

The Economics of Bachelor's Degree Ambivalence: California Higher Education

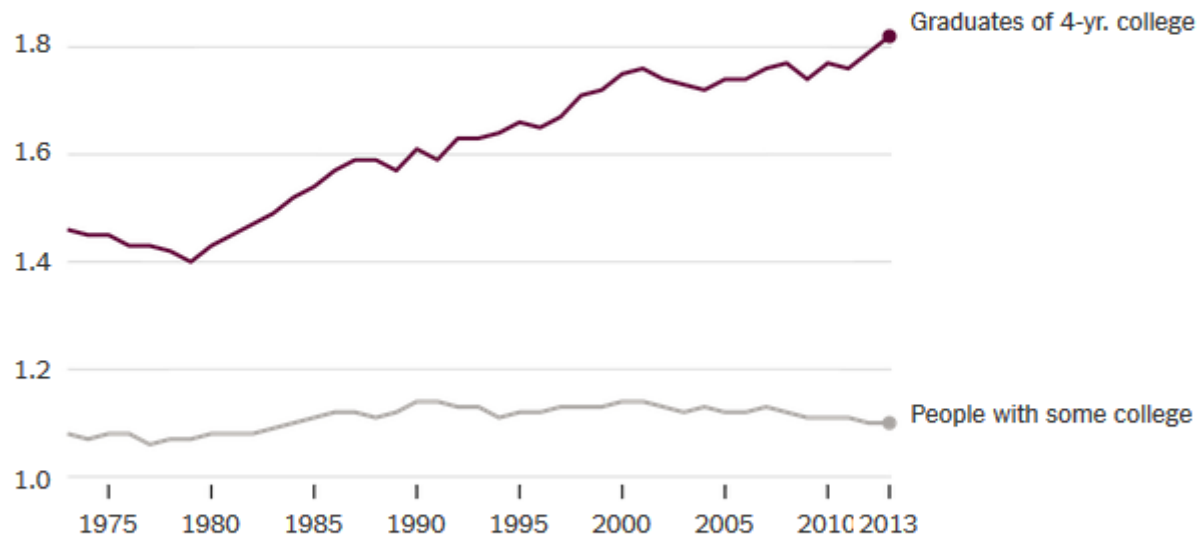
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Prior Literature

Rising Value of a College Degree

The pay of people with a four-year college degree has risen compared to that of those with a high school degree but no college credit. The relative pay of people who attended college without earning a four-year degree has stayed flat.

Ratio of average hourly pay, compared with pay of people with a high school degree

