

Rising Success, Persistent Gaps: Student-Level Statistics Outcomes Across California’s Community College Placement-Reform Era (2018–2025)

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Abstract

California’s Assembly Bills 705 (2017) and 1705 (2022) eliminated most developmental (remedial) prerequisites and placed community college students directly into transfer-level statistics, sparking ongoing debate—including a recent University of California faculty petition to reinstate standardized-test admissions requirements—over whether students are adequately prepared. We analyze de-identified, official records for 867 course enrollments (852 distinct students; repeat-taking 1.7%) across 17 semesters (Fall 2018–Fall 2025) of transfer-level introductory statistics (MATH 54 / STAT C1000) taught by a single instructor at a large, diverse California community college, spanning the pre-reform, AB 705, COVID-19, and AB 1705 periods. Course-success rates rose steadily across the reform era, from 42% in the pre-AB 705 period to 69% under AB 1705 (Spearman $\rho = 0.61$, $p = .009$); an enrollment-level logistic regression estimated a 10% increase in the odds of passing per semester (OR = 1.10, 95% CI [1.07, 1.13]; [1.06, 1.15] with semester-clustered standard errors; $p < .001$). Point-estimated success rose for every racial/ethnic group, contradicting the premise that direct placement depresses outcomes, though small post-reform cells leave several group-specific changes statistically uncertain. The robustly estimated White–Latinx success gap held at roughly 24 percentage points across the reform; underpowered race-by-time interactions could not detect convergence. We read the semester trend as correlational—a single-instructor design cannot separate the reforms from the instructor’s own growth over the same period—and conclude that direct placement was associated with rising, not eroding, statistics success, while broadened access alone did not close racial gaps. Implications for placement policy and corequisite support are discussed.

Keywords: community college, placement reform, AB 705, AB 1705, transfer-level statistics, equity, course success, developmental education

1 Introduction

Introductory statistics is among the most heavily enrolled and most consequential courses in American higher education, serving as both a quantitative-literacy gateway and, for many community college students, an obstacle to degree completion (Gal and Ginsburg 1994; Garfield and Ben-Zvi 2007). In California, two landmark reforms reshaped how students enter this course. *Assembly Bill 705* (2017, implemented Fall 2019) required colleges to place students directly into *transfer-level* courses—courses that carry credit toward a bachelor’s degree—rather than routing them through long sequences of *developmental* (remedial, non-credit) coursework. *Assembly Bill 1705* (2022, implemented Fall 2023) strengthened this by eliminating most remaining prerequisites and mandating *corequisite* support: concurrent, just-in-time academic support taught alongside the transfer-level course rather than before it. The reforms rested on evidence that students placed directly into transfer-level courses complete them at higher rates than those routed through remediation (Hayward and Willett 2014; Scott-Clayton and Rodriguez 2015; Logue, Watanabe-Rose, and Douglas 2016).

These reforms remain contested. Critics argue that eliminating placement testing and remediation sends underprepared students into transfer-level courses; a recent petition signed by more than 800 University of California mathematics and STEM faculty to reinstate standardized-test (SAT/ACT) admissions requirements for STEM applicants reflects a broader concern that students now arrive without prerequisite skills (Inside Higher Ed 2026). Statewide evaluations report that access to and completion of transfer-level courses rose markedly under the reforms, even as substantial racial/ethnic gaps in completion remain (Cuellar Mejia et al. 2023). The empirical question at the center of this debate is concrete: *after direct placement, did transfer-level statistics outcomes rise or fall, and did they improve equitably across student groups?*

We address this question with eight academic years of official, student-level outcome data from a single instructor’s transfer-level statistics sections at one large, diverse California community college (Fall 2018–Fall 2025). Holding the instructor constant isolates outcome change across the policy era from variation in who is teaching. We organize the analysis around the two empirical claims the policy debate turns on. (1) *Did outcomes erode?* How did course-success rates change across the pre-reform, AB 705, COVID-19, and AB 1705 periods, and is there a reliable enrollment-level trend in the odds of passing over time? (2) *Did broadened access equalize outcomes?* Did racial/ethnic equity gaps narrow, hold, or widen across the reform era? A third, methodological question runs through both: how much of any temporal change can a single-instructor design legitimately attribute to the reforms themselves?

