Private and More Selective Public segments are quite representative of all institutions in those same segments, while ARC colleges in the Selective Private and Selective Public segments tend to be more selective than non-ARC institutions in those same segments (see Appendix Table A1 for more detail).

ARC Data Definitions

This Brief employs the following terms and definitions:

Application cohorts*, *application cycles*, and *admission cycles are indexed according to the fall entry term for which students applied (e.g., fall 2021). Because ARC studies the fall 2021 admissions process and its outcomes, all analyses in this report group students according to the fall entry term for which they *applied*, even if students deferred first-year *enrollment* to a later entry term. Thus, applicants for fall 2020 who deferred enrollment to fall 2021 are grouped as enrollees from the fall 2020 application cohort.

Applications refers to the aggregate number of applications ARC institutions collectively received and evaluated, which is notably larger than the number of unique *applicants* who applied to ARC institutions, since some students applied to several ARC institutions.

Admissions refers to the aggregate number of admissions offers ARC colleges collectively extended, while *admits* and *admitted students* refer to unique students offered admission, and *admit rate* refers to the fraction of applications offered admission.

Underrepresented Minority (URM) students are defined as students who are Black, Hispanic/Latinx, Native American, Native Hawaiian/Pacific Islander, and Two or More Races.

Parental education and ***Income status*** data come from ARC colleges and are based on the institutions' own ways of collecting and designating parental education and which students are low-income and not low-income.

Landscape neighborhood challenge is a measure of students' neighborhood background, used below as a proxy for students' socioeconomic status. Landscape neighborhood challenge is a neighborhood-level attribute constructed based on U.S. Census data and a nationally representative sample of high school graduates, and it has been used by many

[1] Admit rates are based on data from ARC colleges and are calculated as a weighted average using Fall 2018-2020 application data.

participating colleges in recent application cycles. Neighborhood challenge levels are expressed on a 1-100 percentile scale, where higher values indicate higher levels of challenge related to educational opportunities and outcomes. For example, a neighborhood with a Landscape challenge level of 64 has a higher level of educational challenge than 64% of neighborhoods in the U.S. Likewise, 20% of U.S. neighborhoods fall into each quintile of Landscape neighborhood challenge.

Thirty participating colleges provided data on applicants' ***recalculated high school grade point averages (HSGPAs)***. Because different colleges employ different grade scales when recalculating applicant HSGPAs, we created five HSGPA quintiles using college-specific HSGPA quintile cut-points based on the HSGPA distribution among each college's fall 2018-2020 applicants. At each college reporting recalculated HSGPAs, roughly 20% of fall 2018-2020 applicants fall into each quintile of recalculated HSGPA.

When considering SAT/ACT scores, we distinguish between *disclosed* and *recorded* SAT/ACT scores. ***Disclosed SAT/ACT scores*** are SAT/ACT scores that students submitted to ARC colleges for consideration in the admissions process. ***Recorded SAT/ACT scores*** include all SAT/ACT scores that students disclosed to ARC colleges *as well as SAT scores that applicants withheld but that are observable in College Board administrative data*. For students who did not disclose a score, the score utilized from College Board administrative data is the highest combination of SAT section scores from across all of a student's SAT scores.

Feeder high schools are defined as high schools that sent more than 30 applications to an institution over the fall 2018-2020 application cycles.

Throughout this Brief, data for groups of fewer than 10 observations are suppressed. In tables, asterisks (*) denote data suppression for cells with fewer than 10 observations.

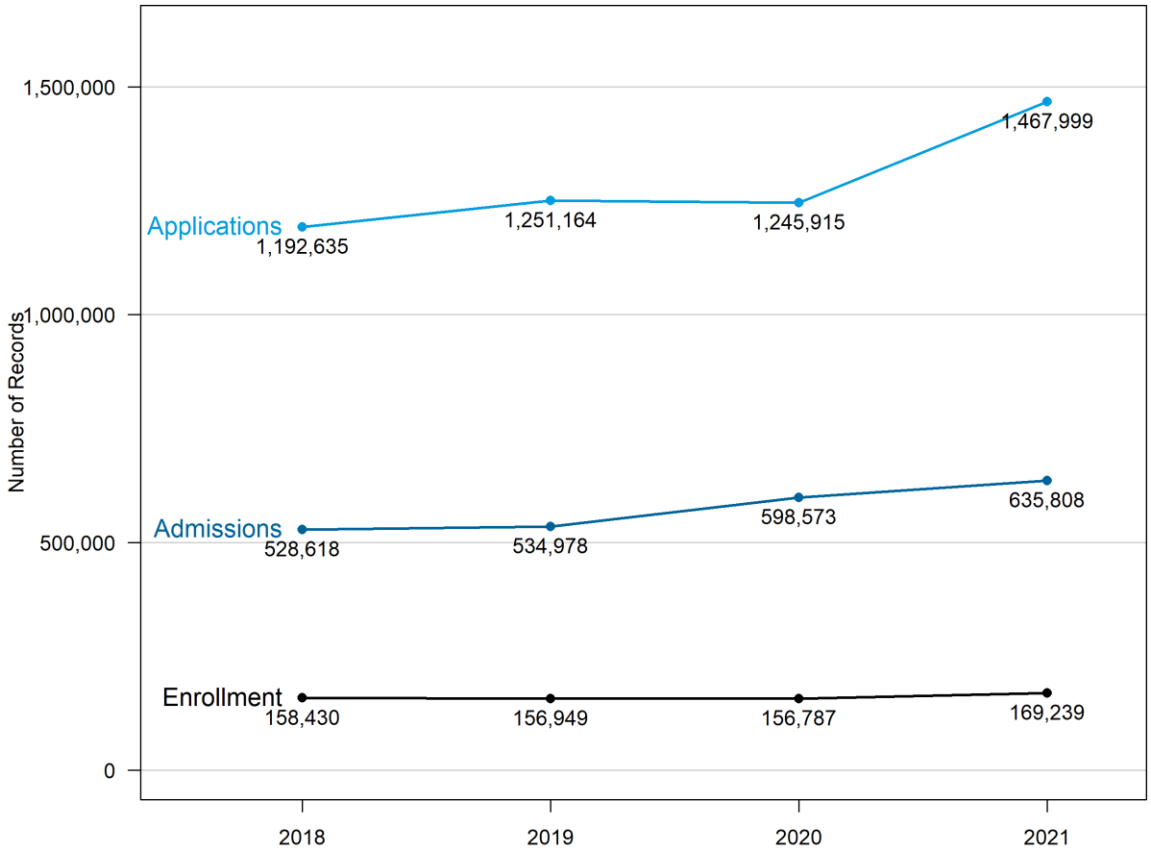
ARC Fall 2021 Admissions Cohort: Aggregate Changes in College Applications, Admissions Offers, and Enrollment

Aggregate Enrollment Funnel Insights

Between the fall 2018 and fall 2021 admission cycles, ARC institutions received more than 5.1 million applications, extended nearly 2.3 million offers of admission, and enrolled nearly 650,000 first-year students. This sample comprises the dataset analyzed in this report.[2]

Figure 1 displays counts of applications, admissions offers, and first-year enrollment at all ARC institutions from fall 2018 through fall 2021. Applications sharply increased from fall 2020 to fall 2021, while admission offers steadily increased over the four years and enrollment increased from fall 2020 to fall 2021 at higher rates than previous cycles.

Figure 1: ARC Colleges' Enrollment Funnel, Fall 2018-2021



[2] This analysis sample excludes about 1 million applications to ARC institutions that were incomplete or withdrawn before an admission decision was reached.

Figure 2 compares funnel trends over time at all ARC institutions and the four segments of ARC institutions. To better compare funnel trends across institution segments that differ in size and selectivity, we express each data series as an index anchored to the fall 2018 academic year, which corresponds to the start of ARC historical data. Each index has a value of 100 in the base year.

Key takeaways from Figure 2:

- Between the fall 2018 and fall 2021 application cycles, total applications to ARC institutions increased 23%, but there is considerable variation across the four segments, with More Selective Private ARC institutions experiencing the greatest application growth (29%) over this three-year period.
- From fall 2018 to fall 2021, admission offers from ARC colleges grew by 20%. Admissions growth occurred in all institutional segments except More Selective Private colleges, where fall 2021 admissions offers declined by 4% compared to fall 2018.
- Across all ARC colleges, yield rates rebounded slightly in fall 2021 following a decrease between fall 2019 and fall 2020. This rebound in yield rates occurred in all four segments of ARC colleges and was strongest at More Selective Private ARC colleges.
- Between fall 2018 and fall 2021, enrollment at ARC colleges grew by 7%, with virtually all of that growth occurring between fall 2020 and fall 2021.

Figure 2: Enrollment Funnel for ARC Colleges and Segments, Fall 2018-2021

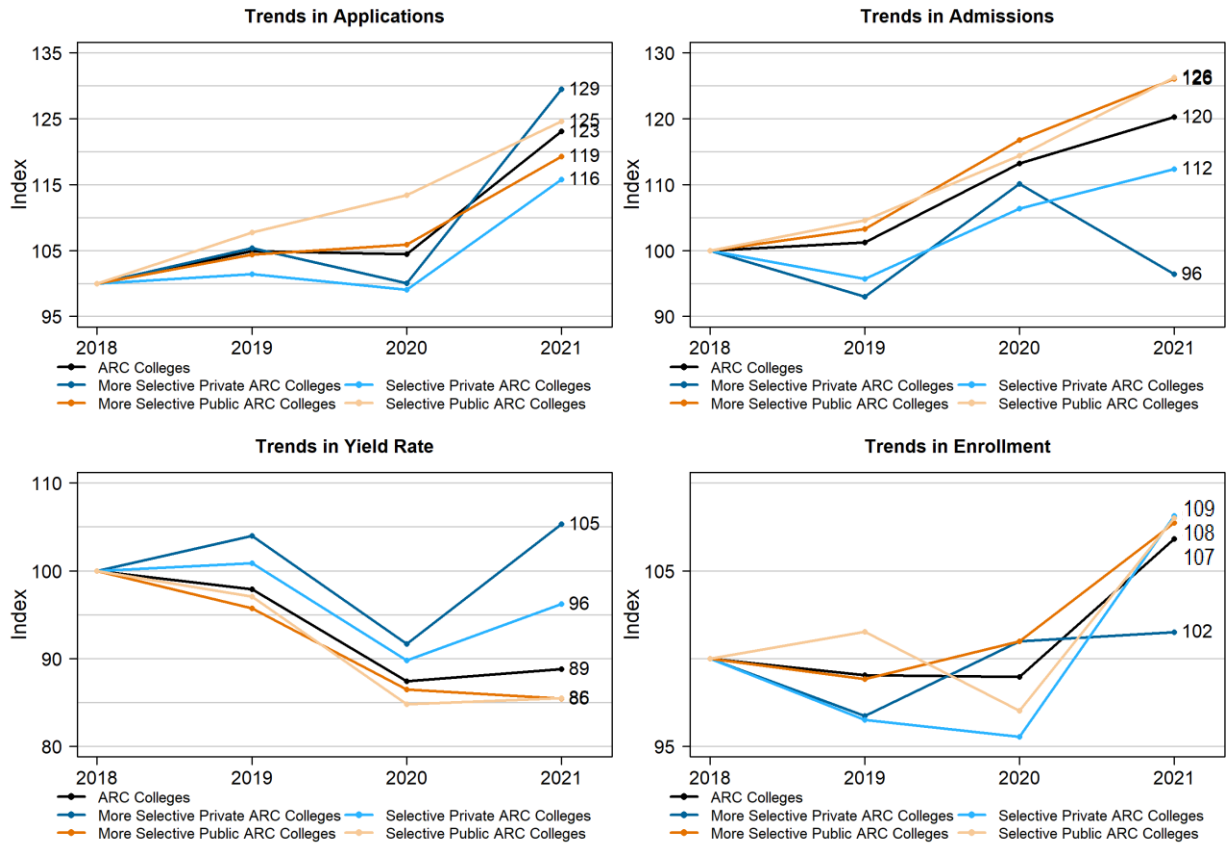


Figure 3 shows aggregate changes in the funnel of all ARC colleges and each ARC segment from the fall 2020 to fall 2021 cycle.

