Determinants of Students’ Success: the Role of Advanced Placement and Dual Enrollment Programs

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Evidence from Florida

- **Study 1**: Assess relative power of AP and DE for predicting students’ college access (PSE enroll; First PSE at 4yr college) and success (5-yr BA degree)
  - Focus DE academic (not vocational) and AP course (not exam)

- **Study 2**: Examine the causal effect of DE and the effect of DE college Algebra
  - Quasi-experimental method: Regression Discontinuity
## Florida AP and DE Background

<table>
<thead>
<tr>
<th></th>
<th>Dual Enrollment</th>
<th>Advanced Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course experience</strong></td>
<td>- Actual College Course</td>
<td>- HS “college-level” course</td>
</tr>
<tr>
<td></td>
<td>- College credit: passing grade in course</td>
<td>- College credit: satisfactory score in (optional) standardized exam</td>
</tr>
<tr>
<td><strong>Instructor qualification requirements</strong></td>
<td>College faculty</td>
<td>Public school teacher</td>
</tr>
<tr>
<td><strong>Finance</strong></td>
<td>State pays for tuition, fees, and books</td>
<td>State pays for AP course and books</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- AP exam fee reimbursement for all students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- AP exam performance incentives (for teachers &amp; districts)</td>
</tr>
</tbody>
</table>

(Selected comparative dimensions)
Florida Administrative Data

- Two public HS senior cohorts (2000 & 2001); approx 230,000 students
  - Student transcripts in HS & college (till 2006)
  - National Student Clearinghouse data (enrollment only)

- Participation rate:

No AP or DE = 72%
## Descriptive Portrait of AP & DE students

<table>
<thead>
<tr>
<th></th>
<th>DE only</th>
<th>AP only</th>
<th>DE&amp;AP</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Female</strong></td>
<td>63.4%</td>
<td>56.8%</td>
<td>62.1%</td>
<td>47.9%</td>
</tr>
<tr>
<td><strong>White</strong></td>
<td>78.4%</td>
<td>59.3%</td>
<td>77.7%</td>
<td>50.3%</td>
</tr>
<tr>
<td><strong>Minority (Black &amp; Hispanic)</strong></td>
<td>18.7%</td>
<td>35.6%</td>
<td>16.7%</td>
<td>47.5%</td>
</tr>
<tr>
<td><strong>Economically disadvantaged</strong></td>
<td>26.4%</td>
<td>28.2%</td>
<td>17.4%</td>
<td>50.5%</td>
</tr>
<tr>
<td><strong>Reading scores (FCAT, 10th)</strong></td>
<td>325</td>
<td>334</td>
<td>346</td>
<td>289</td>
</tr>
<tr>
<td><strong>Math scores (FCAT, 10th)</strong></td>
<td>334</td>
<td>344</td>
<td>357</td>
<td>299</td>
</tr>
<tr>
<td><strong>DE course location</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE at both Community College &amp; High school</td>
<td>58.2%</td>
<td>n/a</td>
<td>62.3%</td>
<td>n/a</td>
</tr>
<tr>
<td>DE at Community College only</td>
<td>36.8%</td>
<td>n/a</td>
<td>33.2%</td>
<td>n/a</td>
</tr>
<tr>
<td>DE at High School only</td>
<td>5.1%</td>
<td>n/a</td>
<td>4.5%</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Students</strong></td>
<td>17,746</td>
<td>30,033</td>
<td>13,042</td>
<td>163,236</td>
</tr>
</tbody>
</table>
Study 1: Predictive effect of AP and DE

Regression control for student characteristics (including prior measures of achievement: 10th grade FCAT standardized scores and GPA), and high school and district characteristics.
Study 1: Predictive DE effect by location

- DE effect is driven by courses taken at the community college
- Limitation: non-experimental study

** Significant at 1%

- College: 60% (No AP or DE), 62% (DE CC only)
- 4-yr College: 20% (No AP or DE), 19% (DE HS only)
- BA degree: 9% (No AP or DE), 14% (DE HS only)
Study 2: DE effect

- Florida’s eligibility requirements for DE participation:
  - 3.0 un-weighted GPA and College Placement Test (CPT)

- Regression-discontinuity (RD) intuition: compare outcomes of students around eligibility cutoffs
  - Limitation: effect for students with a level of ability close to eligibility requirements

- Two RD analyses:
  1) Effect of taking DE (basic), exploiting HS GPA cutoff
     - No evidence of an effect
  2) Effect of DE college Algebra, exploiting CPT math cutoff
     - Large positive effect of DE-Algebra: increase of 16 percentage points on college enrollment and 23 percentage points on degree attainment (AA/BA), for students on the margin of eligibility
Summary & Conclusions

- DE&AP are strong predictors of students’ success, though programs are not equal predictors.
- DE has strong positive effects on college enrollment and completion, but where students take DE classes and what classes they take seem critical.
- Follow Florida: create databases that
  - Allow longitudinal tracking of students from high school to college
  - Record DE participation for all students (not just college-goers)
  - Contain information on: DE vocational vs. academic, course location, teacher affiliation
- Future Research: should use experimental design to establish causal relationships between participation and outcomes.
For more information:

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