2 Background

Decades of research document high failure and withdrawal rates in community college mathematics and statistics, concentrated among the first-generation, low-income, and racially minoritized students who constitute the majority of enrollments (Bailey, Jaggars, and Jenkins 2015). The traditional response—developmental sequences—was found to divert many students from ever completing a transfer-level course, with each additional remedial level associated with attrition (Scott-Clayton and Rodriguez 2015; Bailey, Jaggars, and Jenkins 2015). Randomized and quasi-experimental evidence subsequently showed that students placed directly into transfer-level quantitative courses with corequisite support outperformed those assigned to remediation (Logue, Watanabe-Rose, and Douglas 2016; Hayward and Willett 2014), providing the basis for AB 705 and AB 1705.

Less settled is the *equity* record of these reforms. Broadening access changes the composition of who attempts transfer-level courses, and aggregate success rates can rise even as gaps between groups persist. Statistics education specifically emphasizes reasoning over computation and is widely viewed as more accessible than the algebra-intensive pathways it often replaced (Carver et al. 2016), making it the modal transfer-level quantitative course under reform. Yet little longitudinal, student-level evidence tracks both *overall* outcomes and *between-group gaps* in a single transfer-level statistics setting across the full reform era. This study contributes such evidence.

3 Data and Methods

3.1 Setting and sample

Data are official, de-identified student-level records provided by the institution’s Office of Institutional Research for all transfer-level introductory statistics sections (MATH 54, later renamed STAT C1000 under California’s statewide C-ID reclassification) taught by a single instructor at one large, diverse California community college. The analytic sample comprises 867 course enrollments across 17 semesters, Fall 2018 through Fall 2025. The analytic unit is the enrollment; in the source records these 867 enrollments correspond to 852 distinct students (13 students appear twice and one three times, so 1.7% of rows are repeat enrollments), making enrollment-level and student-level analyses effectively equivalent. The publicly deposited analytic file is de-identified and carries no student identifier; the repeat-taking figure is computed from the institution’s internal records and reported here for transparency. Corequisite-support co-enrollments (MATH 54C) are excluded from the outcome denominator to avoid double-counting students enrolled simultaneously in the main course and its

support section.

3.2 Measures and periods

The outcome is *course success*: completion with a grade of C or higher (the threshold for transfer credit), coded 1/0 as recorded in official records. Each semester is assigned to a policy period: *Pre-AB 705* (before Fall 2019), *AB 705 + COVID-19* (Fall 2019–Spring 2021), *Post-AB 705* (Fall 2021–Winter 2023), and *AB 1705* (Fall 2023 onward). COVID-affected semesters are flagged and excluded from trend models as a sensitivity check. Student race/ethnicity and gender, as recorded officially, are used for equity analysis.

3.3 Analysis

We summarize success rates by period and assess the semester-level trend with the Spearman rank correlation between chronological order and success rate. We fit an enrollment-level logistic regression of course success on a continuous semester index (non-COVID semesters), reporting the odds ratio per semester with both model-based and semester-clustered standard errors; we also fit a period-step model (indicator contrasts against the pre-AB 705 period) and a trend model adjusted for racial composition, to check whether the rise reflects a discrete policy shift or a compositional artifact. Equity is examined by comparing success rates across racial/ethnic groups within reform blocks (Pre-AB 1705 vs. AB 1705+), reporting Wilson 95% confidence intervals for each group-by-block rate, and by testing race-by-time interactions in an enrollment-level logistic model. Because post-reform group cells are small, these interaction tests are low-powered; we therefore treat a non-significant interaction as inconclusive about convergence rather than as positive evidence of parallel trends. Analyses were conducted in Python (pandas, SciPy, statsmodels) and R.

