

Investing in Instruction: Costs and Benefits in Higher Education

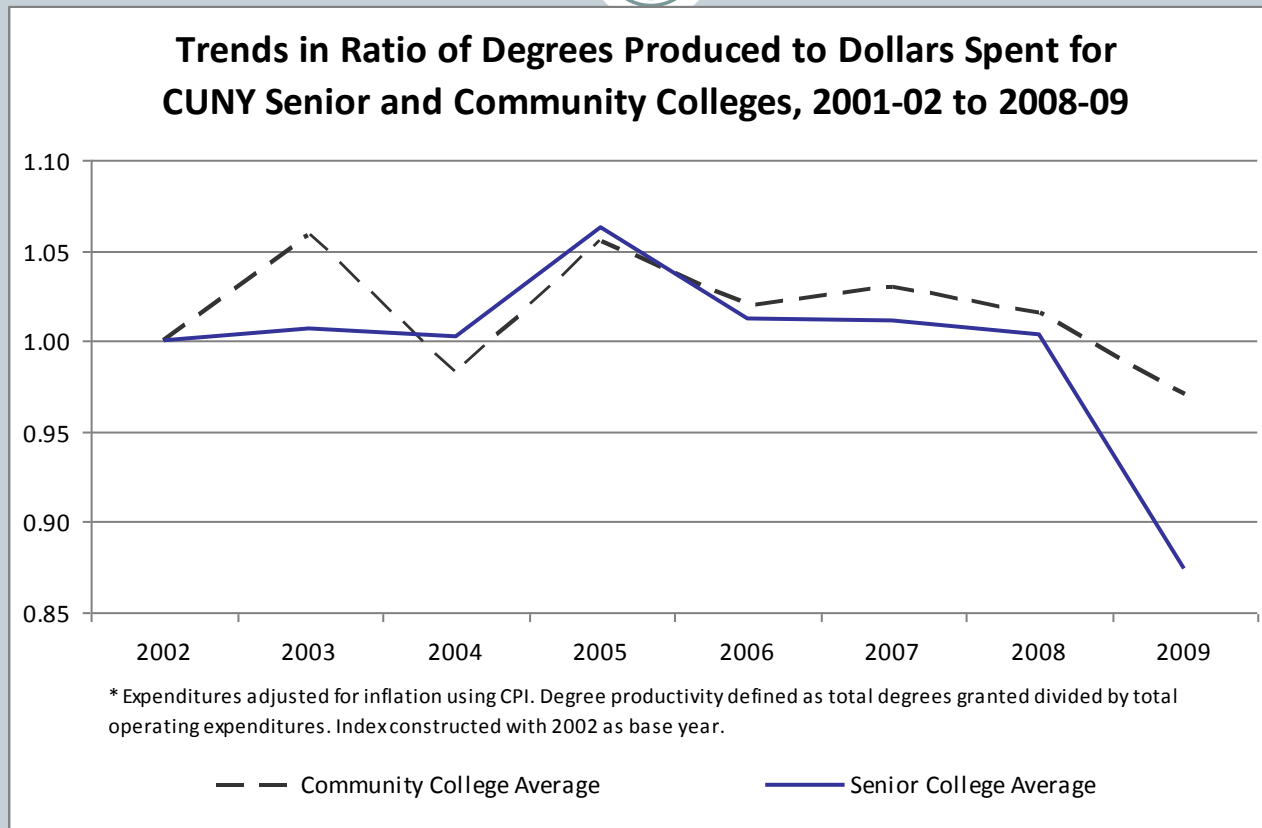
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Productivity at CUNY Colleges

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- Reflecting national trends, CUNY's productivity has decreased in recent years.
- In a time of scarce resources, how can we choose which interventions to implement?

Introduction

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- **Cost-benefit analysis**
 - Why is it so persuasive?
 - What are its strengths and limits when applied to higher education?
 - What is it?

Cost-Benefit Analysis Defined

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- Compares the costs and benefits of proposed programs or policy actions.
 - economic costs and benefits
 - social costs and benefits
- Steps in Cost Benefit Analysis
 - determine project goals.
 - estimate project benefits (in dollar terms).
 - estimate project costs.
 - discount the costs and benefits at an appropriate rate.
 - complete the analysis by comparing costs to benefits.
 - compare projects: Which project has the higher net return?

“Pure” Cost Benefit Analysis

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- A technique for systematically estimating the efficiency of alternative policies
 - Assumes that efficiency is the *only relevant goal*
 - Reduces all impacts to a common unit of analysis—\$
 - ✦ all impacts have to be measured and aggregated in dollars
- Choose the alternative with the greatest net benefit
 - *Some impacts are not easily monetized—such as education’s effects on voting behavior and health habits*

Estimating Costs in Higher Education

What Does It Cost?

