CAPR | CENTER FOR THE ANALYSIS OF POSTSECONDARY READINESS

Student Assessment and Placement Systems Using Multiple Measures

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SUNY CAO Meeting
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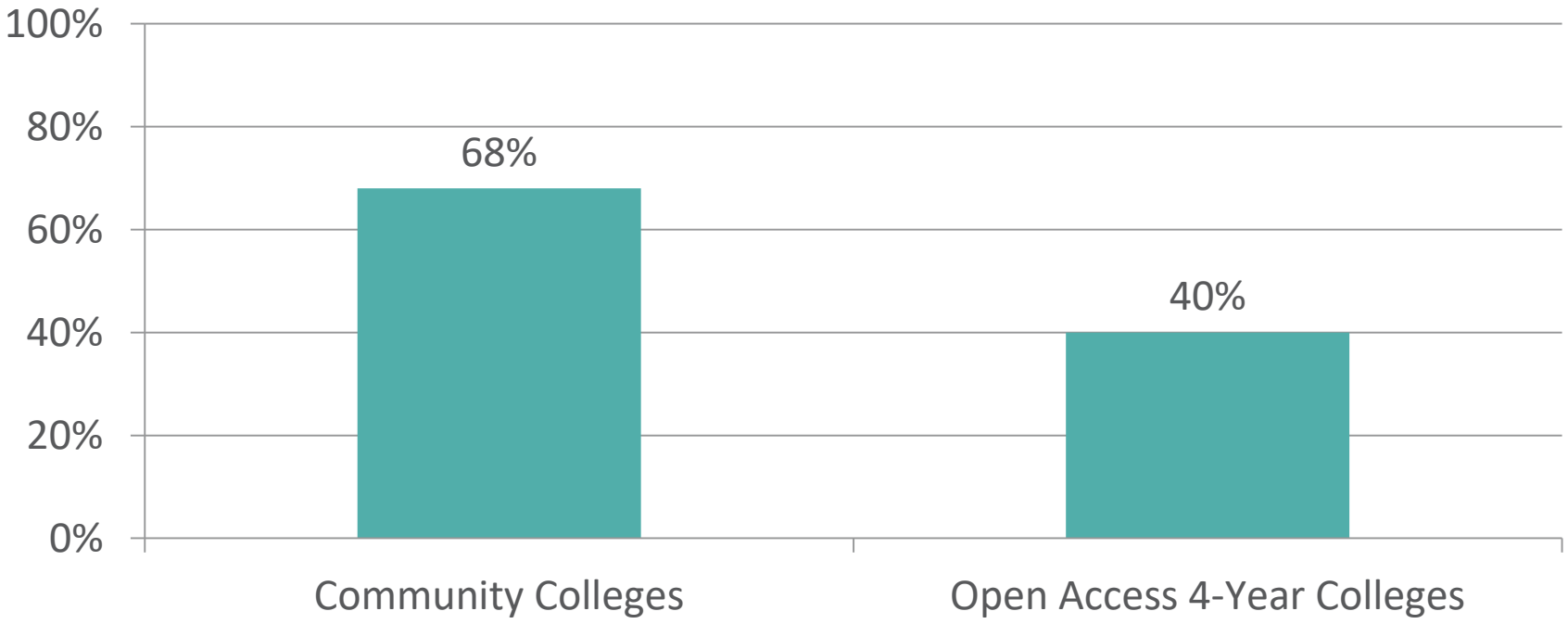
Agenda

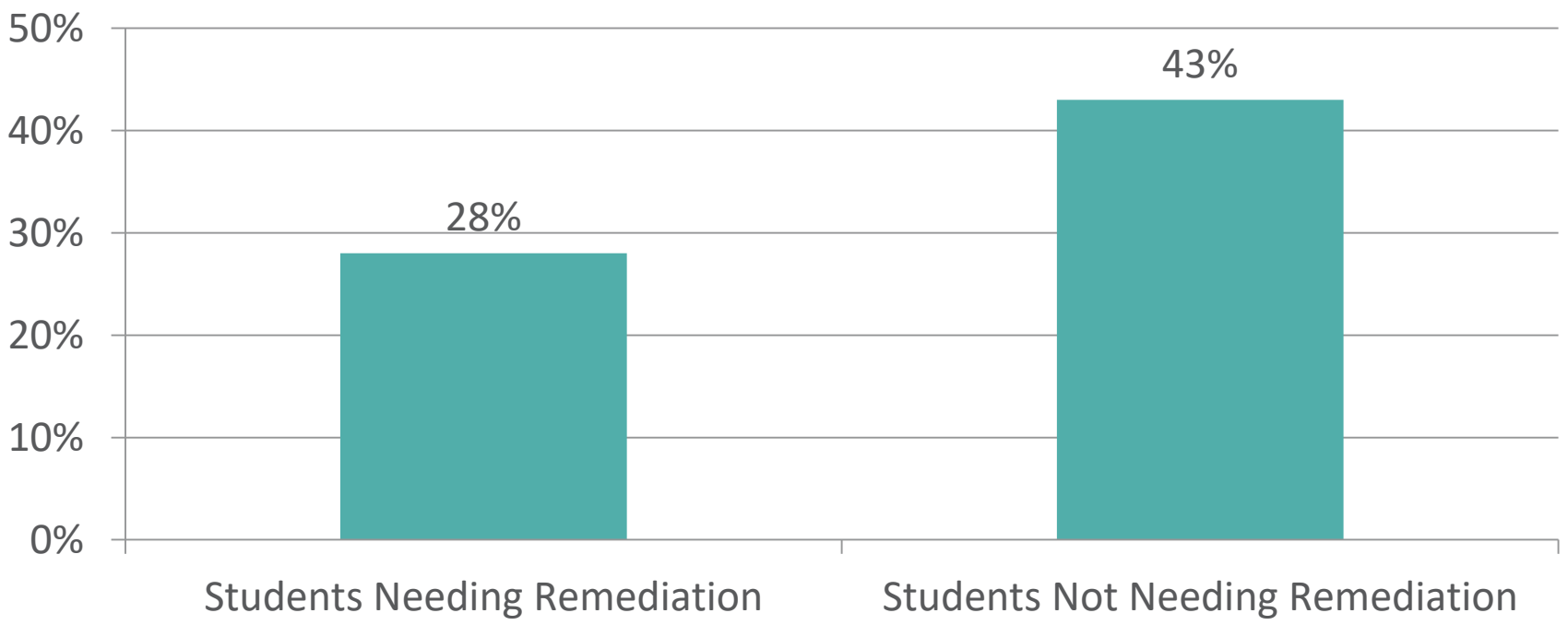
- Why use multiple measures for placement
- Selection of a multiple measures system
- Results of the SUNY research
- Discussion

Students needing 1+ developmental education course (NCES, 2013)



Community college 8-year graduation rates

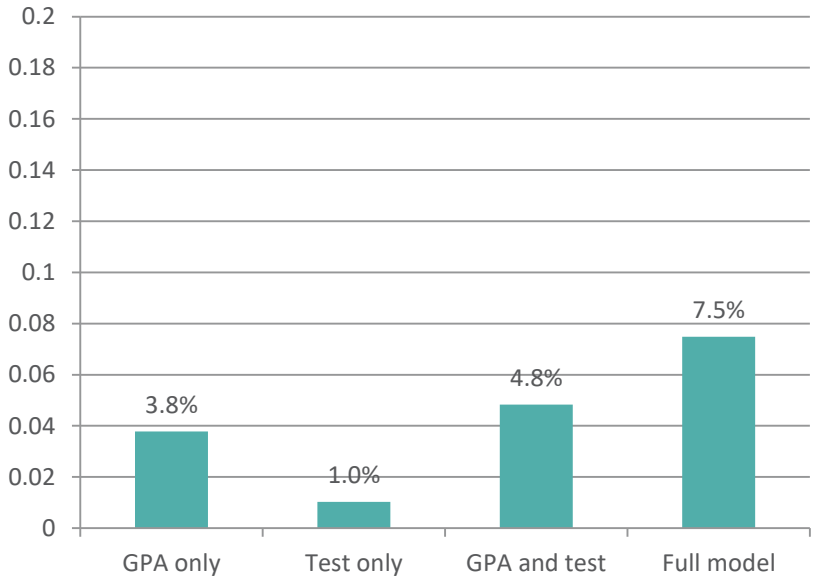
(Attewell, Lavin, Domina, and Levey, 2006)



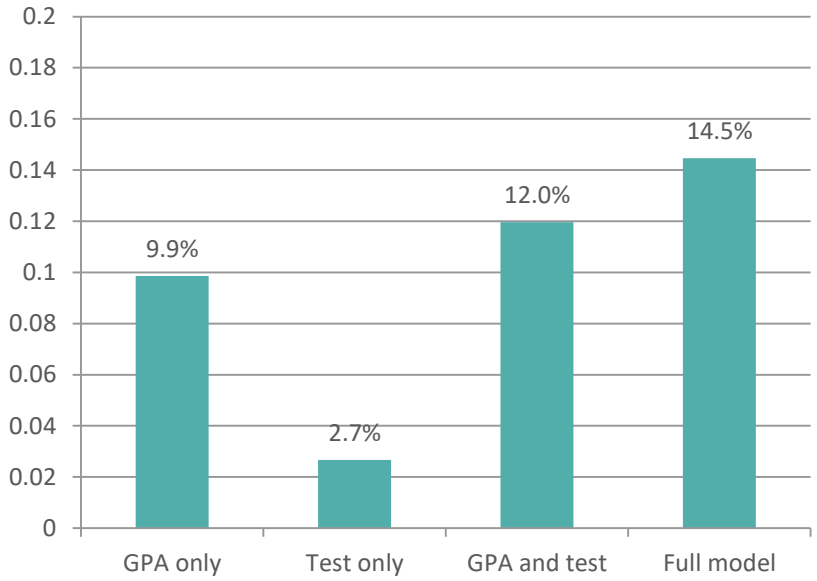
Under-placement and Over-placement

		Placement According to Exam	
		Developmental	College Level
Student Ability	Developmental	✓	***Over-placed*** ***(English – 5%)*** ***(Math – 6%)***
	College Level	***Under-placed*** ***(English – 29%)*** ***(Math – 18%)***	✓

COLLEGE 2: MATH



COLLEGE 2: ENGLISH



Conclusions so far

- Students placed into developmental education are less likely to complete.
- Better assessment systems are needed.
- HS GPA is the best predictor of success in college math and English.

