READY OR NOT? CALIFORNIA'S EARLY ASSESSMENT PROGRAM AND THE TRANSITION TO COLLEGE

Michal Kurlaender
University of California, Davis

Policy Analysis for California Education
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- **Collaborators**: Jake Jackson (University of California Davis), Jessica Howell (College Board), and Eric Grodsky (University of Minnesota)

- **California State University**: Beverly Young, Marsha Hirano-Nakanishi, Carolina Cardenas, Phillip Garcia, Monica Malhotra, Joy Salvetti, Roberta Ching, and Nancy Brynelson

- **California Department of Education**: Deb Sigman, Rachel Perry, and Julie Williams
Policy Context

- **College Readiness**
  - High college remediation rates
  - Calls for alignment between high schools and colleges
  - Require all high school graduates to complete a college- and career-ready curriculum

- **College Completion Agenda**
  - Common Core standards to promote college and career readiness
Remediation need at CSU

Percent of students requiring remediation at CSU system and six-year graduation rates by cohort

Data from CSU Analytic Studies: http://www.asd.calstate.edu/performance/proficiency.shtml
Remediation need varies by race

Percent of students Requiring remediation at CSU in 2010

- Total: 57.0%
- White: 36.6%
- American Indian: 53.7%
- Filipino: 57.6%
- Asian American: 58.5%
- Other Latino: 69.6%
- Pacific Islander: 70.8%
- Mexican American: 72.9%
- African American: 79.9%

Data from CSU Analytic Studies: http://www.asd.calstate.edu/performance/proficiency.shtml
Early Assessment Program Overview

- **Goals of EAP:**
  - Provide an early signal to students about their college readiness
  - California State University collaboration with K-12
  - Provide 12th grade interventions
- **Components of EAP:**
  1. 11th grade testing (early assessment)
  2. Professional development for teachers
  3. Supplemental preparation for students
CSU lists the benefits of the EAP

- Aligning school and CSU standards so that success in high school means readiness for the CSU
- Giving high school students an early signal about their college readiness and adequate time to prepare before entering CSU
- Making the senior year a time for more direct and specific preparation for college
- Exempting CSU-ready students from taking CSU placement tests, thereby reducing testing time for students
- Giving more meaning and force to the California Standards Tests (CSTs)

http://www.calstate.edu/eap/about.shtml
Research Questions

• How does participation in the Early Assessment Program affect the probability of requiring remedial coursework in college?

• Do effects vary with individual and school characteristics?

• How have different levels of EAP participation influenced school-wide measures of college readiness?
Data

- CSU Chancellor’s Office
  - Four cohorts of first-time freshman applicants (2003 – 2006)

- California Department of Education
  - EAP participation by all HS juniors in the state since program inception
  - Matched CSU applicants (enrollees) to CST scores and EAP participation and outcomes
Overview of EAP Testing Component

- Assessment:
  - Optional 15 questions on the mandatory 11th grade CST
  - Additional items developed by CSU faculty
  - Score based on CST augmented with EAP items

- Signal:
  1. Exempt
  2. Non-Exempt
  3. Conditional Exempt (in math only)
Percent of Eligible Juniors Participating in the EAP Test

- English
- Math

2004 2005 2006 2007 2008

Percent
Analytic Strategy for Research Questions 1 & 2

- Model remediation need for first-time freshmen in Math and English, respectively, as a function of:
  - Individual characteristics of students
  - Attributes of individual’s high school
  - EAP availability
  - Participation in EAP

- Interrupted Time Series—Intuition: Compare similar students in cohorts that had EAP available to those that did not
## Characteristics of CSU Enrollees

<table>
<thead>
<tr>
<th>Proportion</th>
<th>Pre-EAP</th>
<th>Post-EAP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2003</td>
<td>2004</td>
</tr>
<tr>
<td>Male</td>
<td>39.0%</td>
<td>39.4%</td>
</tr>
<tr>
<td>White</td>
<td>38.9%</td>
<td>38.1%</td>
</tr>
<tr>
<td>Black</td>
<td>6.5%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>24.2%</td>
<td>26.8%</td>
</tr>
<tr>
<td>Asian</td>
<td>13.0%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Other race/ethnicity</td>
<td>17.4%</td>
<td>15.1%</td>
</tr>
<tr>
<td>Mom - College Grad</td>
<td>28.8%</td>
<td>29.5%</td>
</tr>
<tr>
<td>Dad - College Grad</td>
<td>31.7%</td>
<td>32.4%</td>
</tr>
<tr>
<td>Math Remediation</td>
<td>42.4%</td>
<td>38.7%</td>
</tr>
<tr>
<td>English Remediation</td>
<td>49.5%</td>
<td>47.8%</td>
</tr>
<tr>
<td>$N$</td>
<td>27,436</td>
<td>28,985</td>
</tr>
</tbody>
</table>
## Characteristics of CSU Enrollees