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- **It depends!** How a manager looks at and measures cost depends on why the cost analysis is being done.
- **Cost Objective** is the focus of the cost analysis. It may be a course, major, degree, student service
- **Relevant costs** are those that have an impact on or are impacted by the decision the manager is considering. Determining what costs are relevant depends on
 - the **cost objective**.
 - the **time frame** for the analysis.
 - the expected **range of volume**.

Cost Definitions

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- Full or Total Cost is the sum of all costs associated with the cost objective.
- Direct Costs
 - costs incurred within an organizational unit.
 - cost of resources used to produce a good or service.
- Indirect Costs (Overhead)
 - costs that are assigned to a unit from outside.
 - costs of resources not used directly to provide service.
- Full cost = direct cost + indirect cost.

Example: Cost of a Classroom Seat

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- **Cost of a seat in a class:**
 - lowest level of granularity possible
 - most flexible measure of student costs
- **Assumptions to make**
- **What costs can be computed for a course?**
 - Real (direct) assigned costs
 - Estimated (indirect) costs
 - Full cost = direct cost + indirect cost.
- **What costs can be computed for a degree?**

Costing Degrees: Three Approaches

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Catalog cost

- Estimate cost to the institution of providing the published course requirements for a degree.
- Simple and easily understood
- Does not represent actual student behavior.

Costing Degrees, cont'd.

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□ **Transcript cost**

- Based on courses actually taken by degree completers, including
 - Failed and repeated courses
 - “Excess” credits

□ **Full cost attribution**

- Counts the cost of dropouts
- Attrition, failed courses, and excess hours are seen as a kind of “overhead” that cannot be avoided

Costing a Program: ASAP

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- **What program costs can we capture?**
 - Instruction
 - Academic support (intrusive advisement, tutoring, career counseling)
 - Financial support (MetroCards, books, stipends)
 - Other

- **Which ones are difficult or impossible to measure?**

Additional observations

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- Who pays the costs?
 - Students,
 - Operating subsidies from the City, State, and US governments
- Which costs don't we capture?
 - For example , the opportunity costs of a student's own time
 - In-kind contributions by staff

Estimating the Benefits of Higher Education Degrees and Programs

Economic Benefits

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- Earning a degree is primary benefit
- Economic returns to degree completers
 - enhanced earnings
 - lower recruitment costs for local employers
 - tax revenues
 - multiplier effects of higher salaries

Social Benefits

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Other benefits are harder to quantify:

- civic engagement
- health
- higher employment rates
- the life of the mind

We can measure only some of these benefits.

Social Costs and Benefits



- How do you calculate prices for nonmarketed costs and benefits?
 - How is the government supposed to value lives saved, clean air, or unpolluted rivers?
 - ✦ *Time and Life*

Social Costs and Benefits: Time and Life



- ✦ Time—old adage “time is money” applies here. If government is trying to improve transportation system, they might attempt to calculate the wage rate of those using the transportation system.
- ✦ Life—approximates a person’s lifetime wages by comparing him/her with individuals in similar positions and extrapolating until his/her death. A second method looks at how much extra income individuals need to compensate them for an increase in the probability of death.

Weighing Costs and Benefits

Cost-Benefit Metrics

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- Cost-benefit metrics facilitate comparisons among alternatives.
- Metrics For Degree Programs:
 - Ratio of degrees produced to costs incurred (not only for the graduates but also for the dropouts)
 - Cost per graduate
- Metrics for programs
 - Effectiveness Cost Ratios (ECRs)

