



PPIC

PUBLIC POLICY
INSTITUTE OF CALIFORNIA

Has Universal Access to Transfer-Level Courses Changed Student Outcomes at California Community Colleges?

Technical Appendix

CONTENTS

Appendix A. Data and Methods

Appendix B. Additional Figures and Tables

Marisol Cuellar Mejia and Charlie Wigul

Supported with funding from the Gates Foundation

Appendix A. Data and Methods

Our quantitative analyses use student-level longitudinal data from the California Community Colleges Chancellor's Office Management Information System (MIS). The dataset includes students enrolled across the 115 community colleges that comprise the California Community College system, and includes demographic information, transcripts (grades and credits earned), and course elements (levels below transfer-level, credit status, transfer status, and minimum/maximum number of credits). Our analysis of transfer outcomes also relies on data reported by CSU, UC, and the National Student Clearinghouse.

For our transfer-level math completion analysis, we focus on students enrolled from fall 2015 to fall 2024. For this analysis, we construct fall cohorts of students based on the first time a student takes a math course.

For our longer-term analysis, we restrict our sample to first-time students entering the community college system in the fall terms between 2015 and 2022 who were ever enrolled in a math course and declared a degree or transfer goal. Cohorts are defined by the initial term in which a student enrolled in a credit course as a non-special-admit student. We count a student as transferring if they enrolled in a four-year university after having earned at least 12 units as a non-special admit student anywhere in the system. A student is considered to have 'left the system' if they are not enrolled in the academic year following their second, third, or fourth year marks. It is possible that some students re-enrolled at a later term. In each time frame, we are comparing the same number of years pre and post AB 705. Specifically: 2-year outcomes: 2015-2016 vs 2019-2022

3-year outcomes: 2016-2018 vs 2019-2021

4-year outcomes: 2017-2018 vs. 2019-2020

We have information available through spring 2025.

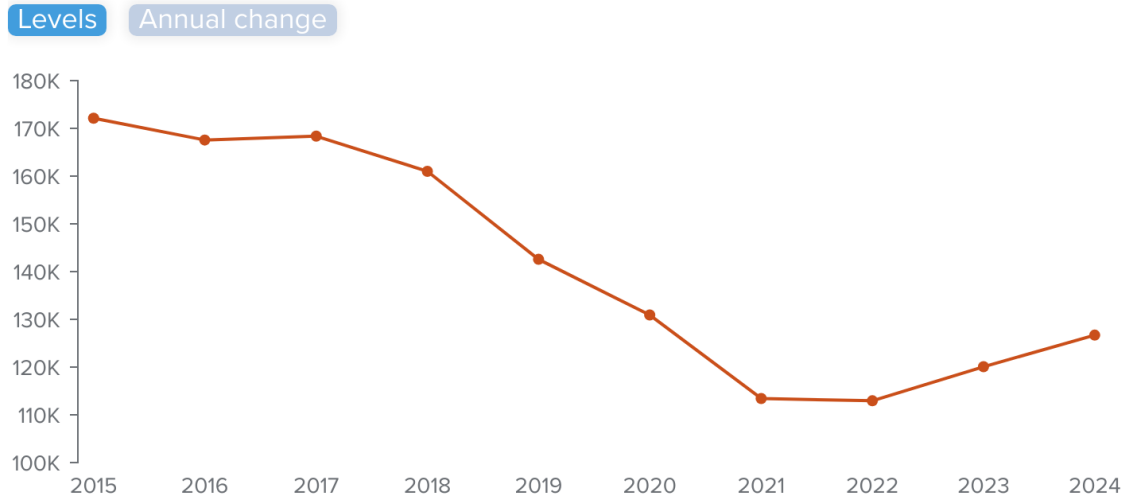
Caveats and Limitations of this Study

- The accuracy of our results relies on the accuracy with which colleges report their information to the Chancellor's Office. While we used various approaches to identify colleges with inconsistent data, it is possible that we missed colleges where the data discrepancies were not stark.
- The MIS database does not include data on placement, so we are unable to identify students who were referred to developmental education or to transfer-level courses, with or without co-requisite support.
- We similarly do not have information on students' high school performance measures (i.e., course taking history, course grades, or GPA). As a result, our analysis focuses exclusively on course-taking behavior once students reach community college.
- Longer-term outcomes among more recent cohorts are inevitably impacted by the effects of the pandemic. As such, any progress we identify in degree and transfer attainment may be a lower-bound estimate of the actual effects of AB 705.

Appendix B. Additional Figures and Tables

FIGURE B1 (A)

