Remedial Education Reforms at California's Community Colleges

Early Evidence on Placement and Curricular Reforms

Technical Appendices

CONTENTS

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Appendix A. Data and Methods

Data

Our quantitative approach utilizes student-level longitudinal data from the California Community College Chancellor's Office Management Information System (COMIS). The dataset includes students enrolled across the 114 community colleges that comprise the California Community College system, and includes information on student characteristics (race/ethnicity, gender, low income status), course-taking behavior, course elements (title of course, levels below transfer level, credit status, transfer status and minimum/maximum number of credits), and student outcomes (grades, and credits earned).

Data was also collected from an exhaustive scan of the latest college catalogs, websites, and other institutional documents. This process allowed us to identify which colleges are already using multiple measures for placement and/or offering co-requisite models as an alternative to traditional developmental sequences.

Important Definitions

First-time English (math) students: We create cohorts of students based on the term in which they took their first English/math course anywhere in the system. They need not be first-time students in that term. Please note that our numbers differ from the ones in the Basic Skills Cohort Tracker because in there cohorts are defined based on the first term students ever took a course in the given subject area at the selected college. In other words, only courses at the focus college are considered when evaluating "first time in a basic skills subject area". Meanwhile, our calculations take into consideration courses taken in any college in the system when determining first-time status. We restrict our sample to students with unique and valid student identifiers, who were not enrolled as dual enrollment students. Slightly over half of students in our first-time math and English cohorts took their first math/English course during their first term ever in college—for 58 percent of first-time English students and 54 percent of first-time math students.

Transfer-level courses: when we talk about transfer-level courses we are referring to the lowest-level English and math courses that are transferable to the University of California (UC) and/or to the California State University (CSU) systems on the basis of articulation agreements. These courses are also known as gateway or gatekeeper courses. For English only the first transfer-level composition course (C-ID ENGL 100) qualifies as the gateway course. Considering that colleges' math requirements vary according to the student's program of study, any transferable math course—including introductory statistics, trigonometry, college algebra, and pre-calculus—qualifies as a gateway course. Throughout the report we use the terms transfer-level and college-level interchangeably.

One-year throughput rates: The proportion of a cohort of students who complete the transferable gateway math or English course within two primary semesters or three primary quarters of entering their first course in the subject. For students attending multiple colleges (i.e. who take developmental course work in one college and transfer level in a different college), we assigned a positive outcome (i.e. completing the transferable course) to the college where the student took the developmental education course. We restrict our sample to transfer-seeking students (using the variable student goal from the success file in the COMIS data).

Transfer-level success rates: Share of students who started in transfer-level that completed successfully the course in their first attempt (passed the course with a grade of C or better). Please note that this rate is not calculated using all students enrolled in the transfer-level course, it is calculated only among the ones for which that was their first course.

Early implementers: To identify the colleges that have engaged more actively in placement reform, we used the following criteria:

- Reported an annual increase of 10 percentage points or more in the share of first-time math/English students enrolling directly in transfer-level in 2016–17;
- Saw increases in throughput rates relative to the prior year;
- Had a throughput rate higher than 50 percent; and
- Used robust multiple measures placement and/or offered co-requisite models.

To inform our quantitative results, we collected information from interviews with faculty and staff from California's community colleges. In spring 2018, we interviewed 31 individuals—21 faculty (10 math and 11 English) and 10 staff (assessment, counseling, and institutional research) at 16 colleges across the state. The colleges that we interviewed were among the colleges with increases of 10 percentage points or more in the share of first-time math/English students starting directly in transfer-level. All the colleges that we interviewed were either offering co-requisite models or using multiple measures placement (we talked with 9 of the 10 colleges that offered co-requisite models in 2016-17). We spoke with each interviewee for about one hour over the phone. Interviewees were asked a variety of questions pertaining to their background; how students assess and place into co-requisite and transfer-level math and English courses; how students enroll in and learn about co-requisite math and English courses, student experiences in co-requisite courses, aspects of the co-requisite course (e.g., motivation for offering it, course structure, and curriculum), professional development, as well as funding and scaling up co-requisite and multiple measures reforms. Open-ended questions were used to facilitate the collection of information based on questions that do not restrict the participants' opinions (Creswell and Plano Clark 2011).

The data collection and data analysis were carried out simultaneously to avoid the collection of repetitive and unfocused data (Merriam 1998). Particularly, after each interview was conducted, researchers debriefed, reviewed detailed data notes and audio recordings, and kept notes to capture reflections, emerging themes, and points that needed to be pursued further. This process of review and reflection informed all subsequent interviews. In this manner, data collected from each interview was continuously assessed and informed future interviews until data collection was complete. The data was also organized and coded on a secure spreadsheet. This approach was used to come up with a number of patterns and themes.

