Enrollment and Success in Math 10 and Math 48A in Fall 2018

Mathematics Dept. Presentation
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As of Fall 2018, ALL students could enroll in gateway, transfer-level math (compliant with AB 705):

- Math 10 (statistics)
- Math 48A (precalculus)

Supports added to help lower-achieving students succeed:

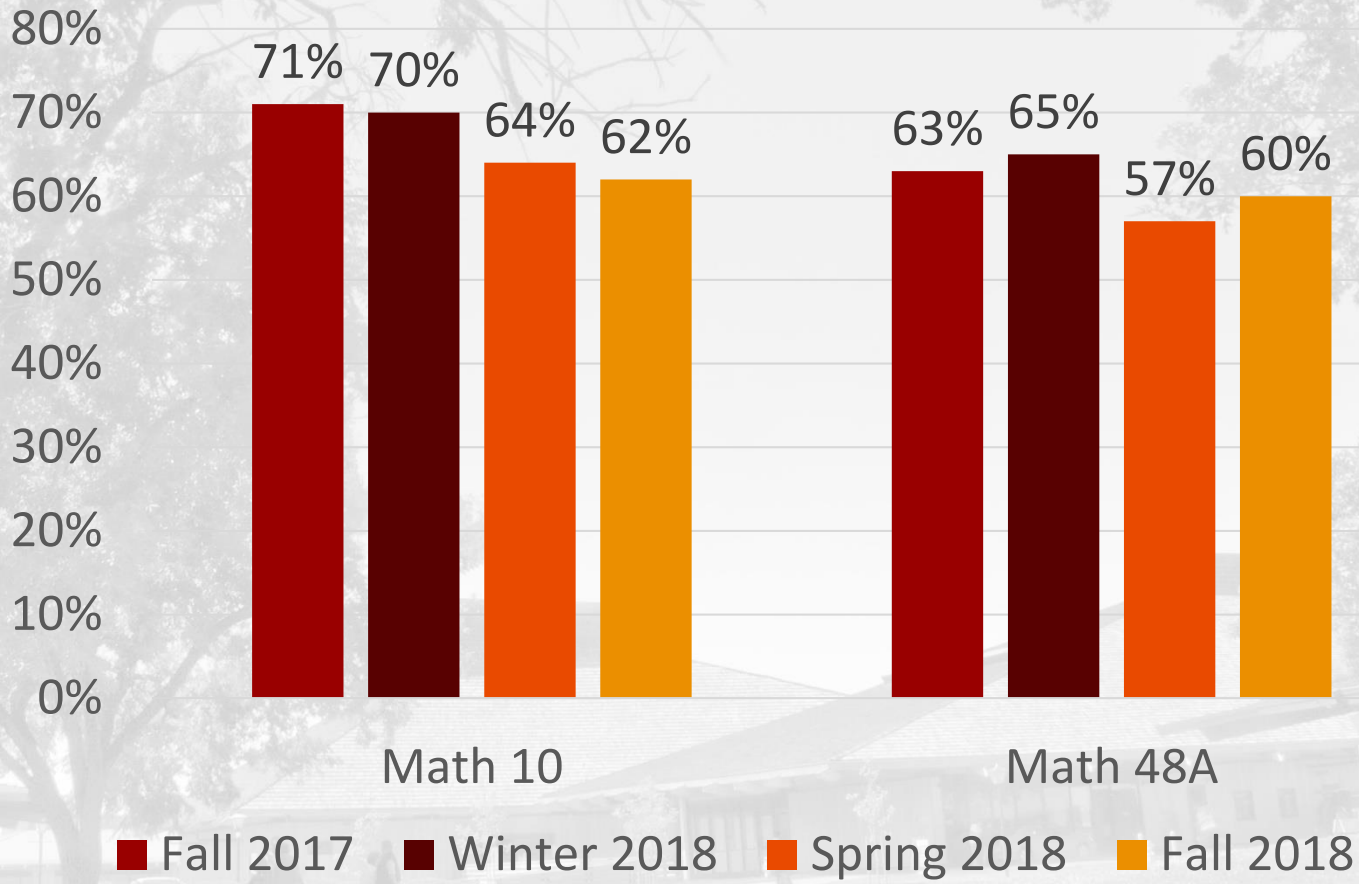
- Math 10 (statistics): Added tutors
- Math 48A (precalculus): Added a corequisite, Math 248A. [Math 48A also available as a stand-alone class that was open to students based on HS GPA and course completion.]

