Mathematics Course Taking Among California 12th Grade Students

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Just Equations Conference—The Mathematics of Opportunity
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Background on Project

- A partnership with California Department of Education and all three public postsecondary systems (California State University, Community Colleges, and the University of California) to evaluate college and career readiness among California youth
- Tracking students from K-12 into and through postsecondary destinations
- Addressing disparities by student characteristics and by institutional types
- A close examination of students’ high school course taking, particularly Mathematics and English
Research Questions

- What college and/or career preparatory math coursework are California seniors enrolling in?
- How do these 12th grade course enrollment patterns differ by student race/ethnicity and socioeconomic status?
- Do these 12th grade course enrollment patterns differ for CSU applicants compared to all high school students?

Data

Population: 12th graders enrolled in a California public high school in 2015-2016

California Department of Education
California Longitudinal Pupil Achievement Data System (CALPADS)
- Course-taking histories
- Demographic information (race/ethnicity, socioeconomic disadvantage)

California State University
- Student-level application data (Summer 2016-Fall 2017)
12th Grade Math Course Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Out of all 12th graders</th>
<th>Out of those who take Any Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Math</td>
<td>75.5%</td>
<td></td>
</tr>
<tr>
<td>Approved Math</td>
<td>64.0%</td>
<td>84.8%</td>
</tr>
<tr>
<td>Conditionally Ready</td>
<td>59.4%</td>
<td>78.6%</td>
</tr>
<tr>
<td>Algebra II</td>
<td>15.4%</td>
<td>20.4%</td>
</tr>
<tr>
<td>AP and IB</td>
<td>21.8%</td>
<td>28.8%</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>364,585</td>
<td>275,305</td>
</tr>
</tbody>
</table>

A higher proportion of CSU applicants enroll in rigorous math courses in 12th grade as compared to all CA students

KEY FINDING
Differences in 12th grade math course-taking between all 12th graders and CSU applicants

Substantial disparities in 12th grade math course-taking by student background characteristics: race/ethnicity and socioeconomic status

KEY FINDING
Differences in 12th grade math course-taking by student race/ethnicity

Differences in 12th grade math course-taking by student race/ethnicity
Differences in 12th grade math course-taking by student socioeconomic status

<table>
<thead>
<tr>
<th></th>
<th>12th Graders</th>
<th>12th Graders</th>
<th>12th Graders</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Students</td>
<td>12.77%</td>
<td>25.06%</td>
<td>23.81%</td>
</tr>
<tr>
<td>SED</td>
<td>4.98%</td>
<td>9.04%</td>
<td>9.01%</td>
</tr>
<tr>
<td>Not SED</td>
<td>10.40%</td>
<td>27.88%</td>
<td>41.03%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12th Graders CSU Applicants</th>
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</table>

Legend:
- Algebra II
- Conditionally Ready
- Approved Math
- Any Math
- No Math

Preliminary, Please Do Not Cite Without Authors' Permission
Substantial disparities exist in the most advanced math course taking (AP and IB) by student background characteristics: race/ethnicity and socioeconomic background.

KEY FINDING

Differences in 12th grade math course-taking by student race/ethnicity

<table>
<thead>
<tr>
<th>Category</th>
<th>AP and IB</th>
<th>Conditionally Ready</th>
<th>Approved Math</th>
<th>Any Math</th>
<th>No Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Students</td>
<td>24.5%</td>
<td>15.3%</td>
<td>5.0%</td>
<td>26.0%</td>
<td>24.7%</td>
</tr>
<tr>
<td>Asian/PI</td>
<td>11.5%</td>
<td>4.7%</td>
<td>0.2%</td>
<td>15.1%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Black/MF Am</td>
<td>21.8%</td>
<td>44.4%</td>
<td>12.1%</td>
<td>24.5%</td>
<td>28.5%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>24.5%</td>
<td>14.8%</td>
<td>13.5%</td>
<td>26.0%</td>
<td>24.7%</td>
</tr>
<tr>
<td>White</td>
<td>28.5%</td>
<td>10.3%</td>
<td>4.8%</td>
<td>13.7%</td>
<td>35.9%</td>
</tr>
</tbody>
</table>
Differences in 12th grade math course-taking by student socioeconomic status

![Graph showing differences in 12th grade math course-taking by student socioeconomic status]

**Substantial variation in 12th grade math course taking among CSU applicants by CSU campus**

**KEY FINDING**
Percent of CSU applicants taking Algebra II in 12th grade (by CSU campus)

Next Steps

- Explore patterns of course-taking by school characteristics
- Explore the impact of course-taking on postsecondary outcomes
  - College entry
  - College performance
  - College completion
Thank you!

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