Appendix B. Figures and Tables

Math

	First-time Math cohort	Share of first-time math students starting directly into transfer-level math (%), 2016-17	Increase from prior year	One-year throughput rate, Fall 2016 (%)	Increase from prior year	Co-requisite remediation as of 2016-2017
Alameda	821	39	5	36	(4)	–
Allan Hancock	1,989	24	3	32	0	–
American River	3,737	23	2	23	(0)	–
Antelope Valley	3,112	16	5	27	6	–
Bakersfield	4,070	21	4	19	(0)	–
Barstow	673	19	8	39	20	–
Berkeley City	1,197	49	6	37	2	–
Butte	2,353	29	(0)	29	(2)	–
Cabrillo	1,975	28	(1)	26	(10)	–
Canada	806	45	6	45	3	–
Canyons	3,341	41	18	44	9	–
Cerritos	3,322	15	1	17	1	–
Cerro Coso	548	30	8	21	1	–
Chabot	2,281	27	(1)	24	(7)	–
Chaffey	4,380	14	(3)	20	(3)	–
Citrus	2,837	22	3	24	(1)	–
Clovis	1,698	49	4	44	2	–
Coalinga	601	25	6	19	3	–
Coastline	1,534	34	(1)	37	2	–
Columbia	536	21	1	26	(2)	–

	First-time Math cohort	Share of first-time math students starting directly into transfer-level math (%), 2016-17	Increase from prior year	One-year throughput rate, Fall 2016 (%)	Increase from prior year	Co-requisite remediation as of 2016-2017
Compton	1,300	9	(1)	9	(3)	–
Contra Costa	1,064	37	3	29	(4)	–
Copper Mountain	419	18	5	29	6	–
Cosumnes River	2,471	19	(2)	22	(3)	–
Crafton Hills	1,246	24	6	26	(3)	–
Cuesta	1,815	32	(0)	31	(7)	–
Cuyamaca	1,226	57	31	57	19	YES
Cypress	2,620	29	3	29	(2)	–
De Anza	4,071	34	0	39	(8)	–
Desert	1,993	16	(1)	16	(2)	–
Diablo Valley	3,880	57	3	48	(3)	–
East L.A.	4,766	13	2	12	(3)	–
El Camino	4,981	20	1	26	(3)	–
Evergreen Valley	2,102	29	5	26	(2)	–
Feather River	353	31	(9)	50	(5)	–
Folsom Lake	1,681	25	0	28	1	–
Foothill	1,819	58	(3)	52	(8)	–
Fresno City	4,307	34	5	25	1	–
Fullerton	5,131	42	2	34	(4)	–
Gavilan	1,007	25	6	22	0	–
Glendale	2,692	32	(1)	34	1	–
Golden West	2,171	39	(0)	32	(8)	–
Grossmont	3,661	33	6	30	(1)	YES
Hartnell	2,041	17	3	27	(1)	–

	First-time Math cohort	Share of first-time math students starting directly into transfer-level math (%), 2016-17	Increase from prior year	One-year throughput rate, Fall 2016 (%)	Increase from prior year	Co-requisite remediation as of 2016-2017
Imperial Valley	1,747	12	4	21	(2)	–
Irvine Valley	3,135	46	0	42	(10)	–
L.A. City	2,039	16	3	12	(1)	–
L.A. Harbor	1,616	15	(2)	17	(3)	–
L.A. Mission	1,479	19	5	15	(0)	–
L.A. Pierce	3,514	22	0	27	(7)	–
L.A. Trade–Tech	1,592	4	0	6	(1)	–
L.A. Valley	2,767	23	12	16	(2)	–
Lake Tahoe	368	18	4	19	(2)	–
Laney	1,091	36	(1)	32	(3)	–
Las Positas	1,831	36	3	33	(4)	–
Lassen	367	15	8	29	11	–
Lemoore	1,013	16	(7)	19	(5)	–
Long Beach City	5,523	23	2	19	(1)	–
Los Medanos	1,673	56	20	51	9	YES
Marin	794	27	1	28	(5)	–
Mendocino	554	24	2	23	(7)	–
Merced	2,670	26	4	24	0	–
Merritt	751	23	5	21	(1)	–
Mira Costa	2,915	42	4	46	5	–
Mission	1,004	35	0	25	(3)	–
Modesto	2,612	9	2	16	(6)	–
Monterey	1,234	21	(0)	27	(4)	–
Moorpark	3,297	44	2	40	(6)	–