Key takeaways from Figure 3:

- Between fall 2020 and fall 2021, applications to ARC institutions grew by 17.8%. More Selective Private ARC colleges experienced the largest application growth (29.4%).
- Between fall 2020 and fall 2021, admission offers from ARC institutions grew by 6.2%. Offers grew by 10.4% at Selective Public colleges but declined by 12.5% at More Selective Private colleges.
- In the aggregate, ARC institutions expanded first-year enrollment by 7.9% from fall 2020 to fall 2021. Enrollment grew substantially in all ARC segments except More Selective Private ARC institutions, where enrollment increased 0.5% between fall 2020 and fall 2021.

Figure 3: Percentage Change in Applications, Admissions, and Enrollment Between Fall 2020 and Fall 2021, ARC Colleges and Segments

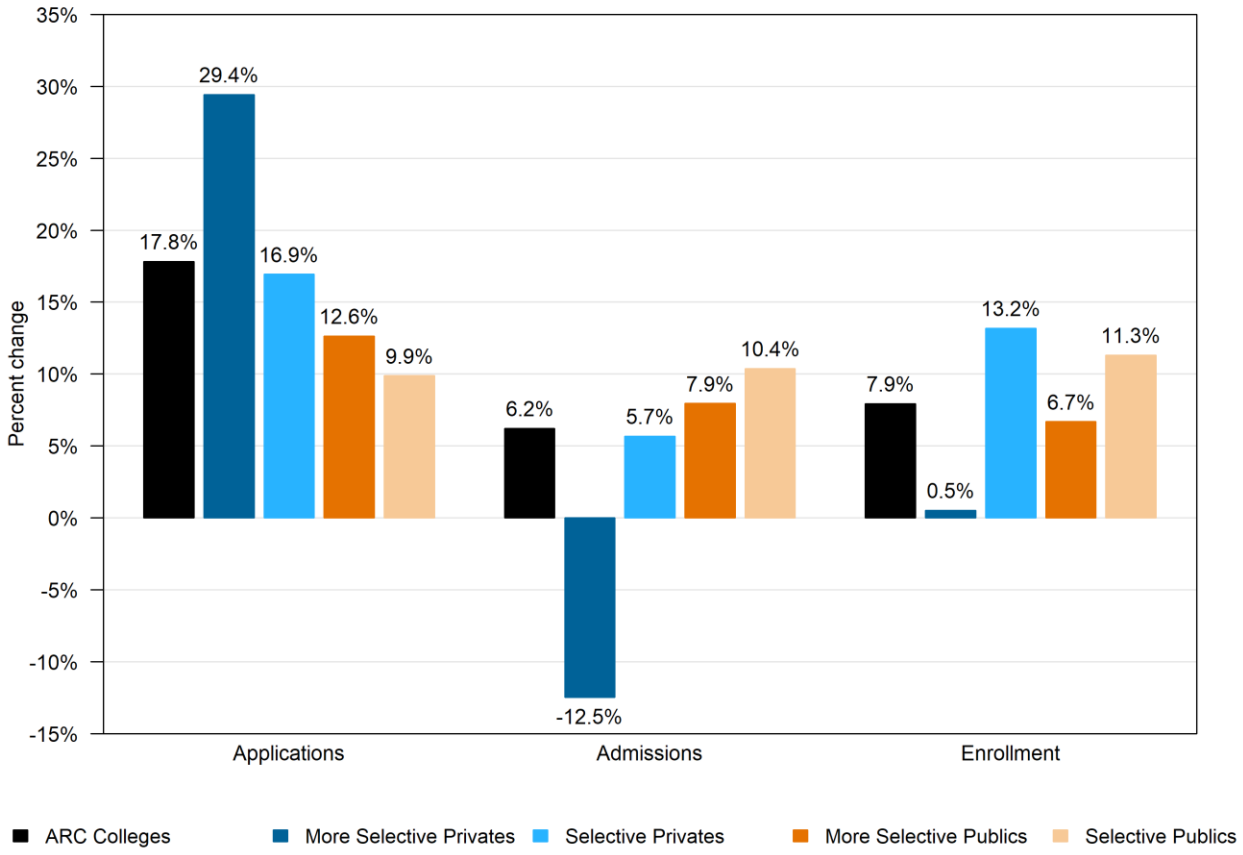


Figure 4 shows how the 17.8% growth in **application** volume across all ARC institutions breaks down across different student subgroups.

Key takeaways from Figure 4:

- Between fall 2020 and fall 2021, applications to ARC colleges grew among all student subgroups.
- Application growth between fall 2020 and fall 2021 to ARC colleges was larger among students with high HSGPAs than students with low HSGPAs.
- Application growth between fall 2020 and fall 2021 to ARC colleges was larger among non-first generation students than first generation students.
- Application growth between fall 2020 and fall 2021 at ARC colleges was larger among students from less challenging neighborhoods than more challenging neighborhoods.

Figure 4: Percentage Change in Applications to ARC Colleges Between Fall 2020 and Fall 2021, by Student Characteristics

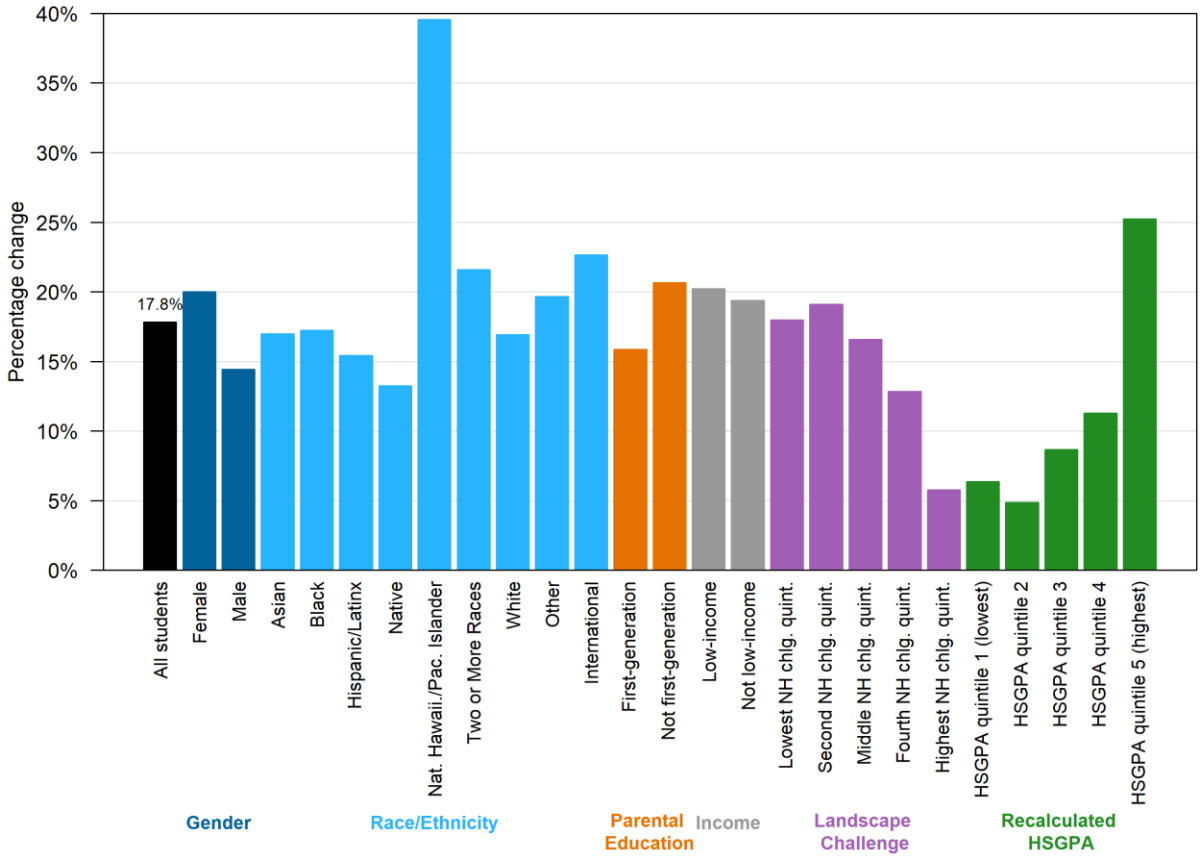


Table 1 provides data on percentage changes in **applications** between fall 2020 and fall 2021 for each of the four ARC segments alongside the aggregate ARC data presented in Figure 4. Application growth between fall 2020 and fall 2021 was largest at More Selective Privates, and substantial variations in application growth exist between segments by race/ethnicity, parent education and low-income status.

