Economics of Higher Education

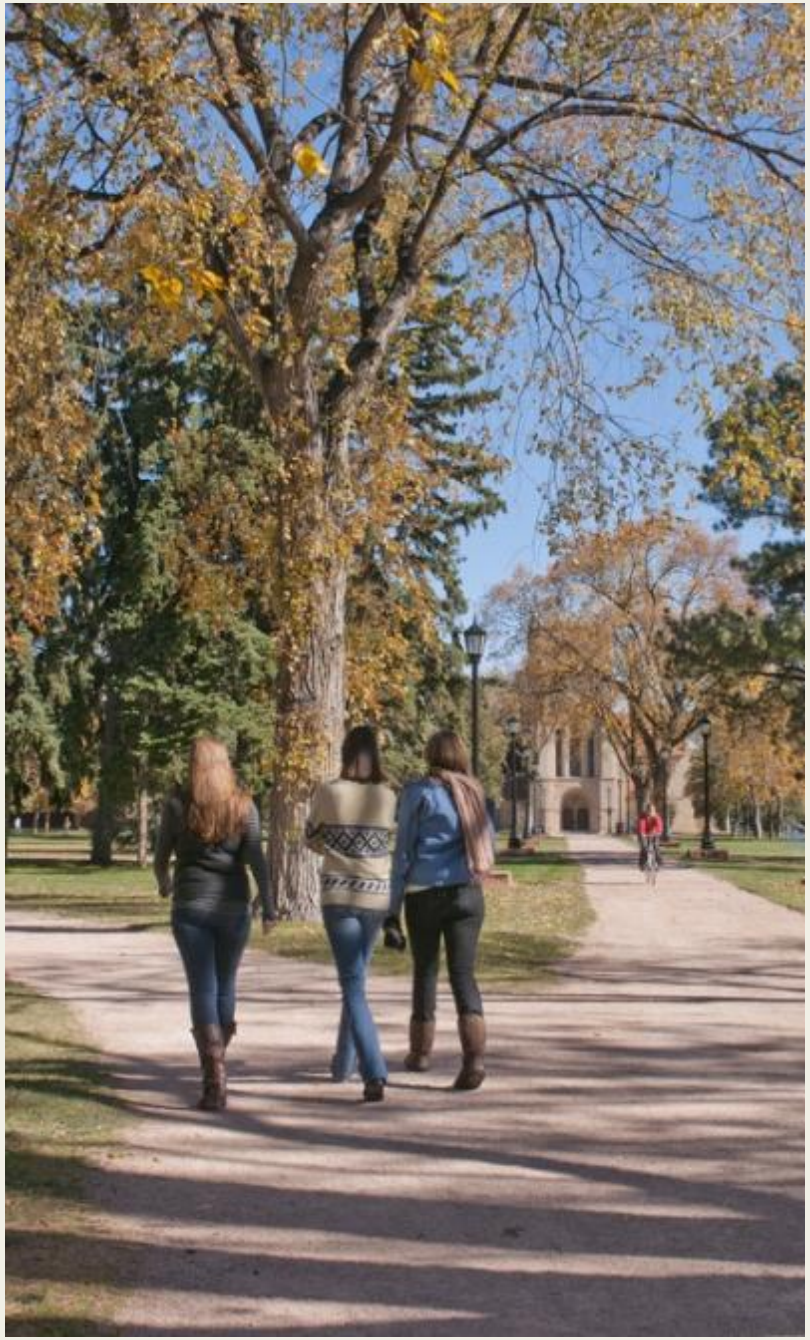
June 18, 2014

COLORADO COLLEGE

President Jill Tiefenthaler

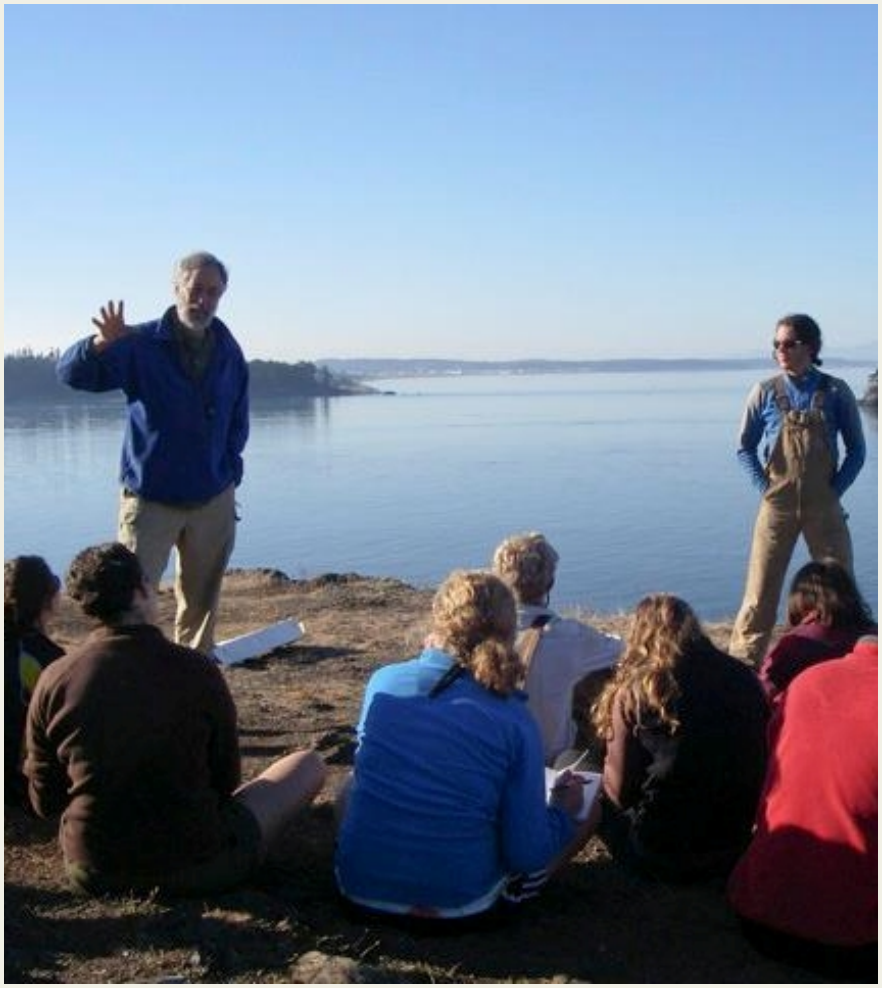
Overview

- Overview of industry
- Overview of tuition increases
- Economics of higher education
- The Price vs. Quality Trade-off
- Benefits of higher education
- Costs of higher education