	First-time Math cohort	Share of first-time math students starting directly into transfer-level math (%), 2016-17	Increase from prior year	One-year throughput rate, Fall 2016 (%)	Increase from prior year	Co-requisite remediation as of 2016-2017
Moreno Valley	1,609	12	6	12	0	–
Mt. San Antonio	5,184	31	1	30	(4)	–
Mt. San Jacinto	3,855	18	1	28	0	–
Napa Valley	1,271	34	7	40	2	–
Norco	2,175	17	6	21	(2)	–
Ohlone	1,811	25	0	38	2	–
Orange Coast	4,178	37	(3)	37	(5)	–
Oxnard	1,146	22	1	24	(0)	–
Palo Verde	391	6	2	7	(3)	–
Palomar	4,755	29	2	24	(4)	–
Pasadena City	5,548	25	0	36	(1)	–
Porterville	877	29	4	25	(4)	–
Redwoods	838	32	0	27	(11)	–
Reedley	2,010	19	(2)	21	(2)	–
Rio Hondo	3,095	16	8	14	2	–
Riverside	4,083	12	2	15	(3)	–
Sacramento City	3,299	13	(0)	15	(3)	–
Saddleback	3,244	25	(7)	28	(7)	–
San Bernardino	2,999	9	1	16	(1)	–
San Diego City	2,751	28	1	22	(5)	YES
San Diego Mesa	3,590	47	2	43	(1)	–
San Diego Miramar	1,879	47	5	45	(4)	–
San Francisco City	3,108	41	1	38	(4)	–
San Joaquin Delta	3,959	15	1	18	(2)	–

	First-time Math cohort	Share of first-time math students starting directly into transfer-level math (%), 2016-17	Increase from prior year	One-year throughput rate, Fall 2016 (%)	Increase from prior year	Co-requisite remediation as of 2016-2017
San Jose City	1,185	30	3	21	(4)	–
San Mateo	1,548	45	4	35	(3)	–
Santa Ana	2,921	33	4	29	(6)	–
Santa Barbara City	2,310	52	11	56	8	–
Santa Monica	5,619	39	6	25	(0)	–
Santa Rosa	3,117	31	(2)	30	(7)	–
Santiago Canyon	2,057	40	3	34	(8)	–
Sequoias	3,118	15	(0)	23	(1)	–
Shasta	1,564	36	(2)	33	(5)	–
Sierra	3,851	51	12	42	2	–
Siskiyous	350	67	51	58	36	–
Skyline	1,342	36	7	35	5	–
Solano	1,906	39	1	31	(2)	–
Southwest L.A.	1,015	8	0	5	(7)	–
Southwestern	4,065	15	4	15	1	–
Taft	788	22	2	27	(2)	–
Ventura	2,555	36	2	38	(1)	–
Victor Valley	2,845	6	(0)	14	2	–
West L.A.	1,255	19	2	10	(1)	–
West Valley	1,396	32	2	36	(4)	–
Woodland	778	12	(6)	12	(5)	–
Yuba	1,340	7	1	18	3	–
Statewide	**260,794**	**28**	**2**	28	(2)	–

SOURCE: Authors' analysis of COMIS data.

TABLE 2
English

	First–time English cohort	Share of first–time English students starting directly into college composition (%), 2016–17	Increase from prior year	One–year throughput rate, Fall 2016 (%)	Increase from prior year	Co–requisite remediation as of 2016–2017
Alameda	556	59	10	48	(8)	–
Allan Hancock	2,061	50	3	54	(2)	–
American River	3,233	35	1	43	(2)	–
Antelope Valley	3,006	51	3	58	5	–
Bakersfield	4,478	52	12	45	1	–
Barstow	627	27	5	48	2	–
Berkeley City	930	73	(4)	64	(12)	–
Butte	2,245	57	2	56	(0)	–
Cabrillo	1,774	41	1	56	(2)	–
Canada	603	69	15	60	4	–
Canyons	2,815	63	21	61	(3)	–
Cerritos	3,958	29	7	45	3	–
Cerro Coso	490	34	11	43	14	–
Chabot	2,270	39	3	51	(8)	–
Chaffey	5,522	43	3	48	(2)	–
Citrus	2,806	42	(1)	55	0	–
Clovis	1,582	47	6	49	3	–
Coalinga	582	64	32	58	15	–
Coastline	989	67	(2)	63	(3)	–
Columbia	443	51	7	60	4	–
Compton	1,233	24	1	27	3	–
Contra Costa	907	32	6	45	(0)	–
Copper Mountain	469	39	3	50	6	–
Cosumnes River	2,382	58	5	54	5	–

	First–time English cohort	Share of first–time English students starting directly into college composition (%), 2016–17	Increase from prior year	One–year throughput rate, Fall 2016 (%)	Increase from prior year	Co–requisite remediation as of 2016–2017
Crafton Hills	1,263	45	6	52	3	–
Cuesta	1,642	67	0	58	(4)	–
Cuyamaca	1,087	52	19	57	4	YES
Cypress	2,688	32	0	50	(1)	–
De Anza	3,429	36	3	63	(4)	–
Desert	2,434	33	2	53	5	–
Diablo Valley	3,253	36	5	61	3	–
East L.A.	3,760	24	4	35	2	–
El Camino	4,741	40	(1)	49	1	–
Evergreen Valley	1,590	38	5	37	1	–
Feather River	334	54	(1)	64	(1)	–
Folsom Lake	1,461	35	3	52	3	–
Foothill	1,408	51	(6)	65	(9)	–
Fresno City	4,550	34	7	33	(3)	–
Fullerton	4,503	45	6	53	(2)	YES
Gavilan	985	49	3	39	(9)	–
Glendale	2,650	55	(1)	61	(3)	–
Golden West	1,972	55	6	60	2	–
Grossmont	3,366	39	3	49	(1)	–
Hartnell	2,021	34	4	44	1	–
Imperial Valley	1,613	29	7	42	4	–
Irvine Valley	2,096	51	14	67	13	–
L.A. City	1,881	26	5	39	2	–
L.A. Harbor	1,470	32	4	48	(2)	–
L.A. Mission	1,356	27	0	30	3	–
L.A. Pierce	3,402	18	2	40	(2)	–

