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

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CCC EAP Partnership
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Presentation Outline

• The impact of the EAP on the need for remediation at the California State University

• The impact of the EAP on college readiness and accountability outcomes at California high schools

• EAP and the California Community Colleges
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?
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
CSU by Campus First-Time Freshmen Enrollment, Fall 2004
Data

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

• California Department of Education
  • EAP participation by all high school juniors in the state since program inception
  • Matched CSU applicants (enrollees) to CST scores and EAP participation and outcomes
Analytic Strategy

• 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 and
  ▪ EAP availability or Participation in EAP

• *Intent to Treat*: Compare similar students in cohorts before and after the EAP was implemented

• *Treatment on Treated*: Compare students who participated in the EAP to similar students who did not.
Percent of Eligible Juniors Participating in the EAP Test

Percent

2004 2005 2006 2007 2008

English  Math
## Characteristics of CSU Enrollees

<table>
<thead>
<tr>
<th>Proportion</th>
<th>Pre-EAP</th>
<th>Post-EAP</th>
</tr>
</thead>
<tbody>
<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>

<table>
<thead>
<tr>
<th>Proportion</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>39.7%</td>
<td>40.0%</td>
</tr>
<tr>
<td>White</td>
<td>36.5%</td>
<td>35.9%</td>
</tr>
<tr>
<td>Black</td>
<td>7.1%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>28.0%</td>
<td>29.1%</td>
</tr>
<tr>
<td>Asian</td>
<td>13.5%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Other race/ethnicity</td>
<td>14.9%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Mom - College Grad</td>
<td>29.3%</td>
<td>29.3%</td>
</tr>
<tr>
<td>Dad - College Grad</td>
<td>31.8%</td>
<td>31.1%</td>
</tr>
<tr>
<td>Math Remediation</td>
<td>37.2%</td>
<td>39.9%</td>
</tr>
<tr>
<td>English Remediation</td>
<td>47.9%</td>
<td>47.5%</td>
</tr>
<tr>
<td>N</td>
<td>32,264</td>
<td>35,667</td>
</tr>
</tbody>
</table>
Findings

• The EAP program was associated with about a 1.8 percentage point drop in both English and math remediation need in the first years of the program, controlling for student and high school characteristics.

• Those students participating in the EAP test were about 2 to 2.5 percentage points less likely to need remediation when compared to students not participating in the test, controlling for student and high school characteristics.
English Results by Campus
Differential Treatment Effects

Trends in Math remediation by SAT Quartile and EAP Participation

Percent Requiring Math Remediation

SAT Q1
SAT Q2
SAT Q3
SAT Q4

No EAP
EAP Partic

2001 2002 2003 2004 2005 2006 2007 2008
Differential Treatment Effects

Trends in English remediation by SAT Quartile and EAP Participation

- No EAP
- EAP Partic

Percent Requiring English Remediation

SAT Q1
SAT Q2
SAT Q3
SAT Q4

2001 2002 2003 2004 2005 2006 2007 2008
Preliminary Conclusions: EAP and the need for remediation at CSU

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

• Important differences in treatment effects
  • by campus
  • by individual characteristics
Presentation Outline

• The impact of the EAP on the need for remediation at CSU

• The impact of the EAP on college readiness and accountability outcomes at California high schools

• EAP and the California Community Colleges
Research Questions

• What accounts for the variation in EAP participation across high schools?

• How have different levels of EAP participation influenced school-wide measures of college readiness?
School English EAP Participation by Year

Number of Schools

Percent of Students Taking EAP in School

- 2004
- 2005
- 2006
### School characteristics related to EAP participation

#### Correlation coefficients for school characteristics with EAP participation

<table>
<thead>
<tr>
<th>Characteristic</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
California’s high schools also changed over the same time period

Average student and teacher characteristics in California high schools over time

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

Year:
- 2002
- 2003
- 2004
- 2005

Percent:
- 0
- 5
- 10
- 15
- 20
- 25
- 30
- 35
- 40
- 45
- 50

Analytic Strategy

Research Question: How have different levels of EAP participation influenced school-wide measures of college readiness?