Multiple Measures Assessment

Multiple Measures Options

MEASURES	SYSTEMS OR APPROACHES	PLACEMENTS
<u>Administered by college</u>: 1. Traditional or alternative placement tests 2. Non-cognitive assessments 3. Computer skills or career inventory 4. Writing assessments 5. Questionnaire items <u>Obtained from elsewhere</u>: 1. High school GPA 2. Other HS transcript information (courses taken, course grades) 3. Standardized test results (e.g., ACT, SAT, Smarter Balanced)	• Waiver system • Decision bands • Placement formula (algorithm) • Decision rules • Directed self-placement	• Placement into traditional courses • Placement into alternative coursework • Placement into support services

Sources of HS transcript data

- The students bring a transcript.
- The high school sends.
- Obtained from state data files.
- Self report.

Note: Consider using the 11th grade GPA.

Self-report research

- UC admissions uses self-report but verifies after admission. In 2008, at 9 campuses, 60,000 students. No campus had >5 discrepancies b/w reported grades and student transcripts (Hetts, 2016)
- College Board: Shawn & Matten, 2009: "Students are quite accurate in reporting their HSGPA", r = .73.
- ACT research often uses self-reported GPA and generally find it to highly correlated with students actual GPA: ACT, 2013: *r* = .84.

Non-cognitive assessments

Development of non-cognitive skills promotes students' ability to think cogently about information, manage their time, get along with peers and instructors, persist through difficulties, and navigate the landscape of college…(Conley, 2010).

Non-cognitive assessments may be of particular value for:

- Nontraditional (older) students.
- Students without a high school record.
- Students close to the cut-off on a test.

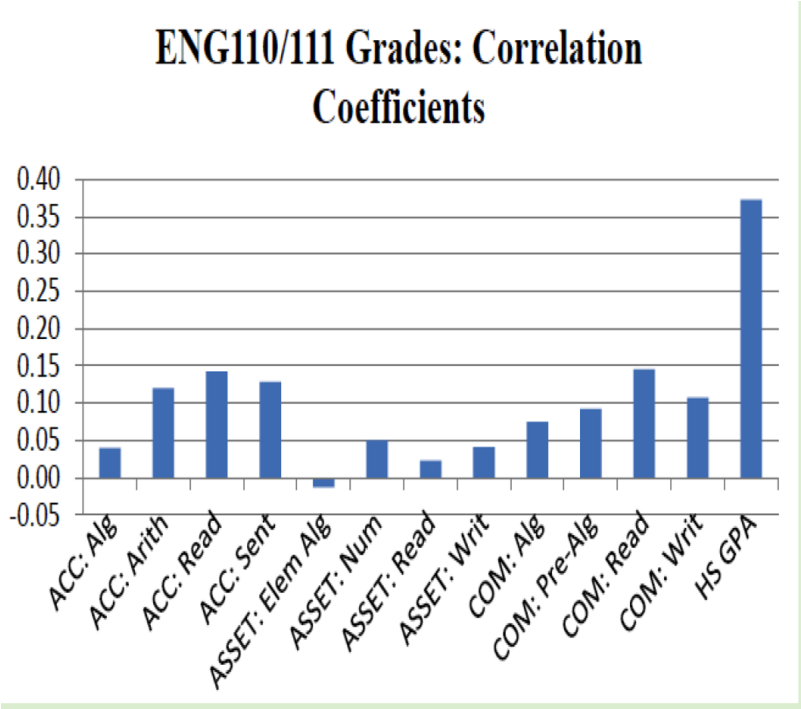
Concerns about the HS GPA

(with thanks to John Hetts, 2016)

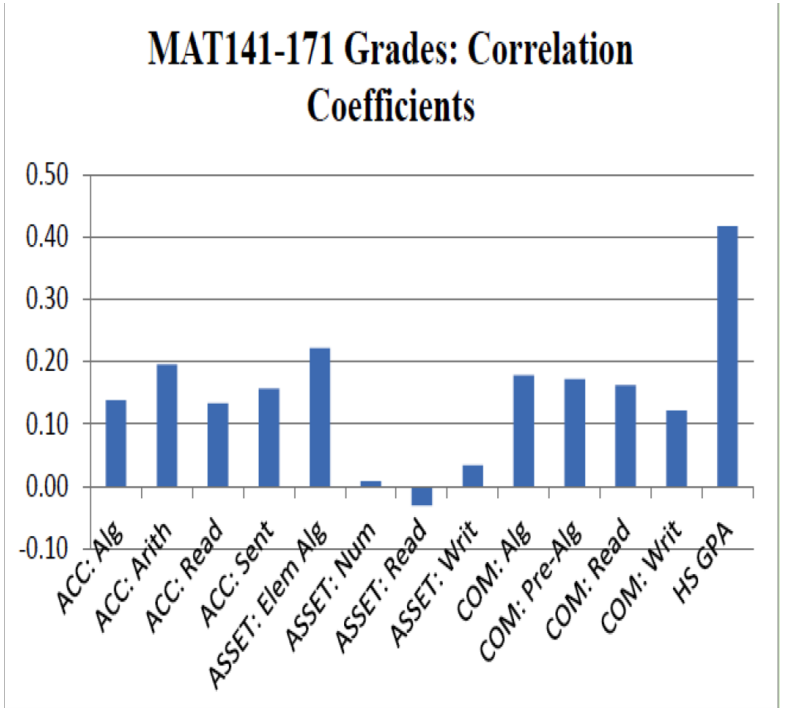
- ***Our*** test is different/better/more awesome.
- Students really need developmental education.
- High school GPA is only predictive for recent graduates.
- Different high schools grade differently.

Our test is different/better/more awesome.

NC ENGLISH



NC MATH

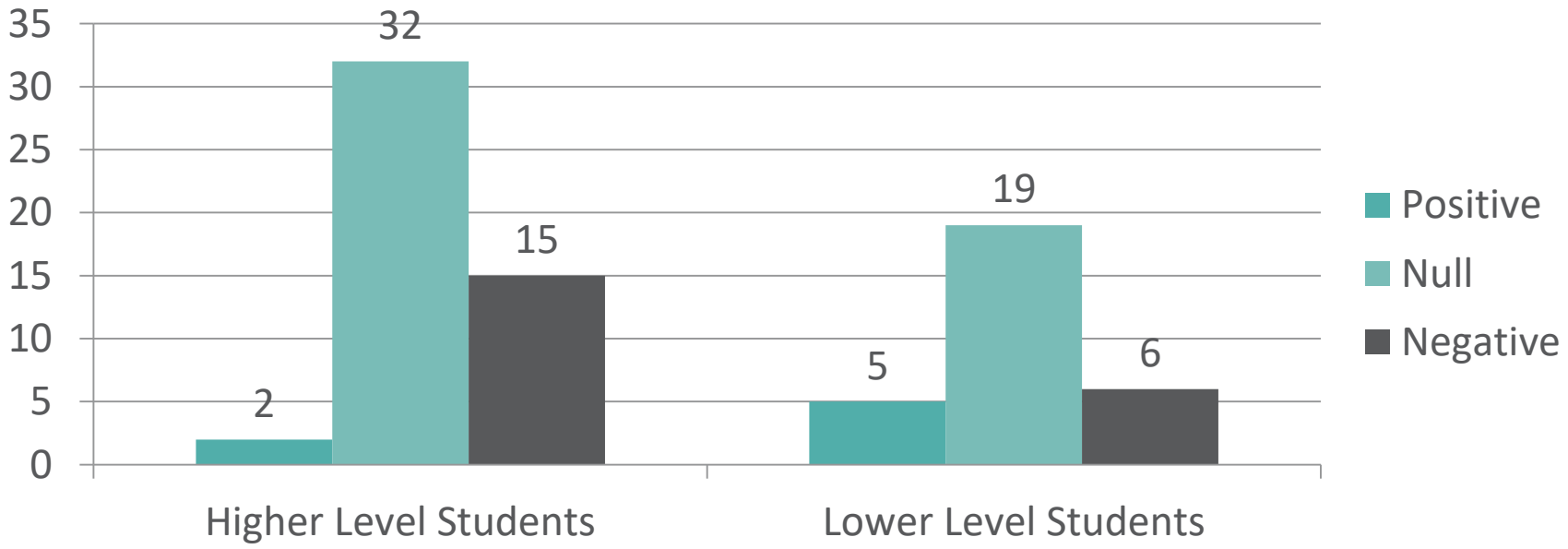


From Bostian (2016), North Carolina Waves GPA Wand, Students Magically College Ready adapted from research of Belfield & Crosta, 2012 – see also Table 1)