Table 1: Percentage Changes in Applications Between Fall 2020 and Fall 2021, by ARC Segment and Student Characteristics

Group	Percentage Change in Applications, Fall 2020-Fall 2021				
	ARC Colleges	More Selective Privates	Selective Privates	More Selective Publics	Selective Publics
All students	17.8%	29.4%	16.9%	12.6%	9.9%
Gender[1]					
Female	20.0%	31.4%	19.8%	13.8%	12.8%
Male	14.4%	24.5%	13.0%	11.2%	6.6%
Race/Ethnicity					
Asian	17.0%	20.7%	17.1%	13.9%	12.7%
Black	17.2%	33.1%	13.5%	12.8%	10.0%
Hispanic/Latinx	15.4%	34.1%	17.7%	4.0%	7.8%
Native	13.3%	16.1%	22.1%	24.1%	2.1%
Native Hawaiian/Pac. Islander	39.5%	64.4%	36.5%	31.8%	24.0%
Two or More Races	21.6%	30.1%	22.1%	16.7%	15.2%
White	16.9%	26.0%	17.9%	13.7%	12.4%
Other	19.7%	18.6%	13.7%	28.0%	12.5%
International	22.6%	42.2%	14.6%	12.4%	-4.5%
Parental education (44 colleges)					
First-generation	15.9%	33.6%	15.4%	7.1%	1.5%
Not first-generation	20.6%	29.3%	17.5%	16.6%	13.6%
Parental education unknown	6.6%	-93.0%	8.7%	9.4%	0.1%
Income status (26 colleges)					
Low-income	20.2%	37.9%	-11.4%	-6.0%	4.6%
Not low-income	19.4%	26.5%	28.5%	12.7%	9.0%
Income unknown	15.7%	31.6%	13.9%	14.6%	11.5%
Landscape NH challenge					
Lowest NH challenge quintile	18.0%	24.7%	18.6%	15.2%	13.3%
Second NH challenge quintile	19.1%	28.9%	18.5%	14.3%	14.3%
Middle NH challenge quintile	16.6%	27.7%	14.4%	12.3%	10.7%
Fourth NH challenge quintile	12.8%	27.6%	12.2%	5.6%	6.5%
Highest NH challenge quintile	5.8%	22.8%	4.8%	-0.6%	-3.1%
Missing NH challenge	23.9%	43.5%	18.3%	13.5%	-3.7%
Recalculated HSGPA (30 colleges)					
HSGPA quintile 1 (lowest)	6.4%	35.4%	9.0%	11.4%	-14.9%
HSGPA quintile 2	4.9%	27.4%	10.8%	5.5%	-11.5%
HSGPA quintile 3	8.7%	28.9%	14.6%	8.0%	-5.7%
HSGPA quintile 4	11.3%	43.0%	19.0%	11.5%	-2.4%
HSGPA quintile 5 (highest)	25.2%	31.7%	30.1%	27.0%	13.7%
HSGPA missing	24.9%	28.4%	14.8%	11.6%	38.9%

[1]Data for students of non-binary/other gender and unknown gender are omitted due to small sample sizes.
Note: Asterisks (*) denote data suppression for cells with <10 observations.

Figure 5 shows how the 6.2% growth in aggregate **admission offers** among ARC institutions breaks down across different student subgroups.

Key takeaways from Figure 5:

- Between fall 2020 and fall 2021, aggregate admission offers to ARC colleges grew among all demographic subgroups **except** international applicants and applicants with lower high school grades.
- Admission offers growth at ARC colleges was larger among underrepresented minority applicants than among Asian and White applicants.
- Admission offers growth was larger among students with high HSGPAs than among students with low HSGPAs.

Figure 5: Percentage Change in Admission Offers at ARC Colleges Between Fall 2020 and Fall 2021, by Student Characteristics

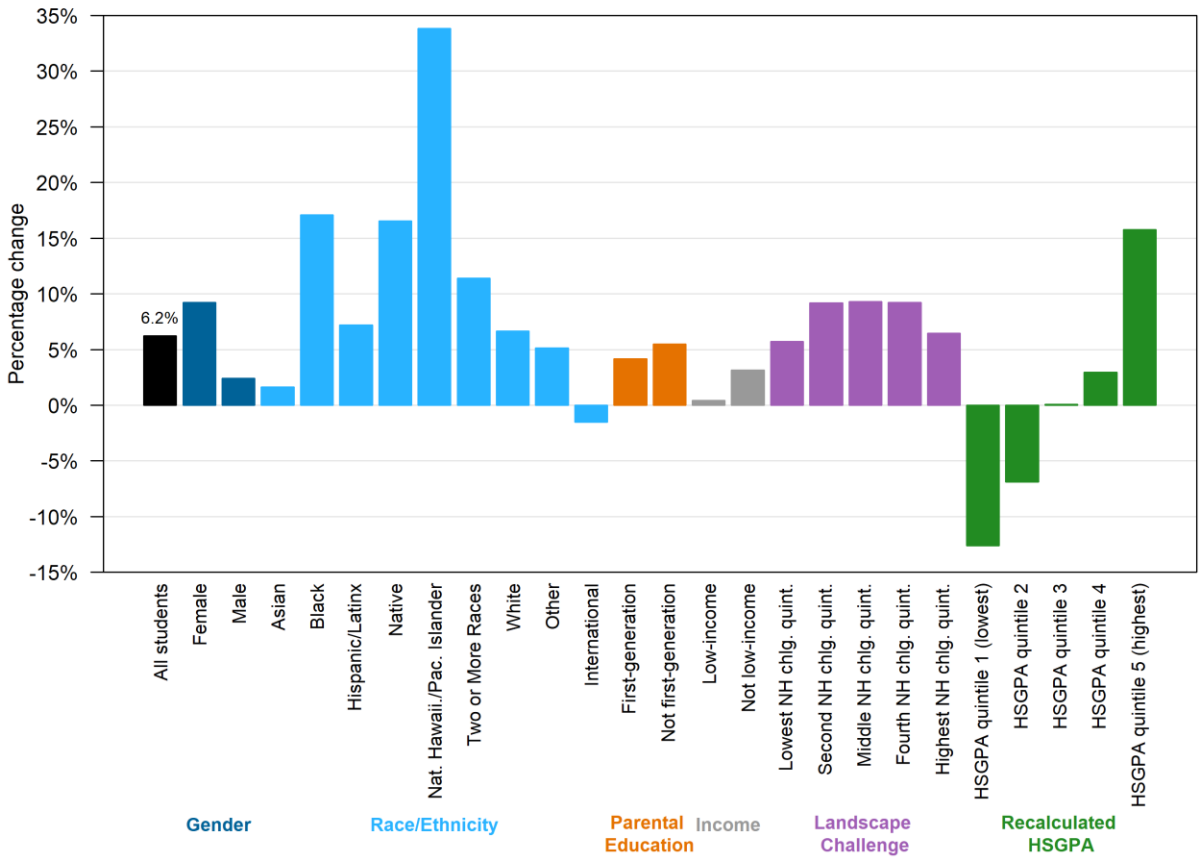


Table 2 provides data on growth in aggregate **admission offers** between fall 2020 and fall 2021 for each of the four ARC segments alongside the aggregate ARC college data presented in Figure 5. Offers of admission grew among most student subgroups in all segments except at More Selective Private ARC colleges, where offers of admission primarily declined in fall 2021 relative to fall 2020 except among some minority student subgroups, first generation, low-income and high challenge students.

Table 2: Percentage Changes in Admission Offers Between Fall 2020 and Fall 2021, by ARC Segment and Student Characteristics

Group	Percentage Change in Admission Offers, Fall 2020-Fall 2021				
	ARC Colleges	More Selective Privates	Selective Privates	More Selective Publics	Selective Publics
All students	6.2%	-12.5%	5.7%	7.9%	10.4%
Gender[1]					
Female	9.2%	-10.8%	4.8%	12.0%	14.8%
Male	2.4%	-15.0%	6.9%	2.8%	5.1%
Race/Ethnicity					
Asian	1.6%	-20.8%	3.7%	3.7%	9.6%
Black	17.1%	0.4%	3.4%	23.4%	22.2%
Hispanic/Latinx	7.2%	-3.5%	2.1%	8.7%	12.0%
Native	16.5%	-9.4%	35.7%	39.7%	12.4%
Native Hawaiian/Pac. Islander	33.8%	18.5%	68.4%	27.8%	27.4%
Two or More Races	11.4%	2.4%	14.1%	9.2%	15.1%
White	6.6%	-15.0%	7.3%	4.4%	11.9%
Other	5.1%	-28.6%	-0.3%	18.3%	6.8%
International	-1.5%	-12.8%	3.2%	12.3%	-5.9%
Parental education (44 colleges)					
First-generation	4.2%	3.5%	-4.7%	7.1%	5.9%
Not first-generation	5.5%	-14.2%	7.1%	6.2%	11.1%
Parental education unknown	10.2%	*	9.8%	10.0%	13.5%
Income status (26 colleges)					
Low-income	0.4%	0.9%	-21.5%	5.2%	10.0%
Not low-income	3.2%	-16.3%	14.9%	5.7%	6.4%
Income unknown	9.4%	-5.7%	3.3%	9.0%	14.5%
Landscape NH challenge					
Lowest NH challenge quintile	5.7%	-17.5%	7.9%	5.5%	11.5%
Second NH challenge quintile	9.2%	-9.8%	5.9%	10.5%	14.3%
Middle NH challenge quintile	9.3%	-5.9%	-1.7%	13.0%	14.3%
Fourth NH challenge quintile	9.2%	3.7%	-1.9%	11.1%	13.3%
Highest NH challenge quintile	6.5%	12.0%	-9.3%	8.8%	8.4%
Missing NH challenge	-0.3%	-10.9%	8.0%	10.0%	-5.1%
Recalculated HSGPA (30 colleges)					
HSGPA quintile 1 (lowest)	-12.6%	-21.6%	-15.1%	5.6%	-17.0%
HSGPA quintile 2	-6.9%	-32.9%	0.3%	5.3%	-13.0%
HSGPA quintile 3	0.1%	-17.5%	9.7%	4.1%	-5.0%
HSGPA quintile 4	3.0%	0.7%	14.9%	4.1%	-2.5%
HSGPA quintile 5 (highest)	15.7%	-3.9%	15.3%	22.0%	12.6%
HSGPA missing	10.6%	-13.1%	-1.8%	3.8%	45.0%

[1]Data for students of non-binary/other gender and unknown gender are omitted due to small sample sizes.
Note: Asterisks (*) denote data suppression for cells with <10 observations.

Figure 6 shows how the 7.9% aggregate **enrollment** growth among ARC institutions breaks down across different student subgroups.

Key takeaways from Figure 6:

- Between fall 2020 and fall 2021, enrollment at ARC colleges grew among all student subgroups except students with lower high school grades.
- Enrollment growth was larger among students who were not first generation than among first generation students, and larger among students who were not low-income than among low-income students.
- Enrollment growth was slightly larger among students from moderately challenging neighborhoods than among more-challenging and less-challenging neighborhoods.

