CCRC COMMUNITY COLLEGE RESEARCH CENTER
TEACHERS COLLEGE, COLUMBIA UNIVERSITY

MATHEMATICA Policy Research

Dealing with Variation in Treatment

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Overview

- How do you define a comparison group when treatment varies across sites or fields of study?
- The example of I-BEST
  - Variations across programs
  - How we choose a comparison group
- Incorporating implementation data

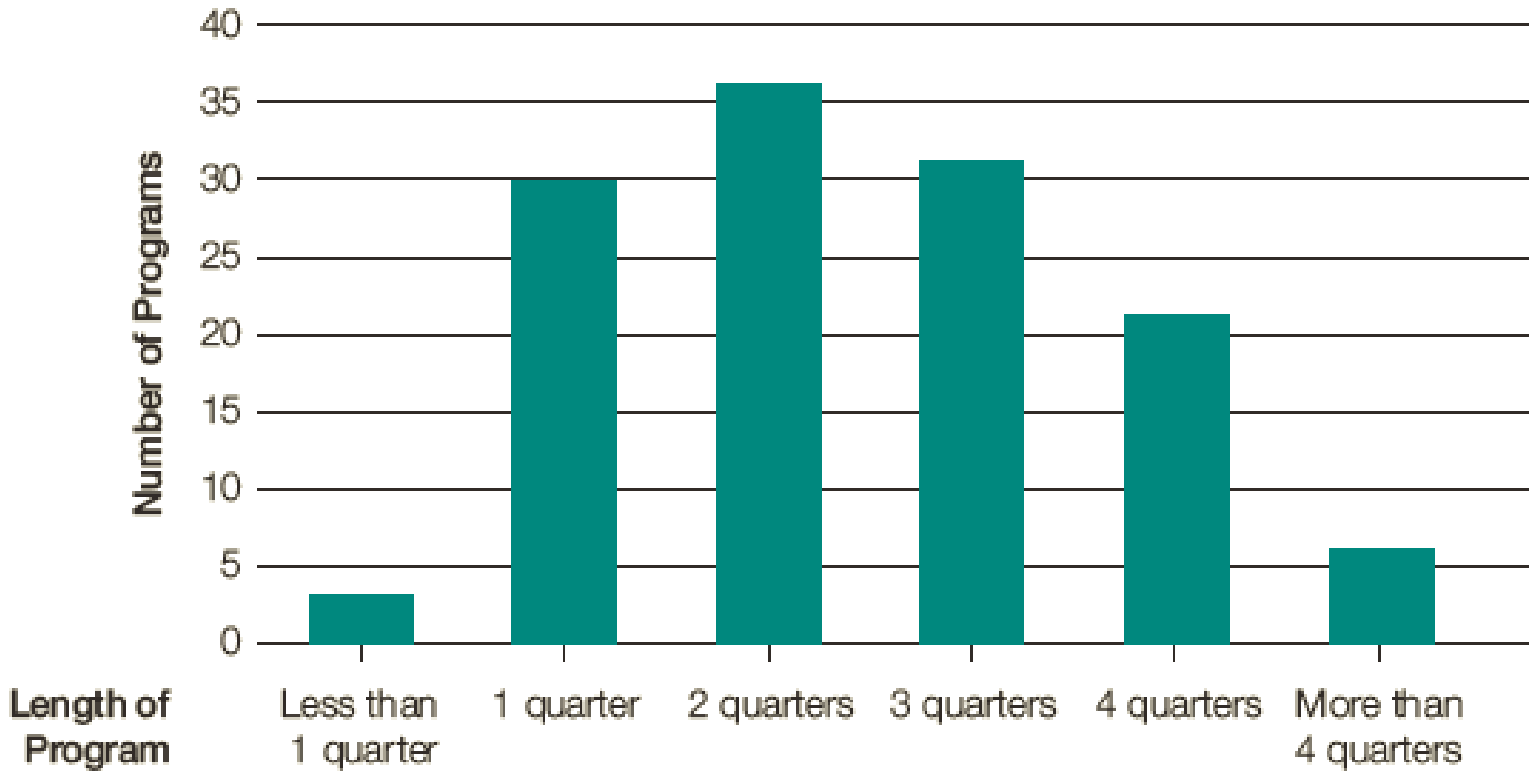
The example of I-BEST

- Washington State wanted to increase adult basic skills students' entry & success in college
- I-BEST "treatment":
  - Combined basic-skills and career-technical education (CTE) instruction allowing students to directly enter college-level coursework
  - 50% overlap in the classroom of basic-skills and CTE instructors
  - Sequence of courses leading directly to credential, in-demand jobs, and further education, if desired
  - College reimbursed at 1.75 FTE (full time equivalents)
- Yet, nature of treatment differs substantially across colleges and different fields of study