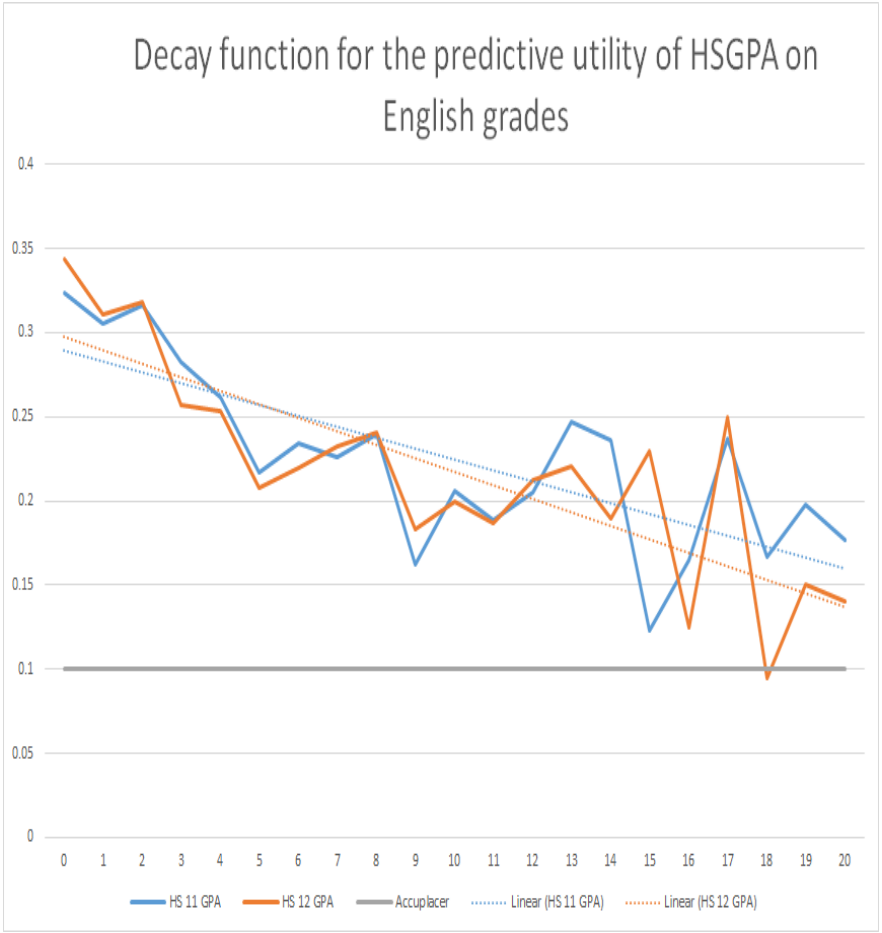
Students would be better off going through developmental education.

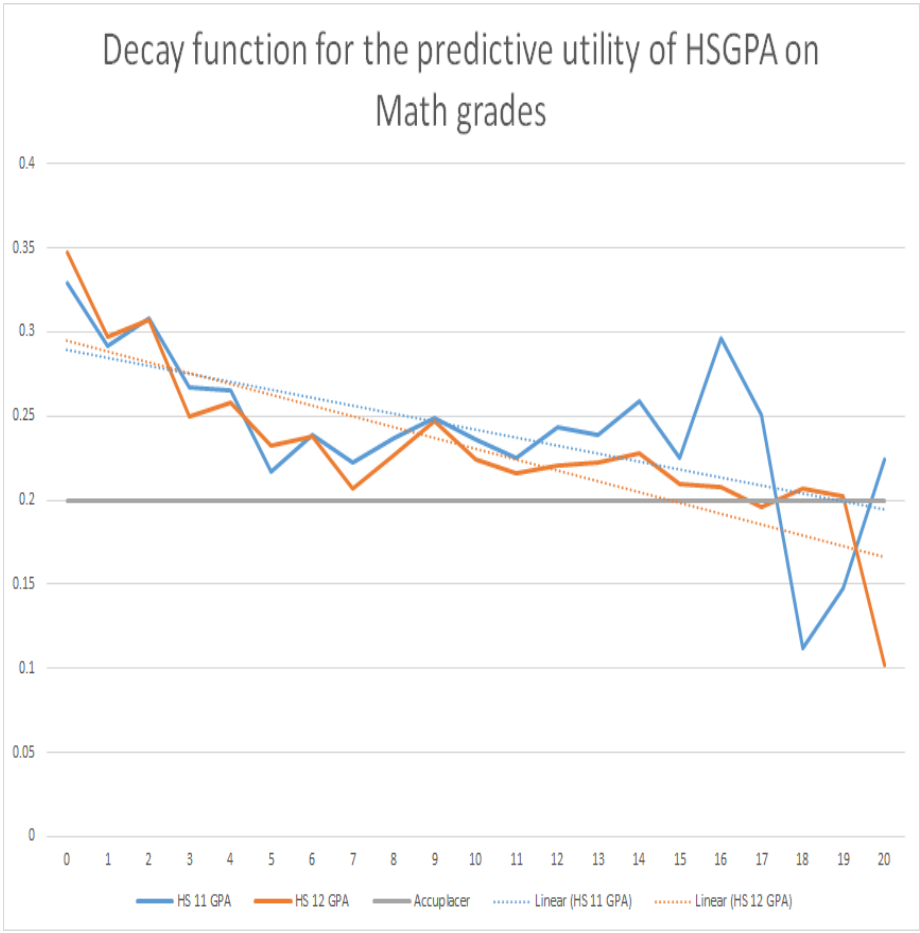
Developmental education student outcomes

(Results from 8 studies, CCRC analysis 2015)



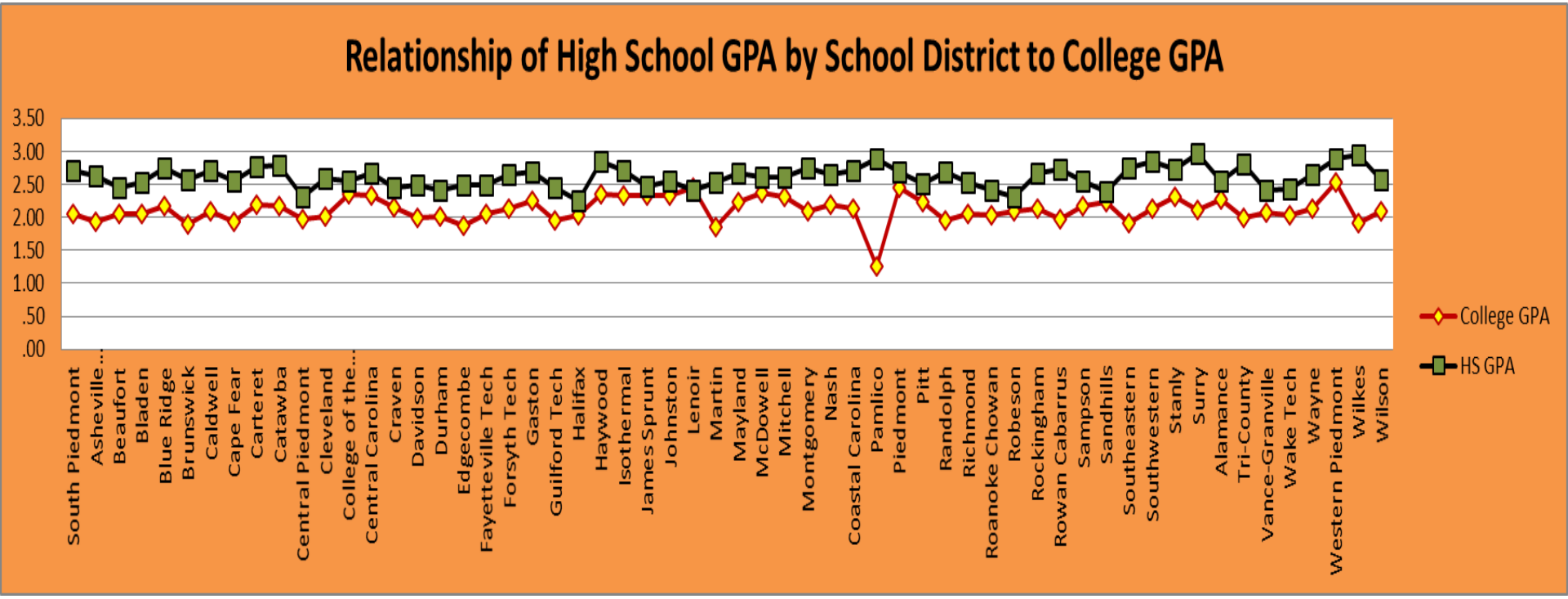
HS GPA is a better predictor than test results for long time (from Hetts, 2016)