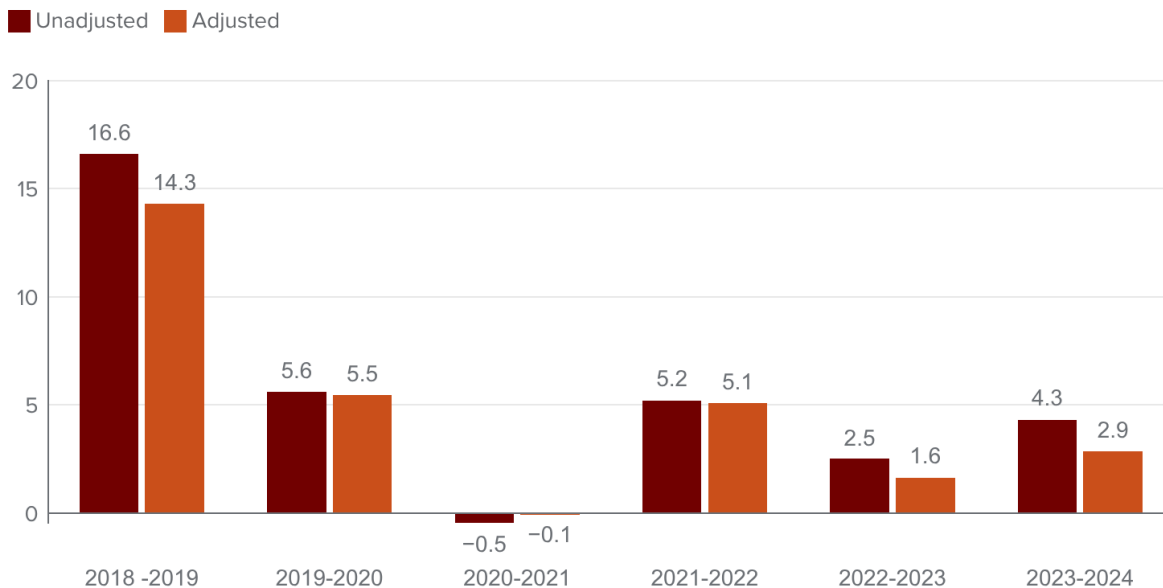
After declining sharply over the last 6 years, the number of first-time math takers is finally showing some signs of recovery



SOURCE: Authors' calculations using MIS data.
 NOTES: Fall of each year.

FIGURE B1 (B)

Annual percentage point change in one-term completion rates

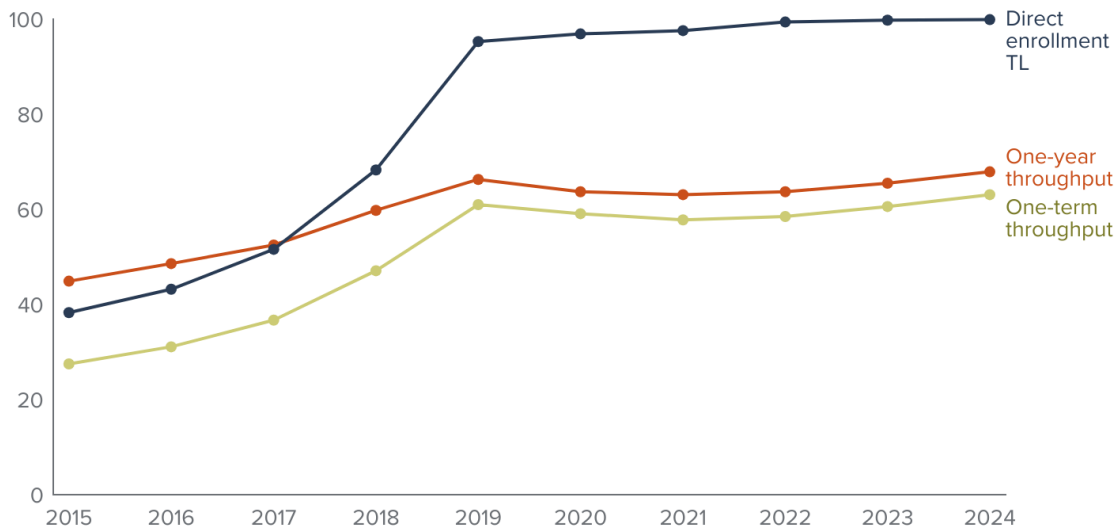


SOURCE: Authors' calculations using MIS data.
 NOTES: Regression-adjusted estimates controlled for race, gender, traditional age, transfer intent, and financial aid status (CCPG or Pell), as well as first-term GPA (excluding math).

FIGURE B2

The share of first-time English takers completing a transfer-level course has stagnated since access became universal after AB 705

Percent



SOURCE: Authors' calculations using MIS data.

TABLE B1

Annual changes in one-term throughput rates, percentage points

Year	Asian	Black	Latino	White	Female	Male	Students 25 or older	Traditional-age	All
2016	1.7	0.7	1.0	1.8	1.1	1.1	0.9	1.1	1.1
2017	3.2	0.3	1.8	3.0	2.6	1.3	1.2	2.1	2.0
2018	4.9	4.2	4.6	6.2	5.6	4.6	3.2	5.4	5.2
2019	14.6	14.3	16.3	18.4	17.9	15.2	20.7	16.0	16.6
2020	6.6	4.4	5.6	4.0	4.8	6.3	4.5	5.8	5.6
2021	-1.5	1.0	-0.7	-0.5	-0.6	-0.1	0.2	-0.6	-0.5
2022	4.1	5.9	5.1	7.6	5.7	4.6	13.7	4.1	5.2
2023	2.3	2.9	3.1	1.4	2.7	2.3	4.2	2.2	2.5
2024	2.3	6.2	5.3	3.6	4.4	4.1	4.3	4.2	4.3
2022-2024	4.5	9.1	8.4	5.0	7.1	6.4	8.5	6.4	6.8

SOURCE: Authors' calculations using MIS data.
 NOTES: Fall cohorts of first-time math students.

