A Bridge to Graduation:
Testing the Effects of an Alternative Pathway for Students Who Fail Exit Exams

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Background and Motivation

- States expanded the use of standardized subject-area exams as a high school graduation requirement in the aim to improve standards for public education and increase college-readiness.

- Studies suggest that high school exit exams are not meeting their goals (e.g., Dee & Jacob 2007, Papay, Murnane & Willett 2010).

- Alternative graduation pathways offer another option for students to demonstrate mastery of tested subjects.

- Hemelt and Marcotte (2013) find that adding exit exams <u>did not increase dropout</u> in states where students can use an alternate graduation pathway

- **Can non-test alternatives to exit exams provide students with equivalent preparation for college and the workforce?**

Maryland Exam Policy

- Since 2005, Maryland has required exit exams in Algebra, Biology, and English.

- Maryland also offers the Bridge Plan for Academic Validation:
  - ✓ Students are eligible after attempting and failing an exit exam 2 times
  - ✓ Students who complete Bridge get the <u>same diploma as test-passers</u>

Research Questions

Conditioned on failing an exit exam twice:

▪ Do **Bridge completers** have different post-secondary outcomes than **test-passers**?

▪ Do **Bridge completers** have better post-secondary outcomes than **non-completers**?

Group 1:
Retest and
Pass

← **Group 2:**
Complete
Bridge →

Group 3:
No
Diploma

Data

- Maryland Longitudinal Data System Center (MLDSC)

- All Maryland public high school freshmen from 2008 to 2011 (exit exams required for graduation)

- Follow them through 4 years of public high school in Maryland including all <u>attempted</u> exit exams, and all <u>completed</u> Bridge projects

- Background data from middle school in Maryland public schools

- Post-secondary outcomes from
  - ✓ National Student Clearinghouse & MHEC – 2 & 4-year college enrollment in the US
  - ✓ Maryland Unemployment Insurance data - employment & wages

Empirical Challenge

Estimate the relationship between Bridge and post-secondary outcomes

- Students are selected into <u>Bridge eligibility</u> by failing tests (*observable*)
- Students self-select into <u>Bridge completion</u> based on motivation, feelings about tests, advice from teachers, peer influence, etc. (*unobservable*)

- Overcome selection bias by:
  - ✓ Selecting a sample of students who are eligible to Bridge & similarly motivated to graduate
  - ✓ Regression with matching strategies
  - ✓ Controlling for observable testing history, demographics, etc.

Sample Selection

- Only students who are eligible to Bridge in each subject
  - ✓ Failed two attempts in at least one subject
  - ✓ Attempted every exit exam at least once
  - ✓ Disaggregated analysis by subject

- Eliminate confounding effects of school transfer or early dropout
  - ✓ 4 years of high school enrollment in the local school system
  - ✓ No more than one within-district transfer during high school

Empirical Matching Strategies

Cell Fixed Effects Model

$$Y_{ijc} = \alpha + \beta(Bridge_i) + \boldsymbol{\gamma}(X_i) + \boldsymbol{\theta_j} + \delta_{cohort} + \varepsilon_{ijc} \ (1)$$

$\boldsymbol{\theta_j}$ - fixed effects group students in cells with identical school, race, gender, FRLP status, and distance bins from passing second exit exam attempt

✓Includes only cells with at least one Bridger and one Comparison Student

Propensity Score Matching

$$Pscore_{isc} = prob(Bridge = 1) = \alpha + \boldsymbol{\gamma}(X_i) + \boldsymbol{\pi_{school}} + \delta_{cohort} + \varepsilon_{isc} \ (2)$$

✓Local-linear regression method of p-score matching

✓LLR + within-school district matching (robustness)

Controls for Observables

Pre-high school engagement and performance (Warren & Edwards, 2005)
- ✓ 8th grade attendance
- ✓ 8th grade disciplinary suspensions
- ✓ Middle school assessment scores in math, reading, and science

Demographics
- ✓ Race, gender, ever FRLP, SPED, ELL, Title I, Homeless

Exit exam performance
- ✓ First attempt score in all 3 subjects
- ✓ Second attempt score in Bridge subject