MMAP (in preparation): correlations b/w predictor and success (C or better) in transfer-level course by # of semesters since HS

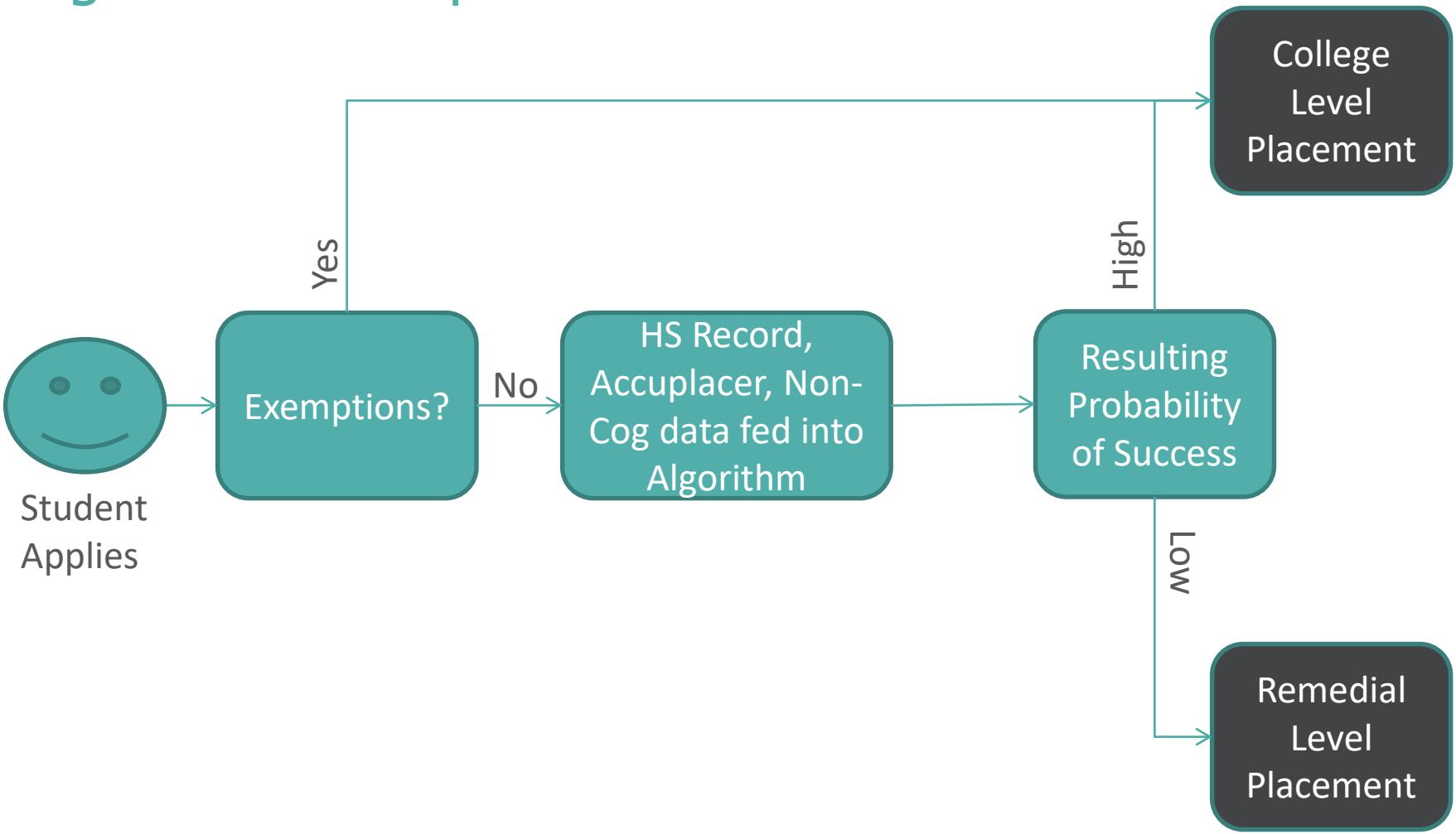
For the most part, college grades stay parallel with feeder high school grades. (Bostian, 2016)



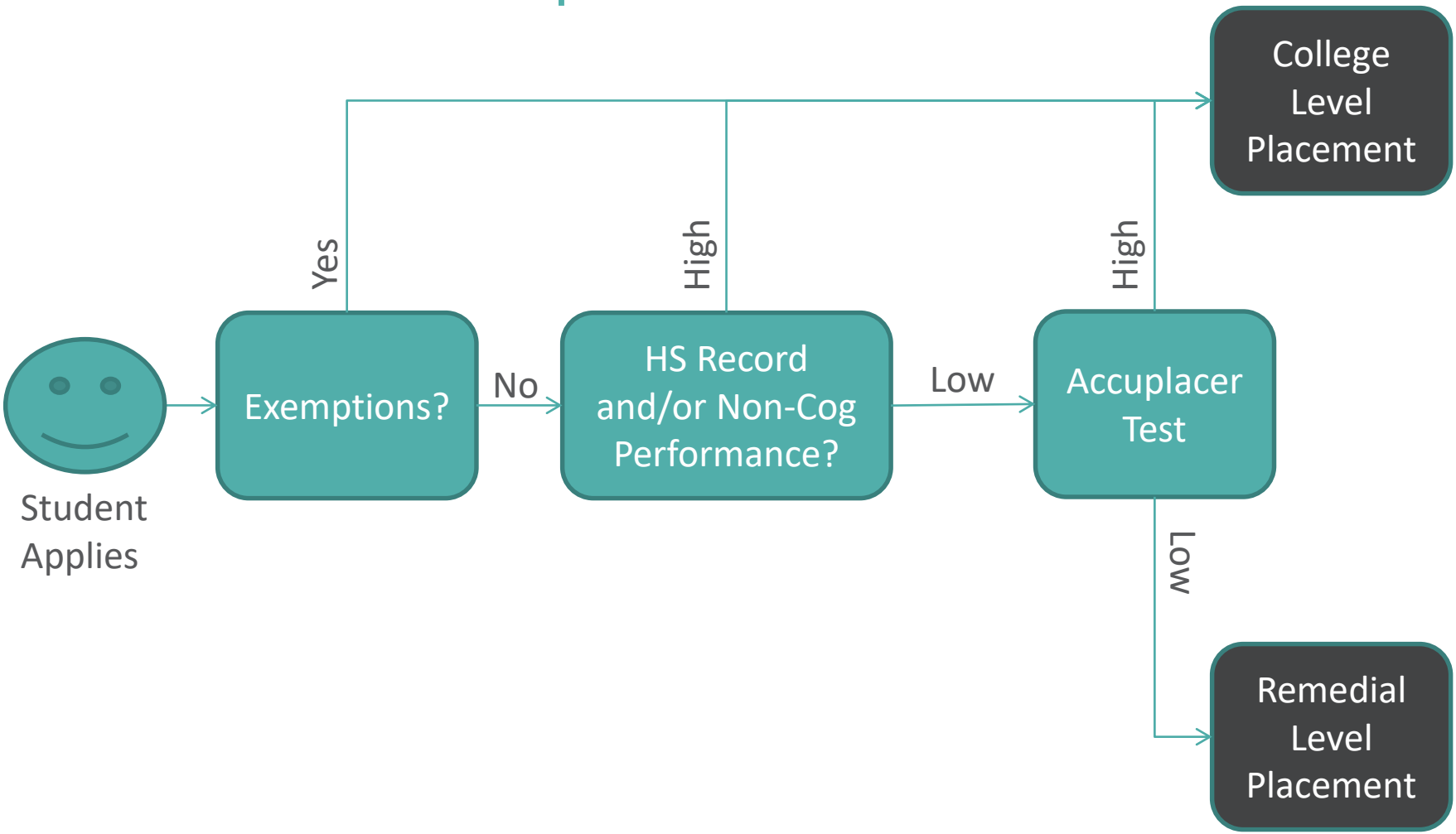
Ways to Combine Measures

- Algorithms/Predictive Analytics:
  - Placement determined by predictive model
- Decision Rules and Bands:
  - Sequence of considerations
- Directed Self-placement:
  - Provide students with information; let them decide where they fit.