Questions:

- Was there a change in the number of students passing?
- Which students passed?
- Did tutors improve student success in Math 10?
- Did the corequisite improve student success in Math 48A?

Was there a change in the number of students passing?

- Fall 2018 pass rates declined from Fall 2017, but were similar to Spring 2018:



Was there a change in the number of students passing?

- Greater access led to greater enrollment, and an increase in the number of students passing:

	# Enrolled			# Passed		
	Fall 2017	Fall 2018	Gain	Fall 2017	Fall 2018	Gain
Math 10	619	896	277 (45%)	438	556	118 (27%)
Math 48A	264	364	100 (38%)	166	217	51 (31%)

- Math 10: 160 additional Latinx students enrolled and 63 additional Latinx students passed
- Math 48A: 77 additional Latinx students enrolled and 40 additional Latinx students passed

Which students passed?

- Disproportionate impact continues to exist in Fall 2018
  - Latinx students have significant gaps for both Math 10 and Math 48A
  - No significant improvement for Math 10 from Fall 2017
  - Some improvement for Math 48A: Latinx gap decreased 4 percentage points from Fall 2017

Did tutors improve student success in Math 10?

- Problem: Differences in success could be due to differences in students.
- Prior to Fall 2018:
  - Access based on combination of HS GPA and course completion, or high enough score on placement exam (Accuplacer).
    - Example: Math 10 if 12th grade HS GPA = 3.0 and student has passed algebra.
- Fall 2018:
  - All students have access to Math 10, including students with low HS GPAs

How do we control for differences in student achievement?

Compared Fall 2018 to similar students from Fall 2017 – Spring 2018. Did not look at all students, but able to make causal inferences.

- Step 1: Logistic regression on total data set to determine variables for matching (different between groups and related to success)
- Step 2: Match students on these variables
- Step 3: Logistic regression on matched data to look at effect of tutors

Did tutors improve student success in Math 10?

- Yes, but only for students with higher HS GPAs (logistic regression $p<.05$).
- Comparison of matched students:

	F17-Sp18		F18	
HS GPA Band*	Count	Passed	Count	Passed
GPA >=3.0	119	72%	194	79%
GPA 2.3-2.9	117	44%	192	48%
GPA <2.3	36	44%	59	34%

*HS GPA bands are from California Community College Chancellor's Office minimum placement recommendations for statistics.

Did the corequisite improve student success in Math 48A?

- **Compared Fall 2018 Math 48A/248A students to similar students from Fall 2018 Math 48A stand-alone class. Did not look at all students, but able to make causal inferences.**
- Fall 2018 Math 48A stand-alone class
  - Access based on combination of HS GPA and course completion.
    - Example: Math 48A if 12th grade HS GPA = 3.2.
- Fall 2018 Math 48A with Math 248A:
  - All students have access, including students with low HS GPAs

Did the corequisite improve student success in Math 48A?

- Yes (logistic regression $p<.01$).
- Comparison of matched students:

	No Coreq		Coreq	
HS GPA Band*	Count	Passed	Count	Passed
GPA >=3.4	10	55%	22	77%
GPA 2.6-3.3	32	36%	69	64%
GPA <2.6	25	41%	55	47%

*HS GPA bands are from California Community College Chancellor's Office minimum placement recommendations for precalculus.

Summary

- Fall 2018 pass rates in Math 10 and Math 48A declined from Fall 2017, but were similar to Spring 2018
- Greater access in Fall 2018 vs. Fall 2017 = more students enrolled and more students passed:
  - Math 10:
    - 45% gain (277 students) in # enrolled
    - 27% gain (118 students) in # passed
  - Math 48A:
    - 38% gain (100 students) in # enrolled
    - 31% gain (51 students) in # passed

Summary

- Disproportionate impact (DI) continues to exist in Fall 2018 .
- Math 10:
  - Latinx students have DI
  - No significant improvement from Fall 2017
- Math 48A:
  - Latinx students have DI
  - Latinx gap decreased by 4 percentage points

Summary

- Math 10 tutors improved student success, but only for students with higher HS GPAs
- Math 48A corequisite improved student success
- Still to come: WHY did higher-GPA students benefit from tutors but not those with lower HS GPAs? WHAT ASPECTS of the corequisite seemed to improve success?
  - Data: student perceptions (survey results); student attendance at workshops and tutoring sessions in the Foundations Lab

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