Going to College

• College is an Investment in Human Capital
  – The more you know, the more you earn
  – Thus college is not viewed as certification

Going to College

• College is an Investment in Human Capital
  – The more you know, the more you earn

Going to College

• Whom does it pay to go to college
• When does it pay to go to college?

Going to College

• A HS graduate earns $H_1, H_2, H_3, \ldots$
• A college graduate earns $C_1, C_2, C_3, \ldots$
Going to College

• A HS graduate earns $H_1, H_2, H_3, \ldots$
• A college graduate earns $C_1, C_2, C_3, \ldots$
• But
  – College takes time:
  – It delays the entry into the labor market.

• The present values are
  \[
  PV_H = \frac{H_1}{r} + \frac{H_2}{r(1+r)} + \frac{H_3}{r(1+r)^2} + \ldots \\
  PV_C = \frac{C_1}{r} + \frac{C_2}{r(1+r)} + \frac{C_3}{r(1+r)^2} + \ldots 
  \]

Going to College

• A HS graduate earns $H_1, H_2, H_3, \ldots$; a college graduate earns $C_1, C_2, C_3, \ldots$
• The present values are
  \[
  PV_H = \frac{H_1}{(1+r)} + \frac{H_2}{(1+r)^2} + \frac{H_3}{(1+r)^3} + \ldots \\
  + \frac{H_4}{(1+r)^4} + \ldots \\
  PV_C = \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \ldots \\
  + \frac{C_4}{(1+r)^4} + \ldots 
  \]

Go to college if $PV_C > PV_H$.

Some Simplifying Assumptions

• People go to standard four-year colleges.
• After graduating, they have infinite lives.
• High school graduates earn $I_h$ each year and college graduates earn $I_c$ each year.

Some Simplifying Assumptions

\[
PV_H = \frac{I_h}{r} \\
PV_C = \frac{I_c}{r(1+r)^4} 
\]
• We account for time delay.
• We don’t account for tuition, books, etc.
Equilibrium

• Equilibrium requires that
  \[ PV^H = PV^C \]

\[ \frac{I_h}{r} = \frac{I_c}{r(1+r)^4} \]

\[ I_h = \frac{I_c}{(1+r)^4} \]

The Crucial Ratio

<table>
<thead>
<tr>
<th>Annual Interest Rate</th>
<th>( \frac{I_h}{I_c} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0%</td>
<td>1.22</td>
</tr>
<tr>
<td>7.5%</td>
<td>1.34</td>
</tr>
<tr>
<td>10.0%</td>
<td>1.46</td>
</tr>
</tbody>
</table>
Implications of the Model

• The wage differential is required to justify the investment. The differential changes with real interest rates.

• The highest return from going to college is earned by going when you are young.

• Well, sometimes. MBA programs like experience.

End