The Social and External Benefits of Education
(for primary, secondary, tertiary education)

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Terminology

- **External Benefits** ("Market Benefits")
  - Private actions that affect others (sport/work)
  - "Person A’s investment benefits person B"
    - Address directly via tax/subsidy (education tax credit)

- **Social Benefits** ("Non-Market Benefits")
  - Private actions that affect community (crime/health)
    - Hence desirability of investment by society
      - Return on investment must be weighted against alternatives (building prisons or roads etc)
Social Benefit – Example
Annual Savings on Social Programs Due to Increased Education

Social Benefit - Crime
Incarceration Rates by Education

Terminology

- **External Benefits**
  - Measured by education effect on average income
  - Range: 23% to 0%

- **Social Benefits**
  - Measurement is a leap of faith
  - Range 29%-10%
Social Rates of Return

<table>
<thead>
<tr>
<th></th>
<th>External Benefit</th>
<th>Social Benefit Accruing to Individual</th>
<th>Social Benefit Accruing to Society</th>
<th>Total Social Rates of Return (Cols 1+2+3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>8.5</td>
<td>6.8</td>
<td>2.5</td>
<td>17.8 (13.4)</td>
</tr>
<tr>
<td>Secondary</td>
<td>9.4</td>
<td>7.5</td>
<td>2.8</td>
<td>19.6 (10.3)</td>
</tr>
<tr>
<td>Higher</td>
<td>8.5</td>
<td>6.8</td>
<td>2.5</td>
<td>17.8 (9.5)</td>
</tr>
</tbody>
</table>

“In the case of education, some have succeeded in identifying positive externalities but few have been able to quantify them… [The] empirical evidence is scarce and inconclusive. In fact, some estimates give negative values, while others give very high estimates.

— Psacharopoulos & Patrinos (Education Economics, 2004)

Economists (and others) have generally had little success in estimating the social effects of different investments, and, unfortunately, education is no exception.


Studies of model early [childhood development] intervention programs do not show universally positive results… Studies with nonrandomized designs frequently find insignificant or wrong-signed effects.

— Janet Currie (Journal of Economic Perspective, 2001)
Data and Statistics
Social Benefits of Education

Clear Implications:

- Social Benefits **cannot** be confirmed by the data
  - Measurement and Identification problems create near insurmountable statistical issues

- No Consensus Estimates, no Estimate Ranges

- Be distrustful of strong language and high estimates in papers that are not in accepted journal
The Problem:
Establishing a Causal Relationship

Example: Why does Medina have below average crime?
Because it has above average education?
The Problem: Establishing a Causal Relationship

Example: Why does Medina have below average crime? because it has above average education?

Education $\Rightarrow$ Less crime?
or
Less crime $\Rightarrow$ attracts better educated population?
or
Education $\Rightarrow$ Income $\Rightarrow$ Policing?
or
Income $\Rightarrow$ Education?

Untold amounts of time, money and energy have been spent to connect these dots.
Solution:

- Refer to ASSOCIATION not CAUSATION
  
  “More education is associated with less crime”

  vs.

  “More education causes less crime”
Relevance for WA

- **Assuming**
  - average magnitudes are correct
  - return on education is ~8%-20%

- How relevant are these US results for WA?
  - Most articles average over national or international data

- Actual statements that pertain to WA require actual econometric studies with WA data

- What DO we know about WA data?
Using US State Data, a 1% increase in workers with Bachelor Degrees is associated with a $823 increase in Median Earnings

Educational Attainment & Median Income

Back of the envelope

Percent of Population with a Bachelor Degree
Back-of-the-Envelope Education Benefits If Washington had…