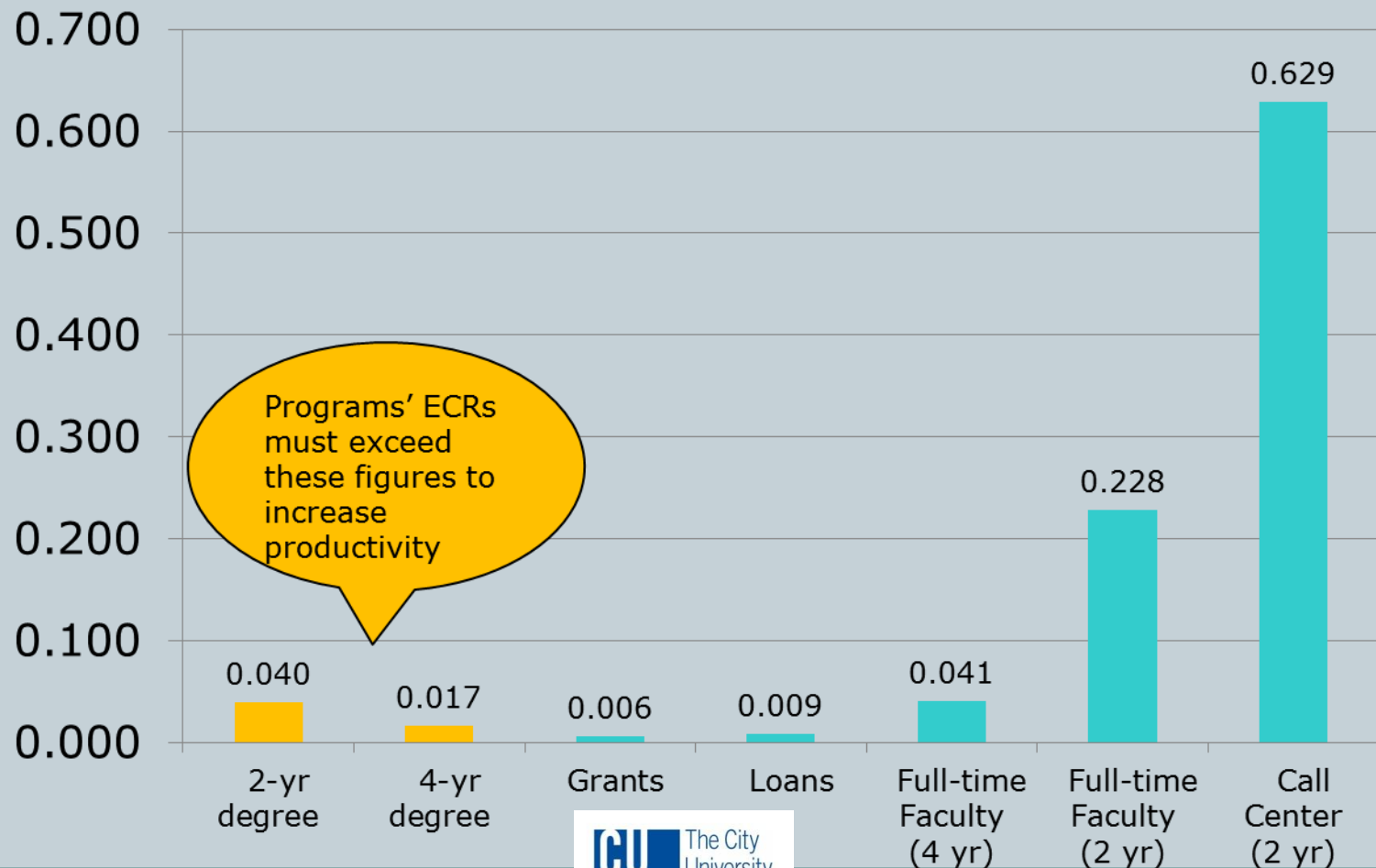
Cost-Benefit Analysis of ASAP

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- **Cost components of ASAP** (Rini 2011)
 - block scheduling and small class sizes (\$1,157)
 - advisement (\$1,685) and career services (\$617)
 - tutoring (\$345) and cultural activities (\$54)
 - financial incentives
 - ✦ e.g., free textbooks (\$721) and Metrocards (\$1,164)
- **Estimating Cost/degree**
 - Establishing a comparison group
 - Importance of time-frame
 - Implications for scaling up the program

Measures: Effectiveness-Cost Ratios

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Interventions of potential relevance to CUNY

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1. Call centers

- Calling students who appear to be at risk of drop out increases persistence by 2-15 percentage points.
- Program costs \$200-\$500 for an entering cohort of 100 students.

2. More full-time faculty vs. adjuncts

- Eliminating part-time faculty could increase the graduation rate by 4.6 percentage points.
- This is a more costly intervention at approximately \$19K per cohort of 100.

(Source: Harris & Goldrick-Rab, 2010)

Complications

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- What are the problems with cost-benefit analysis?
 - Based on the premise that efficiency is the primary value—whether resources are used to improve the aggregate public good
 - Good data on costs/benefits are hard to come by
 - Emphasizes consequences to the institution and to society as a whole—does not directly consider advantages or disadvantages to individuals

Concluding Observations

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- We can improve efficiency by
 - reducing costs,
 - increasing benefits, or both.
- But some cost reductions may harm success rates
 - e.g. larger classes, less academic support, greater teaching loads.

Concluding Observations, cont'd.

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- Improvements to programs can maintain or improve results
 - e.g., proposed triage model for intrusive advisement for ASAP scale up
- We can't make good decisions about where to invest or where to cut unless we can measure benefits (effects on goals).