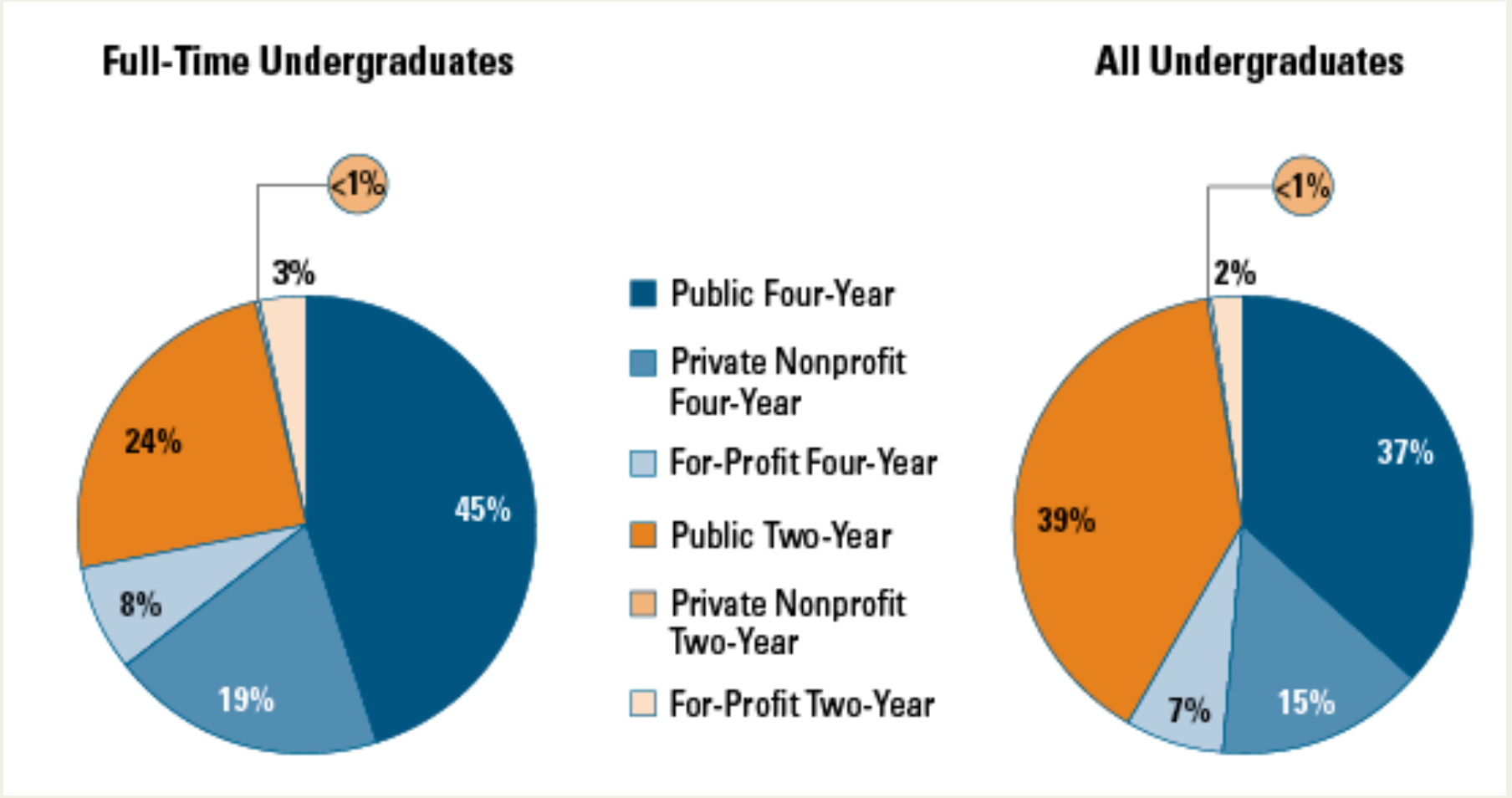


Overview of the Industry

- 21 million students enrolled
- 3.4 million employees
- 4,314 institutions
- 40% of institutions public; educate **76% of undergraduates**
- 38% non-profit private educate only **15% of all undergraduates**
- Growing number of for-profit privates educating increasing percentage of students (10%)

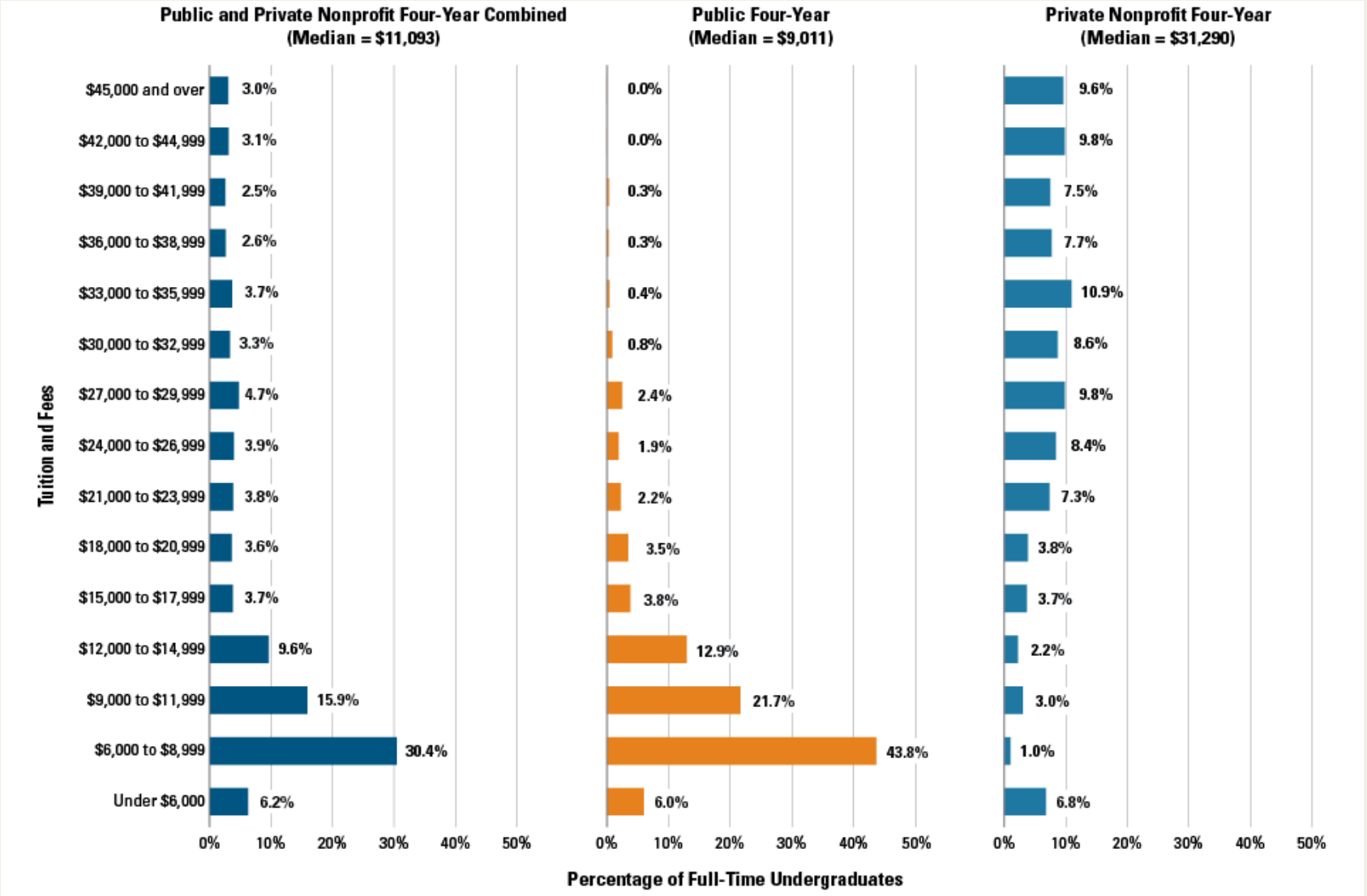


Distribution of Full-Time Undergraduate Enrollment by Sector, Fall 2011



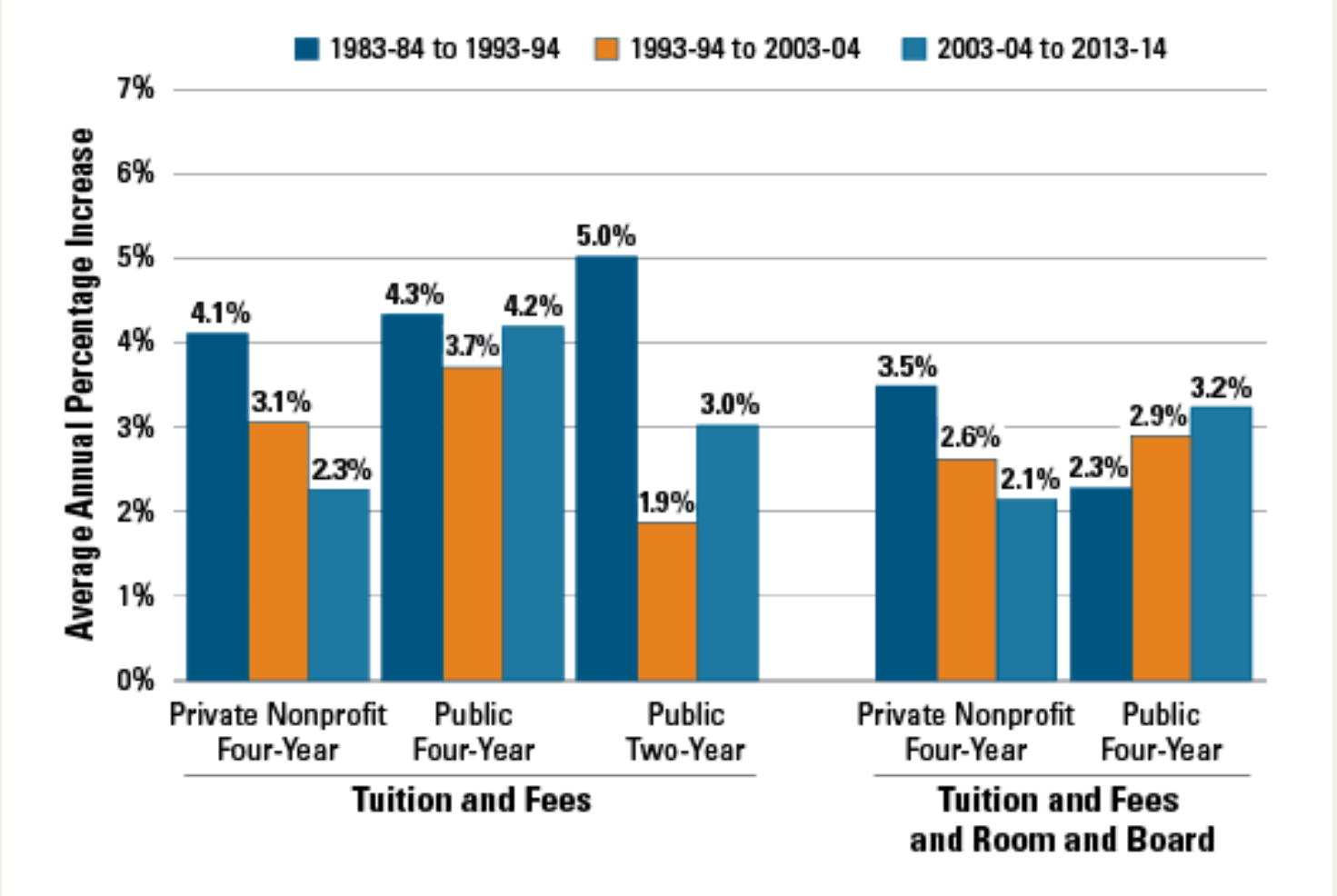
Source: The College Board, *Trends in College Pricing2013, Figure 23*

