

Prof. Bryan Caplan  
bcaplan@gmu.edu  
<http://www.bcaplan.com>  
Econ 812

## **Weeks 10-11: We Care If It's Signaling: The Social Return to Education**

---

- I. The Social Return to Education: A Primer
  - A. To measure selfish returns, we count everything one student cares about. To measure social returns, we count everything *anyone* cares about.
  - B. Conventional education economists focus on two big gaps between selfish and social returns:
    1. Social returns count taxpayer cost of education, not just tuition, which reduces social returns.
    2. Social returns count full market compensation as a social gain, not net compensation adjusted for taxes and transfers, which raises social returns.
  - C. A few also factor in positive externalities, especially crime reduction.
  - D. Education economists normally acknowledge that *if* signaling were important, education would have a clear *negative* externality. The logic: Raising productivity makes the pie bigger. Improving your signal redistributes the pie from others to yourself.
    1. Key point: the marginal social value of signaling is plausibly zero even though the total social value of signaling is clearly positive.
    2. Is there any better way? Very likely, given massive subsidies for the status quo.
  - E. In this chapter, I try to systematically measure education's social return, using the same approach as last chapter:
    1. Step 1: Brainstorming.
    2. Step 2: Topic-by-topic literature review.
  - F. Easy part: Reconsider every selfish benefit from a social point of view.
  - G. Harder part: Identify and count education's *purely* social benefits.
- II. Recounting Everything That Counts, I: Compensation vs. Productivity
  - A. Selfishly, what matters is compensation. Socially, what matters is productivity.
  - B. In a pure human capital model, compensation and productivity are equal case-by-case.
  - C. If signaling matters, in contrast, compensation and productivity are only equal on average. If your credentials match your productivity, they're equal. Otherwise, they diverge.
  - D. The degree of divergence depends on signaling's share. This chapter considers two signaling scenarios:
    1. Cautious: sheepskin effects reflect signaling; everything else reflects human capital.
    2. Reasonable: 80% signaling.

