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 Undergraduate Enrollment by Sector, 2009-2010

Source: The College Board, *Trends in College Pricing 2011*
Public and Private Nonprofit Four-Year Combined
(Median = $9,936)

Tuition and Fees

Distribution of Full-Time Undergraduates at Four-Year Institutions by Tuition and Fees, 2012-2013

Distribution of Full-Time Undergraduates at Four-Year Institutions by Tuition and Fees, 2012-2013

SOURCE: The College Board, Trends in College Pricing 2012, Figure 2
Average Annual Percentage Increase beyond Inflation, 1981-82 to 2011-12

Source: The College Board, *Annual Survey of Colleges*; NCES, Integrated Postsecondary Education Data System (IPEDS)
Inflation-Adjusted Published Tuition and Fees, 1981-82 to 2011-12 (1981-82=100)

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

Sources: The College Board, Annual Survey of Colleges; Illinois State University, Grapevine reports; NCES, Digest of Education Statistics 2008, Table 219.
Resident Student’s Share of College Cost
All Governing Boards

TUITION = COST/Student – SUBSIDY

The Higher Education Subsidy
Net Tuition Revenues, Subsidies, and Educational Expenditures per FTE Student in Constant 2009 Dollars

<table>
<thead>
<tr>
<th>Carnegie Classification</th>
<th>2012-13</th>
<th>2011-12</th>
<th>$ Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Doctoral In-State</td>
<td>$9,539</td>
<td>$9,126</td>
<td>$413</td>
<td>4.5%</td>
</tr>
<tr>
<td>Public Master’s In-State</td>
<td>$7,606</td>
<td>$7,207</td>
<td>$399</td>
<td>5.5%</td>
</tr>
<tr>
<td>Public Bachelor’s In-State</td>
<td>$6,718</td>
<td>$6,433</td>
<td>$285</td>
<td>$4.4%</td>
</tr>
<tr>
<td>Private Doctoral</td>
<td>$35,660</td>
<td>$34,230</td>
<td>$1,430</td>
<td>4.2%</td>
</tr>
<tr>
<td>Private Master’s</td>
<td>$25,997</td>
<td>$24,903</td>
<td>$1,094</td>
<td>4.4%</td>
</tr>
<tr>
<td>Private Bachelor’s</td>
<td>$27,482</td>
<td>$26,427</td>
<td>$1,055</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

**Average Published Undergraduate Charges, by Carnegie Classification**

SOURCE: The College Board, *Trends in College Pricing 2012*, Table 1B
## Calculating the Cost of College

### Table

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

Hoxby (2009) – Average Subsidy per Student by Colleges’ Selectivity

**Average Subsidy Per Student (in $2007)*, by Colleges' Selectivity in 1962**

- Most selective in 1962: 4-year colleges with selectivity in the 99th %ile in 1962
- 96th-98th %ile in 1962
- 91st-95th %ile in 1962
- 81st-90th %ile in 1962
- 71st-80th %ile in 1962
- 61st-70th %ile in 1962
- 51st-60th %ile in 1962
- 41st-50th %ile in 1962
- 31st-40th %ile in 1962
- 21st-30th %ile in 1962
- 11th-20th %ile in 1962
- 6th-10th %ile in 1962

*Least selective in 1962: 4-year colleges with selectivity in 1st-5th %ile in 1962

Subsidy per student - student-oriented expenditures per student - tuition paid per student

Student-oriented expenditures are instruction, student services, academic & institutional support, operation & maintenance of plant. NOT included are expenditures on research, public service, hospitals, and various other categories.
Percentage Growth in Mean Family Income by Quintile in Constant 2010 Dollars

Sources: U.S. Census Bureau, Current Population Survey, Table F-1, Table F-3, and FINC-01; calculations by the authors.
• Majority of full-time college students attend publics (70%).
• Majority spend < $12,000 on T&F per year.
• 15% spend more than $30,000 on T&F per year.
• T&F have increased beyond inflation in each of the last three decades in all sectors.
The Facts: Summary

- Private T&F have increased 2.8 times over the last 30 years in real terms.
- Public T&F have increased 3.5 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


SOURCE: The College Board, Trends in Higher Education 2010, Figure 1.7a
**Education Pays**

<table>
<thead>
<tr>
<th>Unemployment rate in 2012 (%)</th>
<th>Median weekly earnings in 2012 ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All workers: 6.8%</td>
<td>All workers: $815</td>
</tr>
<tr>
<td>12.4</td>
<td>471</td>
</tr>
<tr>
<td>Less than a high school diploma</td>
<td></td>
</tr>
<tr>
<td>8.3</td>
<td>652</td>
</tr>
<tr>
<td>High school diploma</td>
<td></td>
</tr>
<tr>
<td>7.7</td>
<td>727</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>785</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>1,066</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>1,300</td>
</tr>
<tr>
<td>Master’s degree</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>1,735</td>
</tr>
<tr>
<td>Professional degree</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>1,624</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td></td>
</tr>
</tbody>
</table>

Estimated Cumulative Earnings Net of Loan Repayment for Tuition and Fees, by Education Level

SOURCE: The College Board, *Education Pays 2010*, Figure 1.3
Unemployment and underemployment rates for young college graduates, 1994–2012*


Unemployment/Underemployment for Recent College Graduates

SOURCE: Economic Policy Institute, “The Class of 2012: Labor market for young graduates remains grim,” Figure I
Unemployment and underemployment rates of young high school graduates, 1994–2012*


SOURCE: Economic Policy Institute, “The Class of 2012: Labor market for young graduates remains grim,” Figure D
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

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percent of Highly Educated Workers</th>
<th>Highly Educated Workers’ Percentage of Wage Bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Care Services</td>
<td>1.87</td>
<td>4.28</td>
</tr>
<tr>
<td>Dry Cleaning and Laundry Services</td>
<td>2.24</td>
<td>7.25</td>
</tr>
<tr>
<td>Offices of Dentists</td>
<td>33.65</td>
<td>59.75</td>
</tr>
<tr>
<td>Offices of Physicians</td>
<td>45.89</td>
<td>73.79</td>
</tr>
<tr>
<td>Legal Services</td>
<td>55.49</td>
<td>76.53</td>
</tr>
<tr>
<td>Colleges, Universities, and Professional Schools</td>
<td>67.87</td>
<td>81.18</td>
</tr>
</tbody>
</table>

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.