Algorithm Example



Decision-Rule Example



The CAPR Assessment Study

Organization of CAPR

MDRC

CCRC

Descriptive Study of Developmental Education

Evaluation of The New Mathways Project (RCT in TX)

Evaluation of New Assessment Practices (RCT in NY)

Supplemental Studies

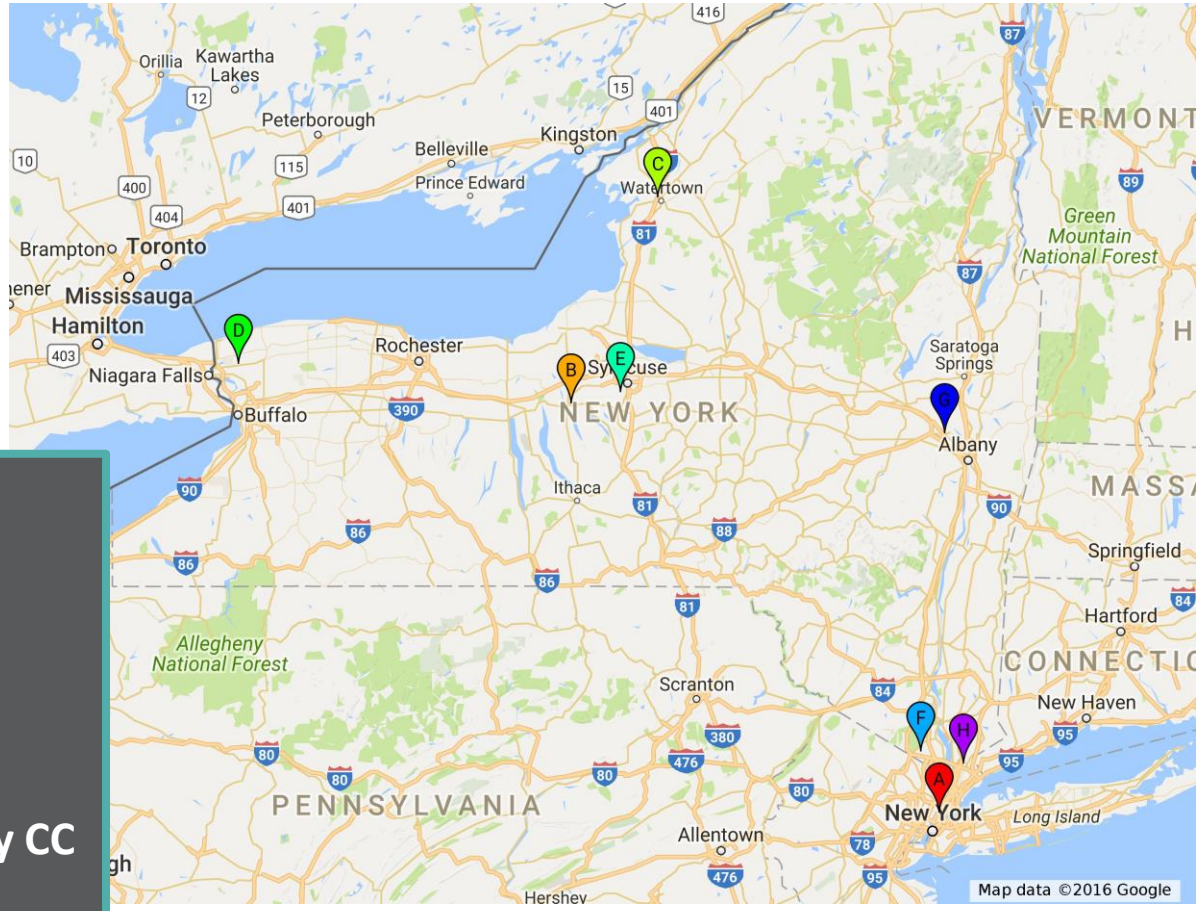
Research on Alternative Placement Systems (RAPS)

- 5 year project; 7 SUNY community colleges
- Evaluation of the use of an algorithm in student placement decisions.
- Random assignment/implementation/cost study
- Current status: just released report on early impacts

Research Questions (Summary)

1. Do student outcomes improve when they are placed using predictive analytics?
2. How does each college adopt/adapt and implement such a system?

SUNY Partner Sites



- A – CAPR/CCRC/MDRC
- B – Cayuga CC
- C – Jefferson CC
- D – Niagara County CC
- E – Onondaga CC
- F – Rockland CC
- G – Schenectady County CC
- H – Westchester CC

Early Findings

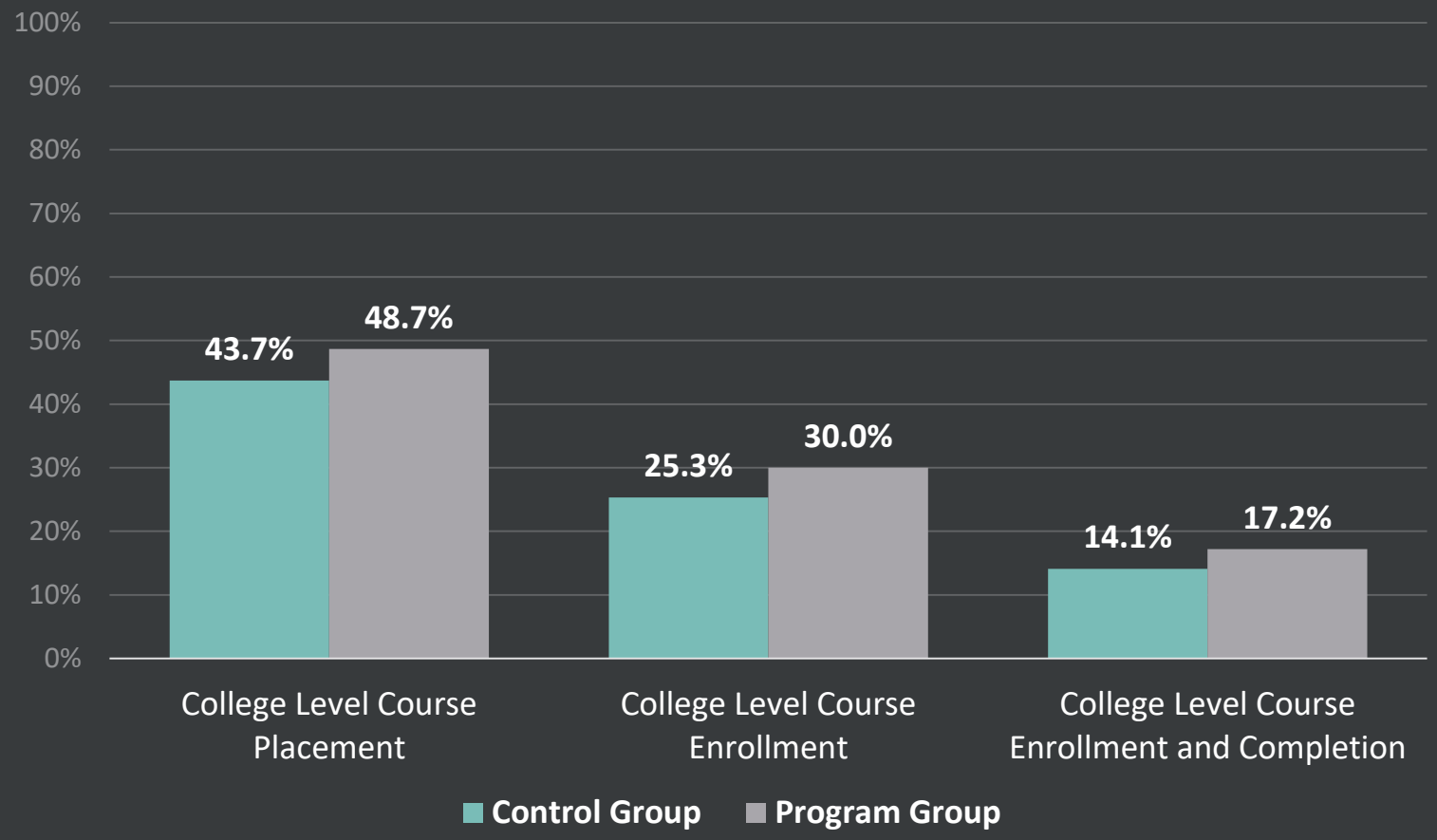
Fall 2017

First Cohort - First Semester (Fall 2016)