	First–time English cohort	Share of first–time English students starting directly into college composition (%), 2016–17	Increase from prior year	One–year throughput rate, Fall 2016 (%)	Increase from prior year	Co–requisite remediation as of 2016–2017
L.A. Trade–Tech	1,452	41	28	40	14	–
L.A. Valley	2,752	42	8	46	4	–
Lake Tahoe	319	51	5	63	5	–
Laney	912	53	7	47	(0)	–
Las Positas	1,682	73	32	74	1	–
Lassen	357	39	(3)	65	(4)	–
Lemoore	1,064	46	4	57	2	–
Long Beach City	3,901	49	26	36	(1)	–
Los Medanos	1,602	32	7	56	7	–
Marin	647	37	1	51	4	–
Mendocino	559	39	1	49	2	–
Merced	2,376	41	9	48	2	–
Merritt	615	44	2	42	(3)	–
Mira Costa	2,556	75	7	70	(2)	YES
Mission	787	50	4	56	7	–
Modesto	3,407	36	1	44	1	–
Monterey	1,193	29	(2)	48	(2)	–
Moorpark	3,095	80	0	78	(1)	–
Moreno Valley	1,672	37	15	51	5	–
Mt. San Antonio	5,612	16	(1)	34	(6)	–
Mt. San Jacinto	3,938	50	26	57	9	–
Napa Valley	1,181	25	3	54	(2)	–
Norco	1,880	38	9	45	1	–
Ohlone	1,669	41	1	50	0	–
Orange Coast	3,792	57	(1)	60	(6)	–
Oxnard	1,117	54	2	58	(4)	–

	First–time English cohort	Share of first–time English students starting directly into college composition (%), 2016–17	Increase from prior year	One–year throughput rate, Fall 2016 (%)	Increase from prior year	Co–requisite remediation as of 2016–2017
Palo Verde	355	32	1	27	(4)	–
Palomar	3,962	49	3	48	(3)	–
Pasadena City	5,136	41	(0)	59	(6)	–
Porterville	965	36	23	52	16	–
Redwoods	754	46	1	48	(3)	–
Reedley	2,100	25	(0)	30	(1)	–
Rio Hondo	2,685	60	8	58	1	–
Riverside	3,302	33	8	39	(2)	–
Sacramento City	2,685	37	2	46	4	YES
Saddleback	3,286	35	(3)	55	2	–
San Bernardino	2,308	21	(2)	26	(4)	–
San Diego City	2,580	25	4	49	8	–
San Diego Mesa	3,256	47	13	58	9	YES
San Diego Miramar	1,639	46	11	54	11	–
San Francisco City	2,341	30	8	43	9	–
San Joaquin Delta	3,596	40	0	47	(2)	–
San Jose City	980	49	8	50	7	–
San Mateo	1,254	77	38	68	6	–
Santa Ana	2,347	75	27	51	1	–
Santa Barbara City	2,346	73	4	63	1	–
Santa Monica	5,611	54	7	51	(0)	–
Santa Rosa	3,021	54	(0)	59	(3)	–
Santiago Canyon	1,711	75	3	66	(4)	–
Sequoias	2,817	39	(1)	43	(9)	–
Shasta	1,418	68	4	58	(5)	–
Sierra	3,732	69	9	64	1	–

	First–time English cohort	Share of first–time English students starting directly into college composition (%), 2016–17	Increase from prior year	One–year throughput rate, Fall 2016 (%)	Increase from prior year	Co–requisite remediation as of 2016–2017
Siskiyous	372	51	2	47	(12)	–
Skyline	1,209	82	28	68	0	YES
Solano	1,785	70	34	64	10	YES
Southwest L.A.	896	19	4	21	(1)	–
Southwestern	3,839	36	7	52	1	–
Taft	704	40	1	52	5	–
Ventura	2,249	55	9	62	4	–
Victor Valley	2,313	22	0	49	9	–
West L.A.	1,073	62	27	48	4	–
West Valley	1,156	53	5	59	(1)	–
Woodland	719	31	1	33	(6)	–
Yuba	1,333	32	(7)	46	(3)	–
Statewide	240,888	44	6	51	1	–

SOURCE: Authors' analysis of COMIS data.