3.4 Ethics and reproducibility

As a California community college, the institution does not maintain an institutional review board; it has no IRB mechanism to which such a study could be submitted. The study nonetheless falls squarely within the federal exempt category for secondary analysis of pre-existing, de-identified records (45 CFR 46.104(d)(4)): it involves no intervention, no interaction with participants, and no identifiable private information. The author analyzed only de-identified administrative records released for this purpose by the institution’s Office of Institutional Research, with the documented authorization of the department chair. Records carry coded (non-identifying) values only, and demographic categories are used solely

for aggregate equity analysis; no directly identifying information was retained or accessible to the analysis. The de-identified analytic dataset and analysis code will be deposited in a public OSF repository upon acceptance and are available to reviewers on request.

4 Results

4.1 Success rose steadily across the reform era

Course-success rates increased monotonically across policy periods (Table 1; Figure 1), from 42.4% before AB 705 to 69.0% under AB 1705. The semester-level trend was positive and significant (Spearman $\rho = 0.61$, $p = .009$ across all 17 semesters; $\rho = 0.70$, $p = .005$ excluding the three pandemic-disrupted semesters, Spring 2020–Spring 2021). An enrollment-level logistic regression (non-COVID semesters, $n = 680$) estimated the odds of passing rising 10% per semester (OR = 1.100, 95% CI [1.066, 1.134], $p < .001$); the estimate is unchanged and remains significant under semester-clustered standard errors (95% CI [1.056, 1.145], $p < .001$). The trend is not a compositional artifact: adjusting for racial/ethnic composition (non-COVID sample, $n = 680$, race entered as a six-level categorical covariate: White, Asian, Latinx, Black, Other, Missing) leaves it intact and, if anything, slightly stronger (adjusted OR = 1.11). A period-step model (indicator contrasts against Pre-AB 705, with the same semester-clustered standard errors), however, locates the gains in the later periods rather than at the onset of reform: AB 705 + COVID OR = 1.33 ($p = .40$, not significant), Post-AB 705 OR = 1.96 ($p = .002$), AB 1705 OR = 3.02 ($p < .001$). The absence of a discrete jump when AB 705 took effect favors a gradual, correlational reading of the trend over a clean policy discontinuity (see Discussion).

Table 1: Course-success rate by policy period (transfer-level statistics, single instructor)

Policy period	Semesters	Enrollments	Success %
Pre-AB 705 (2018–19)	2	85	42.4
AB 705 + COVID-19 (2019–21)	4	271	49.4
Post-AB 705 (2021–23)	6	234	59.0
AB 1705 (2023–25)	5	277	69.0

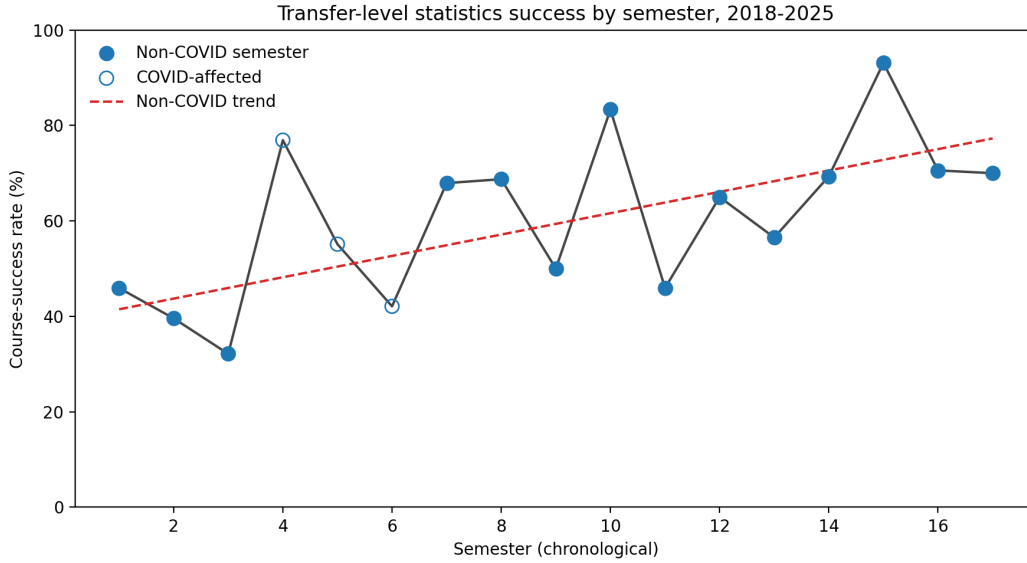


Figure 1: Transfer-level statistics course-success rate by semester, 2018–2025. COVID-affected semesters (open markers) are excluded from the fitted non-COVID trend.