Variations in I-BEST

- Field of study
- Enrollment size
- Number of courses, length of program

Variations in Program Length



- ***From Wachen, Jenkins, & VanNoy (2010 CCRC Report).***

Variations in I-BEST

- Field of study
- Enrollment size
- Number of courses, length of program
- Provision of support courses
- Mix of non-I-BEST students within courses
- Amount of integration of basic skills and CTE instruction in the classroom
- Location in administrative structure
- Program funding

How can you choose a comparison?

- Compare each I-BEST program (Nursing Assistant at College X) to itself pre-I-BEST?
  - Validity problems Russ discussed
- Compare each I-BEST program to a similar non-I-BEST program at another school?
  - Incredibly laborious to find appropriate comparison for each program
  - Most programs will be too small to look at separately

Study by Zeidenberg, Cho, & Jenkins *(2010 CCRC working paper)*

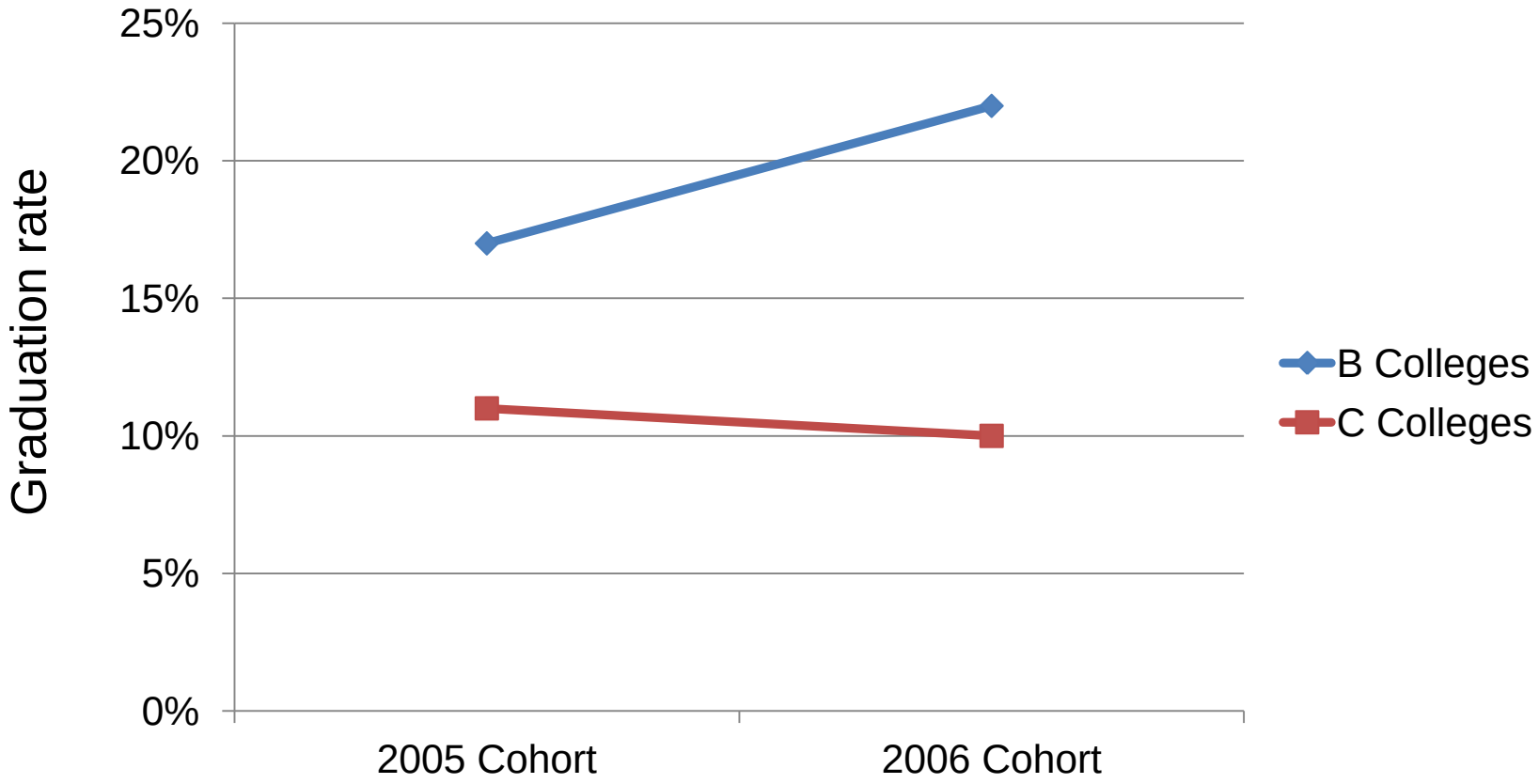
- Used statewide data
- Limited sample to:
  - First-time-in-college students
  - Entered college 2005–2007 (followed to 2009)
  - Basic skills students
  - Taking at least one CTE course
- Compared those enrolled in I-BEST to those not
- Two methods of dealing with background differences:
  - Controlling for differences (regression, PSM)
  - "Difference-in-difference" analysis