TABLE 3
Math one–year throughput rates by starting course (percent)

	Math			
	Traditional developmental math	Pre–Stats	Co–requisite remediation	All first–time math students
Alameda	7	21	–	30
Allan Hancock	13	–	–	27
American River	6	89	–	21
Antelope Valley	12	–	–	20
Bakersfield	5	9	–	17
Barstow	27	–	–	31
Berkeley City	12	16	–	36
Butte	11	–	–	26
Cabrillo	10	–	–	23
Canada	15	36	–	42
Canyons	10	38	–	38
Cerritos	7	–	–	16
Cerro Coso	5	–	–	20
Chabot	8	13	–	23
Chaffey	9	–	–	18
Citrus	12	26	–	24
Clovis	12	–	–	42
Coalinga	5	–	–	17
Coastline	20	–	–	28
Columbia	9	–	–	22
Compton	7	–	–	9
Contra Costa	5	23	–	28
Copper Mountain	11	*	–	23
Cosumnes River	8	–	–	21
Crafton Hills	9	–	–	23
Cuesta	12	19	–	27
Cuyamaca	32	33	72	55
Cypress	9	38	–	27
De Anza	20	33	–	38
Desert	3	–	–	14
Diablo Valley	13	82	–	46
East L.A.	6	–	–	12
El Camino	16	–	–	24
Evergreen Valley	13	–	–	24
Feather River	18	–	–	46
Folsom Lake	11	–	–	27
Foothill	23	*	–	50
Fresno City	5	–	–	23
Fullerton	5	–	–	33
Gavilan	6	–	–	19
Glendale	10	–	–	30
Golden West	12	–	–	31
Grossmont	9	–	–	29
Hartnell	14	–	–	24
Imperial Valley	7	–	–	15

	Math			
	Traditional developmental math	Pre–Stats	Co–requisite remediation	All first–time math students
Irvine Valley	13	–	–	42
L.A. City	7	–	–	13
L.A. Harbor	8	18	–	17
L.A. Mission	6	42	–	14
L.A. Pierce	9	41	–	25
L.A. Trade–Tech	3	–	–	5
L.A. Valley	5	–	–	15
Lake Tahoe	11	–	–	15
Laney	12	–	–	27
Las Positas	13	–	–	31
Lassen	6	–	–	17
Lemoore	10	–	–	17
Long Beach City	6	–	–	18
Los Medanos	12	20	69	48
Marin	10	*	–	27
Mendocino	4	29	–	20
Merced	8	–	–	20
Merritt	5	–	–	19
Mira Costa	17	4	–	41
Mission	5	*	–	25
Modesto	8	–	–	15
Monterey	15	–	–	25
Moorpark	15	–	–	39
Moreno Valley	8	10	–	11
Mt. San Antonio	8	52	–	29
Mt. San Jacinto	16	–	–	27
Napa Valley	16	–	–	36
Norco	12	–	–	20
Ohlone	24	–	–	37
Orange Coast	16	–	–	34
Oxnard	6	–	–	21
Palo Verde	4	–	–	7
Palomar	9	33	–	22
Pasadena City	20	–	–	34
Porterville	8	–	–	21
Redwoods	8	26	–	25
Reedley	9	–	–	19
Rio Hondo	5	–	–	12
Riverside	8	35	–	13
Sacramento City	10	–	–	15
Saddleback	13	–	–	27
San Bernardino	12	–	–	15
San Diego City	5	57	–	20
San Diego Mesa	15	–	–	40
San Diego Miramar	12	–	–	42
San Francisco City	13	22	–	36
San Joaquin Delta	8	–	–	16

	Math			
	Traditional developmental math	**Pre–Stats**	**Co–requisite remediation**	**All first–time math students**
San Jose City	9	–	–	19
San Mateo	8	29	–	33
Santa Ana	12	–	–	26
Santa Barbara City	21	–	–	54
Santa Monica	4	24	–	25
Santa Rosa	8	–	–	26
Santiago Canyon	10	–	–	33
Sequoias	8	–	–	15
Shasta	8	23	–	29
Sierra	11	–	–	39
Siskiyous	28	–	–	56
Skyline	12	19	–	32
Solano	7	–	–	29
Southwest L.A.	3	–	–	6
Southwestern	5	*	–	13
Taft	10	–	–	21
Ventura	11	–	–	35
Victor Valley	8	16	–	11
West L.A.	4	–	–	12
West Valley	19	37	–	35
Woodland	6	–	–	11
Yuba	15	–	–	16
Statewide	**10**	**27**	**71**	**26**

* N <= 10

SOURCE: Authors' analysis of COMIS data.

