

# The Selfish and Social Returns to Education

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# Background: *The Case Against Education*

- The main goals of my book-in-progress:
  - Defend empirical importance of signaling model of education.
  - Then, fundamentally rethink education policy.
- Key feature of the signaling model: At the margin, signaling raises pay but not productivity, so social return < selfish (“private”) return.
  - Policy implication: Even selfishly lucrative education may be socially wasteful rent-seeking.
- If ignoring signaling is sole flaw in existing return to education literature, true social return roughly equals mainstream social return \* (1-signaling share).
- Unfortunately, existing literature has *many* flaws. To calculate social returns, I have to fix all the main flaws, *then* correct for signaling.

# Transparent, Comprehensive, Forthright

- I seek transparent, comprehensive, forthright return to education estimates.
- Transparent: Start with canonical recent statistics on income, unemployment, etc., by education, then make adjustments I can clearly explain to intelligent laymen.
- Comprehensive: Investigate all semi-plausible benefits/costs of education, then put *everything* that makes the cut into the number cruncher.
- Forthright: When existing research on anything is weak, explicitly state my best guess and proceed.

# Selfish Returns: Three Big Issues

- Since social return calculations build on selfish returns, I need to get serious selfish return estimates, then refine them.
- Three big issues with selfish returns:
  - Ability bias - Education and ability (IQ, work ethic, etc.) are correlated, so raw numbers give education too much credit.
  - Sheepskin effect – Payoff for graduation year is much higher than payoff for an ordinary year of school.
  - Completion probability – Literature focuses on ex post return, but ex ante is what counts.
- How on earth can I make this comprehensible for intelligent laymen?

# Four Handy Stereotypes

- My approach: Define and work with four handy stereotypes.
  - Excellent Student – Someone with the raw ability of the typical person with a master’s degree.
  - Good Student – Someone with the raw ability of the typical person with a B.A., but no graduate education.
  - Fair Student – Someone with the raw ability of the typical person with a H.S. diploma, but no college.
  - Poor Student – Someone with the raw ability of the typical person who dropped out of high school (=finished 10<sup>th</sup> grade, then quit)
- Key intuition: As long as your credentials “match” your ability, you earn observed average income for your credential.
  - If your credentials are atypically high/low given your ability, you earn more/less, but how much depends on the severity of ability bias.

# Income by Ability

Highest Grade	Census Income Observation (Balanced)	Census Income Observation (Male)	Census Income Observation (Female)	Raw % Income Change from Lower Tier	% Income Change from Lower Tier Adjusted for 45% Ability Bias	% Income Change Adjusted for 45% Ability Bias and Sheepskin	Income Index
8							1.000
9						4.2%	1.042
10	29,093	35,524	22,662			4.2%	1.085
11						4.2%	1.131
12	39,144	46,038	32,249	34.5%	19.0%	14.2%	1.292
13						4.0%	1.343
14						4.0%	1.397
15						4.0%	1.452
16	69,369	80,508	58,229	77.2%	42.5%	26.7%	1.840
17						2.1%	1.879
18	90,018	107,726	72,310	29.8%	16.4%	14.0%	2.142

Education	Excellent Income	Good Income	Fair Income	Poor Income
8	42,033	37,694	30,305	26,803
9	43,791	39,271	31,572	27,925
10	45,623	40,914	32,893	<b>29,093</b>
11	47,531	42,625	34,269	30,310
12	54,292	48,688	<b>39,144</b>	34,621
13	56,457	50,629	40,704	36,001
14	58,707	52,647	42,327	37,437
15	61,047	54,746	44,014	38,929
16	77,353	<b>69,369</b>	55,770	49,327
17	78,968	70,817	56,935	50,357
18	<b>90,018</b>	80,726	64,901	57,403

# The Kitchen Sink

- I use same approach to get unemployment, labor force participation, etc., by education and ability.
- For completion probabilities, plug average traits by ability into published estimates of completion probability by ability.
- I perform thorough literature reviews for ability-corrected estimates of alleged effects of education on: job satisfaction, happiness, health.
- Further reviews estimate net tuition, and how much people enjoy school versus work.
- Main results assume 100% workforce participation.
- Return calculations require a time path. I use a constant 2.5% annual experience premium.

# Annual Returns vs. Degree Returns

- Due to sheepskin effect and completion probabilities  $< 1$ , expected return to education rises as graduation nears.
- To capture this, I first calculate the Annual Return, year-by-year.
- Then I define the Degree Return, which is the *average* rate students *attempting* the current degree ultimately earn.
- Basic results:



# Selfish Returns by Ability

Years of Education	Excellent Student		Good Student		Fair Student		Poor Student	
	Annual Return	Degree Return	Annual Return	Degree Return	Annual Return	Degree Return	Annual Return	Degree Return
9	4.9	7.5	4.8	7.4	4.6	6.7	4.3	5.9
10	4.9	8.4	4.8	8.3	4.5	7.6	4.2	6.8
11	4.7	10.3	4.8	10.2	4.5	9.5	4.2	8.6
<b>12</b>	<b>16.4</b>	<b>16.4</b>	<b>16.2</b>	<b>16.2</b>	<b>15.3</b>	<b>15.3</b>	<b>14.4</b>	<b>14.4</b>
13	3.1	6.5	2.6	4.9	1.5	2.3	0.7	1.0
14	3.1	8.2	2.5	6.4	1.4	3.2	0.6	1.6
15	2.9	11.7	2.5	9.7	1.4	5.7	0.6	3.6
<b>16</b>	<b>23.3</b>	<b>23.3</b>	<b>21.2</b>	<b>21.2</b>	<b>16.1</b>	<b>16.1</b>	<b>13.2</b>	<b>13.2</b>
17	-0.8	2.9	-1.2	1.4	-2.6	-1.5	-3.6	-3.0
18	9.9	9.9	8.1	8.1	4.5	4.5	2.4	2.4