Figure 6: Percentage Change in Enrollment at ARC Colleges Between Fall 2020 and Fall 2021, by Student Characteristics

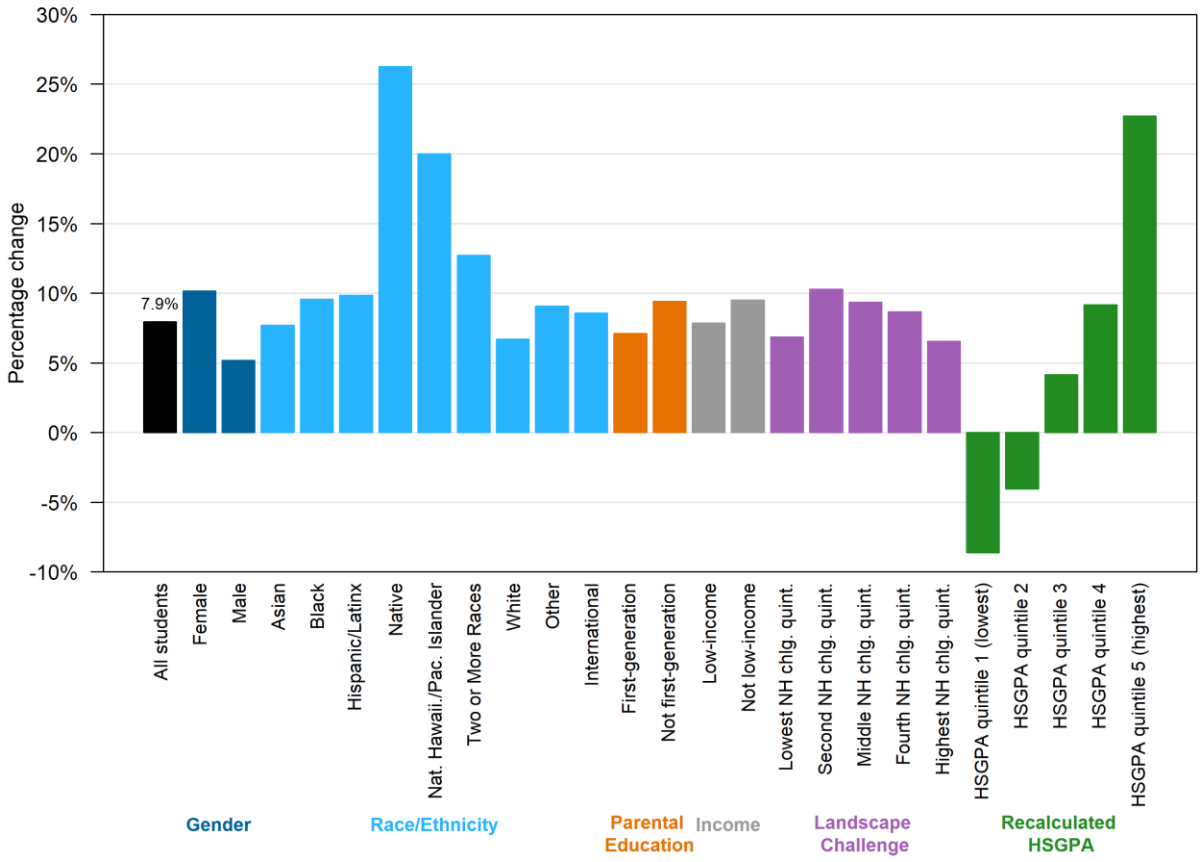


Table 3 provides data on aggregate **enrollment** growth between fall 2020 and fall 2021 for each of the four ARC segments alongside the aggregate ARC college data presented in Figure 6. Notably, enrollment growth at More Selective Private ARC colleges substantially exceeds overall enrollment growth at ARC colleges among some minority student subgroups, first generation, low-income, and high challenge students. Private college first-year enrollments are roughly one-quarter the size of public colleges, on average, which is consistent with larger percentage changes (see Appendix Table A2 for data on segment sizes).

Table 3: Percentage Changes in Enrollment Between Fall 2020 and Fall 2021, by ARC Segment and Student Characteristics

Group	Percentage Change in Enrollment, Fall 2020-Fall 2021				
	ARC Colleges	More Selective Privates	Selective Privates	More Selective Publics	Selective Publics
All students	7.9%	0.5%	13.2%	6.7%	11.3%
Gender[1]					
Female	10.2%	3.2%	13.8%	8.5%	14.4%
Male	5.2%	-3.4%	12.4%	4.4%	7.9%
Race/Ethnicity					
Asian	7.7%	-10.2%	15.5%	9.9%	17.1%
Black	9.6%	18.8%	16.0%	5.8%	8.7%
Hispanic/Latinx	9.8%	9.1%	10.4%	11.2%	8.4%
Native	26.3%	-16.9%	72.7%	47.4%	32.8%
Native Hawaiian/Pac. Islander	20.0%	-6.2%	64.7%	38.1%	14.0%
Two or More Races	12.7%	20.2%	10.5%	7.6%	14.9%
White	6.7%	-2.2%	13.8%	2.9%	11.2%
Other	9.1%	-3.0%	15.2%	11.3%	14.8%
International	8.6%	-0.1%	8.3%	52.9%	2.6%
Parental education (44 colleges)					
First-generation	7.1%	14.0%	10.8%	9.9%	1.8%
Not first-generation	9.4%	-1.3%	14.6%	9.5%	13.7%
Parental education unknown	3.1%	*	-4.1%	2.0%	14.7%
Income status (26 colleges)					
Low-income	7.9%	17.1%	2.0%	8.9%	1.8%
Not low-income	9.5%	-3.5%	29.2%	14.2%	10.9%
Income unknown	6.4%	4.3%	6.5%	2.2%	14.1%
Landscape NH challenge					
Lowest NH challenge quintile	6.9%	-5.6%	14.1%	4.1%	14.0%
Second NH challenge quintile	10.3%	4.8%	15.5%	9.1%	12.0%
Middle NH challenge quintile	9.3%	7.8%	10.3%	10.1%	8.5%
Fourth NH challenge quintile	8.7%	19.5%	9.3%	7.3%	6.4%
Highest NH challenge quintile	6.6%	22.1%	6.0%	1.9%	6.5%
Missing NH challenge	8.9%	4.0%	11.1%	36.0%	0.8%
Recalculated HSGPA (30 colleges)					
HSGPA quintile 1 (lowest)	-8.6%	-17.3%	-9.7%	10.0%	-13.8%
HSGPA quintile 2	-4.0%	-20.3%	-1.1%	8.3%	-9.1%
HSGPA quintile 3	4.1%	-5.2%	17.4%	1.5%	3.2%
HSGPA quintile 4	9.2%	19.6%	20.3%	6.5%	7.9%
HSGPA quintile 5 (highest)	22.7%	8.2%	19.4%	22.9%	28.1%
HSGPA missing	8.4%	1.0%	15.2%	1.1%	29.7%

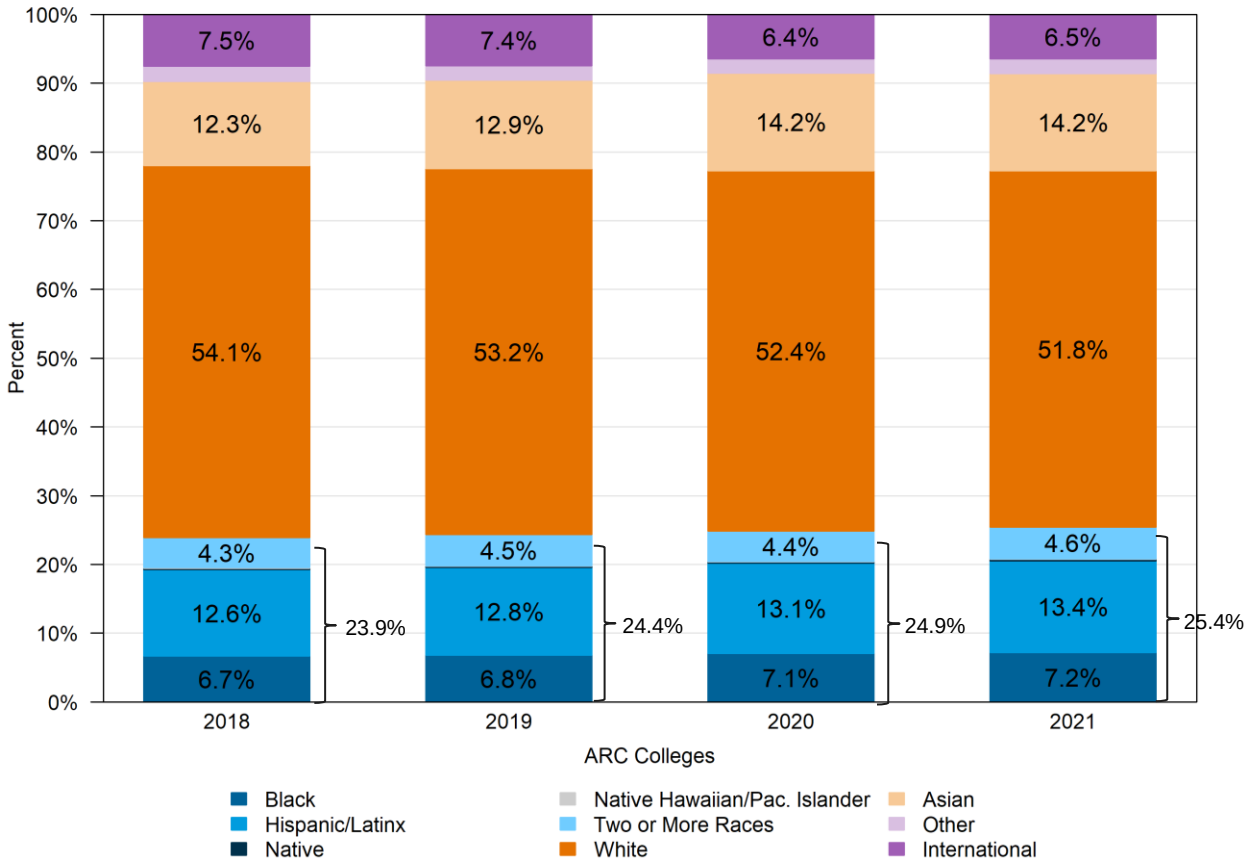
[1]Data for students of non-binary/other gender and unknown gender are omitted due to small sample sizes.
Note: Asterisks (*) denote data suppression for cells with <10 observations.

Aggregate Insights into Racial and Economic Diversity

Figure 7 shows how the racial/ethnic composition of ARC colleges' first-year enrollees changed between fall 2018 and fall 2021.[3]

- Across all ARC colleges, the share of underrepresented minority (URM) enrollees grew steadily from 23.9% in fall 2018 to 25.4% in fall 2021, increasing by 0.5 percentage points with each admission cycle.

Figure 7: Racial/Ethnic Composition of Enrolled Students from Fall 2018 to Fall 2021, ARC Colleges



[3] See Appendix Figures 28-31 for changes in the racial/ethnic composition of first-year enrollees in each ARC segment between Fall 2018 and Fall 2021.

Focusing on the past two admission cycles, Figure 8 shows how the racial/ethnic composition of enrolled students changed between fall 2020 and fall 2021 at ARC colleges and within each college segment. Despite growth in URM student enrollment, the racial/ethnic composition of first-year enrollees changed minimally between fall 2020 and fall 2021 at ARC colleges because enrollment among non-URM students grew at a similar rate.

- Across all ARC colleges, the URM share of first-year enrollees increased from 24.9% in fall 2020 to 25.4% in fall 2021, consistent with 0.5 percentage point growth in the URM share of first-year enrollees over each of the last four years.
- More Selective Private ARC colleges' first-year enrollees were 26.0% URM students in fall 2020 and grew to 29.4% URM students in fall 2021, but the URM share of enrollees remained roughly flat in the other segments.
- Considerable variation exists across ARC institutions, with roughly half of institutions experiencing increases and the other half experiencing decreases in URM representation between fall 2020 and fall 2021.
- The patterns observed below – nearly flat URM student representation in ARC segments except for More Selective Private ARC institutions – is consistent with analyses based on a near-universal set of U.S. four-year institutions using College Board and National Student Clearinghouse data (Howell et al., 2021, 2022).