TABLE B2

Representation of students in below-transfer-level enrollment

Proportionality Index

Year	Asian	Black	Latino	White	25 or older	Traditional age	Female	Male
2015	0.73	1.14	1.10	0.93	1.09	0.99	1.03	0.97
2016	0.72	1.14	1.10	0.92	1.10	0.98	1.03	0.97
2017	0.70	1.17	1.10	0.90	1.15	0.98	1.02	0.98
2018	0.68	1.22	1.12	0.88	1.27	0.96	1.01	0.99
2019	0.72	1.34	1.10	0.91	1.88	0.88	1.01	0.99
2020	0.74	1.36	1.09	0.92	1.87	0.85	1.03	0.97
2021	0.71	1.29	1.13	0.91	1.91	0.87	1.02	0.97

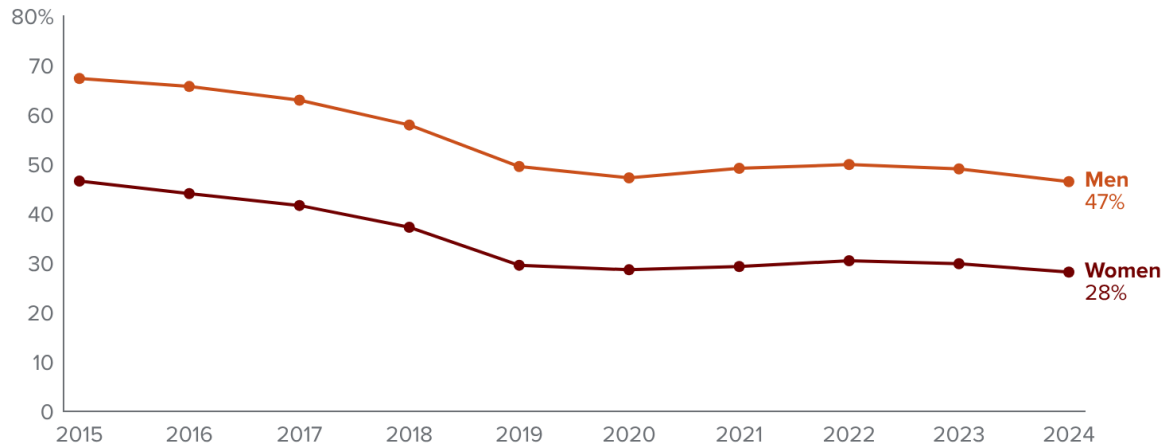
SOURCE: Authors' calculations using MIS data.

NOTES: Fall cohorts of first-time math students. In this context, the proportionality index (PI) compares a group's representation among those starting in courses below-transfer-level relative to its representation in the entire cohort of first-time math students. A PI equals to 1 means equal representation, a PI greater than 1 means the group is overrepresented, and a PI less than 1 means that the group is underrepresented.

FIGURE B3

Men are significantly more likely than women to start in courses in the BSTEM pathway

Share of women and men starting in BSTEM courses



SOURCE: Authors' calculations using MIS data.

NOTES: Fall cohorts of first-time math students.

TABLE B3**One-term throughput rates by college**

Percent

COLLEGE_NAME	2022	2023	2024	2022-2024 change (pp)
ALAMEDA	45	62	70	25
ALLAN HANCOCK	42	48	48	6
AMERICAN RIVER	63	63	68	5
ANTELOPE VALLEY	52	60	64	11
BAKERSFIELD	48	50	54	6
BARSTOW	67	67	70	4
BERKELEY CITY	61	69	67	7
BUTTE	63	60	65	2
CABRILLO	48	49	51	2
CANADA	65	61	68	3
CANYONS	57	58	62	5
CERRITOS	30	35	45	14
CERRO COSO	53	68	67	14
CHABOT	47	50	53	6
CHAFFEY	45	48	56	11
CITRUS	63	66	70	6
CLOVIS	57	63	68	11
COALINGA	66	65	76	10
COASTLINE	52	58	62	10
COLUMBIA	63	58	62	-1
COMPTON	41	46	60	18
CONTRA COSTA	47	66	65	18
COPPER MOUNTAIN	43	52	58	15
COSUMNES RIVER	50	48	52	3
CRAFTON HILLS	54	57	61	7
CUESTA	50	54	57	7
CUYAMACA	65	65	70	6
CYPRESS	41	42	43	2
DE ANZA	72	70	73	2
DESERT	41	50	54	13
DIABLO VALLEY	67	68	68	1
EAST L.A.	28	34	42	14
EL CAMINO	46	45	48	2
EVERGREEN VALLEY	56	59	65	9
FEATHER RIVER	51	64	74	23
FOLSOM LAKE	57	60	65	8
FOOTHILL	73	72	69	-4
FRESNO CITY	43	51	57	14
FULLERTON	45	47	49	4
GAVILAN	52	55	56	4
GLENDALE	44	45	51	6

SOURCE: Authors' calculations using MIS data.

NOTES: Fall cohorts of first-time math students.