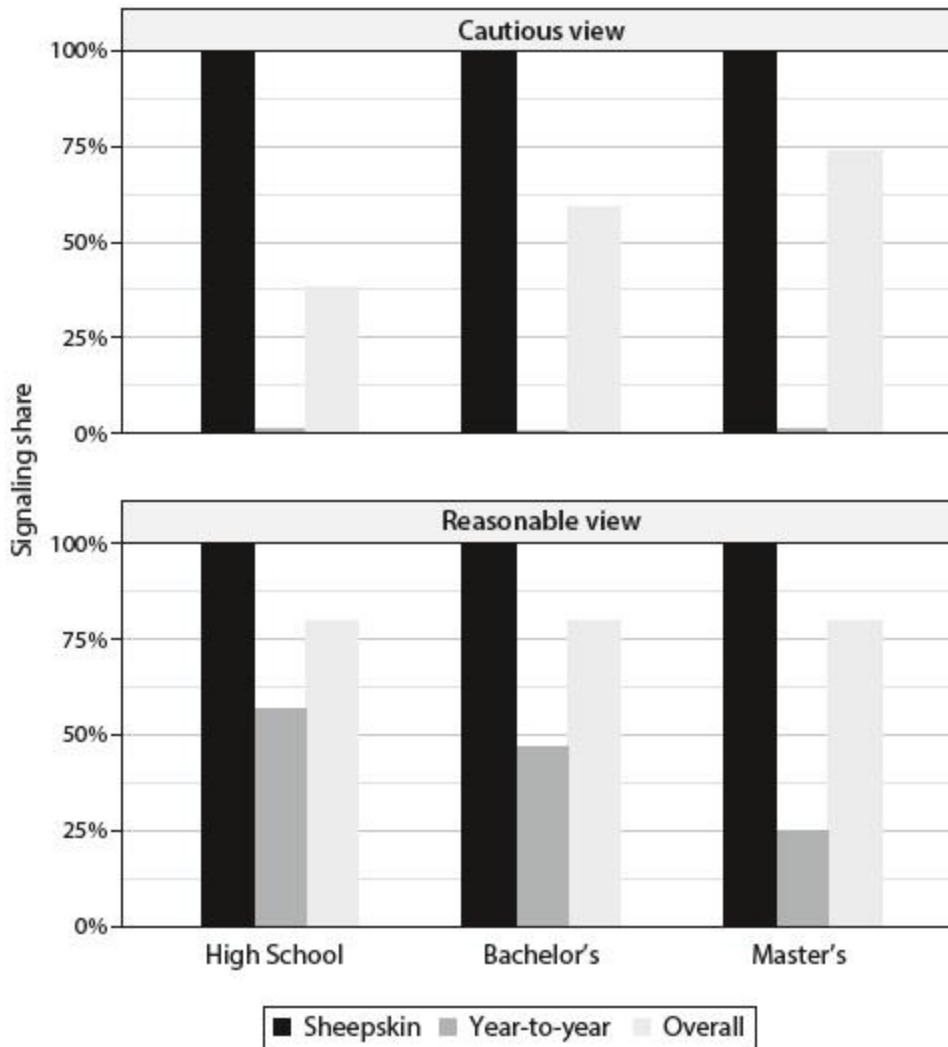


Figure 6.1: Two Signaling Scenarios  
 Source: See text.

- E. Consider the case of a Good Student.
1. If he has a B.A., his productivity and his pay are equal.
  2. If he has more than a B.A., however, he earns *more* than his productivity, because his credentials make him look better than he really is.
  3. If he has less than a B.A., he earns *less* than his productivity, because his credentials make him look worse than he really is.
- F. Here's the disparity, by signaling assumption. Note: Reasonable signaling implies bigger disparities than Cautious signaling.