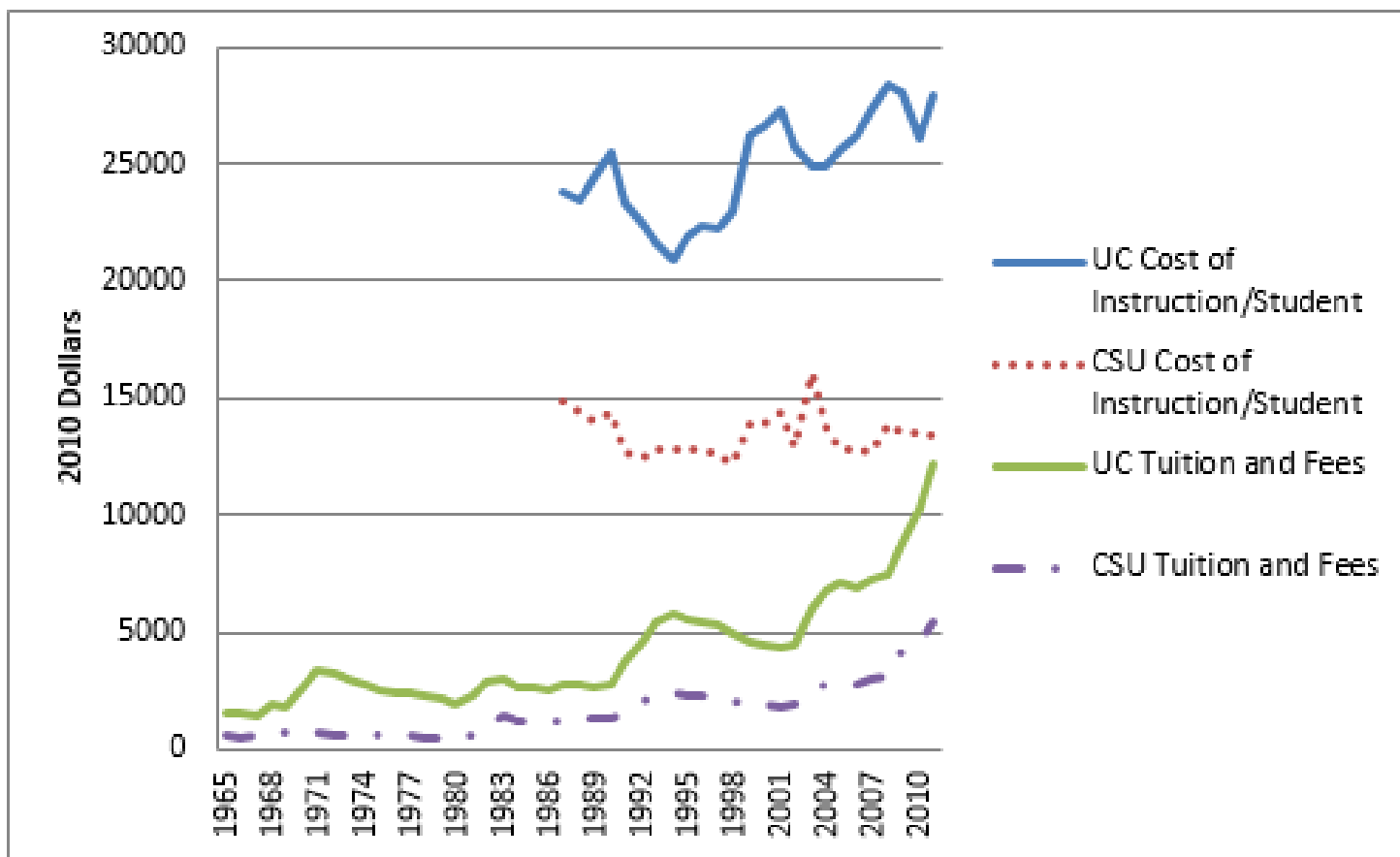


Labels reflect group's highest level of education. "Graduates of 4-year college," for instance, excludes people with graduate degrees.

Source: New York Times analysis of Economic Policy Institute data

Prior Literature

Figure 2. Tuition and Fees, Cost of Instruction: UC and CSU Systems (2010 Dollars)