One-term throughput rates by college (continued)

Percent

COLLEGE_NAME	2022	2023	2024	2022-2024 change (pp)
GOLDEN WEST	59	65	72	13
GROSSMONT	54	57	61	7
HARTNELL	61	58	57	-4
IMPERIAL VALLEY	37	51	54	17
IRVINE VALLEY	65	59	59	-6
L.A. CITY	38	44	51	13
L.A. HARBOR	38	46	56	18
L.A. MISSION	40	51	57	17
L.A. PIERCE	46	54	59	13
L.A. TRADE-TECH	17	36	45	27
L.A. VALLEY	42	55	60	18
LAKE TAHOE	64	73	76	11
LANEY	57	57	61	4
LAS POSITAS	54	54	61	6
LASSEN	56	48	50	-6
LEMOORE	64	67	63	-1
LONG BEACH CITY	36	42	49	13
LOS MEDANOS	54	60	63	9
MADERA	48	48	54	6
MARIN	51	54	52	1
MENDOCINO	62	64	63	1
MERCED	54	53	55	1
MERRITT	61	61	66	5
MIRA COSTA	59	58	64	5
MISSION	53	57	53	0
MODESTO	51	59	54	3
MONTEREY	52	50	53	1
MOORPARK	54	56	58	4
MORENO VALLEY	30	29	38	8
MT. SAN ANTONIO	45	46	49	5
MT. SAN JACINTO	60	60	66	6
NAPA VALLEY	46	57	59	13
NORCO	63	60	66	3
OHLONE	66	66	70	4
ORANGE COAST	50	48	54	5
OXNARD	47	53	56	10
PALO VERDE	51	34	46	-5
PALOMAR	49	48	50	1
PASADENA CITY	51	52	54	3
PORTERVILLE	62	59	62	1
REDWOODS	59	58	57	-2

SOURCE: Authors' calculations using MIS data.
NOTES: Fall cohorts of first-time math students.

One-term throughput rates by college (continued)

Percent

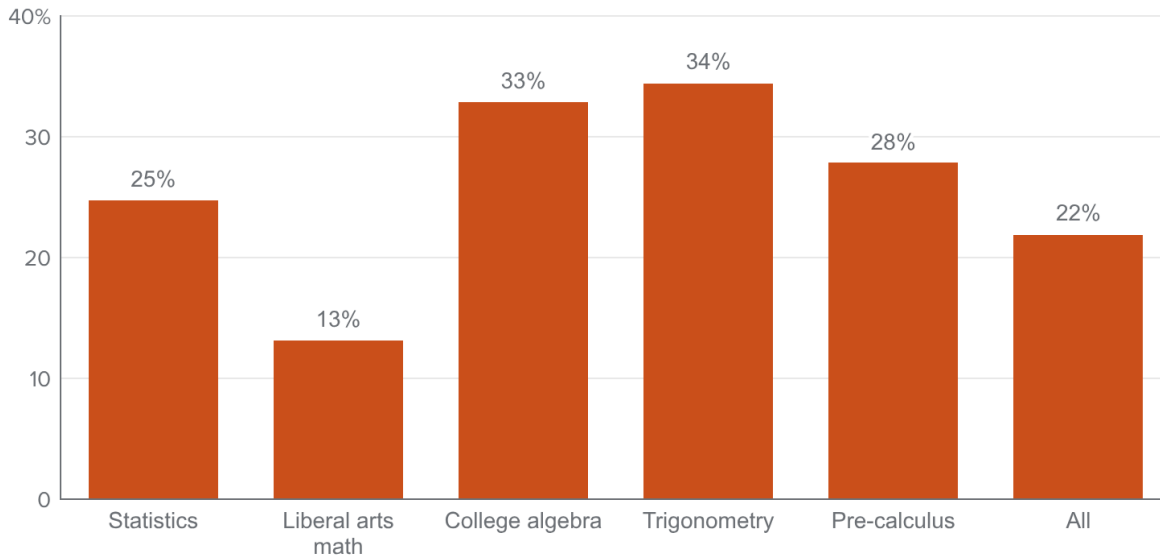
COLLEGE_NAME	2022	2023	2024	2022-2024 change (pp)
REEDLEY	50	51	64	13
RIO HONDO	49	50	53	4
RIVERSIDE	45	42	47	2
SACRAMENTO CITY	52	49	64	12
SADDLEBACK	55	55	57	1
SAN BERNARDINO	44	45	51	8
SAN DIEGO CITY	39	48	52	13
SAN DIEGO MESA	57	62	65	8
SAN DIEGO MIRAMAR	62	64	67	5
SAN FRANCISCO CITY	64	64	67	3
SAN JOAQUIN DELTA	62	65	70	9
SAN JOSE CITY	50	49	54	4
SAN MATEO	62	60	68	6
SANTA ANA	34	45	53	19
SANTA BARBARA CITY	57	50	55	-2
SANTA MONICA	39	40	40	1
SANTA ROSA	51	55	58	7
SANTIAGO CANYON	49	53	59	11
SEQUOIAS	53	55	55	2
SHASTA	37	55	55	18
SIERRA	61	63	70	9
SISKIYOU	54	70	79	24
SKYLINE	61	63	64	3
SOLANO	55	60	62	8
SOUTHWEST L.A.	42	56	57	15
SOUTHWESTERN	47	49	53	6
TAFT	44	52	57	13
VENTURA	56	56	60	4
VICTOR VALLEY	48	44	53	6
WEST L.A.	35	36	53	18
WEST VALLEY	63	69	71	8
WOODLAND	47	52	52	5
YUBA	49	55	50	2
Total	51	53	58	7

SOURCE: Authors' calculations using MIS data.
NOTES: Fall cohorts of first-time math students.