TABLE 4
English one–year throughput rates by starting course (percent)

	English			
	Traditional Developmental English	**One–semester acceleration**	**Co–requisite remediation**	**All first–time English students**
Alameda	9	–	–	42
Allan Hancock	29	32	–	50
American River	25	–	–	40
Antelope Valley	30	–	–	49
Bakersfield	18	–	–	43
Barstow	21	*	–	38
Berkeley City	40	–	–	60
Butte	30	–	–	53
Cabrillo	39	–	–	50
Canada	18	–	–	58
Canyons	6	39	–	59
Cerritos	29	41	–	42
Cerro Coso	27	–	–	34
Chabot	5	41	–	48
Chaffey	32	–	–	47
Citrus	35	–	–	51
Clovis	23	–	–	47
Coalinga	24	–	–	56
Coastline	40	–	–	69
Columbia	38	–	–	56
Compton	15	–	–	25
Contra Costa	25	–	–	43
Copper Mountain	23	–	–	42
Cosumnes River	28	–	–	51
Crafton Hills	26	–	–	47
Cuesta	28	–	–	56
Cuyamaca	35	–	96	55
Cypress	33	–	–	46
De Anza	48	–	–	60
Desert	36	38	–	49
Diablo Valley	39	52	–	59
East L.A.	22	–	–	33
El Camino	27	–	–	46
Evergreen Valley	16	–	–	34
Feather River	49	–	–	60
Folsom Lake	33	–	–	49
Foothill	46	–	–	64
Fresno City	15	–	–	31
Fullerton	31	49	79	51
Gavilan	22	–	–	37
Glendale	31	–	–	59
Golden West	34	–	–	55
Grossmont	33	–	–	48
Hartnell	24	–	–	41
Imperial Valley	20	44	–	35

	English			
	Traditional Developmental English	**One–semester acceleration**	**Co–requisite remediation**	**All first–time English students**
Irvine Valley	47	–	–	68
L.A. City	27	–	–	35
L.A. Harbor	37	–	–	46
L.A. Mission	17	–	–	28
L.A. Pierce	33	–	–	39
L.A. Trade–Tech	18	–	–	34
L.A. Valley	26	–	–	43
Lake Tahoe	–	37	–	54
Laney	11	–	–	44
Las Positas	45	–	–	70
Lassen	–	41	–	51
Lemoore	35	–	–	53
Long Beach City	5	19	–	33
Los Medanos	*	48	–	54
Marin	36	–	–	46
Mendocino	20	52	–	43
Merced	34	–	–	44
Merritt	19	–	–	40
Mira Costa	33	–	78	67
Mission	29	–	–	51
Modesto	26	–	–	41
Monterey	36	–	–	45
Moorpark	–	49	–	76
Moreno Valley	39	38	–	49
Mt. San Antonio	26	–	–	33
Mt. San Jacinto	39	–	–	56
Napa Valley	44	–	–	50
Norco	26	28	–	43
Ohlone	25	–	–	48
Orange Coast	39	–	–	57
Oxnard	36	–	–	56
Palo Verde	11	–	–	22
Palomar	24	–	–	44
Pasadena City	42	–	–	57
Porterville	26	36	–	46
Redwoods	28	29	–	44
Reedley	18	18	–	28
Rio Hondo	31	–	–	55
Riverside	21	31	–	37
Sacramento City	30	–	67	43
Saddleback	34	75	–	52
San Bernardino	14	–	–	25
San Diego City	34	47	–	44
San Diego Mesa	34	46	85	56
San Diego Miramar	29	–	–	50
San Francisco City	28	–	–	40
San Joaquin Delta	28	–	–	44

	English			
	Traditional Developmental English	One–semester acceleration	Co–requisite remediation	All first–time English students
San Jose City	24	–	–	45
San Mateo	37	–	–	66
Santa Ana	*	–	–	50
Santa Barbara City	15	–	–	60
Santa Monica	21	–	–	51
Santa Rosa	36	–	–	55
Santiago Canyon	34	–	–	65
Sequoias	25	28	–	38
Shasta	20	23	–	54
Sierra	28	–	–	62
Siskiyous	29	–	–	46
Skyline	18	37	77	66
Solano	34	41	72	61
Southwest L.A.	14	–	–	18
Southwestern	31	37	–	47
Taft	31	–	–	42
Ventura	35	–	–	58
Victor Valley	36	–	–	44
West L.A.	16	–	–	46
West Valley	38	–	–	57
Woodland	16	–	–	31
Yuba	23	56	–	42
Statewide	**29**	**42**	**78**	**48**

* N <= 10

SOURCE: Authors' analysis of COMIS data.

TABLE 5
Math Access Rates by Race/Ethnicity

	Share of first–time math students starting directly into transfer–level math (%), 2016–17						Annual change in the share of first–time math students going directly to transfer–level math (pp)						Cohort Size Fall 2016
	Overall	Latino	Asian	African American	White	Low Income	Overall	Latino	Asian	African American	White	Low Income	
Siskiyou	67	58	*	93	65	45	51	12	*	13	18	9	116
Cuyamaca	57	53	67	52	59	33	31	27	43	27	24	15	532
Los Medanos	56	57	67	44	56	30	20	35	53	23	37	20	737
College of the Canyons	41	35	62	34	46	19	18	17	47	16	28	11	1,967
Statewide	27	19	49	18	35	21	2	18	47	15	32	14	188,124

Average early implementers	55	51	65	56	57	32
Statewide without early implementers	27	19	49	18	35	21

SOURCE: Authors' analysis of COMIS data.