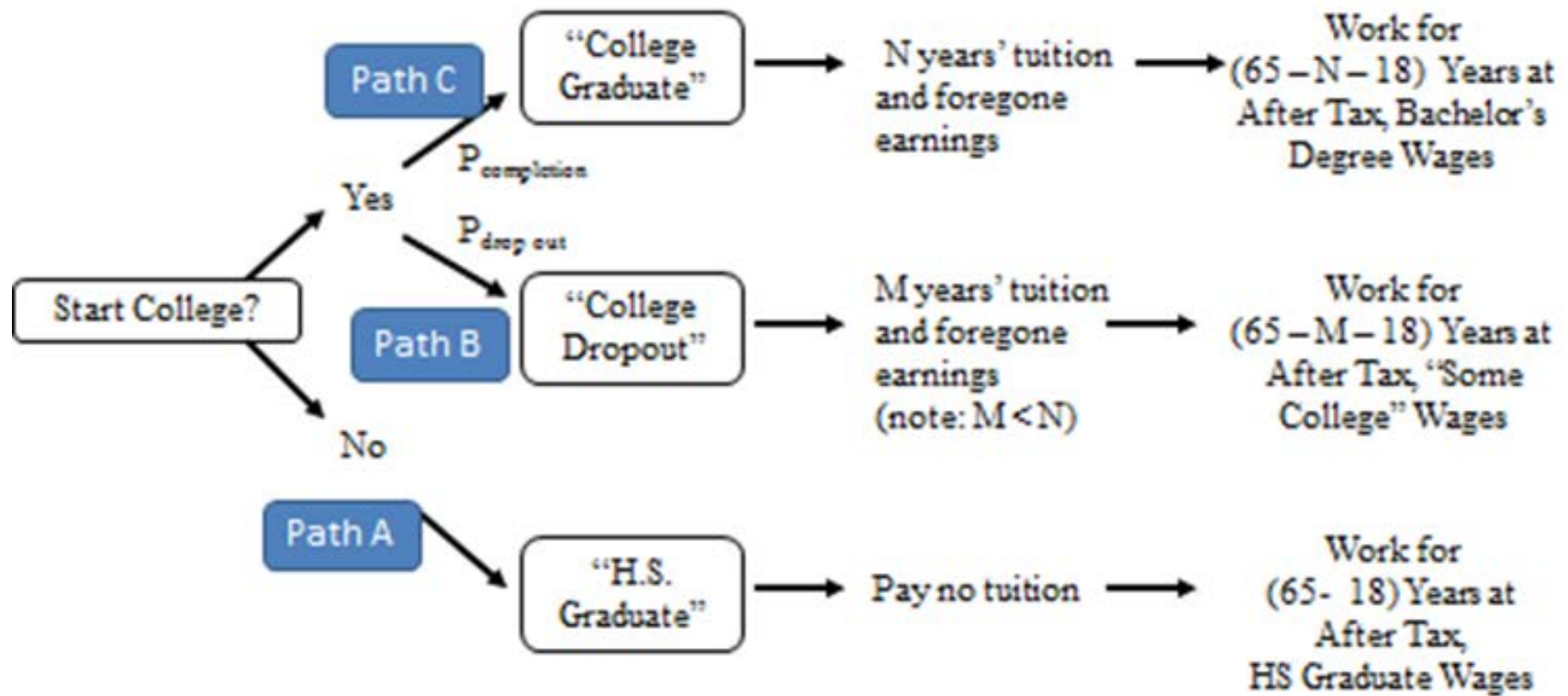


Prior Literature

- On the whole, economic studies find high returns to college education
 - Recent examples: Autor 2014; Avery and Turner 2012; Daly and Bengali 2014; Greenstone and Looney 2012
- We note that estimates of the IRR to College are overstated:
 - They ignore the possibility of dropping out or taking more than four years.
 - They ignore the impact of taxes on earnings.
 - They ignore the uncertainty of the investment.
 - They ignore ability bias

- Setting
 - We examine higher education in the University of California and Cal State University systems
- Data sources
 - Drop out rates in UC and CSU systems
 - Time-to-graduation in UC and CSU systems
 - Earnings trajectories from the Current Population Survey and American Community Survey
 - Income tax calculator (NBER TAXSIM)

Accounting for Dropouts



Descriptives

TABLE 1. Parameter Values for IRR Calculations (both males and females)

	1980	1990	2000	2005-10
<u>Six-Year Graduation Rate</u>				
University of California	65%	75%	80%	80%
California State University	40%	42%	48%	48%
<u>Dropout Rate</u>				
University of California	35%	25%	20%	20%
California State University	60%	58%	52%	52%
<u>Median Years to Completion</u>				
University of California	5	5	4	4
California State University	5	5	5	5
<u>Years Attended by Dropouts¹</u>				
University of California	2	2	2	2
California State University	2	2	2	2
<u>Average Tax Rate²</u>				
High School	20%	18%	17%	14%
Some College	22%	20%	20%	17%
Bachelor's Degree	23%	23%	23%	19%

Source: Data are from the UC Accountability Reports and CSU Statistical Reports.

¹Data were not available; these values are assumed.

²Approximated using the NBER TAXSIM model, using median earnings by year and level of education.

Results

TABLE 2. Individual's IRR of Pursuing a Bachelor's Degree

	Men				Women			
	1980	1990	2000	2005-10	1980	1990	2000	2005-10
<u>CSU System IRR</u>								
Real Return	4.2%	4.0%	11.3%	9.2%	9.9%	12.2%	16.4%	13.1%
Nominal Return	13.0%	10.2%	13.7%	10.6%	18.7%	18.4%	18.9%	14.5%
<u>UC System IRR</u>								
Real Return	10.4%	11.8%	16.3%	12.7%	11.3%	14.5%	20.7%	14.4%
Nominal Return	18.0%	18.0%	18.8%	14.1%	20.1%	20.7%	23.2%	15.8%
Unsubsidized Stafford Rate	14%	8.0%	8.2%	6.8%	14%*	8.0%	8.2%	6.8%

