

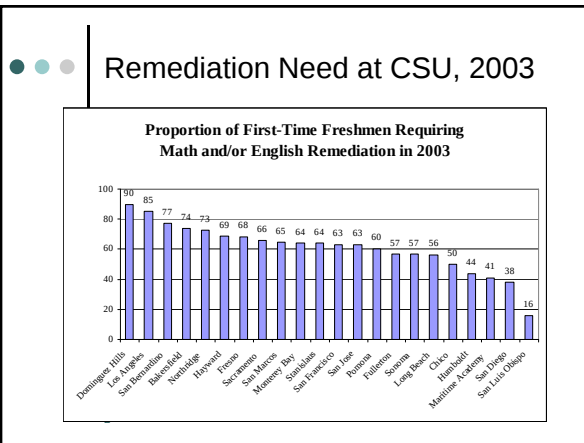
Postsecondary Preparation and Remediation:

Examining the Effect of the Early Assessment Program at California State University

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Early Assessment Simple Program Overview

- Goals of EAP:
 - Provide an early signal to students about their college readiness
 - Collaborate with HS community
 - Provide 12th grade interventions
- Components of EAP:
 - 11th grade testing (early assessment)
 - Professional development for teachers
 - Supplemental preparation for students

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Early Assessment Program: Testing Component Detail

- 15 extra questions added to the 11th grade CST (math and English)
 - English EAP also requires an essay
- Although CST is mandatory, EAP participation is completely voluntary
- Composite scores computed based on subset of CST questions and augmented EAP items
- Scores translated into outcomes: exempt or not exempt from CSU placement exam(s)

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Research Question

- How does participation in the Early Assessment Program affect the probability of requiring remedial coursework in college?
 - Examine this question separately for mathematics and English.
- Quantify the **size** of the effect.
 - By **how much** is a student's probability of needing remediation lowered by participating in EAP?

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Academic Preparation Literature

- Better academic preparation → higher rates of persistence and degree completion
- Student information and expectations
 - Person, Rosenbaum, & Deil-Amen (2006); Rosenbaum (2001); Venezia, Kirst, & Antonio (2003)
- K-12 alignment with higher education
 - Venezia et al. (2005); Martinez & Klopott (2005)
- Effect of college remediation
 - Bettinger & Long (2004); Martorell & McFarlin, (2008); Calcagno & Long, (2008)

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Theoretical Model

- Economic model is human capital
Production Function
 - One of the inputs is academic preparation
 - The output examined here is success in college
- Theory predicts that better information about your college readiness improves academic preparation and thereby increases the probability of success in college (lower probability of remediation)

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Data

- CSUS Office of Institutional Research
 - Four cohorts of first-time freshman applicants (2003 – 2006)
- California Department of Education
 - Matched CSUS applicants to CST scores and EAP participation and outcomes
 - Additionally, data on EAP participation by all HS juniors in the state since program inception

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CSUS Enrollees by Year

Proportion	Pre-EAP		Post-EAP	
	2003	2004	2005	2006
Male	0.394	0.390	0.383	0.390
White	0.500	0.481	0.466	0.438
Black	0.084	0.093	0.098	0.113
Hispanic	0.166	0.167	0.174	0.163
Asian	0.155	0.158	0.170	0.186
Other race/ethnicity	0.093	0.099	0.091	0.100
Parental Education:				
Mom - HS Grad	0.552	0.551	0.547	0.565
Mom - College Grad	0.268	0.255	0.242	0.248
Dad - HS Grad	0.515	0.483	0.528	0.523
Dad - College Grad	0.305	0.324	0.272	0.282
Math Proficient	0.523	0.550	0.574	0.527
English Proficient	0.417	0.413	0.435	0.438
^g N	1796	1726	1872	1917

CSUS Enrollees by Year

	Pre-EAP		Post-EAP	
Average	2003	2004	2005	2006
ELM Test (math)	43.2	43.4	43.1	42.2
Proportion non-zero	0.699	0.696	0.652	0.682
EPT Test (English)	144.7	144.1	143.9	144.0
Proportion non-zero	0.792	0.790	0.730	0.737
SAT	966	961	969	955
Proportion non-zero	0.832	0.849	0.807	0.800
ACT	20	19	19	19
Proportion non-zero	0.220	0.219	0.218	0.181
High School GPA	3.2	3.2	3.2	3.2
N	1796	1726	1872	1917

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Empirical Strategy

- Could simply compare outcomes of those who participate in EAP to those who do not
 - EAP participants have a lower probability of needing remediation at CSUS than non-participants
 - English: 9 percentage points lower
 - Math: 6 percentage points lower
- Better strategy utilizes **Logistic Regression** to control for differences between groups:
 - Logit used when dependent variable is binary.
 - Students in post-EAP years are the "treatment group"; Students in pre-EAP years are the "control group"

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Empirical Model

- Remediation need by first-time freshman i in subject s (binary variable Y_{is}) is a function of:
 - Individual characteristics, X_i : race, gender, academic performance measures, parental education
 - Subject-specific EAP participation indicator
 - Model: $Y_{is} = \beta X_i + \alpha EAP_{is} + \epsilon_{is}$
 - Null Hypothesis: $H_0: \alpha = 0$
 - Alternative Hypothesis: $H_A: \alpha \neq 0$

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Marginal Effects on Probability of Remediation Need, by subject

Variable	English	z	Math	z
Male	-0.0167	-1.09	-0.2033	-12.74
Black	0.1480	6.58	0.1872	5.26
Hispanic	0.1891	11.07	0.0812	3.13
Asian	0.2335	13.61	0.0725	2.82
Other race	0.1759	9.09	0.0709	2.37
High school GPA	-0.1104	-5.56	-0.2019	-9.19
CST score (same subject)	-0.0076	-15.94	-0.0062	-19.75
Dad College Grad	-0.0384	-2.12	-0.0022	-0.11
Mom College Grad	-0.0549	-2.86	-0.0708	-3.64
Post EAP	0.0444	2.02	0.0029	0.11
EAP participation	-0.0616	-2.87	-0.0431	-1.71
High School Characteristics	✓		✓	
N	6,210		4,796	

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Conclusions & Future Directions

- Analysis indicates that I can reject my null hypothesis.
 - Evidence that EAP participation does reduce the probability that CSUS first-time freshmen require remediation
- Policy makers should compare the benefit of modestly reduced remediation to the cost of the program.
- Future work examines how results change when data on students at all CSU campuses are analyzed.

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