Figure 8: Racial/Ethnic Composition of Enrolled Students in Fall 2020 and Fall 2021, ARC Colleges and ARC Segments

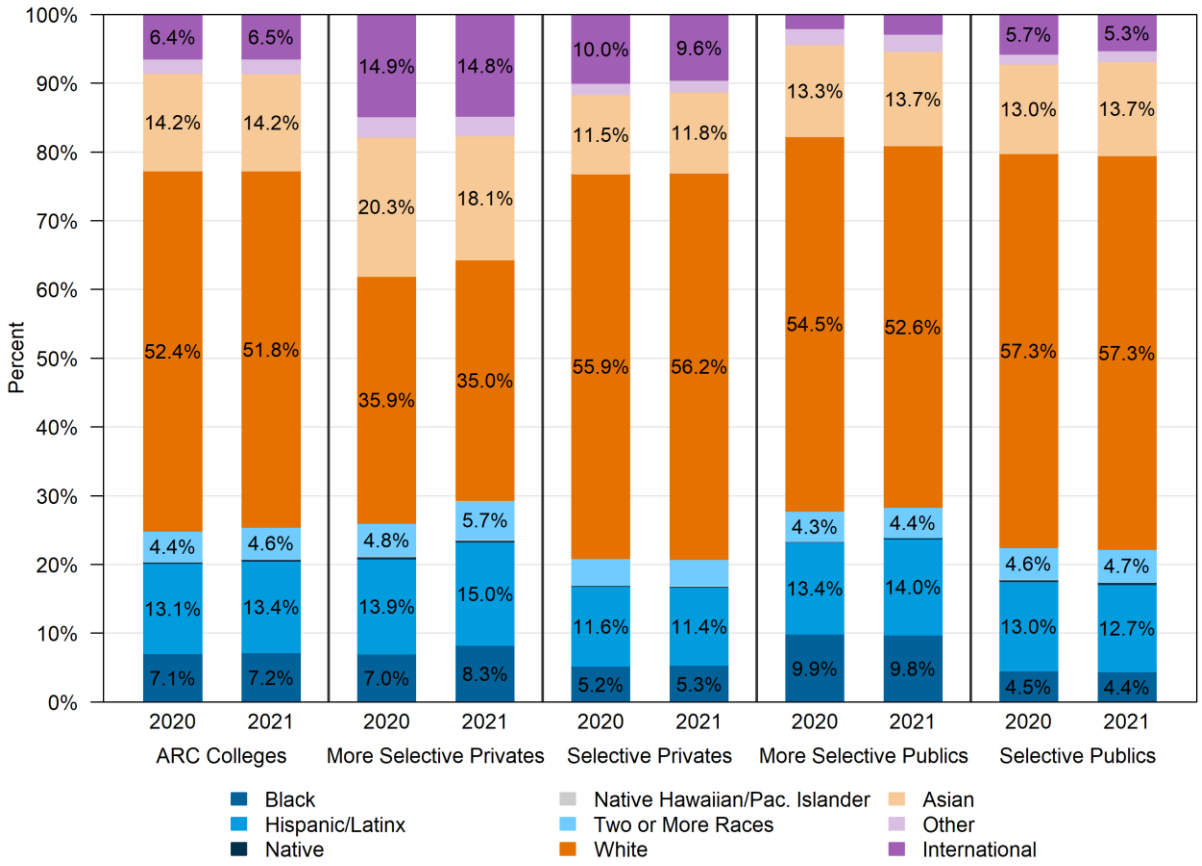
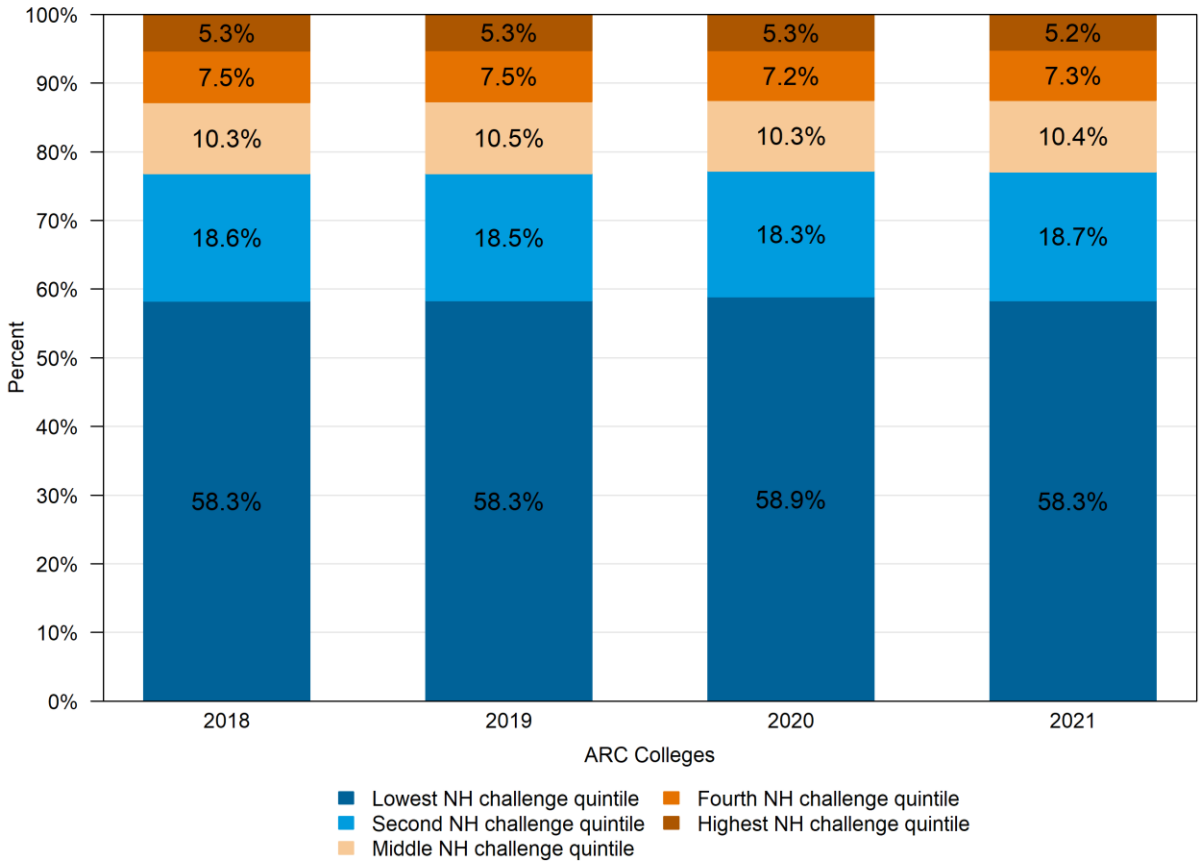


Figure 9 uses Landscape neighborhood challenge data to show how the socioeconomic composition of ARC colleges' first-year enrollees changed between fall 2018 and fall 2021.[4]

- Across all ARC colleges, the share of domestic first-year enrollees from neighborhoods in the three highest challenge quintiles remained quite stable, declining modestly from 23.1% in fall 2018 to 22.9% in fall 2021.

Figure 9: Socioeconomic Composition of Enrolled Students from Fall 2018 to Fall 2021, ARC Colleges

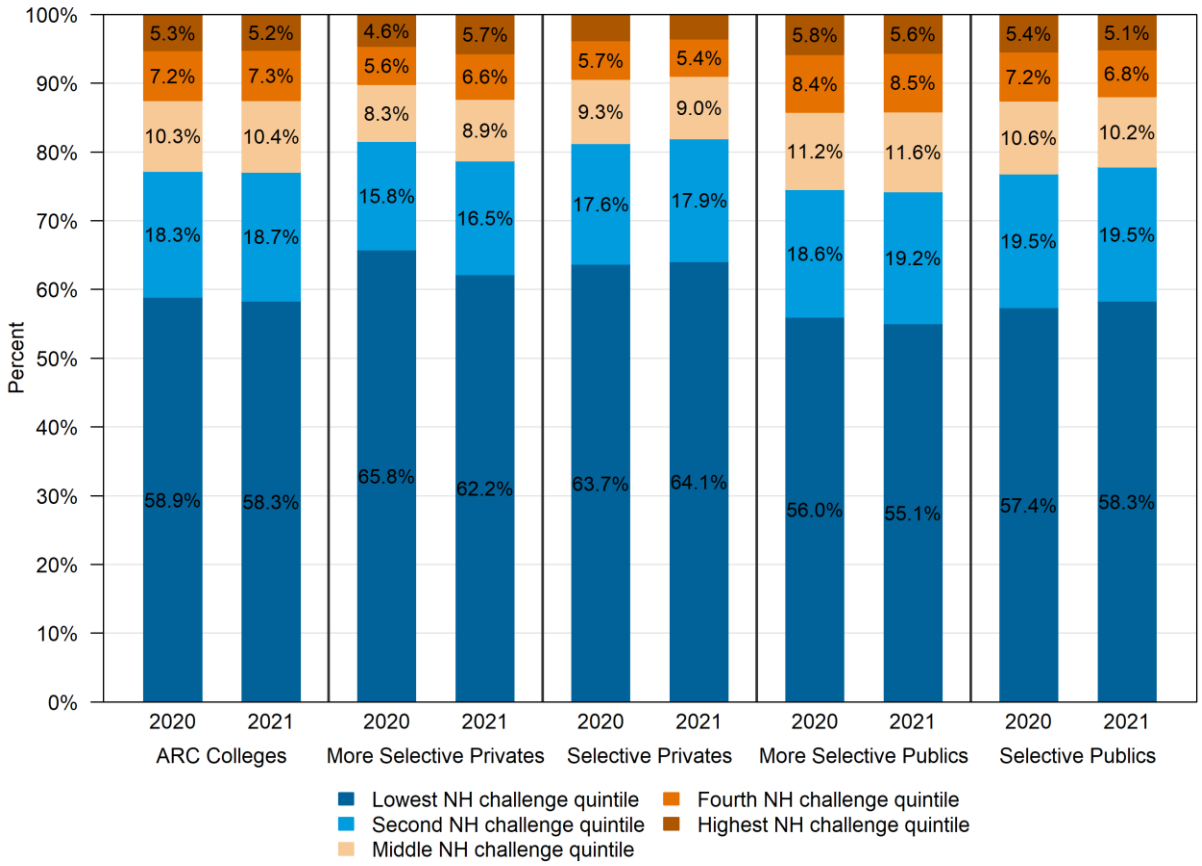


[4] Figure 9 excludes students missing Landscape neighborhood challenge information. Since Landscape challenge data are not available for international students, Figure 9 represents the socioeconomic composition of domestic enrollees by neighborhood challenge quintile. See https://secure-media.collegeboard.org/landscape/comprehensive-data-methodology-overview.pdf for more information on neighborhood challenge data.

Focusing on the past two admission cycles, Figure 10 shows how the socioeconomic composition of enrolled students changed between fall 2020 and fall 2021 at ARC Colleges and within each college segment.[5] Despite growth in the number of first generation, low income, and higher-challenge students, the socioeconomic composition of enrollees in most ARC segments changed minimally between fall 2020 and fall 2021.

- Across all ARC colleges, the share of students from the fourth and fifth neighborhood challenge quintiles was 12.5% in both fall 2020 and fall 2021.
- Only More Selective Private ARC colleges experienced an increase in the share of students from more challenging neighborhoods between fall 2020 and fall 2021.
- Between fall 2020 and fall 2021, roughly half of ARC colleges experienced increases in the mean neighborhood challenge level of their first-year enrollees, while the other half experienced decreases in first-year enrollees' mean neighborhood challenge level.
- The patterns below in ARC segments also hold in the larger population of colleges and universities based on analyses of National Student Clearinghouse data.