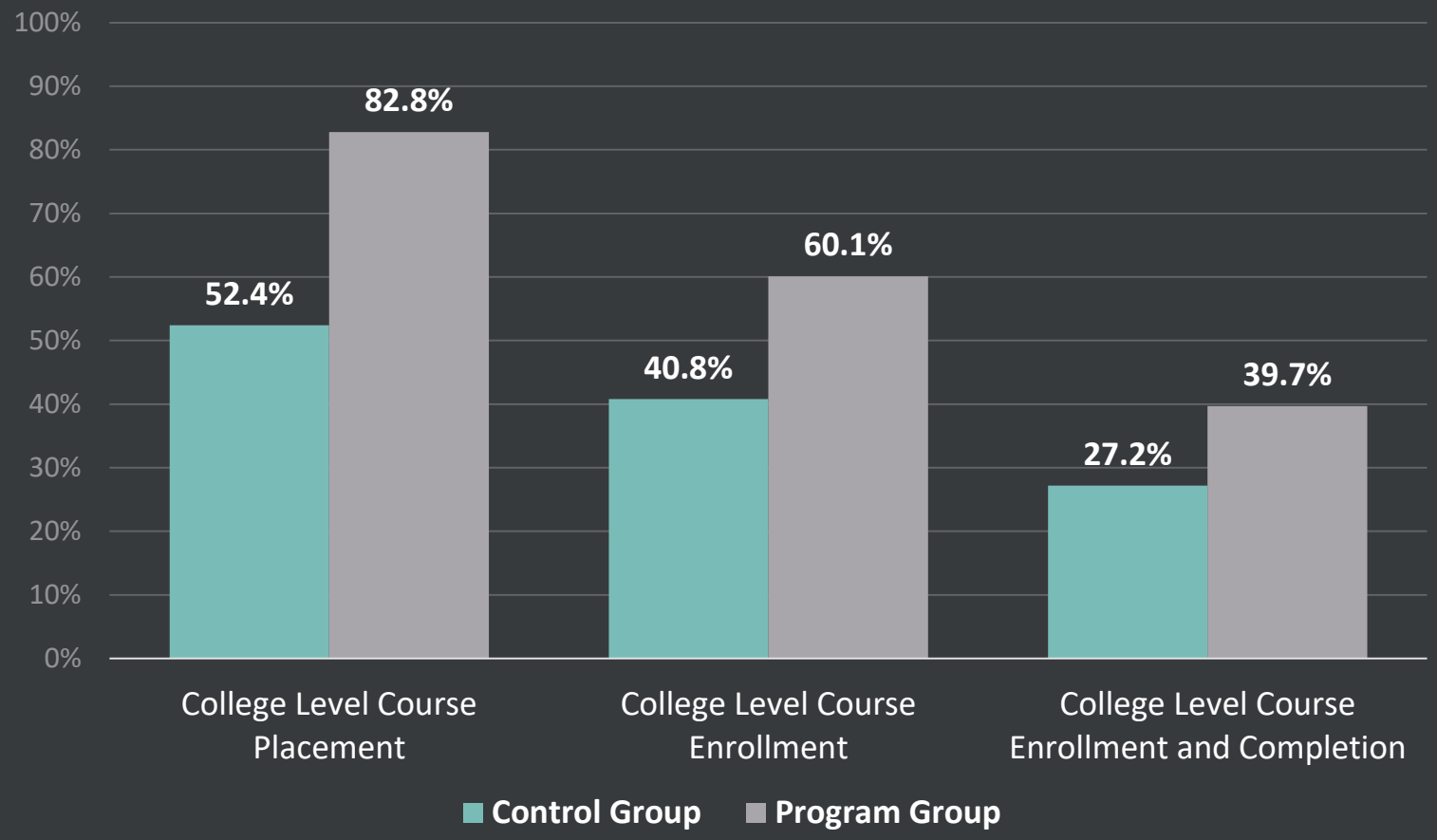
Sample = 4,729 first year students across 5 colleges

- 48% students assigned to business-as-usual (n=2,274)
- 52% students assigned to treatment group (n=2,455)
- 82% enrolled into at least one course in 2016 (n=3,865)