4.2 Success rose for every group, but racial gaps persisted

Disaggregating by race/ethnicity (Figure 2; Wilson 95% CIs in brackets), point-estimated success rose for all groups from the Pre-AB 1705 to the AB 1705+ block: White 68.6% [60, 76] → 84.4% [68, 93], Asian 60.9% [46, 74] → 72.7% [43, 90], Latinx 43.6% [38, 49] → 60.8% [51, 70], and Black 26.5% [16, 40] → 61.5% [36, 82]. These increases differ sharply in how firmly they are estimated: the post-reform cells for Asian ($n = 11$) and Black ($n = 13$) students are small, and their confidence intervals are wide enough to overlap their pre-reform rates, so those apparent improvements are not statistically distinguishable from no change. Only the large- n White and Latinx groups support firm group-level inference, and there the increases are reliable (non-overlapping intervals for Latinx). The between-group gaps did not close: the White–Latinx gap was essentially unchanged (25.1 vs. 23.6 percentage points). Race-by-time interaction terms were not statistically significant for any group (Latinx $p = .98$; Black $p = .45$; Asian $p = .44$); given the small post-reform cells these tests are low-powered, so they are inconclusive about convergence rather than positive evidence that trajectories are parallel. Gender showed no gap (female 55.3%, male 55.1%).

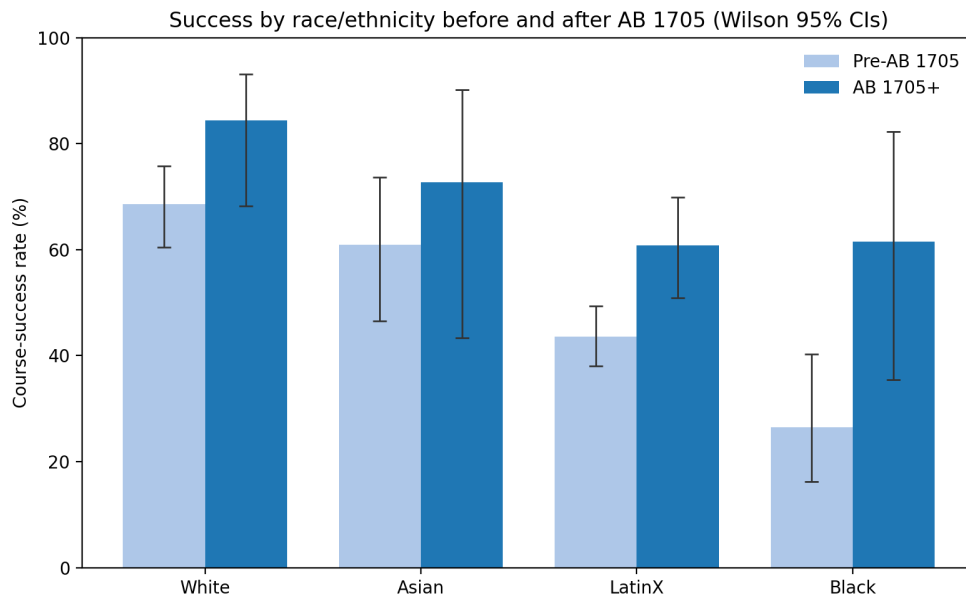


Figure 2: Course-success rate by race/ethnicity before and after AB 1705, with Wilson 95% confidence intervals. Point estimates rose for all groups, but the small post-reform Asian ($n = 11$) and Black ($n = 13$) cells yield intervals wide enough to overlap their pre-reform rates; the firmly estimated White–Latinx gap of roughly 24 percentage points persisted.