Distribution of Full-Time Undergraduates at Four-Year Institutions by Tuition and Fees, 2013-2014



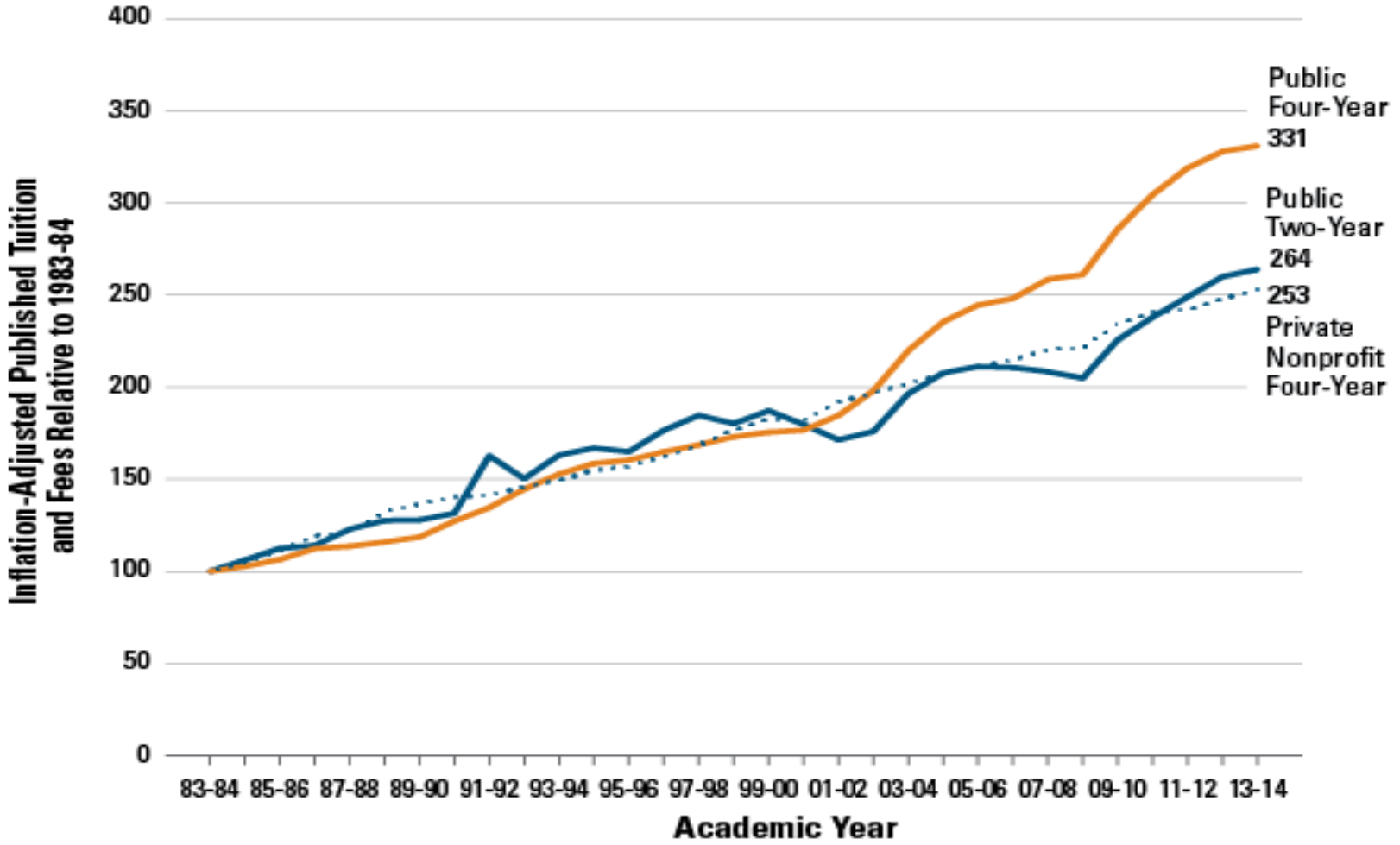
SOURCE: The College Board, *Trends in College Pricing 2013*, Figure 2

Average Annual Percentage Increase beyond Inflation, 1983-84 to 2013-14



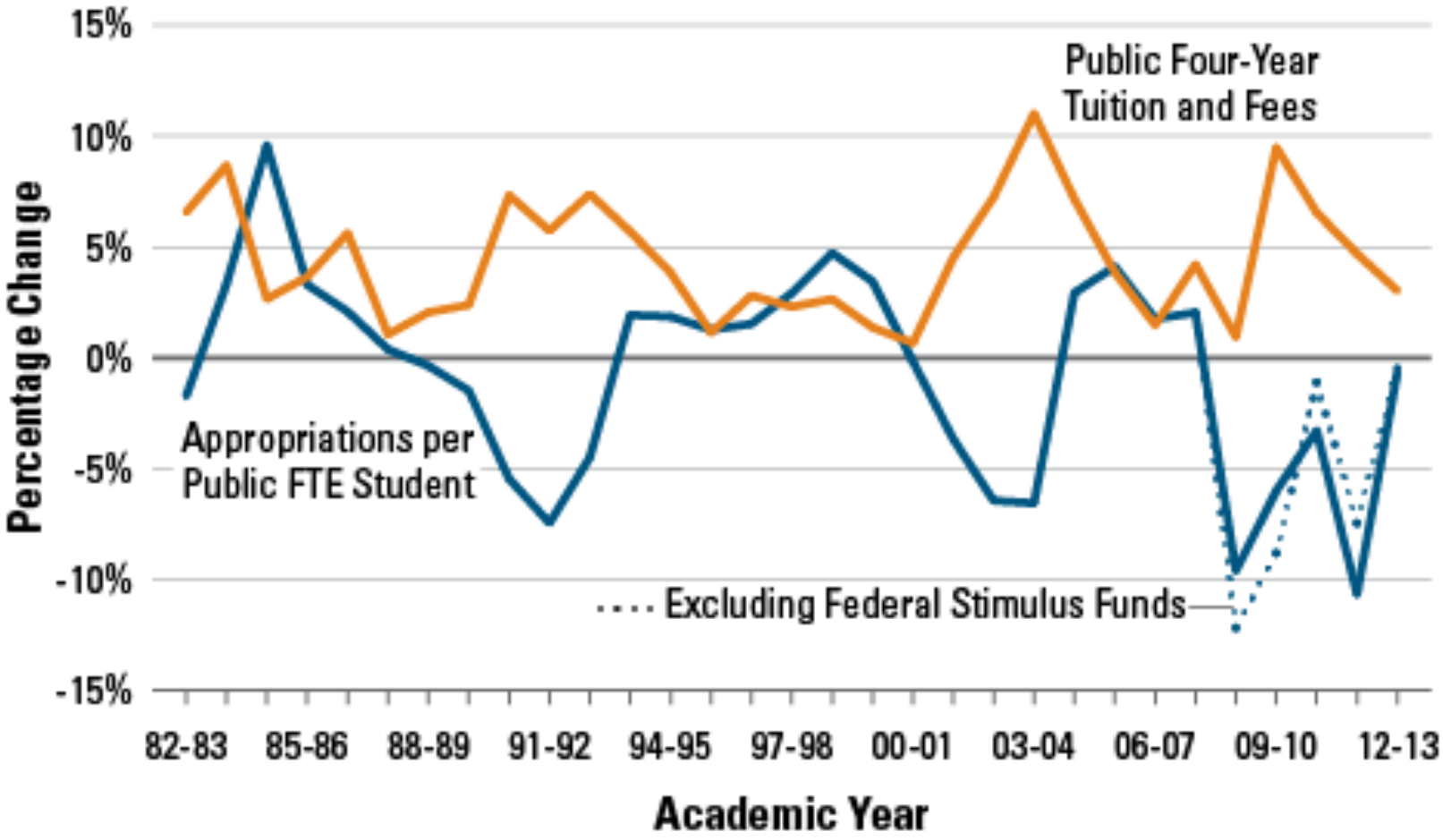
SOURCE: The College Board, *Trends in College Pricing 2013*, Figure 4

Inflation-Adjusted Published Tuition and Fees, 1983-84 to 2013-14 (1983-84=100)