School policies and resources
- ✓ School and cohort fixed effects

2 COMPARISONS
Bridge vs. Test Passer / Bridge vs. No Diploma

3 SUBJECTS
Algebra / Biology / English

3 OUTCOME DOMAINS
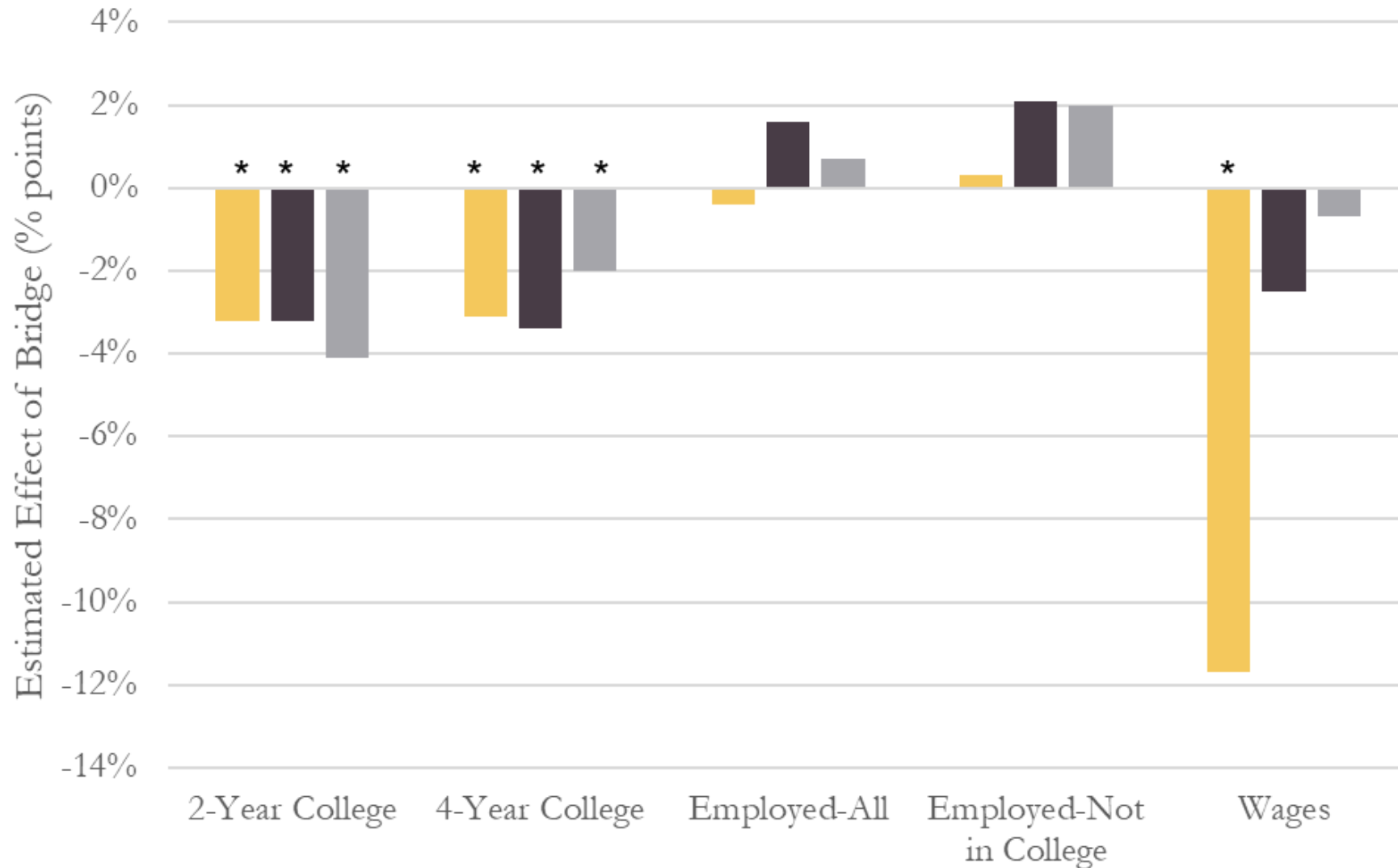College Enrollment / MD UI Employment /
MD UI Wages

Subgroup Analysis By:
Race, FRLP, SPED, number of eligible Bridge subjects, and
distance from passing

