Are Two Subjects Better than One? The Causal Effects of Developmental English Courses on Native and Non-Native English Speakers in College

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Developmental education background

Transcript data from Beginning Postsecondary Students: 2009
2003-2004 cohort, tracked to 2009

<table>
<thead>
<tr>
<th># remedial courses:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-year college</td>
<td>63%</td>
<td>18%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>2-year college</td>
<td>35%</td>
<td>20%</td>
<td>16%</td>
<td>29%</td>
</tr>
<tr>
<td>Total</td>
<td>50%</td>
<td>19%</td>
<td>12%</td>
<td>19%</td>
</tr>
</tbody>
</table>

Source: Author-generated table from NCES Quickstats, U.S. Department of Education, National Center for Education Statistics, BPS:2009 Beginning Postsecondary Students
Prior Causal Research

- Most studies find remediation has null or negative effects on students around the cutoff that sorts them into remedial or college courses. (Bettinger & Long, 2009; Calcagno & Long, 2008; Martorell & McFarlin, 2011; Scott-Clayton & Rodriguez, 2012)

- Some evidence of heterogeneous effects for students around the cutoff that sorts them into lower vs middle and middle vs higher levels of remediation. (Boatman & Long, 2010)
**Contribution of study**

- Treatment is effect of two English remediation subjects (reading and writing) versus one (writing only), not developmental versus college-level coursework.
- Examines impact on educational outcomes of native English speakers and language minority community college students.
- Rich dataset allows for rigorous design and unique outcomes.
Are Two Subjects Better Than One?
Three hypotheses...

- Negative effects regardless of linguistic background
- More remediation means more opportunities to lose students because they fail a course in the sequence or choose not to enroll in the next one.

- Positive effects regardless of linguistic background
- Taking writing and reading courses in the same semester provides additional academic language support

- Positive effects for language minority students only
- Language minority students benefit from “language- and literacy-rich environments.” (Lesaux et al., 2008)
Context & Sample

- 5 community colleges in large, urban community college system
- Students who entered between fall 2001 to fall 2007, tracked to summer 2010
- Test-takers who scored below the cutoff on the writing exam and took the reading exam:
  - 37% assigned to reading and writing/ESL
  - 43% assigned to writing/ESL only
  - Language minority students (N=20,471)
  - Native English speakers (N=25,004)
Identification Strategy

- Regression Discontinuity (ITT):

\[ Y_i = \delta_0 + \delta_1 (fail_i) + \delta_2 (fail_i \times cutoff dist_i) + \delta_3 (pass_i \times cutoff dist_i) + X_i \delta + CC + Cohort + \varepsilon_i \]

\( Y \) - enrolling in and passing college English, first-year and three-year college credit accumulation, dropping out of the system, transferring to a four-year college in the system, taking and passing a required system-wide proficiency exam, and earning a degree

\( fail \) - score below the cutoff on the reading exam (first score), indicator of treatment assignment

\( pass \) - score at or above the cutoff on the reading exam

\( cutoff dist \) - distance score is from the cutoff, the forcing variable

\( X \) - vector of covariates controls for gender, race, age at entry, first language, region of origin, citizenship status, high school performance, high school type, years since HS graduation, PT/FT status, chose four-year, financial aid recipient, dependency status, major, math placement, ESL flag

\( CC \) - community college fixed effects

\( Cohort \) - semester of entry fixed effects

\( \varepsilon \) - error term
Specifications

• Main specification: 14 points around cutoff, local linear specification

• Other specifications
  – No covariates and fixed effects: 14 points around cutoff, linear specification
  – Narrow: 10 points around cutoff, linear specification
  – Wide: 20 points around cutoff, quadratic specification
Language minority student characteristics by test score

[Graphs showing data for White, Black, Latino, Asian, Foreign-born, Average in HS courses, Total units in HS courses, Pell recipient, Assigned to developmental math]
Native English speaking student characteristics by test score

- White
- Black
- Latino
- Asian
- Foreign-born
- Average in HS courses
- Total units in HS courses
- Pell recipient
- Assigned to developmental math
Language minority student outcomes
Native English speaking student outcomes
Robust Findings

Language Minority Students
• Compared to students referred to writing only, students referred to reading & writing:
  – 58 percentage points more likely to enroll in both subjects
  – 5 percentage points less likely to drop out of system
  – 5 percentage points more likely to take proficiency exam
  – 4 percentage points more likely to pass proficiency exam

Native English speaking students
• Compared to students referred to writing only, students referred to reading & writing:
  – 55 percentage points more likely to enroll in both subjects
  – Earned almost one less credit in first year (not robust to wider bandwidth)
Heterogeneous effects

- Null results for native English speaking students
  - Consistent with prior findings from across country
  - Supports diversion model (Scott-Clayton & Rodriguez, 2012)
    - Remediation serves only to separate students into different tracks based on their perceived ability

- Positive impact on persistence and learning for language minority students:
  - Supports developmental model (Scott-Clayton & Rodriguez, 2012)
    - Remediation may deter students initially but effectively prepares students for subsequent coursework
  - Different treatment
    - reading and writing OR reading and ESL
  - Different students
    - Different/greater language needs
    - Possibly higher academic performance in native language and motivation
Conclusion

• The combination of a reading and writing course together seemed to benefit language minority students with poor writing skills more than taking only a writing course. Perhaps because of…
  – greater academic language support and intensity
  – better preparation for college-level English

• Results have limited external validity
  – Findings pertain to students who scored around the margin of the placement exam cutoff
  – Need more research in higher education to explore the potential benefits of pairing reading and writing and how to design effective academic language supports in general
For more information

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