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**The Role of Increasing College Productivity in
America's Quest for Global Leadership in
Degree Attainment**



Douglas N. Harris

Sara Goldrick-Rab

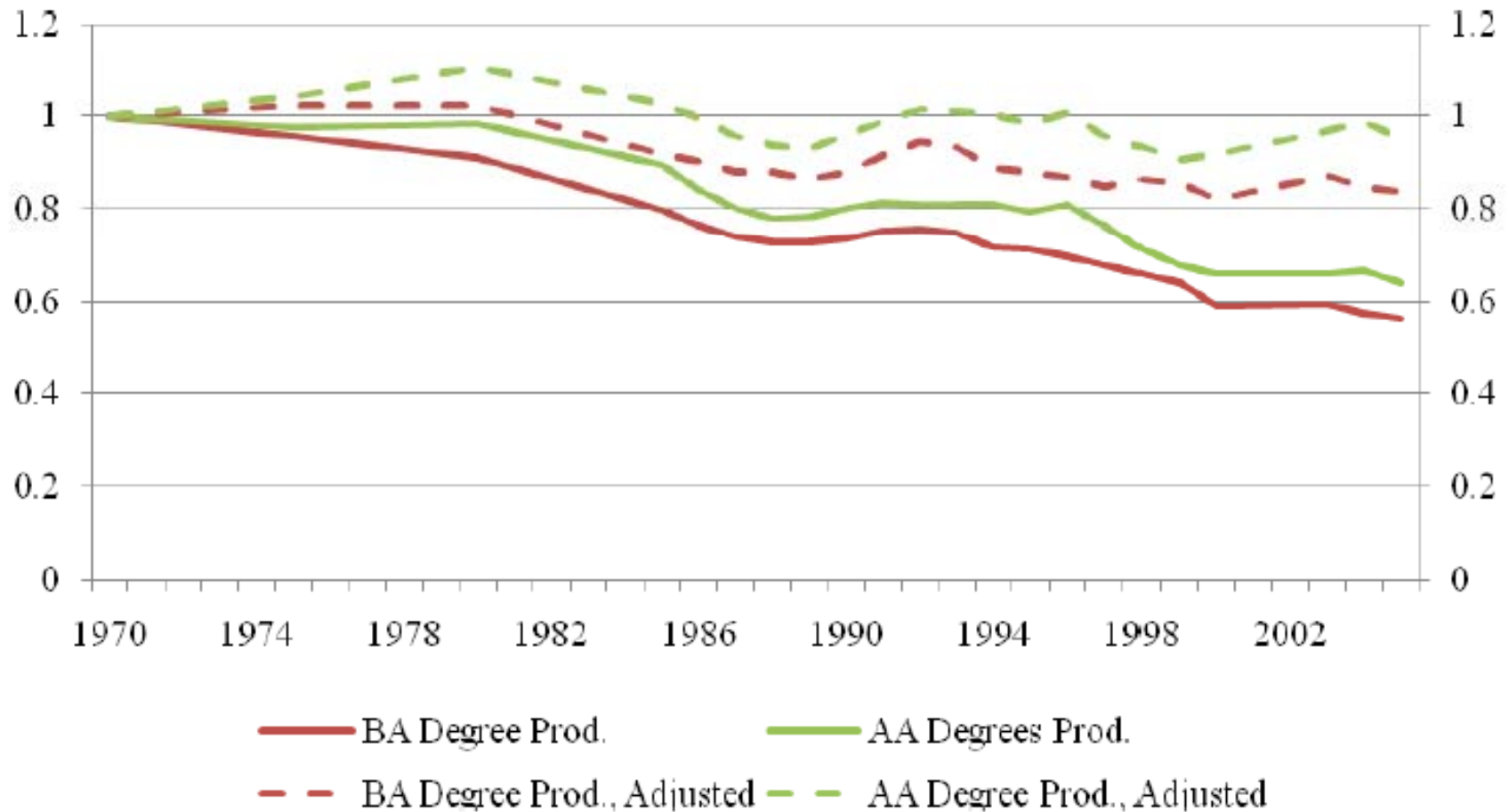
University of Wisconsin-Madison

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The Productivity Decline, 1970-2006

*Ratio of Degrees-to-Expenditures in Public Colleges
normalized 1970=1.0*



National Policy Relevance

- ❑ President Obama and other policymakers think we need to expand the number of credentials
- ❑ Doing this will be difficult if the costs of producing degrees continue to expand
- ❑ Even if one disagrees with the idea of expanding degrees, declining productivity is a problem
- ❑ U.S. ranked 12-24 out of 28 countries on various efficiency measures (St. Aubyn et al., 2009)

Wisconsin Policy Relevance

- ❑ UW System plans to increase degree production by 20% over 15 years
- ❑ UWSA President Kevin Reilly says this will require reducing administrative costs, spending more, and getting students better-prepared before they enter college
- ❑ There may be other ways to increase the efficiency of degree production (without sacrificing quality)

Common Explanations for Productivity Declines in Higher Education

- ❑ Baumol's "cost disease": The service sector has trouble increasing productivity, but still has to raise to salaries to compete for labor with sectors that do see productivity growth
- ❑ Disconnect between price, quality, and cost gives colleges little incentive to improve productivity:
 - Higher ed is heavily subsidized (although declining)
 - Because quality is hard to measure, tuition becomes a proxy
- ❑ Increasing % of students starting college

A Fourth Explanation

- ❑ Colleges have very little information about the cost-effectiveness of their programs
- ❑ Few studies use rigorous methods
 - Often rely on intuition or word of mouth, but when we actually test intuition, the results turn out different
- ❑ Even fewer studies pay any attention to costs
 - If a program “works” and produces “large” effects” does that mean we should adopt it? Not necessarily
 - Even when cost-effectiveness is considered, it is often done in counter-productive ways, e.g., focusing on revenue enhancement rather than student outcomes

Result: “Productivity Helplessness”

- Archibald & Feldman: “The problem in higher education is that productivity growth often is synonymous with lower quality. Adding more students to each class can diminish the benefit for each student . . . Increasing the number of courses a professor teaches would reduce research or . . .”