FIGURE B4

Students in the STEM pathway are more likely to enroll in corequisite courses than those in the SLAM pathway

Share of first-time math students enrolled in corequisite courses by subject, 2022-2024

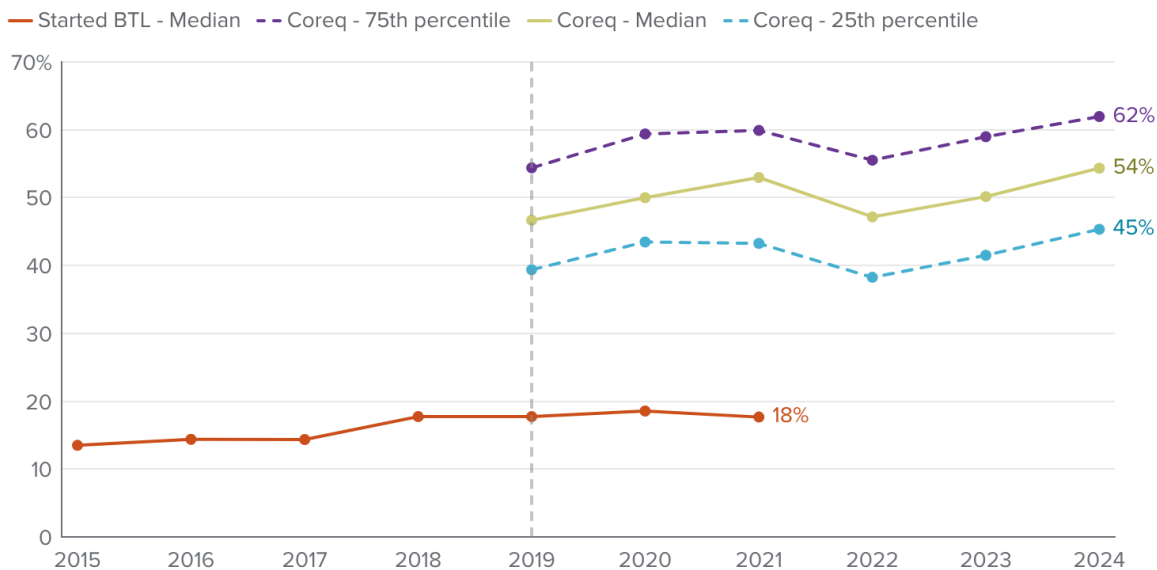


SOURCE: Authors' calculations using MIS data.

FIGURE B5

Students are undeniably better off starting in corequisite courses than in BTL ones, even at colleges where corequisite success rates remain low

Fall-to-fall throughput rate BTL students vs. success rate corequisite students

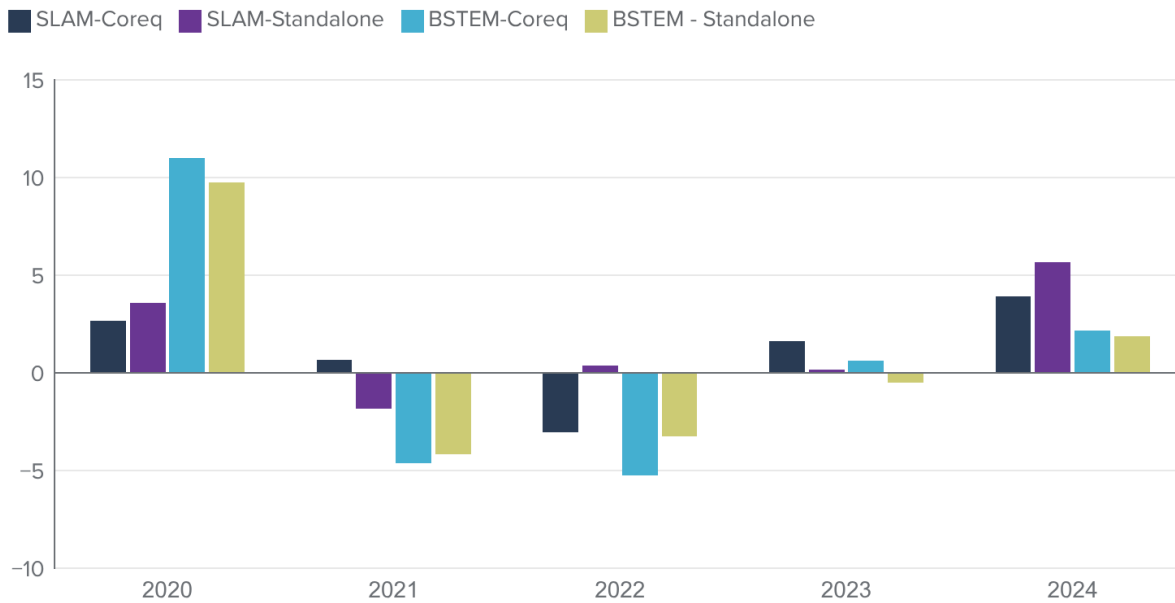


SOURCE: Authors' calculations using MIS data.

NOTES: Fall of each year cohorts of first-time math takers. Enhanced courses are included.