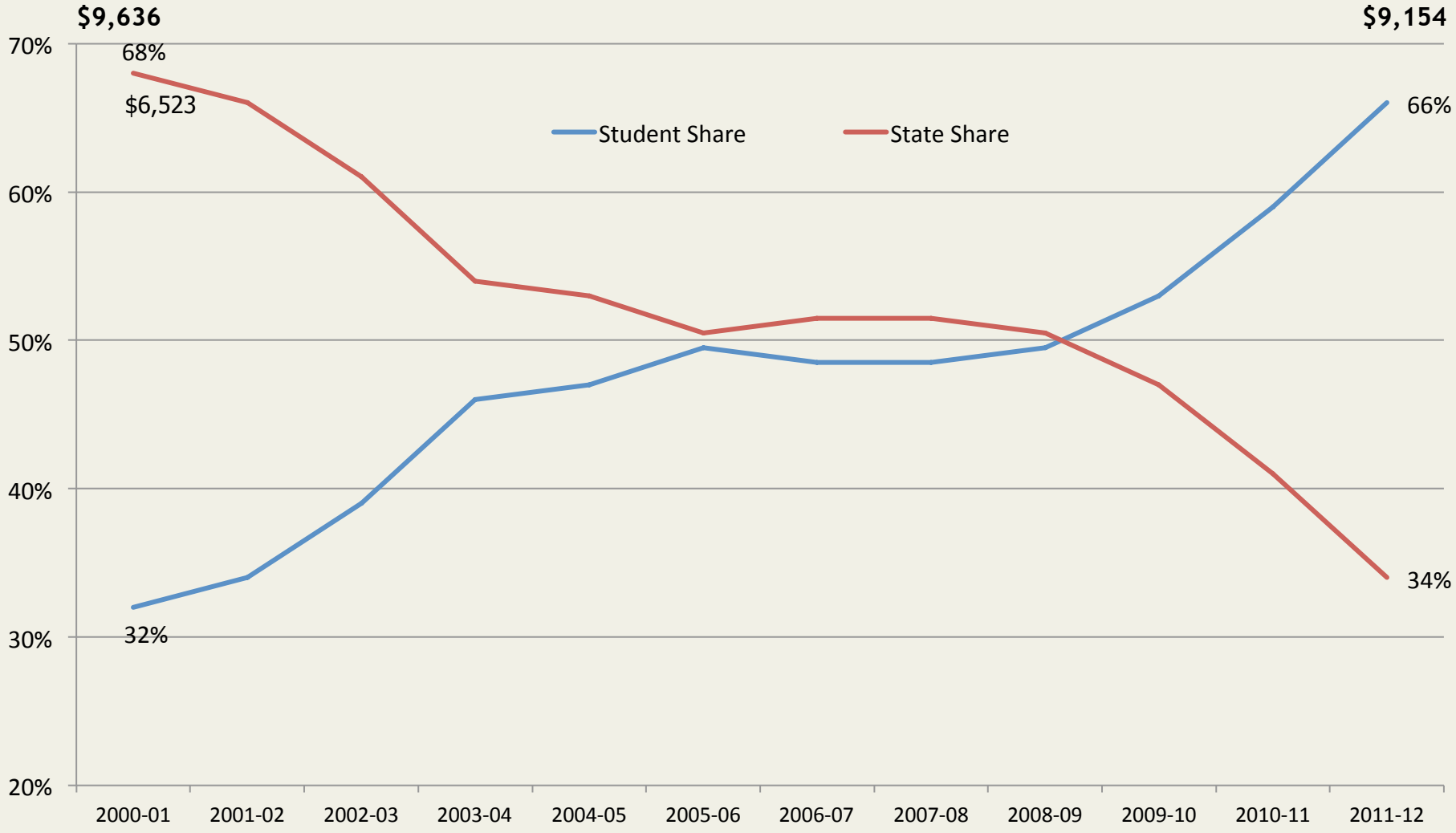
Source: The College Board, Trends in College Pricing 2013, Figure 5

Annual Percentage Changes in State Appropriations per Full-Time Equivalent (FTE) and in T&Fs at Public Four-Year Institutions, Inflation Adjusted



Source: The College Board, Trends in College Pricing 2013, Figure 14A

Resident Student's Share of College Cost
All Governing Boards

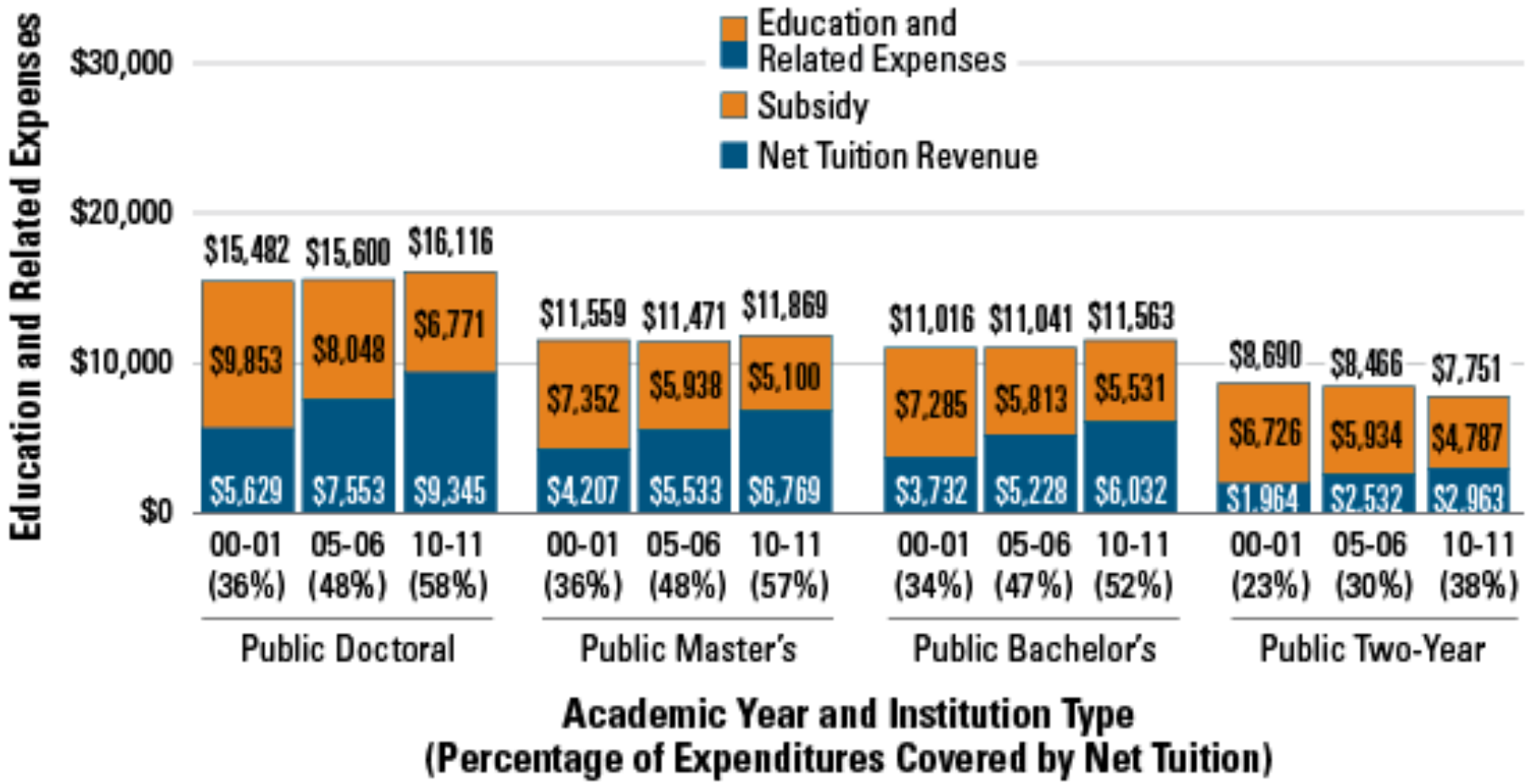


SOURCE: NCHEMS, Colorado Commission on Higher Education, "Some Basic Facts about Colorado Higher Education"