<table>
<thead>
<tr>
<th>Average</th>
<th>Pre-EAP</th>
<th>Post-EAP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2003</td>
<td>2004</td>
</tr>
<tr>
<td>ELM Test (math)</td>
<td>42.0</td>
<td>42.8</td>
</tr>
<tr>
<td>Proportion non-zero</td>
<td>55%</td>
<td>51%</td>
</tr>
<tr>
<td>EPT Test (English)</td>
<td>144.9</td>
<td>145.3</td>
</tr>
<tr>
<td>Proportion non-zero</td>
<td>70%</td>
<td>69%</td>
</tr>
<tr>
<td>SAT</td>
<td>998</td>
<td>1005</td>
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<tr>
<td>Proportion non-zero</td>
<td>92%</td>
<td>91%</td>
</tr>
<tr>
<td>ACT</td>
<td>20.6</td>
<td>20.7</td>
</tr>
<tr>
<td>Proportion non-zero</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td>High School GPA</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td><strong>N</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>27,436</td>
<td>28,985</td>
</tr>
</tbody>
</table>

N: Number of students
English Results by Campus
Differences Across CSU Campuses

SAT Verbal Score vs Proportion participating in EAP

- San Luis Obispo
- Maritime Academy
- San Diego
- Humboldt
- Sonoma
- Channel Islands
- Chico
- Long Beach
- Monterey Bay
- San Francisco
- Pomona
- Fullerton
- San Marcos
- Bakersfield
- San Jose
- Sacramento
- East Bay
- Northridge
- Fresno
- San Bernardino
- Los Angeles
- Dominguez Hills
Differential Treatment Effects

Trends in Math remediation by SAT Quartile and EAP Participation

Percent Requiring Math Remediation

No EAP Partic
EAP Partic

SAT Q1
SAT Q2
SAT Q3
SAT Q4

2001 2002 2003 2004 2005 2006 2007 2008
Preliminary Conclusions—Part I

- EAP participation in English leads to a reduction in the probability that CSU freshmen require remediation

- Important differences in treatment effects
  - by campus
  - by individual characteristics
An Examination of EAP School Effects

- Differences in EAP participation across schools
- School attributes that influence EAP participation rates
  - Student demographics
  - Aggregate academic performance
- Difference-in-Difference—Intuition: Compare school outcomes over time, for schools with varying levels of EAP participation
School EAP participation rates

Percent of students taking EAP English Exam

Graphs by (firstnm) year

Number of Schools

Percent of Students in School Participating in English EAP

2004
2005
School characteristics related to EAP participation

Correlation coefficients for school characteristics with EAP participation

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Performance Index</td>
<td>0.197***</td>
<td>0.245***</td>
</tr>
<tr>
<td>Free/Reduced Lunch (%)</td>
<td>-0.027**</td>
<td>-0.094**</td>
</tr>
<tr>
<td>Under-represented Minority Students (%)</td>
<td>0.028</td>
<td>-0.018</td>
</tr>
<tr>
<td>Enrollment</td>
<td>0.077*</td>
<td>0.048</td>
</tr>
<tr>
<td>Emergency Credential (%)</td>
<td>-0.032</td>
<td>-0.093*</td>
</tr>
<tr>
<td>Pupil-Teacher Ratio</td>
<td>0.073*</td>
<td>0.106**</td>
</tr>
<tr>
<td>Parent with less than diploma (%)</td>
<td>-0.084*</td>
<td>-0.052</td>
</tr>
</tbody>
</table>

* p<0.05, **p<0.01, ***p<0.001
College readiness indicators have increased over time

Average percent of students in school displaying readiness indicators over time

- EAP
- EPT Take-up (%)
- API
- CST Eng Profic/Adv (%)
- Apply to CSU (%)
California’s high schools also changed over the same time period.

Average student and teacher characteristics in California high schools over time:

- Under-rep. Minority
- Free/Reduced Lunch
- Parents < HS Grad
- Emerg. Credential

---

Graph showing the percentage changes from 2002 to 2005 for various categories including:
- EAP
- Under-rep. Minority
- Free/Reduced Lunch
- Parents < HS Grad
- Emerg. Credential
Using EAP participation quartiles

Percent of students taking EAP English Exam per school (2005 Cohort)
What if level of EAP participation had no impact on CST Proficiency?

Hypothetical Pre-EAP to Post-EAP differences in CST Proficiency by Quartile

2 - 2 = 0
What if level of EAP participation did have an impact on CST Proficiency?