FIGURE B6

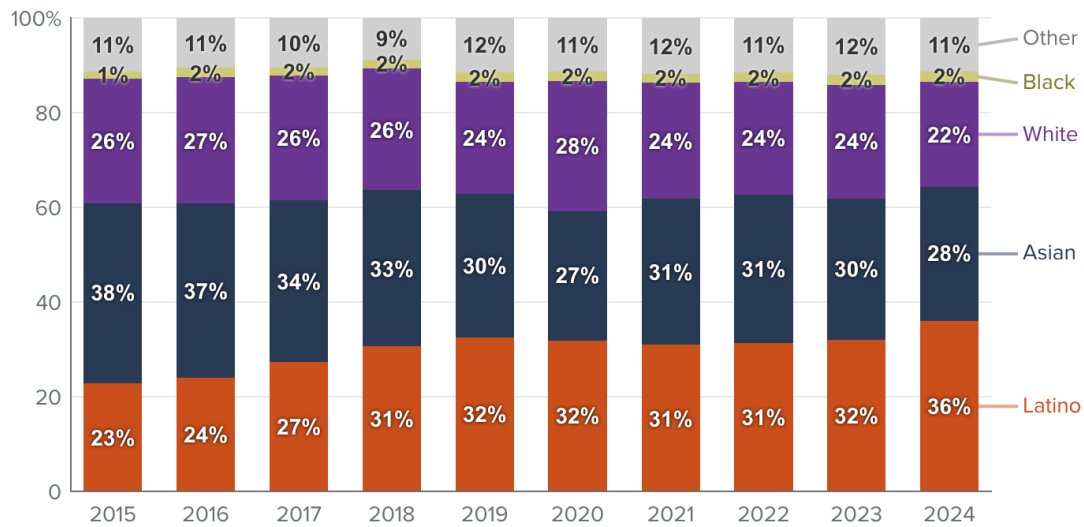
Percentage point change in success rates



SOURCE: Authors' calculations using MIS data.
NOTES: Fall cohorts of first-time math students.

FIGURE B7

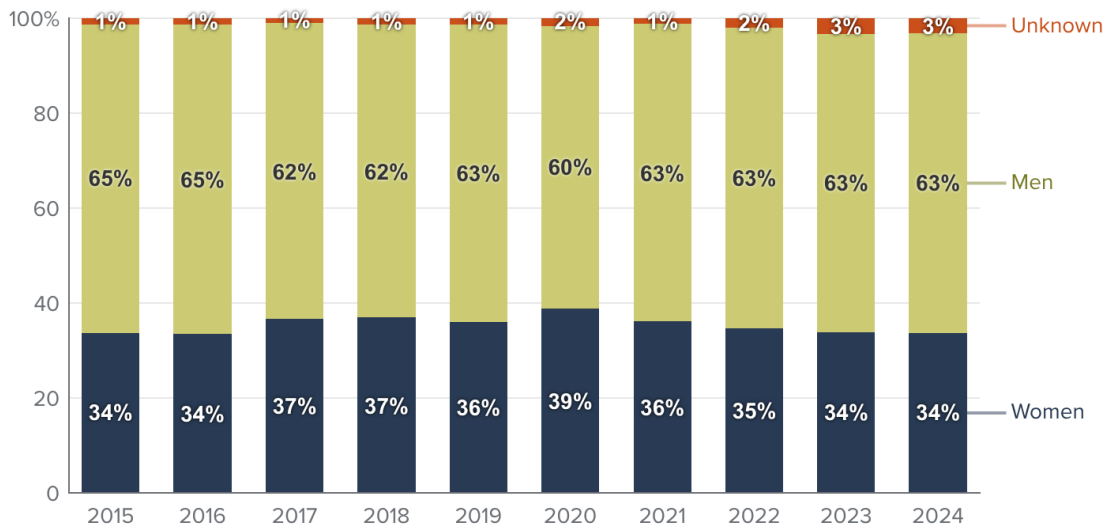
Racial/ethnic distribution of students starting directly in Calculus I



SOURCE: Authors' calculations using MIS data.
NOTES: Fall cohorts of first-time math students.

FIGURE B8

Gender distribution of students starting directly in Calculus I

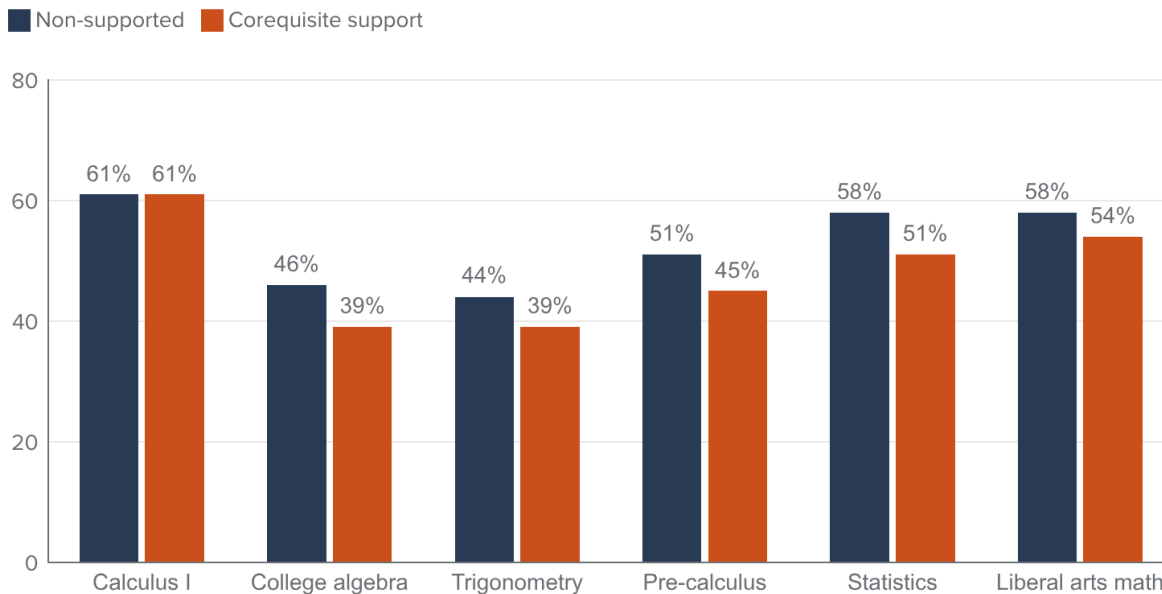


SOURCE: Authors' calculations using MIS data.
NOTES: Fall cohorts of first-time math students.