# Practical Guidance for Prudent Students

- Go to high school unless you're a terrible student (or don't want a full-time career).
- Go to college only if you're a strong student or special case.
- Don't get a master's degree unless the stars align.

# Moving from Selfish to Social Returns

- Moving from selfish returns to social returns requires two big steps.
- Step 1: Rethink selfish benefits. To what extent are selfish benefits also social?
  - Stop assuming 100% labor force participation. (Makes some sense selfishly, no sense socially).
- Step 2: Perform thorough literature review of putative *purely* social benefits of education: economic growth, budgetary effects, crime, parenting.
  - All corrected for ability bias, naturally.

# Signaling's Share

- Earlier in the book, I triangulate signaling's share, yielding TWO signaling scenarios.
- Scenario #1: Conservative Signaling. Sheepskin effects are signaling; everything else is human capital.
- Scenario #2: Reasonable Signaling. 80% of effect of education is signaling; skill grows at constant rate.
- Calculations assume signaling infuses ALL labor market outcomes: Income, unemployment, labor force participation, even crime.
- Intuition: Strong signals lead employers to treat you better across the board, not just pay you more.

# Conservative vs. Reasonable Signaling

Highest Grade	Selfish Benefits		Social Benefits (Conservative Signaling)		Social Benefits (Reasonable Signaling)	
	% Income Change Adjusted for 45% Ability Bias and Sheepskin	Income Index	% Social Income Change Adjusted for 45% Ability Bias, Sheepskin, and Conservative Signaling	Social Income Index (Conservative Signaling)	% Social Income Change Adjusted for 45% Ability Bias, Sheepskin, and Reasonable Signaling	Social Income Index (Reasonable Signaling)
8		1.000		1.000		1.000
9	4.2%	1.042	4.2%	1.042	1.9%	1.019
10	4.2%	1.085	4.2%	1.085	1.9%	1.038
11	4.2%	1.131	4.2%	1.131	1.9%	1.058
12	14.2%	1.292	4.2%	1.178	1.9%	1.077
13	4.0%	1.343	4.0%	1.225	2.1%	1.100
14	4.0%	1.397	4.0%	1.274	2.1%	1.122
15	4.0%	1.452	4.0%	1.325	2.1%	1.145
16	26.7%	1.840	4.0%	1.378	2.1%	1.169
17	2.1%	1.879	2.1%	1.406	1.6%	1.188
18	14.0%	2.142	2.1%	1.436	1.6%	1.207

- Key intuition: As long as your credentials “match” your ability, income equals productivity.
  - If your credentials are atypically high/low given your ability, you are over/underpaid relative to productivity, but how much depends on the severity of signaling.

# Social Degree Returns by Ability (Conservative Signaling)

Years of Education	Excellent Student	Good Student	Fair Student	Poor Student
9	3.6	3.4	3.0	6.1
10	3.6	3.5	3.0	5.8
11	3.6	3.5	3.0	5.6
12	3.8	3.6	3.0	5.4
13	2.3	1.7	0.1	-0.6
14	2.2	1.7	0.1	-0.7
15	2.2	1.7	0.0	-0.8
16	2.2	1.7	-0.2	-0.9
17	-3.2	-3.9	-6.1	-7.8
18	-3.6	-4.3	-6.3	-8.0

# Social Degree Returns by Ability (Reasonable Signaling)

Years of Education	Excellent Student	Good Student	Fair Student	Poor Student
9	-0.6	-0.7	-1.2	0.2
10	-0.6	-0.8	-1.2	0.0
11	-0.7	-0.9	-1.3	-0.1
12	-0.7	-0.8	-1.4	-0.2
13	-1.5	-1.8	-3.2	-3.8
14	-1.6	-2.0	-3.3	-3.9
15	-1.8	-2.1	-3.5	-4.3
16	-1.8	-2.3	-3.6	-4.3
17	-5.0	-5.9	-8.1	-9.4
18	-5.5	-5.7	-7.9	-9.7

# Practical Guidance for Concerned Citizens

- At last we have social returns that adjust for signaling. What education policies follow?
- My “practical guidance for concerned citizens”:
  - Sharply reduce government support for not only higher education, but high school as well.
  - Cut high school a lot, college more, and the master’s the most.
  - Do not send average or apathetic high school students to college.
  - Make high school, college, and the master’s much more vocational.



# Help Wanted

- Documentation and all spreadsheets are available online at: <http://www.bcaplan.com/returns.htm>
- I've checked and re-checked these spreadsheets full-time for almost a year, but fear of error haunts me.
- Correcting me now is much better – selfishly and socially – than correcting me after publication...