Robustness Checks:
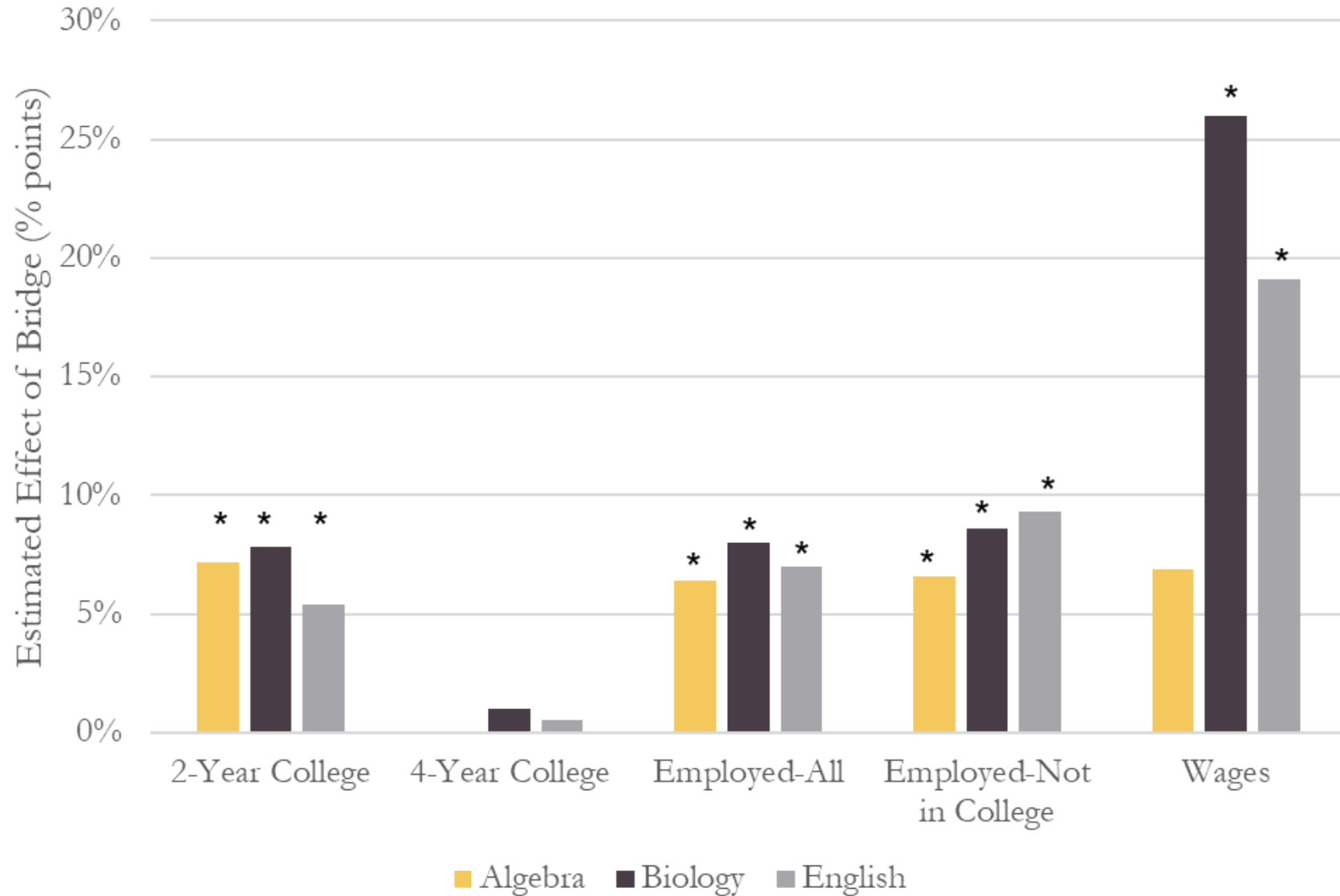Within-district matching, High-Eligibility districts