FIGURE B9

Success rates in corequisite courses are 4 to 7 percentage points lower than those in non-supported sections

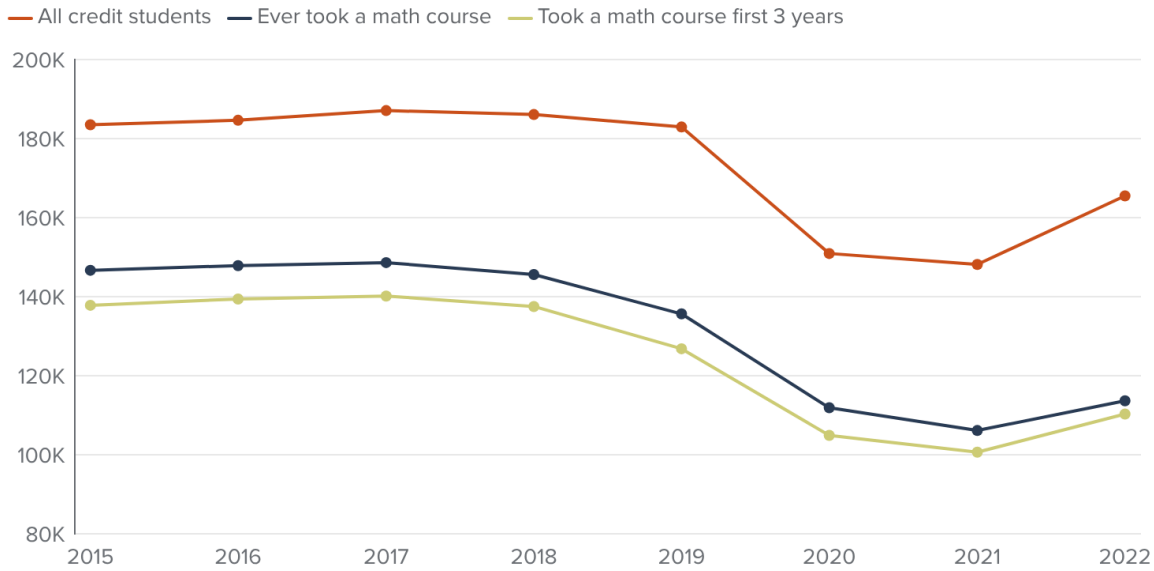
Success rates, 2022-2024



SOURCE: Authors' calculations using MIS data.
NOTES: Fall of each year cohorts of first-time math takers. Enhanced courses are included.

FIGURE B10

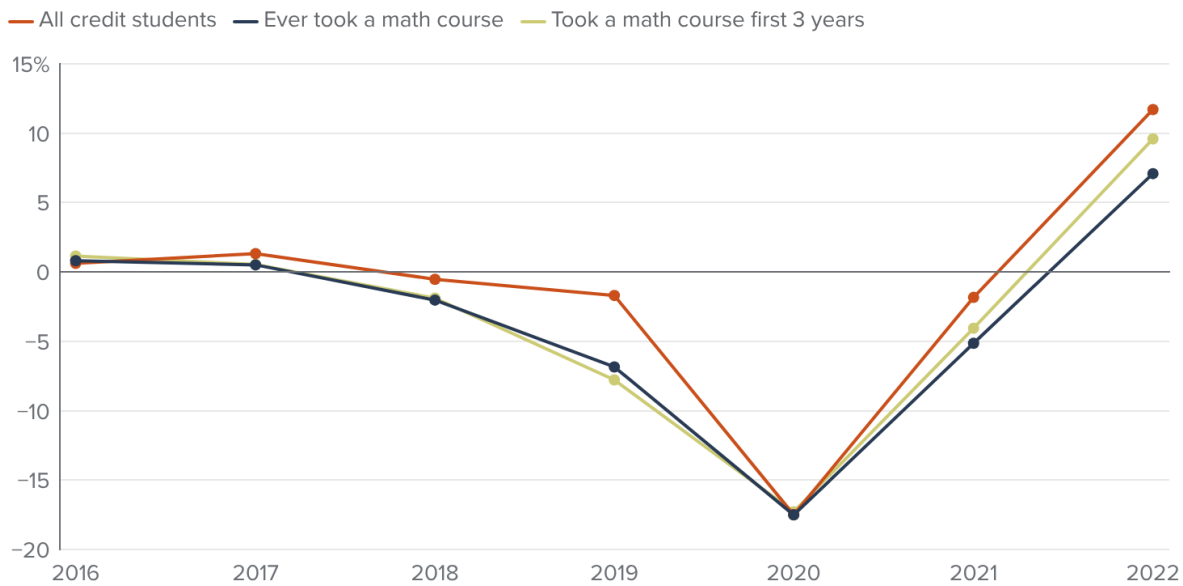
Size of our analytical sample relative to the entire population



SOURCE: Authors' calculations using MIS data.
NOTES: Restricted to degree/transfer intending students. Fall cohorts.