Timing of I-BEST offerings across colleges

	2005–06	2006–07	2007–08
10 Colleges "A"	10	10	10
14 Colleges "B"	0	14	14
10 Colleges "C"	0	0	10

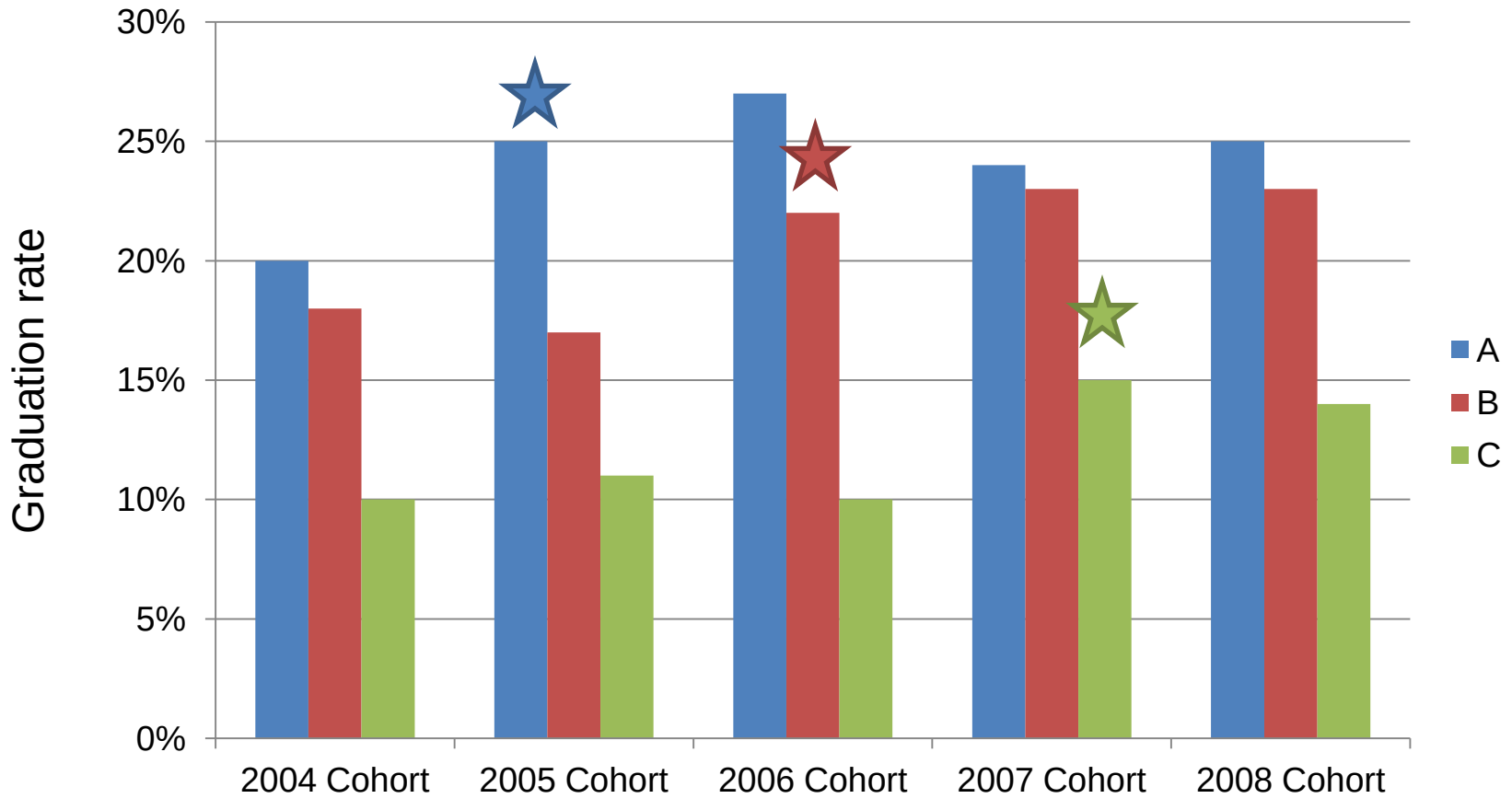
- Possibilities for comparison:
  - Within Colleges B, compare 2005 cohort to 2006 & 2007
  - Within Colleges C, compare 2005 & 2006 cohort to 2007
  - Within year 2005–06, compare A to B & C
  - Within year 2006–07, compare A & B to C