Filling the Void: Cost-Effectiveness

- Steps based on comparative cost-effectiveness methodology (Harris, 2009)
 - Identify programs with rigorous evidence
 - Adopt college graduation as the key outcome
 - Translate persistence measures into graduation
 - Estimate costs based on available data
 - Standardize cost and impacts for a cohort of 100 incoming college freshmen
 - Calculate cost-effectiveness ratios and compare

Typical Hallmarks of College Quality are Costly

- ❑ Reducing student-faculty ratio from 15 to 13 would cost \$73,656 (\$56,470)
 - This is one part of the Madison Initiative for Undergraduates
- ❑ Shift from current to 100% full-time faculty would cost \$70,993 (\$19,646)
- ❑ All figures here and below pertain to costs for a cohort of 100 students

College Access Programs are Especially Costly

- ❑ GEAR UP: \$264,000
- ❑ Upward Bound: \$516,000+
- ❑ Not to say that college access isn't important or that we shouldn't be willing to pay more, but . .
- ❑ It seems plausible that there might be some less expensive (and equally effective) ways to improve access for disadvantaged students

Program Costs Vary Widely

Program	Unadj. Cost	Break-Even
<i>College Instruction</i>		
Stud/Fac Ratio 15-to-13 (4y)	\$73,656	3.68
Stud/Fac Ratio 19-to-16 (2y)	\$56,470	3.93
Adjuncts (4y)	\$70,993	3.55
Adjuncts (2y)	\$19,646	1.37
Online education	\$80,000	4.00
<i>Other Modes of Instruction</i>		
Independent Study	-\$48,204	-2.41
Discussion/Inquiry	-\$45,396	-2.27
Personalized Instruction	\$286,650	14.33
Other	\$131,976	6.60
Remediation	\$170,000	2.83

Program Costs Vary Widely (cont.)

Program	Unadj. Cost	Break-Even
<i>College: Non-Instruction</i>		
Student Services (Webber/Ehr)	\$50,000	2.50
Student Counseling	\$54,898	2.74
Call Centers (2y)	\$500	0.03
<i>College Access</i>		
GEAR UP	\$264,000	19.80
Upward Bound	\$677,000	42.88
Bridges to Opportunity		
Vocational ESL	\$58,500	0.98
Workplace Basics	\$58,500	0.98
Technology Career Bridge	\$409,500	6.83

Program Costs Vary Widely (cont.)

Program	Unadj. Cost	Break-Even
<i>Financial Aid</i>		
Tuition and grants	\$100,000	6.33
Loans	\$10,000	0.63
Merit Aid (GA/AR)	\$100,000	6.33
Merit Aid (Canada STAR)	\$36,600	2.32
Dreamkeepers	\$39,300	1.14
Angel Funding	\$26,600	0.77
<i>Financial Aid w/ Services</i>		
Canada STAR	\$73,000	4.62
Opening Doors (Louisiana)	\$147,300	4.27
Indiana 21st Century	\$258,600	16.38

Tuition and Financial Aid Impacts

Study	Program Type	Dependent Variable	Impacts (Perc. Points/\$1,000)
<i>Need-Based Aid</i>			
Kane (1995)	Tuition	Attendance	two-year: 3 four-year: 1
Kane (2007)	DC Tuition	Attendance	3-4
Dynarski (2003)	Grant (Need)	Attendance	3.6
Reyes (1995)	Loans (Need)	Attendance	1.5
Dynarski (2005)	Loans (Need)	Attendance	0-5.1
<i>Merit-Based Aid</i>			
Cornwell et al. (2006)	Georgia HOPE	Attendance	4-6
Kane (2003)	CalGrant	Attendance	1.8
Angrist et al. (2006) *	Canada STAR	Persistence	8.2
Dynarski (2008)	GA/AR HOPE	Completion	0.9
MDRC *	Open Doors	Persistence	2.2

Common Programs Fail Simple Cost-Effectiveness Tests

Program	CER	Basis of Comparison		
<i>College Instruction</i>				
Remediation (Martorell/McFarlin)	0.0000			
Remediation (Bettinger/Long)	0.0529			
<i>College: Non-Instruction</i>				
Student Serv. (Webber/Ehr)	0.0047			
Student Counseling	0.0126			
Call Centers (2y)	0.4000			
<i>College Access</i>				
Upward Bound	0.0003			
<i>Financial Aid</i>				
Tuition and grants	0.0051			
Loans	0.0337			
Merit Aid (GA/AR)	0.0067			
Merit Aid (Canada STAR)	0.0110			
<i>Fin. Aid w/ Services</i>				
Canada STAR	0.0055			
Opening Doors (Louisiana)	0.0142			

Degree type	Avg. Cost per degree	CER equiv.
BA	\$60,000	0.0167
AA	\$25,000	0.0400

Source: Johnson, 2009

Caveats and Limitations

- ❑ This is a starting point; better data and more rigorous evidence every day
- ❑ Context matters; some programs and practices may work better for some students and colleges
- ❑ Analysis assumes that programs and practices work independently of one another (e.g., class size and buildings)

Conclusion

- ❑ Despite the caveats, the differences in cost-effectiveness are so vast that we find them convincing
- ❑ Less about identifying specific programs and more about changing the way we make decisions about programs, practices, and resources