FIGURE B11

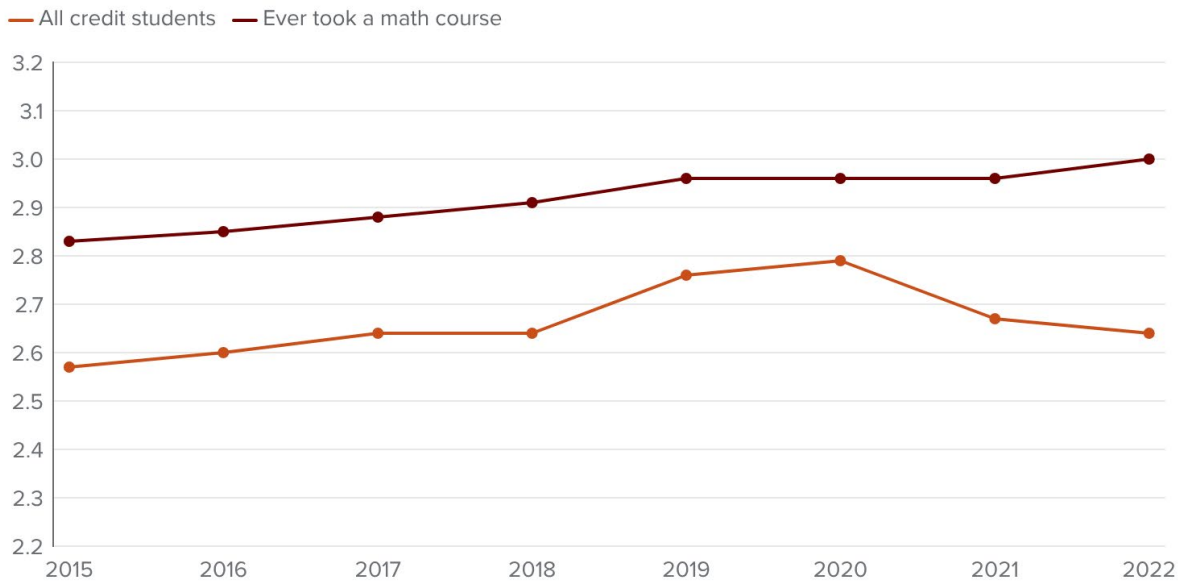
Our analytical sample has grown slower than the entire population



SOURCE: Authors' calculations using MIS data.
NOTES: Restricted to degree/transfer intending students. Fall cohorts

FIGURE B12

First-year GPA excluding math, proxy academic ability



SOURCE: Authors' calculations using MIS data.
NOTES: Restricted to degree/transfer intending students. Fall cohorts.

TABLE B4

Destination of community college transfers pre and post AB 705 implementation

Share of students who transferred within two years

	California State University	University of California	Out-of-state institution	In-state private institution
Before AB 705	39%	31%	20%	11%
After implementation	43%	34%	16%	8%
Raw difference (pp)	4.1	3.0	-3.9	-3.2
Regression adjusted difference (pp)	3.5	0.5	-1.6	-2.8

SOURCE: Authors' calculations using MIS data and NSC data.
NOTES: The sample is restricted to degree- or transfer-intending students who were enrolled in a math course and transferred within two years of their initial enrollment. The last row displays adjusted differences (marginal effects) derived from logit regressions, controlling for race, gender, traditional age, financial aid status (CCPG or Pell), and first-year GPA (excluding math). The coefficient of interest is a dummy that is 1 in the post-implementation years (2019-2022). Standard errors are clustered at the community college level, and each figure originates from a separate regression. The adjusted difference for UC is not statistically significant.

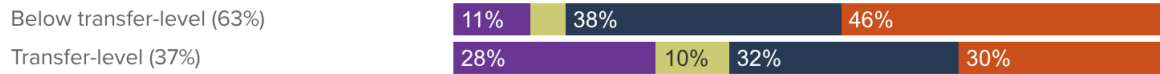
FIGURE B13

Long-term outcomes are better for students who start in corequisite courses than for students who start in below-transfer level courses

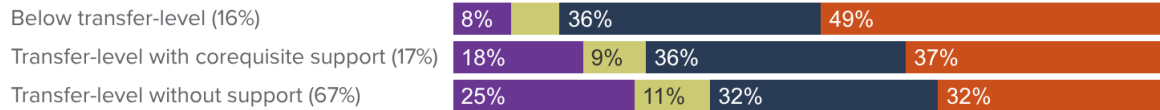
3-year outcomes

■ Transferred
 ■ Earned an associate degree & left
 ■ Were still enrolled
 ■ Left the system

Before AB 705



After implementation



SOURCE: Authors' calculations using MIS data.

NOTES: The proportion of first-time college students taking below-transfer-level and transfer-level courses is shown in parentheses. Before AB 705: 2016-2018 cohorts (434,400 students). After implementation: 2019-2021 cohorts (345,000 students).



PPIC

PUBLIC POLICY
INSTITUTE OF CALIFORNIA

The Public Policy Institute of California is dedicated to informing and improving public policy in California through independent, objective, nonpartisan research.

Public Policy Institute of California
475 Sansome Street, Suite 1150
San Francisco, California 94111
T: 415.291.4400
F: 415.291.4401
PPIC.ORG

PPIC Sacramento Center
1215 K Street, Suite 1740
Sacramento, California 95814
T: 916.440.1120
F: 916.440.1121