5 Discussion

Two findings bear directly on the placement-reform debate. First, in this single-instructor setting, direct placement into transfer-level statistics was accompanied by *substantially rising* success across the reform era—a 27-percentage-point increase from the pre-reform period to AB 1705, with the odds of passing rising about 10% per semester (robust to clustered standard errors and to adjustment for racial composition). We interpret this trend as correlational rather than as a causal effect of the reforms. The period-step pattern is telling: success did not jump when AB 705 took effect (the AB 705 + COVID period is statistically indistinguishable from the pre-reform baseline) but rose gradually thereafter, peaking under AB 1705. A gradual rise without a discontinuity at the policy boundary is at least as consistent with the instructor’s own pedagogical growth over eight years as with the reforms themselves, and the single-instructor design cannot separate the two. What the data do establish is directional and, for the policy debate, sufficient: outcomes *rose* rather than fell. This does not support the premise, central to calls for reinstating standardized-test placement, that eliminating remediation depresses transfer-level outcomes; in these data, point-estimated success rose for every racial/ethnic group, including the most disadvantaged. Holding the instructor constant removes one confounder—changes in who is teaching—even

as it introduces another, the instructor’s own improvement.

Second, and just as important, rising access did not translate into closing gaps. Although point estimates improved for every group, the White–Latinx success gap—the comparison the data estimate most firmly—held near 24 percentage points, and the low-powered interaction tests give no evidence that any group’s trajectory converged on another’s. This mirrors statewide evidence that the reforms raised completion overall while leaving racial/ethnic gaps largely intact (Cuellar Mejia et al. 2023), suggesting the pattern observed here is not idiosyncratic to one instructor. Broadened access was thus *necessary but not sufficient* for equity. The actionable implication for instructors and colleges is that the policy lever (direct placement) and the equity lever are distinct: maintaining or expanding access need not erode outcomes, but closing gaps appears to require additional, targeted support beyond placement policy alone—for example, strengthening corequisite design and culturally responsive support for the Latinx students who constitute the largest share of enrollment.

6 Limitations

This is an observational study of one instructor’s sections at a single college, which limits generalizability; holding the instructor constant removes instructor-to-instructor variation but, by the same token, confounds the temporal trend with the instructor’s own development over eight years, which the design cannot separate from the reforms. For this reason we frame the trend as correlational and rest the policy-relevant claim on its *direction* (outcomes rose, not fell) rather than on a causal magnitude. The design also cannot isolate the reforms from other co-occurring changes (COVID-19 recovery, evolving student composition), though the trend survives adjustment for racial composition. Some subgroups are small—Black students number 62 overall and only 13 in the AB 1705+ block, and Asian students only 11—so those group-specific post-reform estimates are unstable and, as the wide Wilson intervals show, statistically indistinguishable from their pre-reform rates; the robust equity finding is the persistent White–Latinx gap, where sample sizes are large. The analytic unit is the course enrollment; although repeat-taking is rare (1.7% of records, so enrollment- and student-level analyses effectively coincide), the publicly deposited file carries no student identifier, so independence cannot be verified from the shared data alone. Course success is a coarse outcome that does not capture learning depth or downstream persistence.

7 Conclusion

Across eight years and four policy periods spanning California’s placement-reform era, transfer-level statistics success rose steadily and substantially—in point estimates for every racial/ethnic group—in a setting that holds the instructor constant. Yet racial equity gaps persisted across the same period. While a single-instructor design cannot attribute the rise causally to the reforms as opposed to the instructor’s own growth, the evidence is firmly inconsistent with the claim that direct placement *erodes* statistics success, and it underscores that access reform alone does not equalize outcomes. As policymakers weigh proposals to reinstate test-based placement, longitudinal, enrollment-level, equity-disaggregated evidence of this kind is essential to distinguish what broadened access has achieved from the equity work that remains.

Statements

Use of AI. Generative AI (Claude, Anthropic) assisted with prose drafting and editing only; all data preparation, analysis, and interpretation were performed by the author, who takes full responsibility for the content.

Data availability. The de-identified analytic dataset and analysis code will be deposited in a public OSF repository upon acceptance and are available to reviewers on request.

Ethics. The institution, a California community college, does not maintain an institutional review board. The study is a secondary analysis of pre-existing, de-identified administrative records (no intervention, no interaction, no identifiable private information) of the kind exempt under 45 CFR 46.104(d)(4); the de-identified records were released for this purpose with the documented authorization of the department chair.

Competing interests. The author declares no competing interests.

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