*Difference-in-Difference*: Compare the pre-EAP to post-EAP differences for high participation schools to low participation schools.
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

Percent Proficient

Pre-EAP       Post-EAP

Quartile 1   Quartile 4

26  28  30  32  34  36  38  40  42  44

Quartile 1

Quartile 4

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

<table>
<thead>
<tr>
<th>Quartile</th>
<th>Pre-EAP</th>
<th>Post-EAP</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1</td>
<td>32</td>
<td>34</td>
<td>2</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>36</td>
<td>40</td>
<td>4</td>
</tr>
</tbody>
</table>

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

Fitted Values for CST Proficiency from Difference in Difference

![Graph showing the percentage of proficient students in advanced Pre-EAP and Post-EAP for Q1, Q2, Q3, and Q4. The graph indicates a higher percentage of proficient students in the Post-EAP period compared to the Pre-EAP period, with significant increases in Q4.](image-url)
Higher EAP participation is associated with higher levels of CST Advanced.

Fitted Values for CST Advanced from Difference in Difference

% Advanced

Q1  Q2  Q3  Q4
Pre-EAP  Post-EAP

1.3

*
Higher EAP participation is associated with higher API

Fitted Values for API from Difference in Difference

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Pre-EAP</th>
<th>Post-EAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.3

* Significant difference
Higher EAP participation is somewhat related to applications to CSU

Fitted Values for Apply to CSU from Difference in Difference

% Applying to CSU

0 5 10 15 20 25 30 35
Q1 Q2 Q3 Q4

Pre-EAP Post-EAP
Preliminary Conclusions: EAP and college readiness at high schools

- School characteristics are mostly unrelated to EAP participation

- 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
Presentation Outline

• The impact of the EAP on the need for remediation at CSU

• The impact of the EAP on college readiness and accountability outcomes at California high schools

• EAP and the California Community Colleges
Research Questions

• What are EAP participation and exemption outcomes across California’s community colleges?

• How do students who obtain EAP exemption status fare at community college, in terms of course placements and performance measures?
Data

- CCC Chancellor’s Office
  - Five cohorts of first year students (2005 – 2009)

- California Department of Education
  - EAP participation by all HS juniors in the state since program inception
  - Matched CCC students with CDE students by name and birthday
EAP Test Take-up has grown over time

EAP Test Take-up for all CCC first year students

Take English EAP
Take Math EAP

Year
2005 2006 2007 2008 2009
Very Few CCC students are exempt via the EAP

Percent of CCC Entering Students Scoring Exempt in 2009

- **English**
  - Eligible: 100%
  - Take EAP: 39%
  - Conditional Exempt: 0%
  - Exempt: 0%

- **Math**
  - Eligible: 55%
  - Take EAP: 30%
  - Conditional Exempt: 14%
  - Exempt: 1%
EAP Exempt students take more demanding courses

Percent of Transferrable Classes for EAP Exempt Students

<table>
<thead>
<tr>
<th>Percent of Classes</th>
<th>CSU Transferable</th>
<th>UC Transferable</th>
<th>Basic</th>
<th>Remedial</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English exempt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math Exempt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Exempt students earn higher grades in transferable courses

Average GPA for Transferable Courses

- UC Transferable
  - ALL Students
  - English exempt
  - Math Exempt

- CSU Transferable
  - ALL Students
  - English exempt
  - Math Exempt
The additional power of the exemption signal

- Even controlling for CST scores and student characteristics, **student exempt in English** take more rigorous classes and have higher achievement.
  - 7% *more* of their course are UC transferrable
  - 8% *fewer* of their courses are non-degree
  - 6% *fewer* of their courses are basic
  - 17% *fewer* of their courses are remedial
  - They have a 0.18 higher GPA in UC and CSU transferrable courses
Preliminary Conclusions: EAP and the California Community Colleges

• Most eligible students now already participate in the EAP test, but very few are initially exempt via the EAP

• Exempt Students are more likely to enroll in transferable courses, less likely to enroll in basic or remediation courses, and more likely to perform better in transferable courses

• This relationship holds even when controlling for student characteristics and high school test scores

• Suggests EAP offers useful information to Community Colleges about students’ college readiness
Future Directions

• EAP impact on need for remediation at CSU
  - Differential treatment effects by individual characteristics
  - Differential treatment effects by high school and campus
  - Examine mechanisms
    • Sorting in applications
    • 12th grade course taking

• EAP and California Community Colleges
  - Test first years of EAP effects on remediation need at CCC
  - Test EAP effects on transfer rates
  - Differential effects by campus
Comments & Questions

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Timeline for EAP

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
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

Take CSU English remediation placement exam

Yes

Score ≥ 25

Score < 25

Ready for college coursework at CSU without additional testing

Placed into remediation

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

Non-exempt

Matriculate at CSU?

No

No further action

Yes

*Exempt via SAT, ACT, or AP?

No

Yes

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**
- **Math**

Years: 2001 to 2008

0% to 60% range.
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 $\rightarrow$ 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.