Does introduction of I-BEST coincide with a larger improvement across time?



➢ ***B colleges introduce I-BEST in 2006; C colleges do not.***

(Made-up example data)



★ = first cohort exposed to program

Incorporating implementation data

- Do some versions of the program have better outcomes than others?
- Why are some versions more successful?
  - Degree of student supports?
  - Extent of instructional integration?
  - Other factors?

Incorporating implementation data

- Find ways to measure the suspected key characteristics

Levels of Integrated Instruction

Based on our observations of I-BEST courses during four site visits and interviews with program administrators and faculty, we developed the following typology of integration to explain the various levels of integrated instruction that exist in I-BEST classrooms.

Model One: Non-Integrated Instruction

The professional-technical instruction is delivered as it normally would be. The basic skills instructor assumes a support role and assists students who are struggling with the professional-technical content.

Model Two: Non-Integrated Instruction with Separate, Contextualized Basic Skills

As in Model One, the professional-technical instruction is delivered as it normally would be with no change in the curriculum. The professional-technical and basic skills instructors jointly identify the basic skills that are needed to succeed in the course, which are then taught separately. The basic skills instructor assumes a support role and focuses on these skills.

Model Three: Partially Integrated Instruction

The professional-technical and basic skills instructors jointly modify the existing professional-technical course to accommodate the needs of basic skills students. The basic skills instructor still assumes a support role, but the course content now includes more focus on basic skills in addition to the professional-technical content.

Model Four: Fully Integrated Instruction

The professional-technical and basic skills instructors work together to revise the content of the existing course more extensively (or, in some cases, to develop a new curriculum) to accommodate basic skills students. The basic skills instruction is interwoven fully into the professional-technical content.

➢ ***From Wachen, Jenkins, & VanNoy (2010 CCRC Report).***

Incorporating implementation data

- Find ways to measure the suspected characteristics
- Measure them across all (or most/highest-enrollment) programs
- Incorporate them into analysis:
  - Control variables: Does program have independent effect, holding this element constant?
  - Moderator variable: Is the program more effective when it includes this element?

Takeaways

- State data provide much more flexibility and ease in constructing comparison group
  - Make sure to limit sample to students who are similar to your treatment group
  - Can control for a variety of student characteristics
- Rolling out program to different schools across time can also contribute to more credible comparisons
- Gather common implementation data to understand which variations are most important to success