<table>
<thead>
<tr>
<th>...1% more workers whose highest degree is</th>
<th>Increase in WA Median Income</th>
<th>Change in total WA income</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>- $ 436</td>
<td>-$750 Mil</td>
</tr>
<tr>
<td>Some College Experience</td>
<td>- $ 182</td>
<td>- $320 Mil</td>
</tr>
<tr>
<td>BA</td>
<td>+ $ 823</td>
<td>+ $1.4 Billion</td>
</tr>
<tr>
<td>Advanced Degree</td>
<td>+ $ 1456</td>
<td>+$2.5 Billion</td>
</tr>
</tbody>
</table>

These figures are subject to all the above mentioned interaction and control biases that haunt the estimates in this literature.
Median Impact vs Segment Impact
Example: a 1% increase in BAs…

<table>
<thead>
<tr>
<th>…raises wages of workers with</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No High School Degree</td>
<td>+ $249</td>
</tr>
<tr>
<td>High School Degree</td>
<td>+ $479</td>
</tr>
<tr>
<td>Some College Experience</td>
<td>+ $547</td>
</tr>
<tr>
<td>Advanced Degree</td>
<td>+ $1245</td>
</tr>
<tr>
<td>Median worker Income</td>
<td>+ $823</td>
</tr>
</tbody>
</table>

These figures are subject to all the above mentioned interdependence and control biases that haunt all estimate in the literature.
The Geographic Dimension

“But we can import workers for the new economy to get all the social benefits…”

- **Geographic Component**
  - More Education is Better, but should we produce it (& pay for it?)?
  - The Global Economy provides goods and migrants
    - Migrants harvest apples and code software (excess demand for highly skilled workers in the region is about 70000, Beyers 2004)

- **The Colorado Paradox:**
  - A state with one of the nation's most educated populaces, has one of the worst records for sending its kids to college

- **Colorado Responded** with “Student Access and Success” WHY?
  - 5 fastest growing job sectors require post-secondary training; the fastest shrinking job sectors do not.
  - Provide good jobs for locals, rather than imports

See eprc web site www.
“New Economy” ("Brainu-Facturing") Grows About 6 Times Faster Than The Manu-Facturing Economy

IT-using defined as = 1995 IT capital shares above the median US share (Stiroh 2002)
Where to spend in WA?

- **16%** of WA 9th graders finish College
  - 31st in the Nation
  - MA produces 75% more!
    - (MA spends 25% more)
Where to spend in WA?

- 16% of WA 9th graders finish College

- **WA has the 4th lowest in College-CollegeGrad drop out rate!**
  - WA has 4th highest drop out rate between HS and BA
  - Few (32 of 100 9th graders) arrive, expect few drop outs
  - In high income, high education States 60 of 100 arrive

- Highlight need for **Comprehensive Package:**
  - Or Squander any Early Child Development success

- **ACCESS and SUCCESS** matter (“Prepare, Enroll, Graduate”)
Where to spend?
Access & Success

**Access**
- Provide BA slots (high drop out rates are paired with too few slots)
- Encourage BA slots in Brainu-facturing
- Optimize CC slots that lead to high productivity paths
- *University Centers* at the CC level must feature quality control

**Success**
- Start in K1 – International / High Tech High Schools
- Focus on effective principles and teachers
- Standards: Math, Science, Scores

**CollegeInColorado.org**
- College Opportunity Fund: transition funding for public higher education to a student stipend program
Summary

- Social Benefits exist in theory but are hard to prove in Statistics
- Refer to association rather than causation
- Education is associated with strong wage gains for the average Washingtonian and for each educational group
- Easy Spending Rules: address glaring key shortcomings

- The Future Economy does not look like today’s
  - Brainufacturing vs Manufacturing

- Upcoming structural change requires new skills/incentives
- Seek guidance from “what works” (no need to experiment, MA)
Addendum:

A quick examples of private returns to education:
PRIVATE RETURNS - Earnings
Expected Lifetime Earnings
(Relative to High School Graduates, by Education)

PRIVATE RETURNS - Poverty
Poverty Rates by Household Type and Education

PRIVATE RETURN – HEALTH
Reporting Excellent or Very Good Health, by Income and Education