Results

TABLE 3. Social IRR of Pursuing a Bachelor's Degree

	Men				Women			
	1980	1990	2000	2005-10	1980	1990	2000	2005-10
<u>CSU System IRR</u>								
Real Return	-2.3%	-4.9%	7.0%	7.1%	2.4%	7.8%	10.8%	10.2%
Nominal Return	6.5%	1.4%	9.5%	8.5%	11.2%	14.0%	13.3%	11.6%
<u>UC System IRR</u>								
Real Return	3.1%	5.2%	9.0%	9.1%	3.3%	7.2%	11.3%	10.1%
Nominal Return	11.9%	11.4%	11.4%	10.5%	12.1%	13.4%	13.7%	11.5%
<u>Both Systems</u>								
Nominal Interest Rate on 20-Year Municipal Bond	7.4%	7.2%	6.1%	3.75%	7.4%	7.2%	6.1%	3.7%
Nominal Interest Rate on Stafford Loans	14%*	8.0%	8.2%	6.8%	14%*	8.0%	8.2%	6.8%

Results

TABLE 4. Percentage of College Premium Attributed to Ability for College to be Poor Individual Investment

	Men				Women			
	1980	1990	2000	2005-10	1980	1990	2000	2005-10
<u>CSU System</u>								
Nominal IRR	13.00%	10.20%	13.70%	10.60%	9.90%	12.20%	16.40%	13.10%
Percentage of Bachelor's Degree Premium Due to Ability to Make Bachelor's degree a Bad Investment	NA*	25.00%	48.00%	36.00%	36.00%	80.00%	74.00%	76.00%
<u>UC System</u>								
Nominal IRR	18.00%	18.00%	18.80%	14.10%	20.10%	20.70%	23.20%	15.80%
Percentage of Bachelor's Degree Premium Due to Ability to Make Bachelor's degree a Bad Investment	52.00%	75.00%	67.00%	56.00%	52.00%	83.00%	78.00%	62.00%

* CSU men in 1980 represented a bad investment even if 100 percent of the education premium was attributed to college.

Results

TABLE 5. Percentage of College Premium Attributed to Ability for College to be a Bad Social Investment

	Men				Women			
	1980	1990	2000	2005-10	1980	1990	2000	2005-10
<u>CSU System</u>								
Nominal Social IRR	6.50%	1.40%	9.50%	8.50%	11.20%	14.00%	13.30%	11.60%
State/Local Bond Nominal Interest Rate	7.40%	7.20%	6.10%	3.80%	7.40%	7.20%	6.10%	3.80%
Percentage of Bachelor's degree Premium Due to Ability to Make BA a Bad Investment	NA	NA	40%	53%	50%	72%	68%	69%
<u>UC System</u>								
Nominal Social IRR	11.90%	11.40%	11.40%	10.50%	12.10%	13.40%	13.70%	11.50%
State/Local Bond Nominal Interest Rate	7.4%	7.20%	6.10%	3.80%	7.4%*	7.20%	6.10%	3.80%
Percentage of Bachelor's degree Premium Due to Ability to Make BA a Bad Investment	70%	55%	47%	60%	65%	68%	67%	67%

Results

Table 6. Probability of Entering Financial Distress

	Year Entering College (Men)				Year Entering College (Women)			
	1980	1990	2000	2005-10	1980	1990	2000	2005-10
CSU System	0.0%	0.0%	0.0%	6.0%	0.0%	0.0%	10.0%	12.0%
UC System	0.0%	0.0%	3.0%	38.0%	0.0%	1.0%	10.0%	55.0%

Note: We define financial distress as having student loan repayments in excess of 15 percent of income at age 30.

Conclusions

- Prior estimates overestimate the returns to a Bachelor's degree because they neglect:
 - Higher marginal income tax rates
 - Risk of dropping out
 - Risk of graduating in more than four years
 - Non-labor force participation
- Despite lower estimated returns, college is still “worth it”
- Variation in returns is increasing
- Due to lower mean and wider variation in future earnings, college is NOT a “ticket to the middle class,” it's more like a lottery ticket than a train ticket