The Higher Education Subsidy

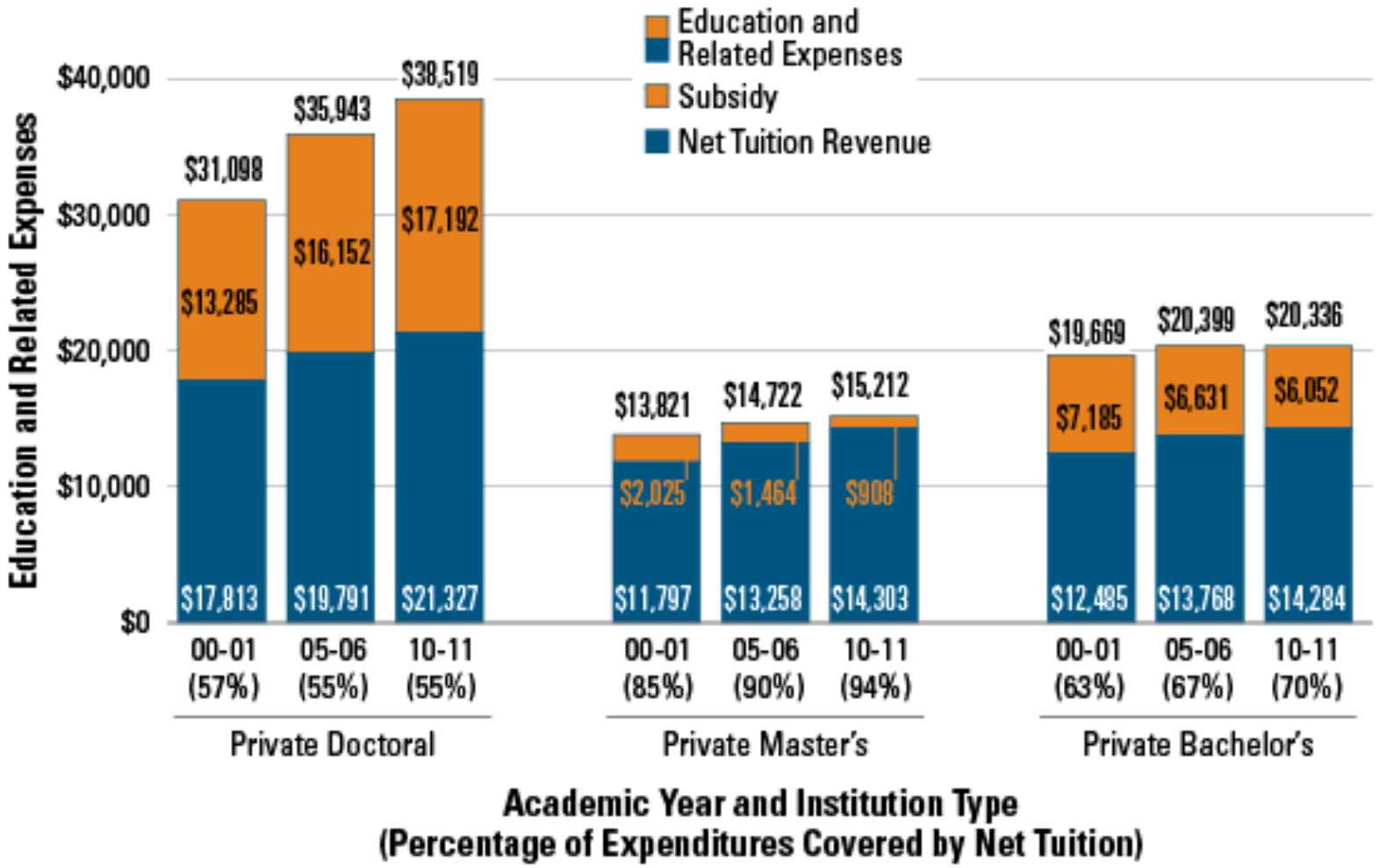
TUITION = COST/Student – SUBSIDY

Net Tuition Revenues, Subsidies, and Education Expenditures per FTE Student over Time at Public Institutions in Constant 2010 Dollars



Source: The College Board, *Trends in College Pricing 2013, Figure 17A*

Net Tuition Revenues, Subsidies, and Education Expenditures per FTE Student over Time at Private Nonprofit Institutions in Constant 2010 Dollars



Source: The College Board, *Trends in College Pricing 2013, Figure 17B*

Average Published Undergraduate Charges, by Carnegie Classification

Carnegie Classification	Tuition and Fees			
	2013-14	2012-13	$ Change	% Change
Public Doctoral In-State	$9,804	$9,533	$271	2.8%
Public Master's In-State	$7,750	$7,529	$221	2.9%
Public Bachelor's In-State	$6,918	$6,729	$189	2.8%
Private Nonprofit Doctoral	$37,171	$35,745	$1,426	4.0%
Private Nonprofit Master's	$26,798	$25,829	$969	3.8%
Private Nonprofit Bachelor's	$28,538	$27,525	$1,013	3.7%

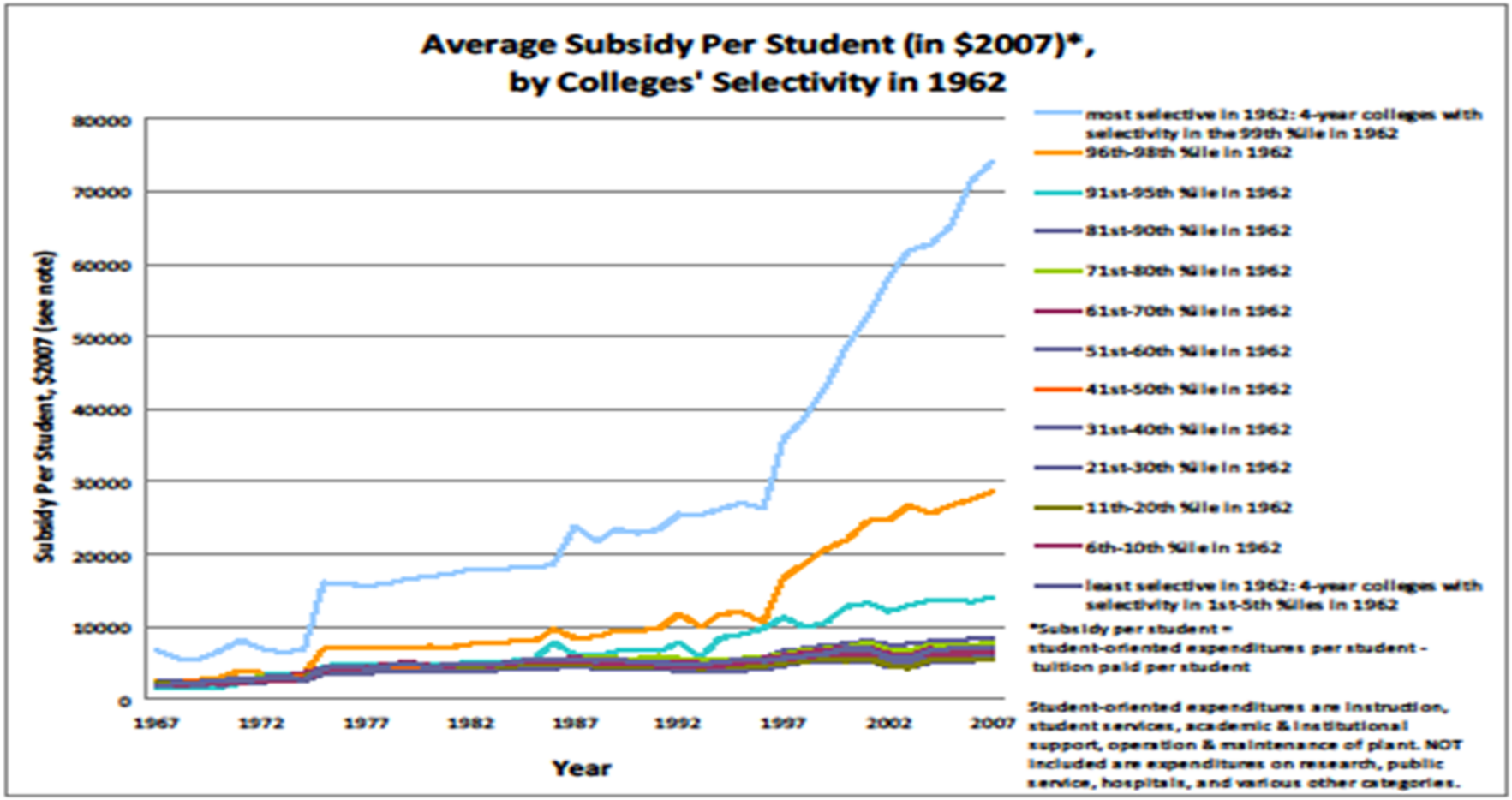
SOURCE: The College Board, *Trends in College Pricing 2013*, Table 1B

"Calculating the Cost of College"