Results: Bridge vs. Test-Passers

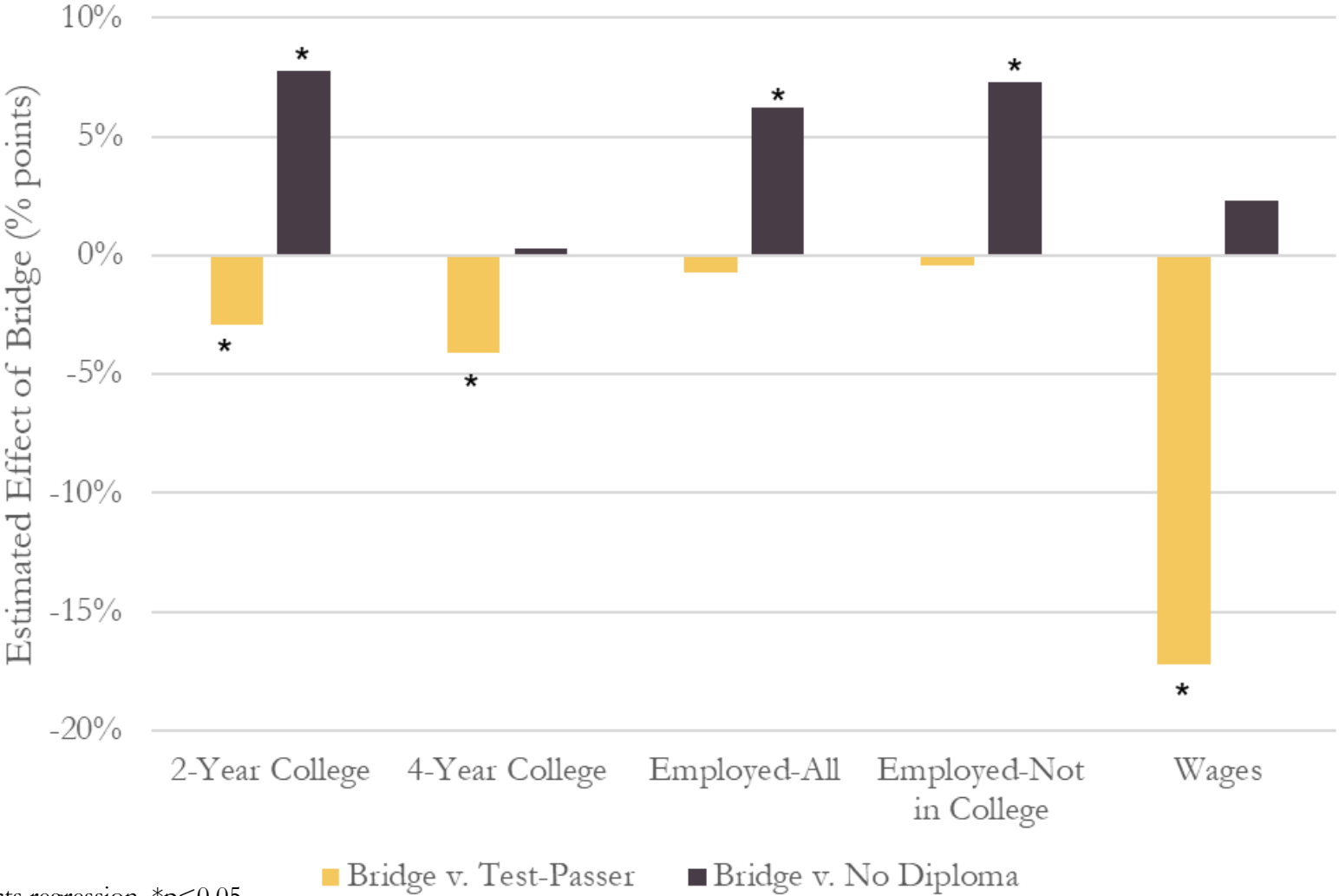Results of cell-matched fixed effects regression. *p<0.05

■ Algebra ■ Biology ■ English

Results: Bridge vs. Non-Completers

Results of cell-matched fixed effects regression. *p<0.05

Results: Black Students – Algebra

Results of cell-matched fixed effects regression. *p<0.05

Key Findings

- Bridge students are …
  - ✓ Less likely to go to college than similar students who retake exit exams
  - ✓ Have similar rates of employment to test-passer
  - ✓ More likely to go to 2-year college, work, and earn more than similar students who don't complete high school on time

- Bridge Program …
  - ✓ Has positive effects relative to non-completion for subpopulations at most risk of dropout
  - ✓ Non-test alternative could serve as counterbalance to high exit exam failure rates.

Thank you!

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