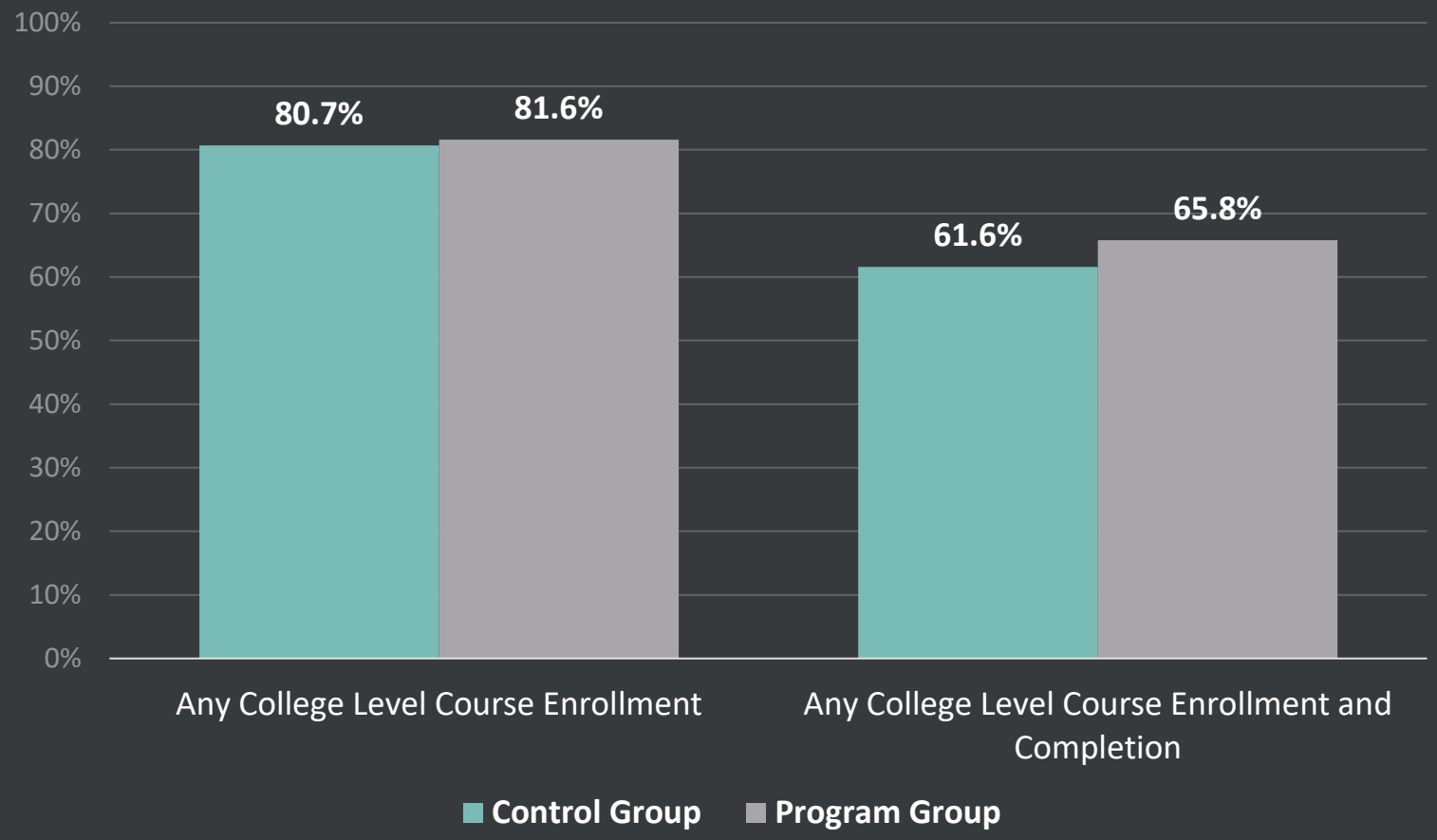
Treatment Effects: Math



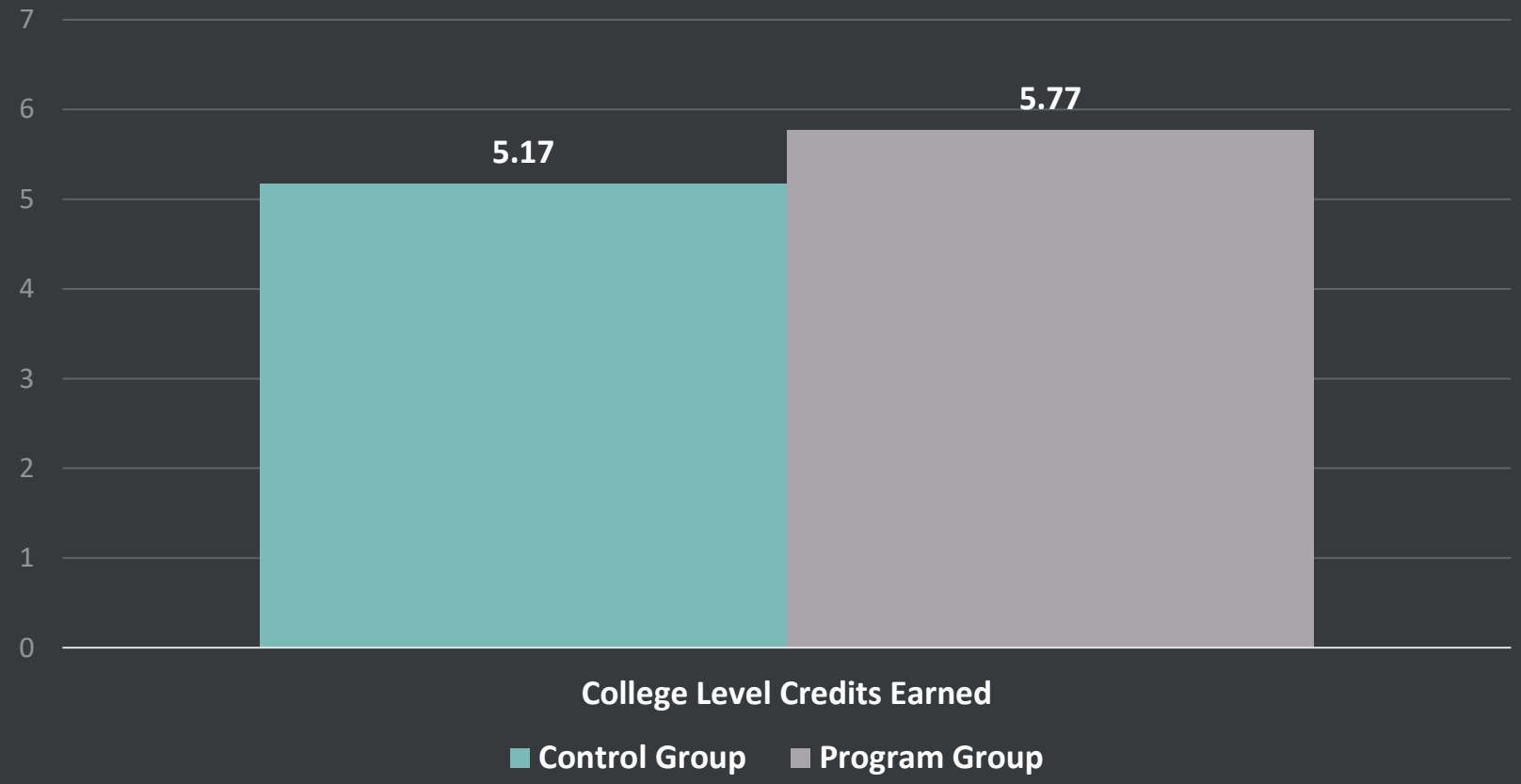
Treatment Effects: English



Treatment Effects: Any College Level Course



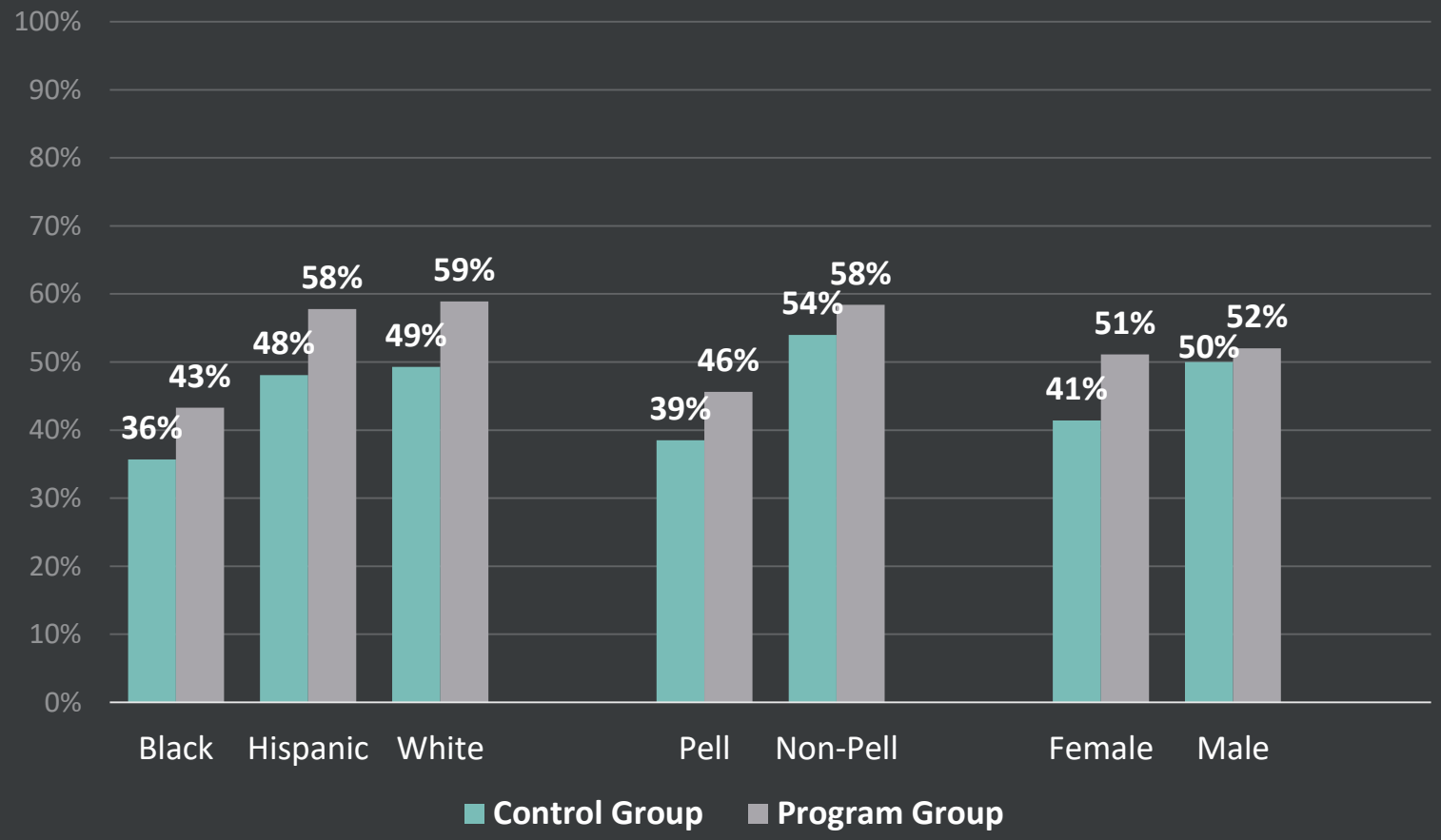
Treatment Effects: Total College Level Credits Earned