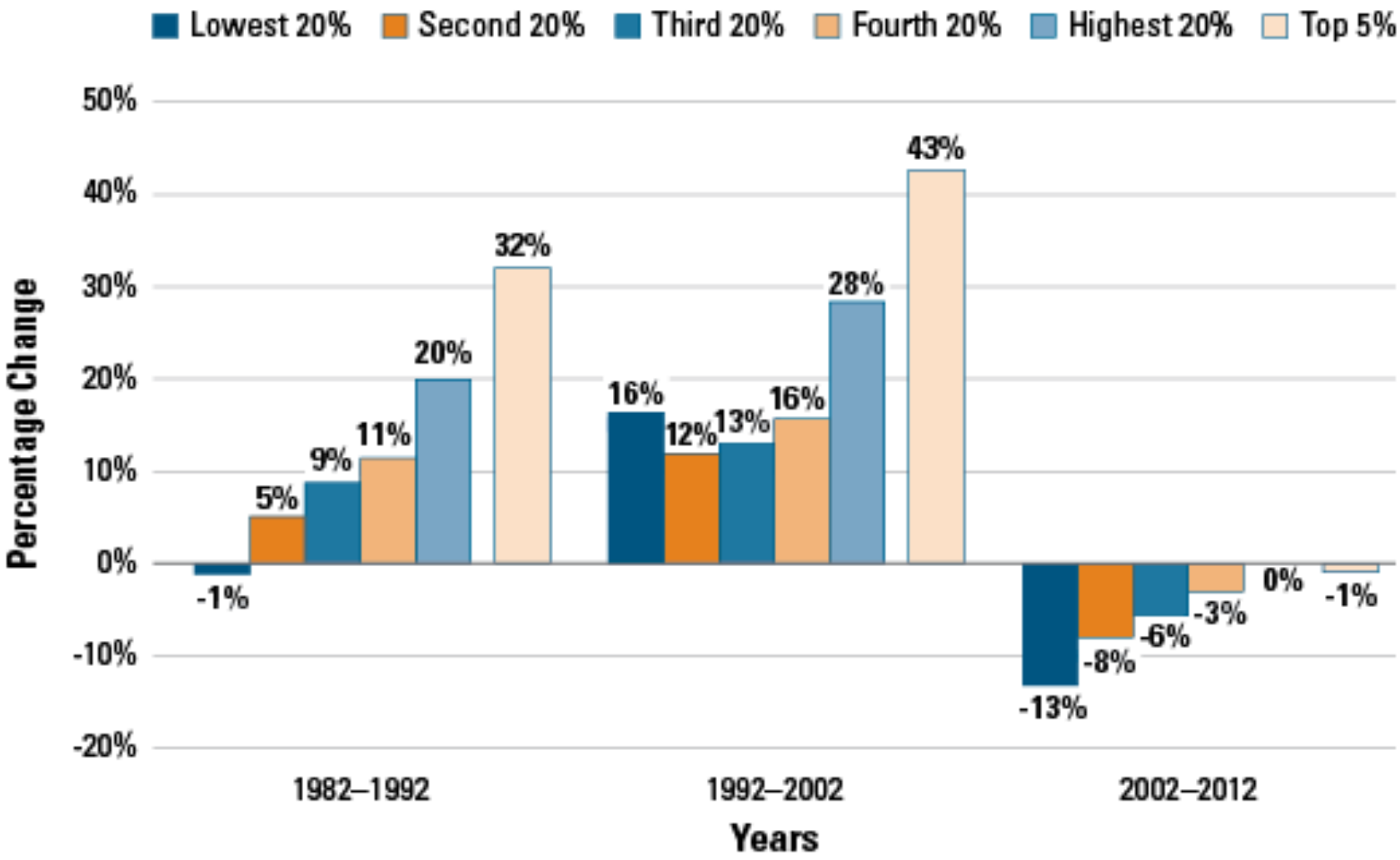
		Family A	Family B	Family C
2011 Combined Income		$50,000	$100,000	$150,000
Home Equity		75,000	150,000	225,000
Savings/Investments		5,000	10,000	25,000
2012-13 Total Price		***Family and Student Burden***		
Colorado College	$54,200	9,300	22,650	40,500
U.C. Berkeley *Resident* *Out-of-State*	 $32,706 $55,584	 11,110 33,768	 23,500 46,378	 32,706 55,184
U. of Illinois, Urbana *Resident* *Out-of-State*	 $33,922 $48,064	 26,277 41,356	 33,922 48,064	 33,922 48,064

SOURCE: New York Times, "Calculating the Cost of College," http://www.nytimes.com/interactive/2013/01/16/education/calculating-the-cost-of-college.html

Average Subsidy per Student by Colleges' Selectivity - Hoxby (2009)



Percentage Change in Inflation-Adjusted Mean Family Income by Quintile, 1982-1992, 1992-2002, and 2002-2012



SOURCE: The College Board, *Trends in College Pricing 2013*, Figure 20A

The Facts: Summary

- Majority of college students attend publics (76%).
- Majority spend < $12,000 on T&F per year.
- 18% attend schools with T&F listed at $30,000 or more.
- T&F have increased beyond inflation in each of the last three decades in all sectors.

The Facts: Summary

- Private T&F have increased 2.5 times over the last 30 years in real terms.
- Public T&F have increased 3.3 times over the last 30 years in real terms.
- Despite large increases, students are subsidized in all sectors.
- Family income has not kept pace with increases.

The Economics of Higher Education

Universities are non-profits. Don't max TR-TC

What do universities maximize? QUALITY – Difficult to measure

How do you produce quality? Inputs?

- Faculty
- Students
  - Customer-input technology. Peer effects
- Facilities
- Programs
- Staff
- Athletics
- Other

The Economics of Higher Education

- How do we increase quality? Need REVENUE!
- Unlike for-profits who benefit from decreasing costs, cutting costs lowers Q.
- How do universities generate revenue?
  - **Donative revenues – endowment, annual giving, investments, appropriations (publics). Allows Price < Cost!**
  - **Commercial revenues – tuition (TR = P*Q), R&B.**
- Higher education is a very competitive market and QUALITY is the driver. Increasing QUALITY is dependent on increasing revenue. Donative revenue (endowment/appropriations) is key!

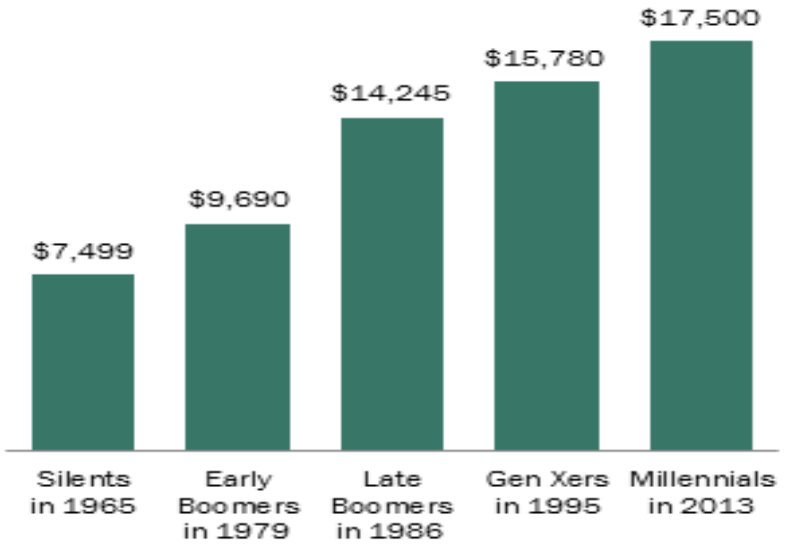
Why the increase in price of higher education?

- Market price is determined by demand and supply.
- Demand is increasing
  - Demographic bulge
  - Increase in value of college degree.
  - Drive for quality combined with increasing information and national market for higher ed has increased relative demand for most selective institutions (Hoxby 2009)

Benefits of Higher Education

The Widening Earnings Gap of Young Adults by Educational Attainment

The difference in median annual earnings of college and high school graduates when members of each generation were ages 25 to 32



Notes: Median annual earnings are based on earnings and work status during the calendar year prior to interview and limited to 25- to 32-year-olds who worked full time during the previous calendar year and reported positive earnings. "Full time" refers to those who usually worked at least 35 hours a week last year. "College graduates" are those with a bachelor's degree or more.

Source: Pew Research Center tabulations of 2013, 1995, 1986, 1979 and 1965 March Current Population Survey (CPS) Integrated Public Use Micro Samples

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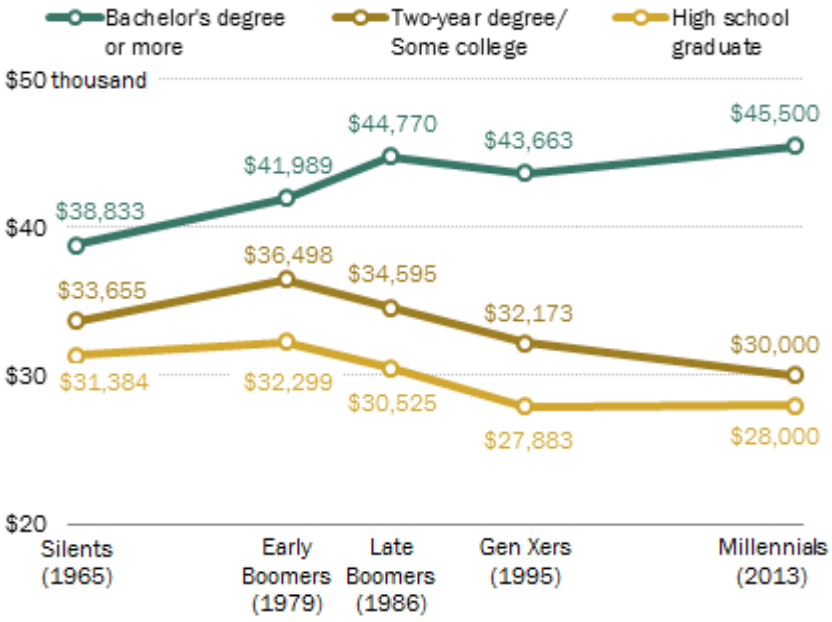
Rising Earnings Disparity Between Young Adults with And Without a College Degree