TABLE 6
Math Throughput Rates by Race/Ethnicity

	One–year throughput rates (%), Fall 2016 cohort						Annual change in the one–year throughput rates (pp)						Cohort Size Fall 2016
	Overall	Latino	Asian	African American	White	Low Income	Overall	Latino	Asian	African American	White	Low Income	
Siskiyous	58	50	88	73	58	54	36	35	*	63	34	36	160
Cuyamaca	57	55	71	44	61	56	19	16	16	15	23	21	472
Los Medanos	51	50	66	37	52	47	9	8	5	14	7	8	505
College of the Canyons	44	36	62	31	53	39	9	8	4	8	14	9	850
Statewide	**27**	**19**	**50**	**13**	**36**	**23**	**(2)**	**(2)**	**(4)**	**(2)**	**(1)**	**(3)**	**75,199**

Average early implementers	53	48	72	46	56	49
Statewide without early implementers	27	19	50	13	36	23

SOURCE: Authors' analysis of COMIS data.

TABLE 7
English Access Rates by Race/Ethnicity

	Share of first–time English students starting directly into college composition (%), 2016–17						Annual change in the share of first–time English students going directly to college composition (pp)						Cohort Size 2016–2017
	Overall	Latino	Asian	African American	White	Low Income	Overall	Latino	Asian	African American	White	Low Income	
San Mateo	77	65	84	62	90	69	38	36	40	40	40	37	1,254
Solano	70	68	72	52	78	68	34	37	33	30	31	34	1,785
Coalinga	73	66	75	66	79	72	32	37	*	53	2	38	582
Las Positas	64	62	71	74	66	62	32	35	33	32	29	37	1,682
Skyline	82	77	85	79	89	79	28	28	28	56	27	28	1,209
Santa Ana	75	73	82	81	91	76	27	30	12	34	15	30	2,347
Mt. San Jacinto	50	45	52	37	60	46	26	26	26	19	28	24	3,938
Porterville	36	36	36	14	38	18	23	24	25	*	15	7	965
Cuyamaca	52	44	55	46	58	49	19	18	24	26	17	17	1,087
Canada	69	62	90	48	82	65	15	17	14	11	7	21	603
Moreno Valley	37	34	57	32	58	34	15	14	34	16	16	12	1,672
Irvine Valley	51	38	58	31	59	46	14	14	14	9	15	16	2,096
San Diego Mesa	47	41	49	42	55	45	13	13	15	22	8	11	3,256

	Share of first–time English students starting directly into college composition (%), 2016–17						Annual change in the share of first–time English students going directly to college composition (pp)						Cohort Size 2016–2017
	Overall	Latino	Asian	African American	White	Low Income	Overall	Latino	Asian	African American	White	Low Income	
San Diego Miramar	46	41	45	44	49	41	11	14	5	18	10	8	1,639
Statewide	**43**	**35**	**47**	**31**	**59**	**38**	**6**	**6**	**7**	**8**	**5**	**6**	**240,888**

Average early implementers	59	54	65	51	68	55
Statewide without early implementers	43	35	47	31	59	38

SOURCE: Authors' analysis of COMIS data.

TABLE 8
English Throughput Rates by Race/Ethnicity

	One–year throughput rates (%), Fall 2016 cohort						Annual change in the one–year throughput rates (pp)						Cohort Size Fall 2016
	Overall	Latino	Asian	African American	White	Low Income	Overall	Latino	Asian	African American	White	Low Income	
San Mateo	68	61	80	54	67	64	7	2	13	24	(4)	7	720
Solano	64	61	78	54	65	57	11	11	14	20	2	5	979
Coalinga	74	70	83	67	77	68	19	19	*	27	(10)	14	290
Las Positas	58	57	50	59	64	55	2	(1)	4	17	3	(4)	734
Skyline	68	57	77	67	72	67	3	(4)	4	12	(2)	2	670
Santa Ana	51	48	77	60	70	54	2	2	(3)	*	(9)	4	1,095
Mt. San Jacinto	57	54	71	14	64	55	10	9	14	(1)	10	9	2,014
Porterville	52	52	54	50	48	47	16	17	*	*	11	14	503
Cuyamaca	57	51	69	32	65	56	4	2	17	(7)	5	5	586
Canada	60	52	81	45	72	59	6	(1)	3	*	3	10	313
Moreno Valley	51	50	65	36	65	50	6	5	4	(1)	14	4	870
Irvine Valley	67	58	74	46	72	65	13	19	6	11	13	14	1,151
San Diego Mesa	58	51	68	54	66	56	10	4	27	15	5	3	1,268

San Diego Miramar	54	48	61	36	55	51	14	16	5	*	11	6	665
Statewide	**50**	**44**	**62**	**34**	**63**	**46**	**1**	**1**	**1**	**2**	**(0)**	**(0)**	**116,713**

Average early implementers	60	55	71	48	66	57
Statewide without early implementers	50	44	62	34	63	46

SOURCE: Authors' analysis of COMIS data.