Figure 10: Socioeconomic Composition of Enrolled Students in Fall 2020 and Fall 2021, ARC Colleges and ARC Segments



[5] Figure 10 excludes students missing Landscape neighborhood challenge information. Since Landscape challenge data are not available for international students, Figure 10 represents the socioeconomic composition of domestic enrollees by neighborhood challenge quintile. See https://secure-media.collegeboard.org/landscape/comprehensive-data-methodology-overview.pdf for more information on neighborhood challenge data.

Aggregate Insights into Test Score Disclosure and Withholding

Linking ARC institutions' applicant records to College Board data enables us to distinguish fall 2021 applicants with no recorded SAT score, applicants who disclosed scores, and applicants who withheld SAT scores. Specifically, we categorize fall 2021 applicants into three groups:

1. **No-SAT** applicants had no SAT score and either withheld an ACT score or had no ACT score.[6]
2. **Score disclosers** are applicants who provided an SAT/ACT score for consideration in admissions.
3. **Score withholders** are applicants who had an SAT score and withheld it.

No-SAT score applicants and score withholders are indistinguishable to institutions in the sense that neither group presents a test score in their application, but these two groups are distinguishable using College Board data.

Those applicants to ARC colleges who had no test score likely had fewer opportunities to test because of closed schools during the pandemic. At most, 23% of applications to ARC colleges had no college entrance exam. This is an upper bound because these students had no SAT score but may have had an ACT score that they withheld from their college application, but we cannot observe withheld ACT scores in this data.

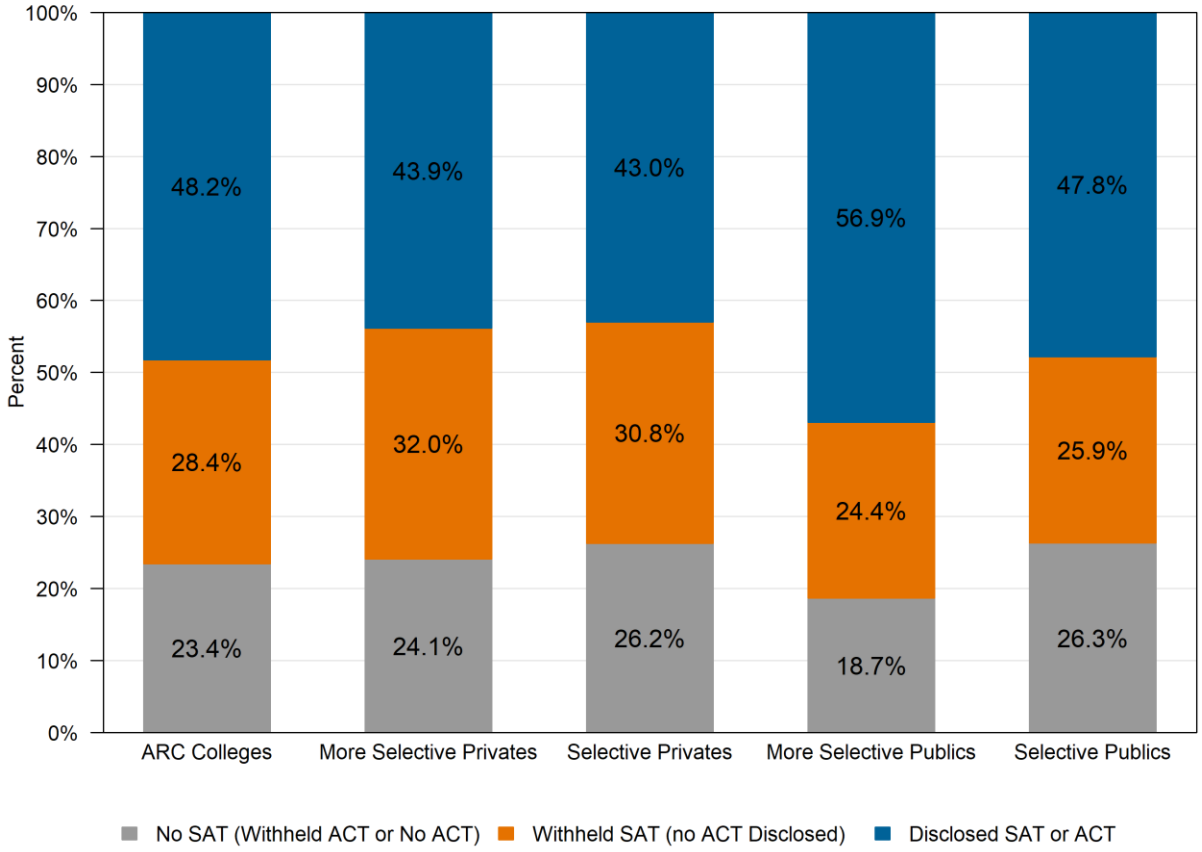
No-SAT applicants were much more likely to attend high schools where there were substantial declines in SAT-taking relative to the pre-pandemic year, likely the result of their high school being closed. While students may have been able to take an SAT at a high school other than their own, we use this as a proxy for reduced opportunity to test. We also know that no-SAT applicants to ARC colleges are more likely to live in certain regions of the U.S. – West Coast, Mid-Atlantic, and New England – a pattern that is also associated with known geographic differences in where schools were closed and closed for longer. Finally, no-SAT applicants to ARC colleges are more likely to be international students where there were pandemic-related disruptions to testing opportunities as well. Covid-related access to testing appears to have been a transitory disruption primarily felt by the class of 2021.

[6] We cannot distinguish ACT withholders from applicants who had no ACT score. As a result, our count of score withholders is a lower bound on the true number of score withholders; conversely, our count of no-score applicants is an upper bound.

Figure 11 shows the distribution of fall 2021 applicants by score disclosure status in each college segment and at all ARC institutions.

- Across all applications to ARC institutions, at most 23.4% of applications came from applicants with no test score, 48.2% of applications disclosed an SAT/ACT score, and at least 28.4% came from applicants who had a test score but withheld it.
- Test score disclosure rates are substantially higher among applications to More Selective Public ARC institutions.

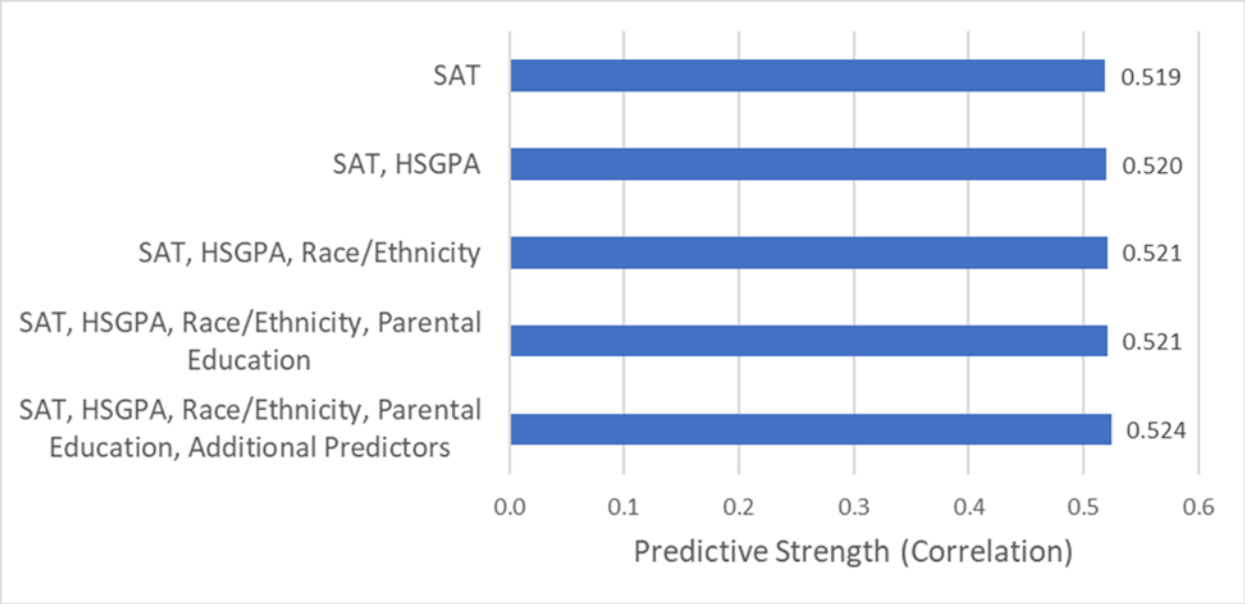
Figure 11: Score Disclosure, Withholding, and Absence Among Fall 2021 Applicants, ARC Colleges and Segments



Ordinary Least Squares (OLS) regression is the most common statistical method used to understand what factors influence an outcome. The outcome examined in this case is test score disclosure. We use OLS to estimate the variation in test score disclosure decisions that is explained by data represented in Figure 12 and find that SAT score is the strongest predictor of a student's decision to disclose a test score. Figure 12 shows the strong correlation between a student's SAT score (relative to the college they are applying to) and the probability of disclosing a score on their application for fall 2021.

Examining combinations of predictors, like SAT score and HSGPA, further reveals that HSGPA adds minimal incremental predictive strength in determining who will disclose a test score. Continuing to add predictors that are student demographic characteristics, like race/ethnicity and parental education, adds minimal to no incremental predictive strength.[7]

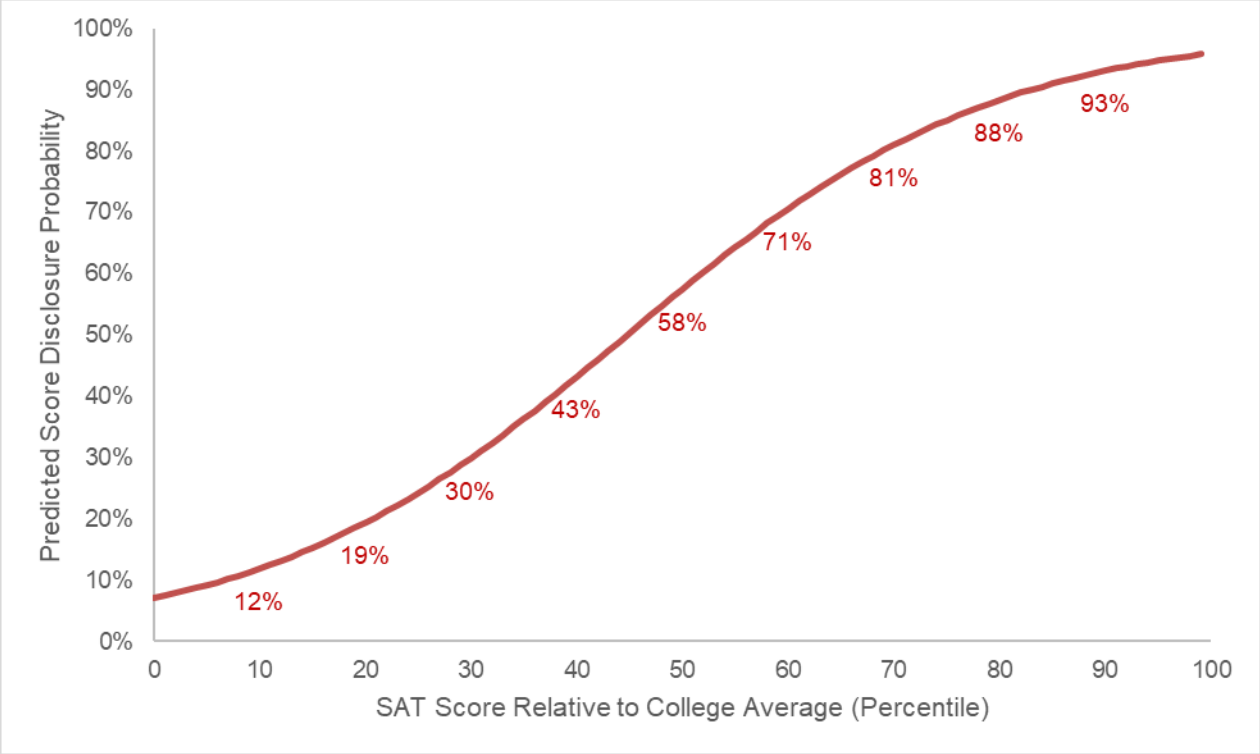
Figure 12: Predictors of Test Score Disclosure for Fall 2021