Median annual earnings among full-time workers ages 25 to 32, in 2012 dollars



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Source: Pew Research Center tabulations of the 2013, 1995, 1986, 1979 and 1965 March Current Population Survey (CPS) Integrated Public Use Micro Samples

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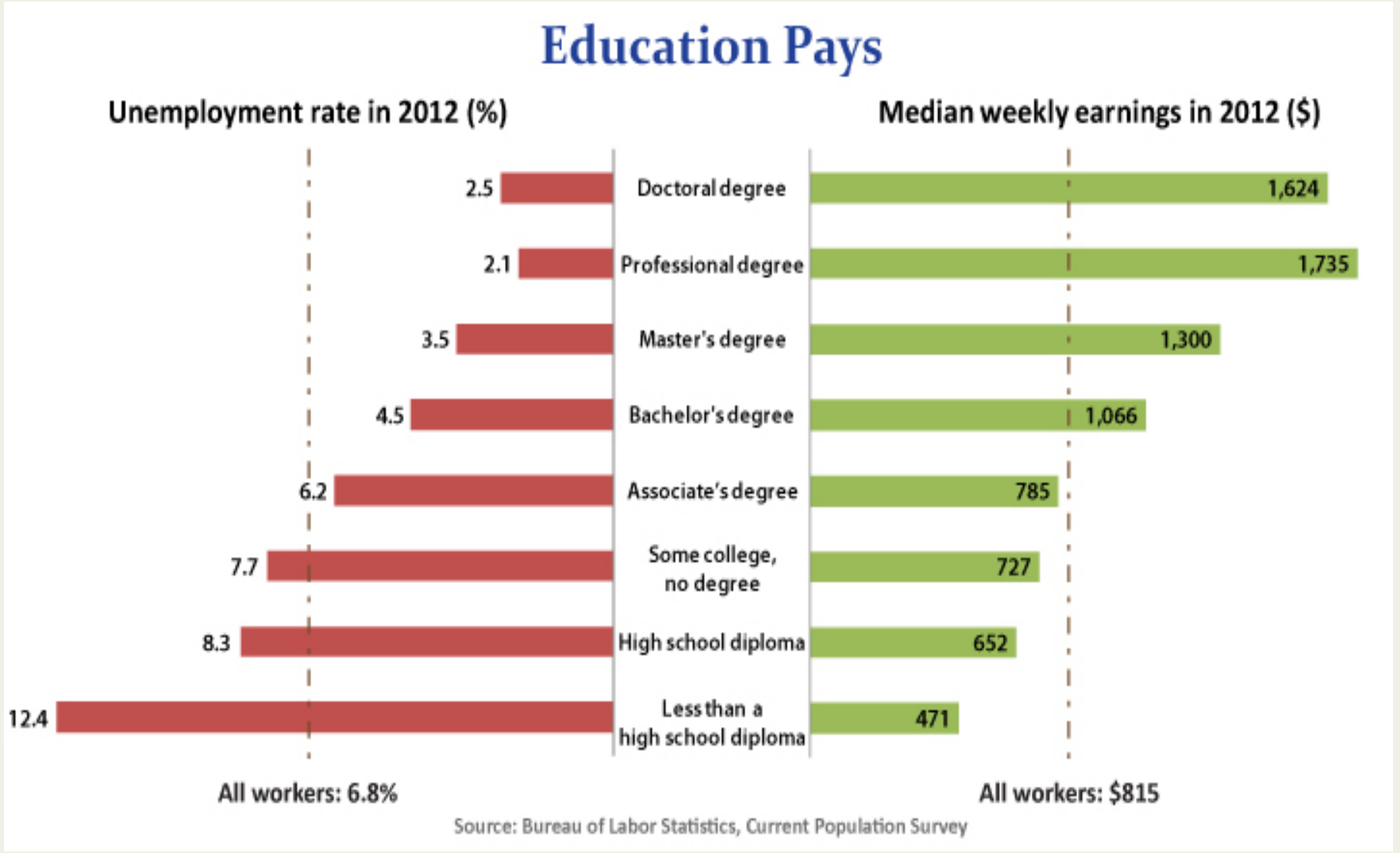
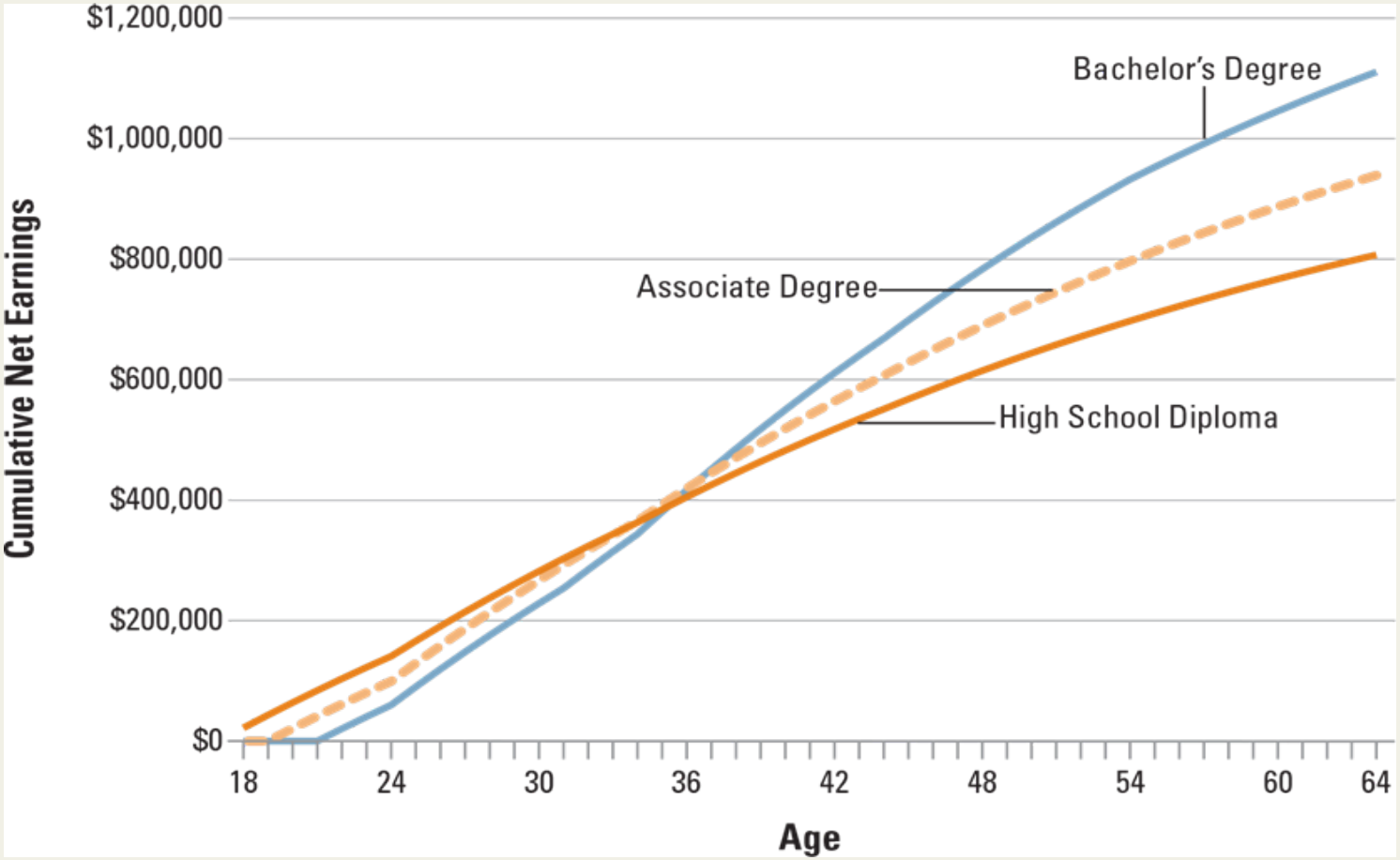
Unemployment Rate and Weekly Earnings, by Education