FIGURE 1

Change in transfer–level math course success rates vs. changes in first–time math students starting in transfer–level
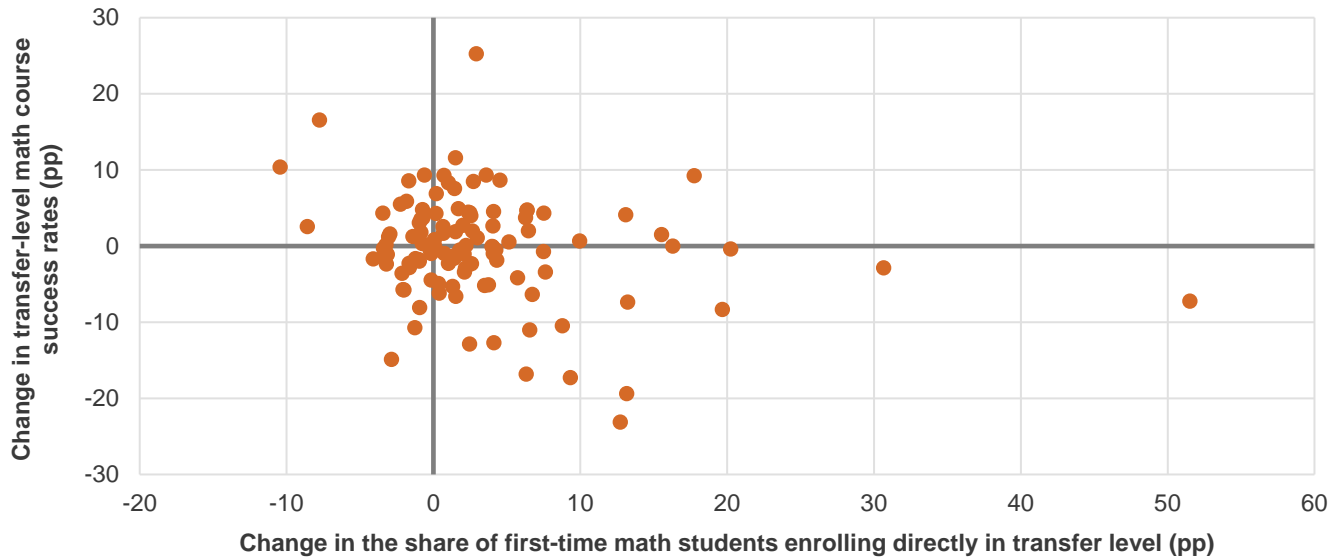
SOURCE: Authors' analysis of COMIS data.

FIGURE 2

Transfer–level English course success rates vs. changes in first–time English students starting in transfer–level
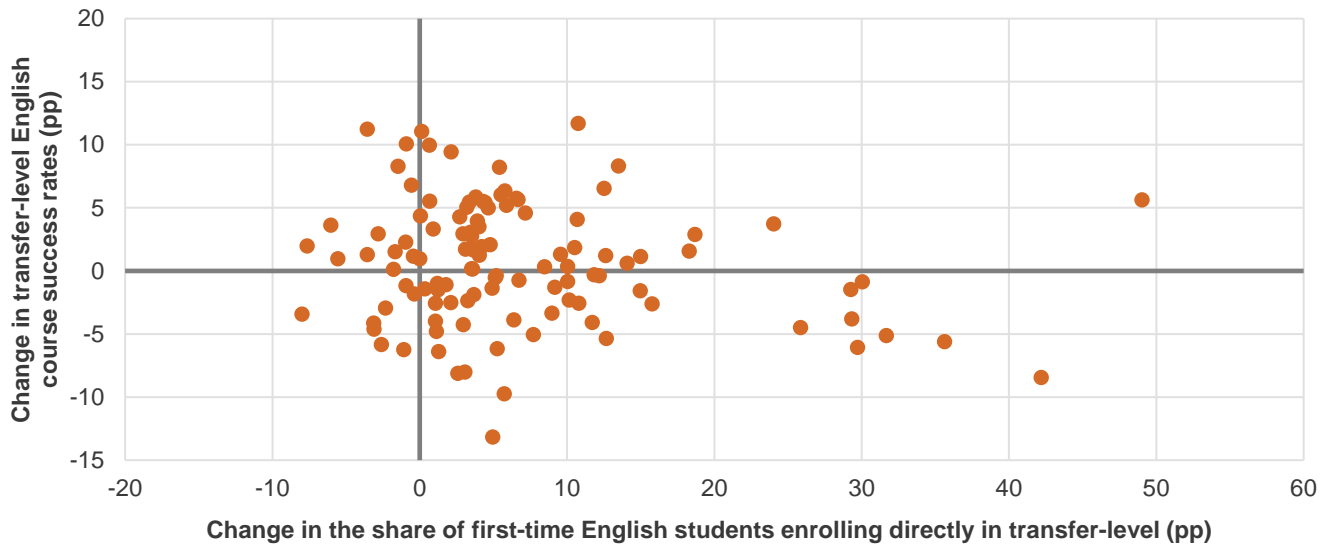
SOURCE: Authors' analysis of COMIS data.

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