[7] The simple (single-variable) correlations with test score disclosure are SAT (0.519), Race/Ethnicity (0.204), HSGPA (0.151), and Parental Education (0.140). SAT enters the model first because it has the strongest simple correlation. Although variables could be added in order of their simple correlative strength, it is common to include all academic achievement variables (e.g., SAT and HSGPA) before adding demographic variables (e.g., Race/Ethnicity and Parental Education) to better understand the predictive strength of including academics and demographics. Results are not sensitive to the order in which variables are added to the model. Additional predictors in the final model include feeder high school status, in-state status, neighborhood and high school challenge, and college-specific indicators.

Results from the fully specified model with all predictors and the most predictive strength (see Appendix for regression details) can be displayed in an alternate way. Figure 13 shows predicted probabilities of test score disclosure for applicants with different test scores relative to the college to which they applied.[8] For example, a student with a 30th percentile SAT score relative to the college average has a score that is in the 30th percentile compared to the distribution of applicants' scores at the ARC college to which they applied.[9] The steepness of the line in Figure 13 demonstrates the strong relationship between relative test score and the disclosure decision identified in Figure 12. **Applicants with relatively low test scores have a low predicted probability of disclosing those scores; applicants with relatively high test scores have a high predicted probability of disclosing those scores.**

Figure 13: Probability of Test Score Disclosure Among ARC College Applications for Fall 2021



8 Probabilities in Figures 13 – 16 are based on a logistic regression model that also controls for race, in-state status, first-gen status, feeder school status, HSGPA, neighborhood and high school challenge, and indicators for the sampled colleges. Very similar patterns emerge in un-modeled data on score disclosure at every ARC institution.

9 The college average SAT score is calculated using data on all SAT and concorded ACT scores from 2018 to 2021 cohorts.

Plotting score disclosure probability curves for applicants with different HSGPAs in Figure 14 reveals small differences in disclosure behavior among applicants with different high school grades. For example, ARC college applications with high school grades of B+ are always somewhat more likely to disclose a test score compared to applications with grades of A+ and A.[10]

Figure 14: Probability of Test Score Disclosure Among ARC College Applications for Fall 2021, by HSGPA

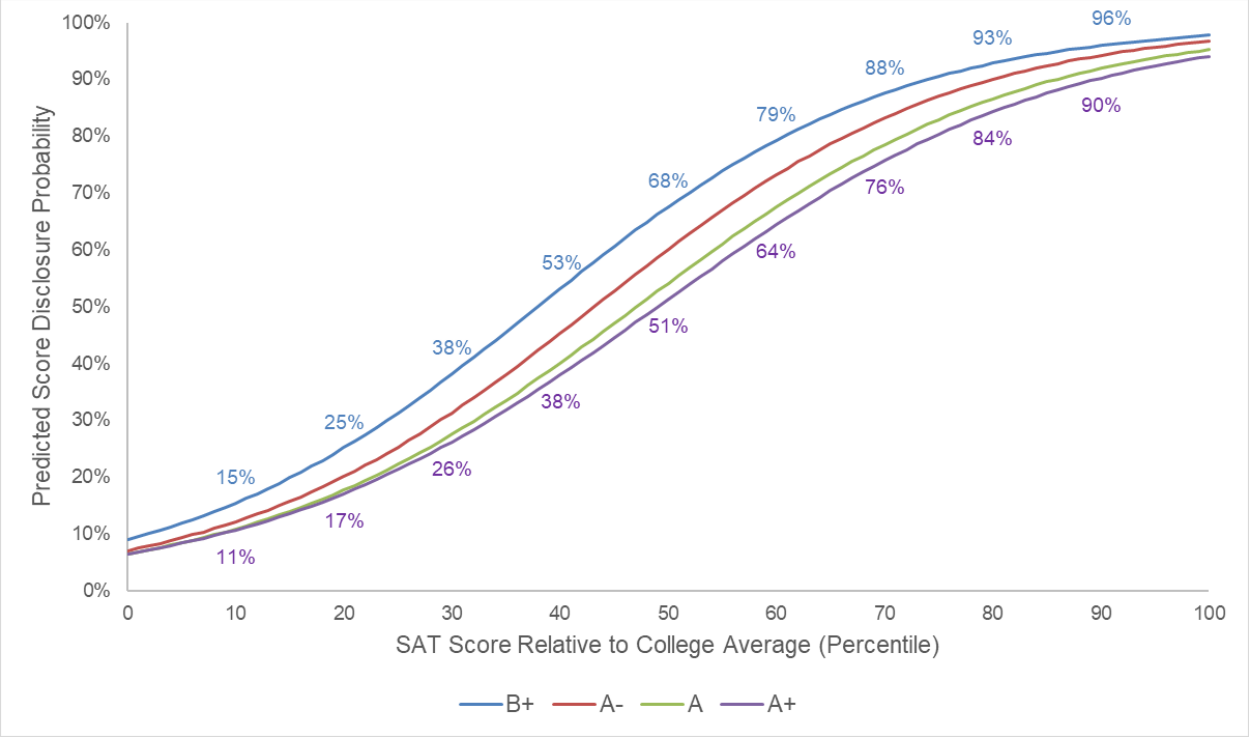


Figure 15 shows score disclosure probability curves by parental education. Figure 15 demonstrates that first generation and non-first generation applicants with the same relative test score have virtually identical probabilities of disclosing that score to ARC colleges. Figure 16 shows score disclosure probability curves by race/ethnicity. Figure 16 demonstrates small differences in disclosure behavior among applicants from different racial/ethnic subgroups. For example, among applications with low relative scores (e.g., 20th percentile), all racial/ethnic subgroups share a low probability of disclosing their scores.

[10] High school grades below B+ are not displayed because 90% of applications to ARC colleges have HSGPAs of B+ or higher.

Figure 15: Probability of Test Score Disclosure Among ARC College Applications for Fall 2021, by Parental Education

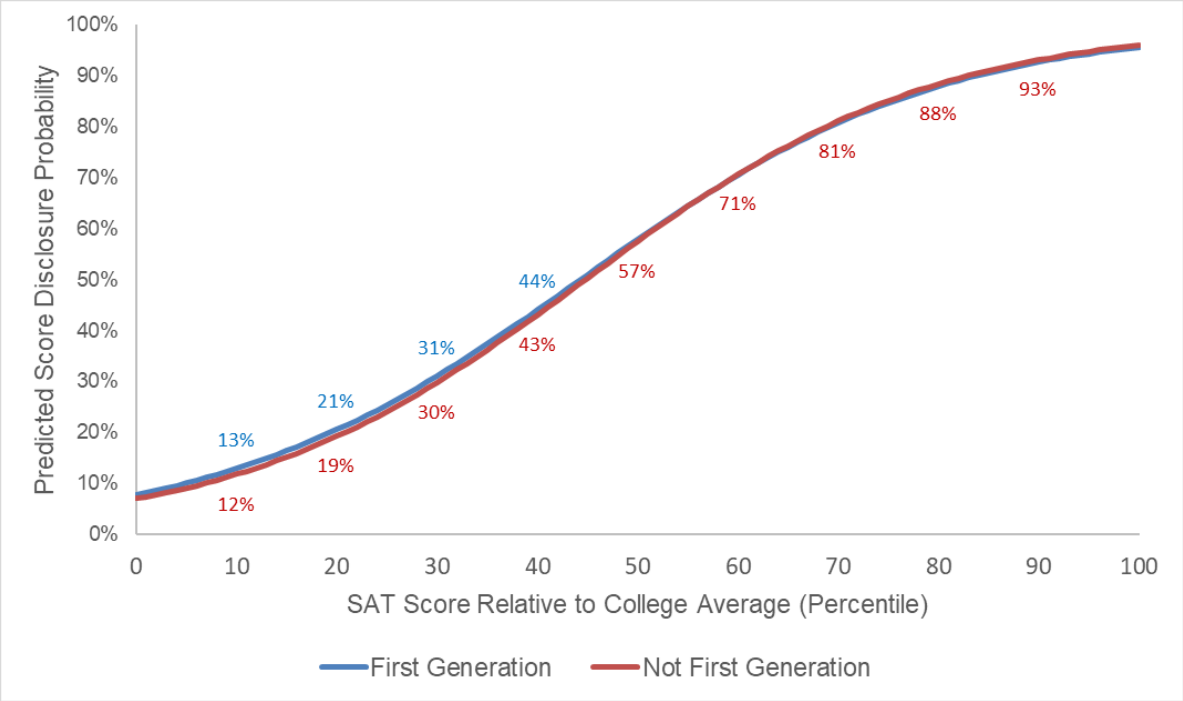
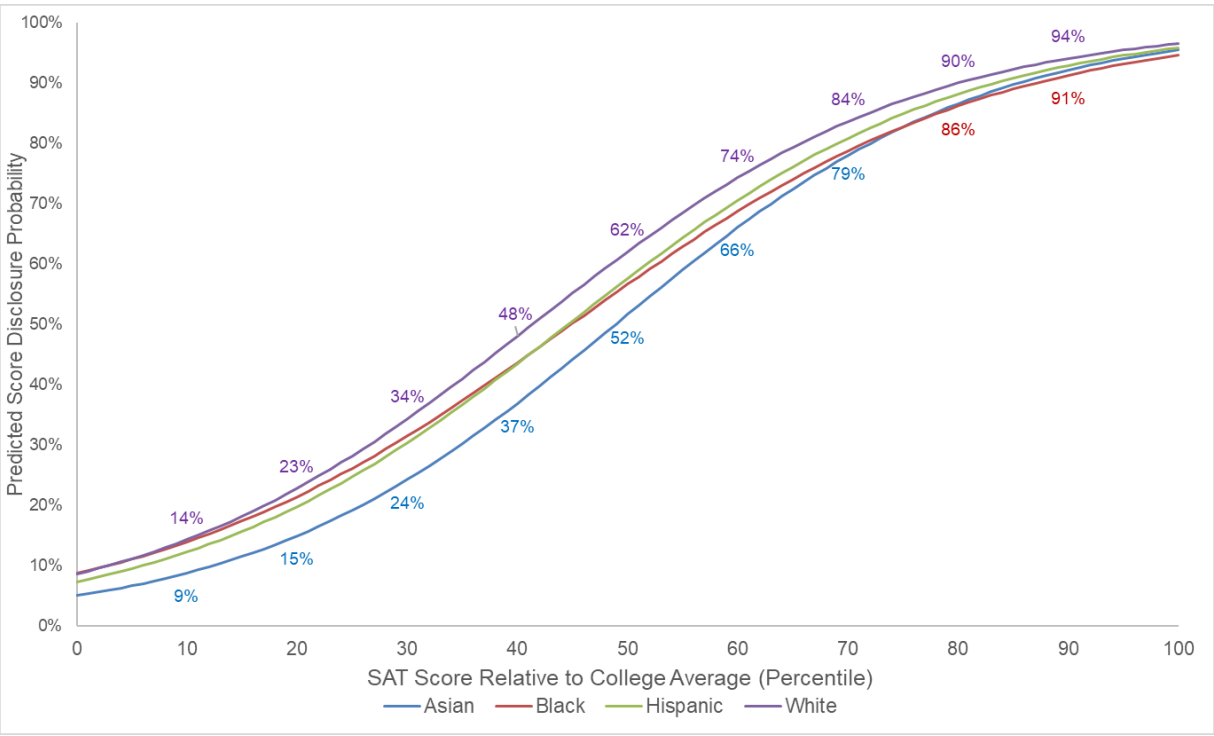