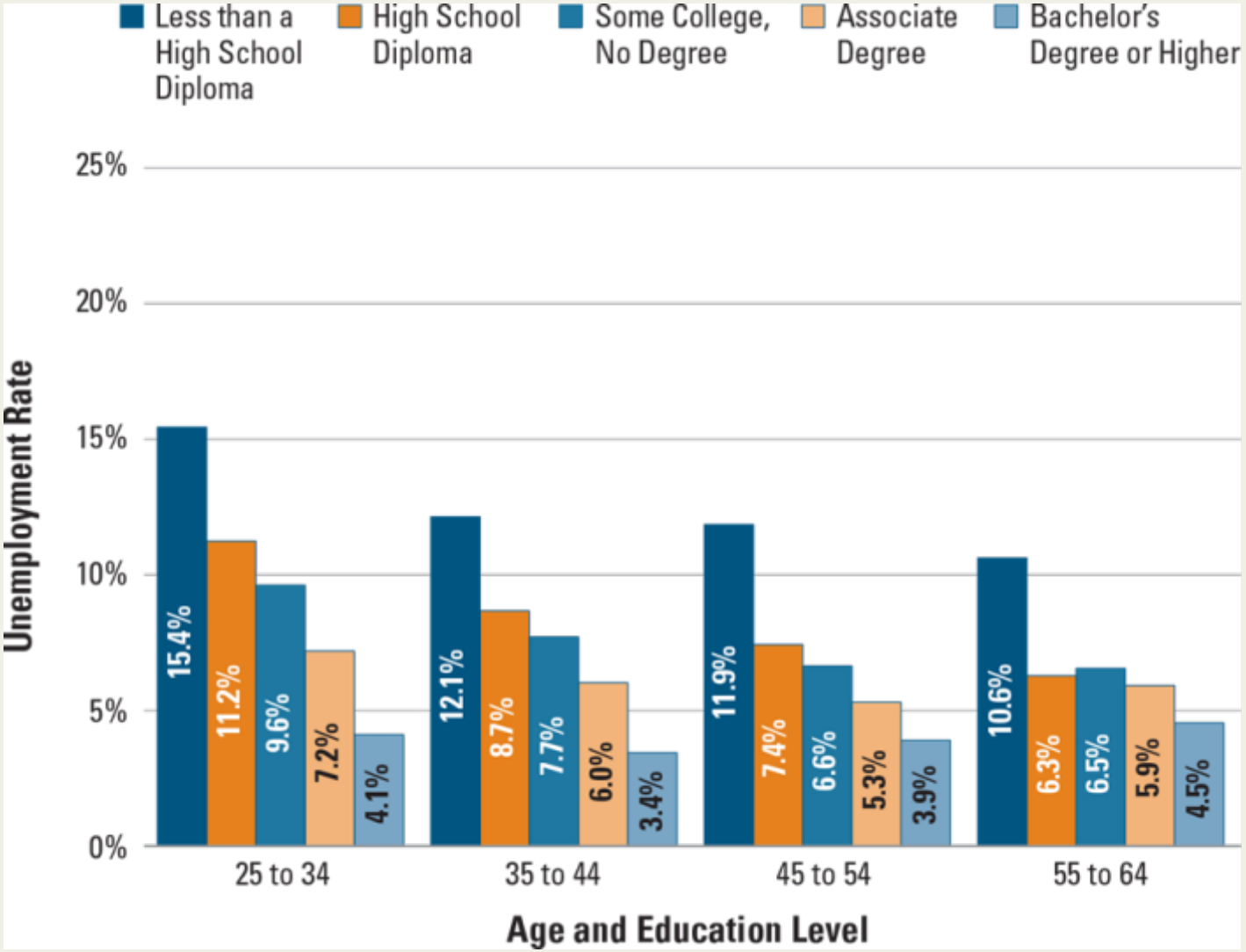
Benefits of Higher Education



Estimated Cumulative Full-Time Earnings (in 2011 Dollars) Net of Loan Repayment for Tuition and Fees, by Education Level

SOURCE: The College Board, *Education Pays 2013*, Figure 1.3

Benefits of Higher Education



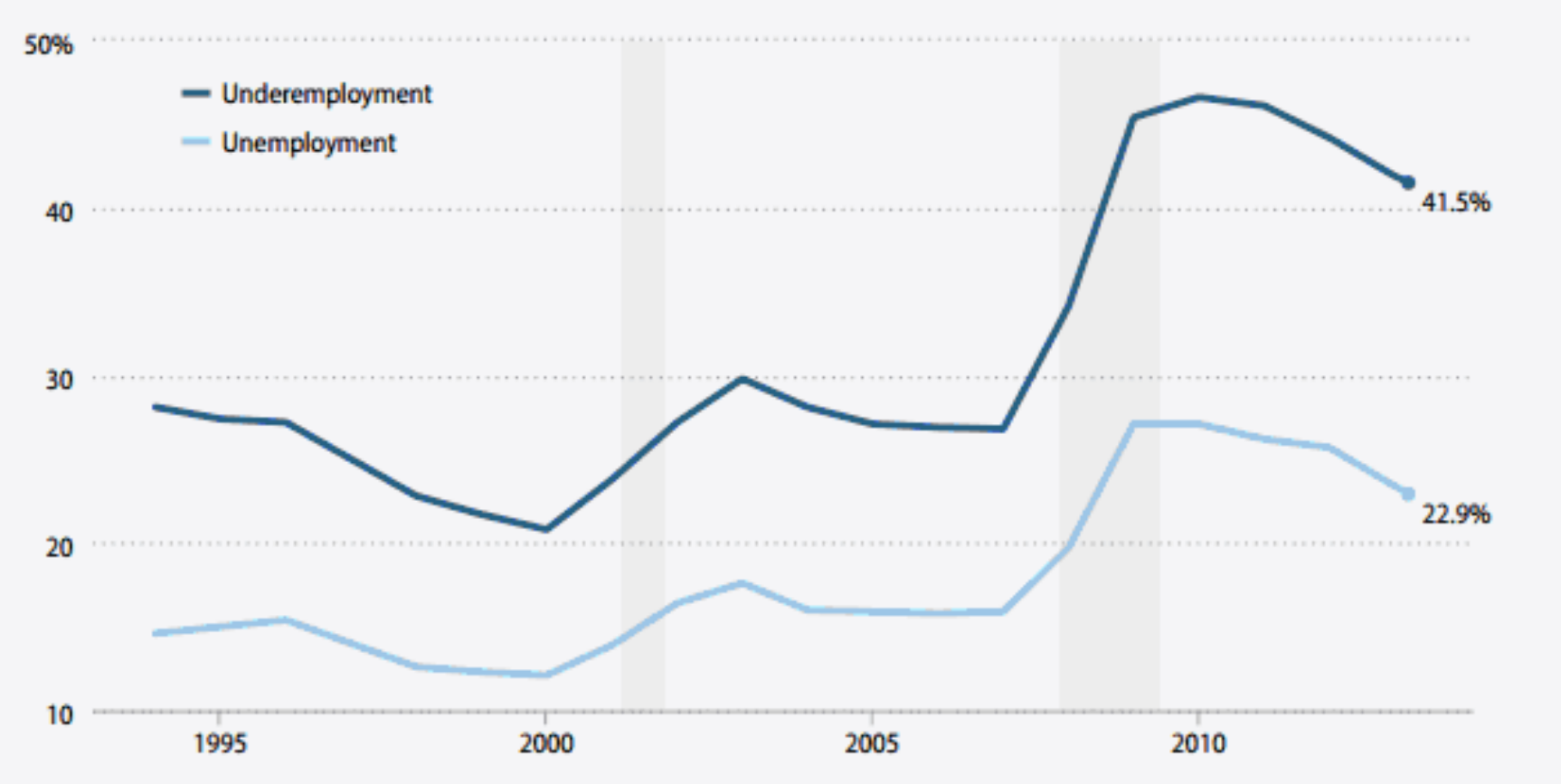
SOURCE: The College Board, *Education Pays 2013*, Figure 1.9B

Unemployment/Underemployment for Recent College Graduates, 1994-2014*

*Data for 2014 represent 12-month average from April 2013-March 2014.

SOURCE: Economic Policy Institute, "The Class of 2014: The Weak Economy Is Idling Too Many Young Graduates," Figure I

Unemployment/Underemployment Rate for Recent High School Graduates, 1994-2014*



*Data for 2014 represent 12-month average from April 2013-March 2014.

SOURCE: Economic Policy Institute, "The Class of 2014: The Weak Economy Is Idling Too Many Young Graduates," Figure F

Why the increase in price of higher education?

- **Supply/cost increases**
  - Cost disease
  - Increase in cost of highly skilled labor
  - Technology/No productivity improvements
  - Financial aid
  - Regulation

Percentage of Highly Educated Workers and Highly Educated Workers' Percentage of the Wage Bill in Various Industries-May 2007

Industry	Percent of Highly Educated Workers	Highly Educated Workers' Percentage of Wage Bill
Personal Care Services	1.87	4.28
Dry Cleaning and Laundry Services	2.24	7.25
Offices of Dentists	33.65	59.75
Offices of Physicians	45.89	73.79
Legal Services	55.49	76.53
Colleges, Universities, and Professional Schools	67.87	81.18

Source: Robert B. Archibald and David H. Feldman, *Why Does College Cost So Much?*, Oxford University Press, 2011, Table 4.2.

Concluding Points

- Students/families want quality. As a result, universities compete on quality as well as NET price. The size of the subsidy influences demand.
- Therefore, lowering sticker price risky – may not increase demand. Price is seen as an indicator of quality. If your price is lower, you have less revenue and can't increase quality as much as competitors.
- Students who can pay have inelastic demand (quality driven). Others are elastic but get financial aid and not sticker price sensitive.
- Because students are also inputs and universities have a social mission, they price below cost and subsidize students to increase Q.
- Price has increased because of both D&S.