Hypothetical Pre-EAP to Post-EAP differences in CST Proficiency by Quartile

- Quartile 1
- Quartile 4

6 - 2 = 4
Higher EAP participation is associated with higher levels of CST Proficiency

Fitted Values for CST Proficiency from Difference in Difference

% Proficient of Advanced

Q1 Pre-EAP
Q2 Post-EAP
Q3
Q4

*
Higher EAP participation is associated with higher levels of CST Advanced.

Fitted Values for CST Advanced from Difference in Difference

1.3

Q1 Q2 Q3 Q4

% Advanced

Pre-EAP Post-EAP

Q1 Q2 Q3 Q4
Higher EAP participation is associated with higher API.

Fitted Values for API from Difference in Difference

Q1, Q2, Q3, Q4

API

5.3

Pre-EAP  Post-EAP

*
Higher EAP participation is somewhat related to applications to CSU

Fitted Values for Apply to CSU from Difference in Difference

% Applying to CSU

Q1 Q2 Q3 Q4

Pre-EAP Post-EAP

0.93
Preliminary Conclusions—Part II
School Effects

- Schools in all levels of participation see gains in test scores, accountability measures, and college-level outcomes

- Higher levels of participation in EAP are associated with higher gains across tests scores and school accountability measures
Conclusions & Future Directions

- EAP participation in English leads to a reduction in the probability that CSU freshmen require remediation, with key differences in treatment effects
  - by individual characteristics and across campuses

- At the school level, higher levels of participation in EAP are associated with higher gains across tests scores and school accountability measures

**Future Directions**

- Math
- Closer investigation of differential treatment effects
- Examine mechanisms
  - Sorting in applications
  - 12th grade course taking
Comments & Questions

Michal Kurlaender
Associate Professor
School of Education
University of California, Davis
mkurlaender@ucdavis.edu
Figure A3: Timeline for EAP Participation and College Entrance

High School junior in:
- 2001/2002
- 2002/2003
- 2003/2004
- 2004/2005

High School graduate in:
- 2002/2003
- 2003/2004
- 2004/2005
- 2005/2006

College entrant in:
- 2003/2004
- 2004/2005
- 2005/2006
- 2006/2007

EAP Implementation

Pre-EAP

Post-EAP
Figure 3: Paths to College Readiness or Remediation in English at California State University

11th grader takes mandatory California Standards Test (CST) in the spring

Takes supplemental EAP English questions

Matriculate at CSU?

No

No further action

Yes

*Exempt via SAT, ACT, or AP?

No

Non-exempt

Matriculate at CSU?

No

No further action

Yes

Exempt

Take CSU English remediation placement exam

Score ≥ 25

Score < 25

Placed into remediation

Ready for college coursework at CSU without additional testing

Receive EAP report in August indicating exemption status on CSU English remediation placement exam

Exempt

Ready for college coursework at CSU without additional testing

*Exemption requires a score of 550 or above on SAT I verbal or a score of 680 on the SAT II writing test, a score of 24 or above on ACT English, or a score of 3, 4, or 5 on either the AP Language and Composition exam or the AP Literature and Composition exam.
California State University Systemwide Remediation Need

Eng vs Math

2001 2002 2003 2004 2005 2006 2007 2008
Context: College Completion

- College participation rates are at an all time high
- Despite increases in postsecondary participation, degree completion has remained stagnant (and slightly declining for African American and Latino students)
- Why?
  - Compositional changes in college participation
  - Financial constraints
  - Academic preparation
  - “College for All” ethos
  - Institutional practices
Academic Preparation Literature

• Better academic preparation → higher rates of persistence and degree completion

• Student information and expectations
  • Person, Rosenbaum & Deil-Amen (2006)

• K-12 alignment with higher education
  • Venezia et al. (2005); Martinez & Klopott (2005)

• Effect of college remediation
  • Ohio (Bettinger & Long, 2004): Positive effects on transfer to more selective institution and on degree completion.
  • Florida (Calcagno & Long, 2008): Slight positive effects on persistence and no effect on transfer to 4-year institution or on degree completion.
  • Texas (Martorell & McFarlin, 2008): No effects (and even modest negative effects) on transfer, persistence, degree completion, and earnings.
Controversy over Collegiate Remediation

- Where should remediation occur?
  - Bridge between K-12 schooling and college readiness
  - Role of secondary schools or community colleges, but not BA-granting institutions.
- Costs associated with remediation
  - “Paying Double”
  - Estimated cost of remediation at 4-year colleges is over $500 million (Strong American Schools, 2008)
Selection into EAP

- Selection at the Individual Level
  - Propensity Score Matching
- Selection at the School Level
  - School Fixed Effects
  - Schools with Universal EAP take-up
American Diploma Project

• Align high school standards and assessments with the skills required for success after high school.

• Require all high school graduates to complete a college- and career-ready curriculum.

• Build assessments that measure students’ readiness for college and careers.

• Develop an accountability system that promotes college and career readiness.