Figure 16: Probability of Test Score Disclosure Among ARC College Applications for Fall 2021, by Race/Ethnicity



Practically, the regression results presented graphically in Figures 13-16 demonstrate that students with the same test score and high school grades are predicted to make very similar score disclosure decisions when applying to ARC colleges regardless of whether they are URM or non-URM, first generation or non-first generation, or low-income or not low-income. Regression analyses reveal that test score, relative to test scores at the college to which students apply, is the strongest determinant of a student's decision to disclose a score, where higher scoring students disclose scores at higher rates than lower scoring students, on average. High school grades and student demographics add little additional power to predict score disclosure decisions. Previously published differences in score disclosure patterns by race, parental education, and income are attributable to differences in academic achievement among score disclosers and withholders, for which prior analyses were unable to control (Freeman et al., 2021).

Conclusion

The ARC initiative enabled a unique set of data and analyses to better understand changes in college and student behavior influenced by the covid-19 pandemic. This Research Brief provides initial evidence based on more than 50 ARC colleges on changes in application, admission, and enrollment trends in the fall 2021 college application cycle compared to prior years. The analyses also begin to explain students' decisions to disclose or withhold their standardized test score in the college application process.

Three key themes emerged from the initial analyses of the fall 2021 college application cycle:

1. Between fall 2020 and fall 2021, ARC colleges experienced increases in the number of applications (17.8%), offers of admission (6.2%), and students enrolled (7.9%) at rates above and beyond prior years. At ARC colleges, the increases in applications, offers of admission, and enrollment between fall 2020 and fall 2021 were experienced by nearly every student subgroup.

2. Because enrollment of URM students and non-URM students increased at ARC colleges, the representation of URM students changed very little. The exception is More Selective Private ARC colleges, where the share of Black, Hispanic, Native, and Two or More Races students increased between fall 2020 and fall 2021. The proportional representation of lower-socioeconomic status students was either unchanged or decreased at ARC colleges.

3. At most, about 20% of ARC applications in fall 2021 had no recorded SAT/ACT score. Among the other 80% of ARC applications, approximately 50% disclosed an SAT/ACT score and 30% withheld a score. Students' decisions to withhold or disclose their test score is nearly entirely explained by the test score relative to the college to which they apply – students with high relative scores tend to disclose them, while students with low relative scores tend to withhold them. Students with the same test scores and high school grades applying to the same college are predicted to make very similar score disclosure decisions regardless of demographics like race/ethnicity and socioeconomic status.

ARC colleges will continue to share data on student performance to enable continued research on how pandemic-related disruptions affect student outcomes like college grades, credit accumulation, and retention. Future Research Briefs will share those analyses as well as replicate the analyses in this Brief for the next cohort of applicants to ARC colleges.

Appendix

Table A1: Attributes of Colleges in ARC and Each Institutional Segment

	More Selective Private Colleges		Selective Private Colleges		More Selective Public Colleges		Selective Public Colleges	
	ARC	Non-ARC	ARC	Non-ARC	ARC	Non-ARC	ARC	Non-ARC
Number of Institutions	16	37	16	766	10	79	9	399
First-Year Enrollment	1,682	969	1,197	471	5,928	2,220	5,466	1,778
Admit Rate	14%	14%	44%	72%	48%	45%	71%	82%
Yield Rate	43%	45%	20%	22%	30%	31%	23%	27%
First-Year Pell Share	17%	18%	15%	39%	26%	43%	21%	42%
Percent In-State	16%	23%	33%	60%	77%	76%	57%	82%
Tuition and Fees	$58,114	$54,557	$51,538	$34,668	$12,486	$9,657	$13,646	$9,782
Graduation Rate	93%	90%	84%	59%	80%	63%	77%	53%
First-Year Racial/Ethnic Composition								
Native American	0%	0%	0%	0%	0%	0%	0%	1%
Asian American	16%	16%	9%	3%	11%	10%	10%	4%
Black/African American	7%	6%	5%	13%	12%	19%	5%	14%
Hispanic	12%	12%	11%	12%	12%	19%	11%	14%
Native Hawaiian	0%	0%	0%	0%	0%	0%	0%	0%
White	45%	47%	60%	1%	54%	42%	61%	57%
Two Or More Races	6%	6%	5%	4%	4%	4%	4%	4%
Unknown	2%	3%	2%	6%	2%	2%	2%	3%
International	11%	10%	9%	4%	4%	4%	7%	2%

Sources: IPEDS 2020 Survey, ARC data
Notes: More Selective Private Colleges have admit rates less than or equal to 25%. More Selective Public Colleges have admit rates less than or equal to 60%.

Table A2: Number of Applications, Admissions Offers, and Enrollments, by Fall Application Cohort and ARC Institutional Segment

	Fall Application Cohort			
	2018	**2019**	**2020**	**2021**
All ARC Colleges				
Number of Applications	1,192,635	1,251,164	1,245,915	1,467,999
Number of Admissions Offers	528,618	534,978	598,573	635,808
Number of Enrollments	158,430	156,949	156,787	169,239
More Selective Private ARC Colleges				
Number of Applications	380,250	400,638	380,372	492,288
Number of Admissions Offers	59,716	55,547	65,766	57,565
Number of Enrollments	26,665	25,794	26,927	27,069
Selective Private ARC Colleges				
Number of Applications	210,910	213,925	208,896	244,262
Number of Admissions Offers	97,684	93,496	103,905	109,786
Number of Enrollments	20,656	19,937	19,734	22,334
More Selective Public ARC Colleges				
Number of Applications	341,694	356,688	361,952	407,653
Number of Admissions Offers	173,918	179,582	203,130	219,271
Number of Enrollments	58,732	58,045	59,309	63,273
Selective Public ARC Colleges				
Number of Applications	259,781	279,913	294,695	323,796
Number of Admissions Offers	197,300	206,353	225,772	249,186
Number of Enrollments	52,377	53,173	50,817	56,563

Source: ARC data.
Note: There are 51 ARC colleges in the full sample; 16 More Selective Private ARC colleges (average first-year enrollment of 1,692 students), 16 Selective Private ARC colleges (average first-year enrollment of 1,396 students), 10 More Selective Public ARC colleges (average first-year enrollment of 6,327 students), and 9 Selective Public ARC colleges (average first-year enrollment of 6,285 students).

Test Score Disclosure Regression Details

In order to estimate the how the probability of SAT score disclosure ($p_{Disclose}$) varies with a student's SAT score, we fit the ARC data with the logistic regression model expressed through Equation (1). In this model, the following variables are defined as:

- *SATScore* is a student's actual SAT score inclusive of disclosed and withheld scores. Disclosed scores are sourced from ARC colleges, while withheld scores are the highest combination of SAT section scores from across all of a student's SAT scores in College Board administrative data.
- *Race* is a vector of indicator variables expressing the student race/ethnicity provided by the college.
- *ParentalEd* is a vector of indicator variables expressing the student's parental education from the College Board's Student Data Questionnaire (SDQ).
- *InState* is an indicator for whether the student resides in the same state as the college to which they applied.
- *HSGPA* is the student's self-reported high school GPA from the College Board's Student Data Questionnaire (SDQ) on a 0-4.33 scale.
- *HSChallenge* and *NHChallenge* express the student's high school and neighborhood challenge on a 1-100 scale, where higher challenge levels indicate more disadvantaged neighborhoods and high schools.
- *Feeder* is an indicator variable identifying students that sent 30 or more applications to the college between 2018 and 2020.
- *College* is a vector of college fixed effects to capture differences across ARC institutions that are constant for all students.

In equation (1), parameter τ identifies the interaction of the Race indicator variables and the student's SAT score. This interaction allows for different relationships between the student's SAT score and disclosure probability for different subgroups of students, defined by race. In models where we identify the relationships between HSGPA or Parental Education and SAT score disclosure, parameter τ expresses the interaction of these variables and SAT score.

To construct the fitted score disclosure curves depicted in Figures 13-16, we hold all variables constant at their sample means and use parameters β, γ, and τ to demonstrate how SAT disclosure probabilities change with SAT scores for different subgroups of students.

Equation (1):

$$ln\left(\frac{p_{Disclose}}{1-p_{Disclose}}\right) = \beta_0 + \beta SATScore_i + \gamma Race_i + \tau SATScore_i * Race_i + \delta ParentalEd_i +$$

$$\zeta InState_i + \phi HSGPA_i + \pi HSChallenge_i + \theta NHChallenge_i + \partial Feeder_i + College_i + \epsilon_i$$

References

Freeman, M., P. Magouirk, and T. Kajikawa. 2021. Applying to college in a test-optional admissions landscape: trends from Common App data. Common Application: Arlington, VA. September 8, 2021. Retrieved from https://s3.us-west-2.amazonaws.com/ca.research.publish/Research+briefs+2020/20210908_Paper4_TestOptional.pdf.

Howell, J., M. Hurwitz, J. Ma, G. Perfetto, J. Wyatt, and L. Young. 2021. College enrollment and retention in the era of covid: Fall 2020. College Board: New York, NY. June 2021. Retrieved from https://research.collegeboard.org/media/pdf/enrollment-retention-covid2020.pdf.

Howell, J., M. Hurwitz, J. Ma, G. Perfetto, J. Wyatt, and L. Young. 2022. College enrollment and retention in the era of covid: Fall 2021. College Board: New York, NY. Forthcoming 2022. Available at https://research.collegeboard.org/.

About the College Board

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