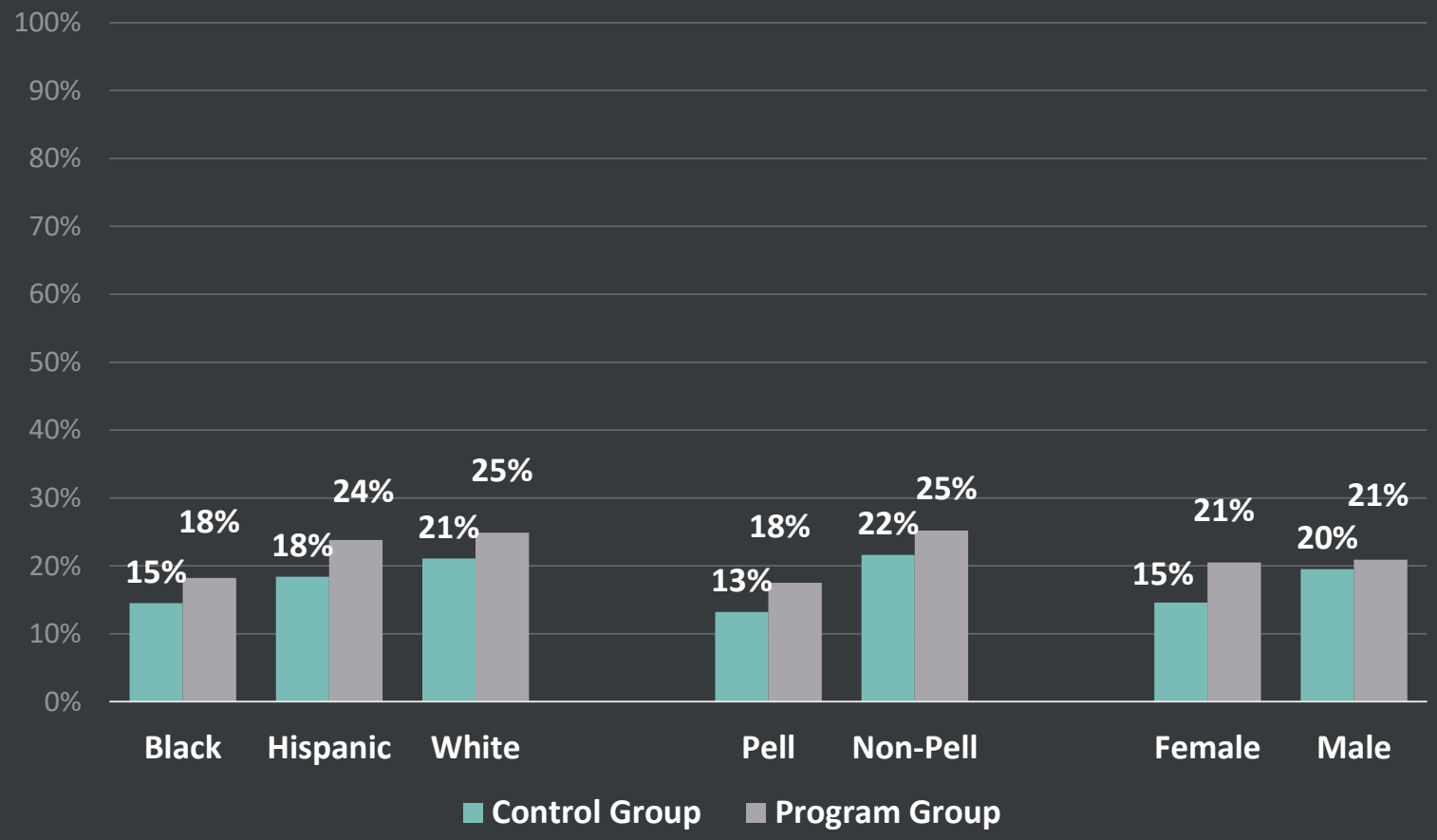
Early Findings – Subgroup Analysis

Fall 2016

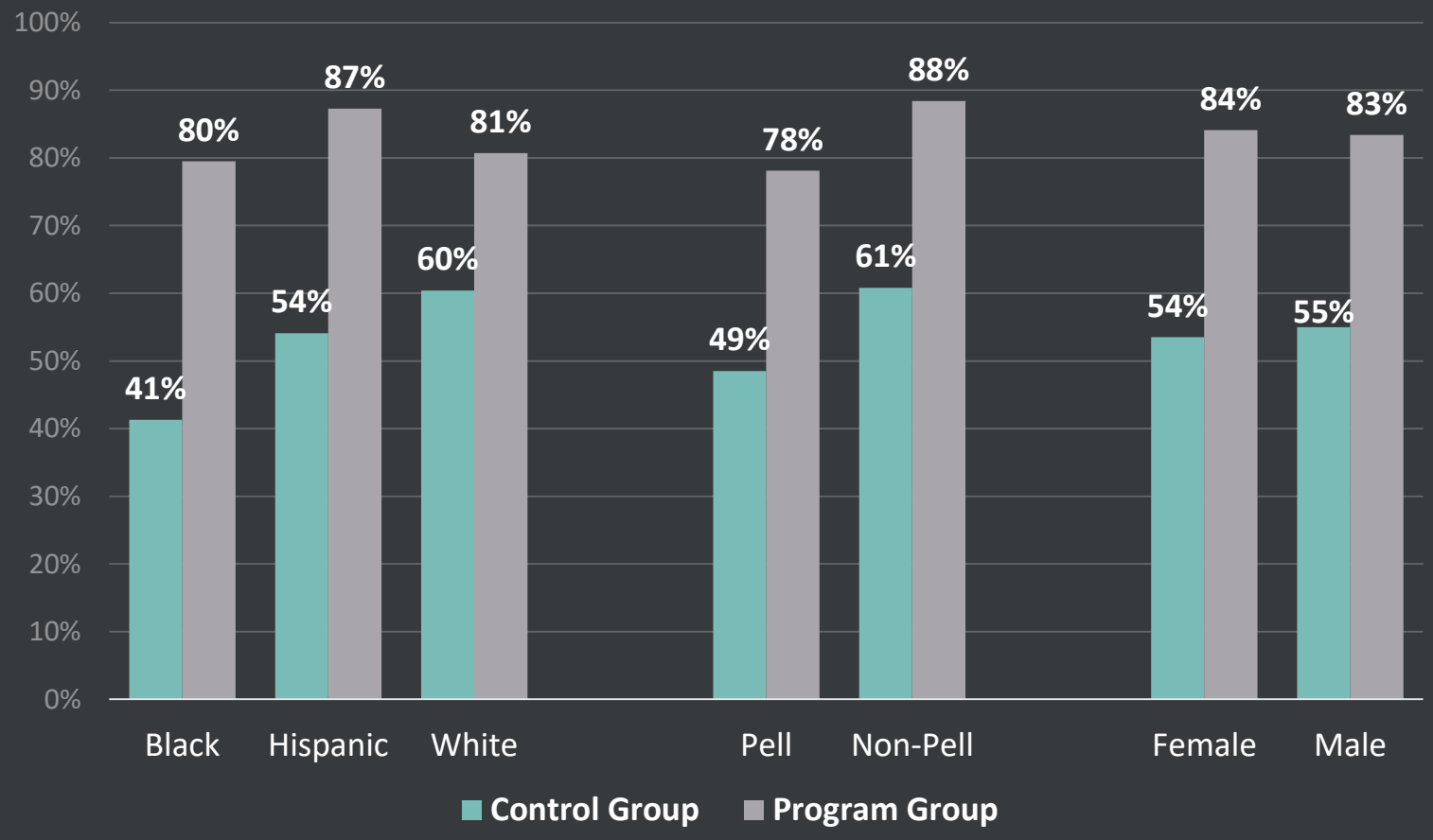
Treatment Effects: College Level Math Placement



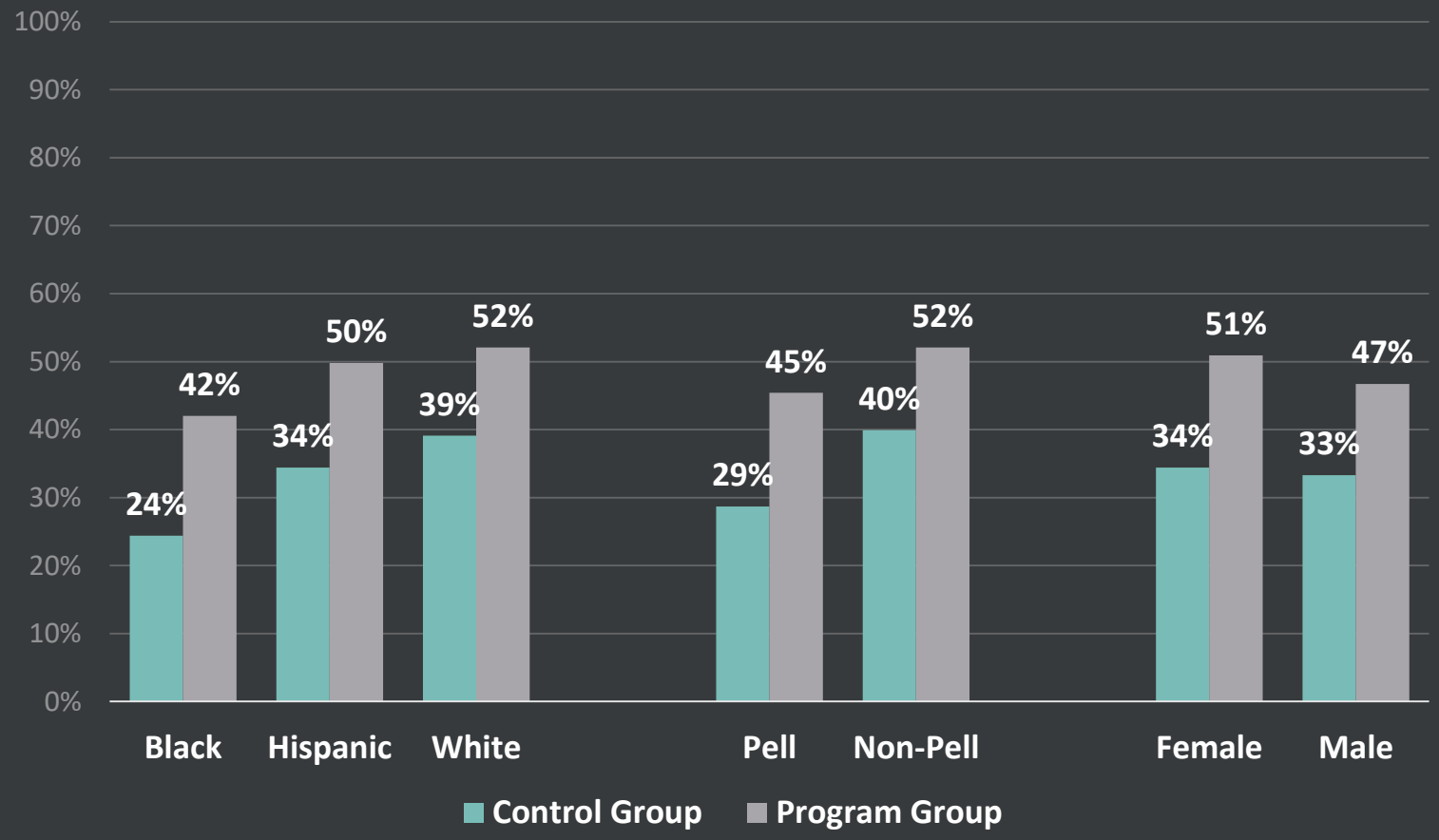
Treatment Effects: College Level Math Completion



Treatment Effects: College Level English Placement



Treatment Effects: College Level English Completion



Costs

- First fall-term costs were roughly $110 per student above status quo (Range: $70-$320)
- Subsequent fall-term costs were roughly $40 per student above status quo (Range: $10-$170)

Some Issues

1. Assessment, placement and developmental education practices are changing rapidly (challenge for predictive analytics)
2. Data are seldom available for key variables that may predict success in college (e.g., "non-cognitive" measures).
3. High school data are seldom in college data systems.
4. Student access to important opportunities may change.
5. Many people in the college community are affected when placement systems are changed.

Reactions? Questions?

Contact Us

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NC 1: Success Navigator

Domains:

- Academic discipline, commitment, self-management, support, social supports

Academic Success Index, includes:

- Projected 1st year GPA
- Probability of returning next semester

Also, *Course Acceleration Indicator*

- Recommendation for math or English acceleration

NC 2: Engage

Domains:

- Motivation and skills, social engagement, self-regulation

Advisor report also has:

- Academic Success Index
- Retention Index

Correlation with GPA and retention, especially Motivation scale.

NC 3: Grit Scale

Domains:

- Grit and self-control.

Provides score 1-5 on level of grit, with 5 as maximum (extremely gritty) and 1 as lowest (not all gritty).

Correlation with GPA and conscientiousness

NC 4: Learning and Study Strategies Inventory (LASSI)

Domains

- Anxiety, attitude, concentration, information processing, motivation, selecting main ideas, self-testing, test strategies, time management, using academic resources.

Correlation with GPA and retention.