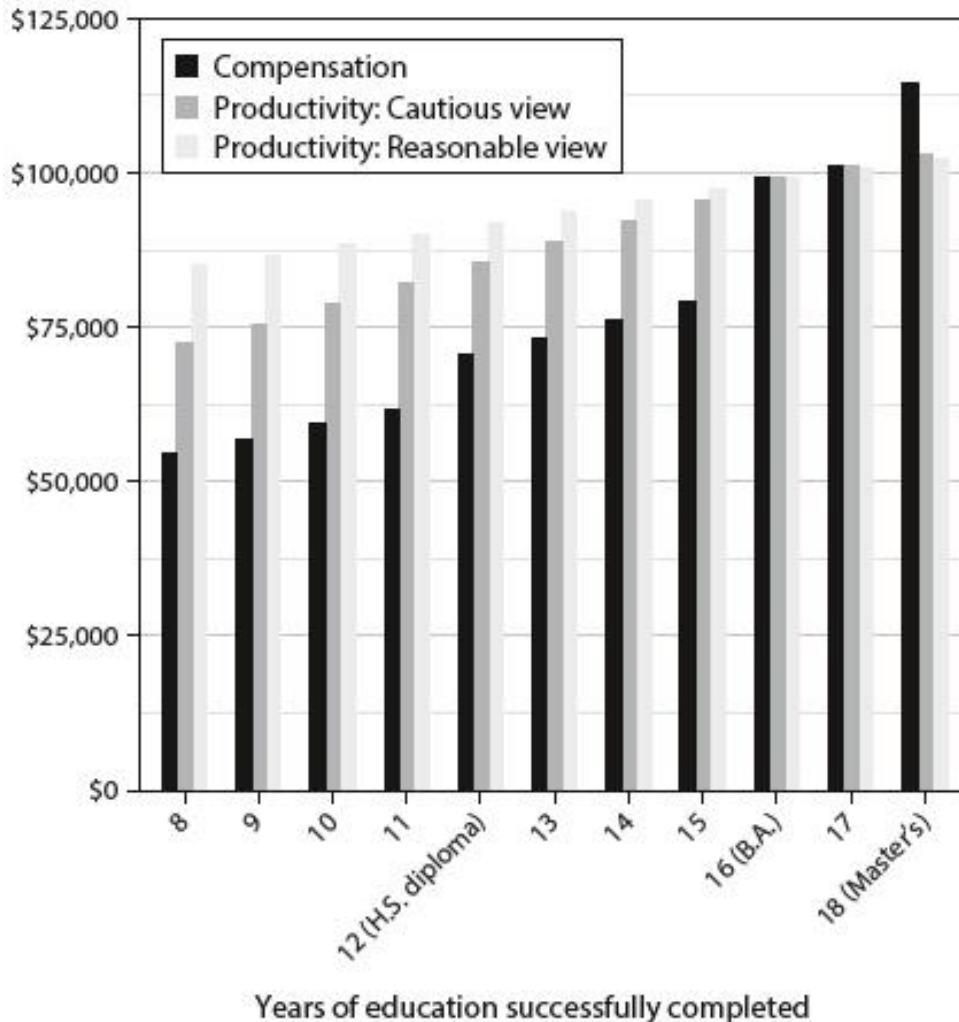


Figure 6.2: The Effect of Education on Compensation and Productivity for a Good Student (2011)

Source: Figures 5.1 and 6.1.

- G. I use the same approach to calculate the social value of education's effect on unemployment. Key idea: Education can reduce your unemployment by making workers you employable, or by making you outshine the competition.
- H. Since productivity is what counts, social returns ignore taxes and transfers (except insofar as these interact with workforce participation, considered later on).
- III. Recounting Everything That Counts, II: Other Selfish Benefits Reconsidered
  - A. For selfish returns, evidence on education's effect on job satisfaction and overall happiness is mixed (see chapter 5). For social returns, there's an extra complication: Whatever effect education has on these variables might work through *status*, and hence be zero-sum.
    - 1. In the GSS, correcting for status eliminates education's effect on job satisfaction, and shrinks its effect on happiness by two-thirds.

2. Even if I went too far in setting education's selfish benefits here to zero, it is very reasonable to set social benefits to zero.
  3. What about the value of the classroom experience? No reason not to take students' feelings at face value. (Does it make students less bored if they know that millions of other kids are bored, too?)
- B. My selfish returns factor in modest health benefits of education. For social returns, though, you again need to check for status effects. Education may improve health by moving you up the social pyramid, but position on that pyramid is zero-sum.
1. Researchers who check consistently find that education's health benefits are, in part, status effects, explaining 20-60% of the benefit. In the GSS, controlling for status halves education's measured effect on subjective health.
  2. Given reasons discussed in chapter 5 to downgrade education's health benefits, I set social value of health benefits to zero.
- C. Selfishly speaking, tuition is a relatively minor cost. Socially, it's far bigger. After various adjustments, I come to:
1. \$11,298 per year for K-12.
  2. \$8,279 per year for public higher education.
- D. Experience and completion probability have the same effects on social returns as they do on selfish returns.
1. The book considers government programs to raise completion probability in chapter 7.
- IV. Purely Social Benefits
- A. Economic growth? Despite widespread belief that education leads to innovation, researchers find little evidence of this. Since researchers have trouble finding much effect on GDP *levels*, it's hardly surprising that they don't find an effect on GDP *growth* either.
1. The research is fairly weak, but common sense also provides little reason for optimism. Never forget the otherworldliness of the curriculum!
- B. Workforce participation? Valuing education's effect on workforce participation is conceptually tricky. Education definitely seems to raise it, but in the absence of taxes or transfers, this is no social benefit.
1. If people choose not to work, this is because they value their leisure more than the rest of society values their work.
- C. Since taxes and transfers exist, however, social returns have to count all the taxes paid and transfers foregone when education raises workforce participation.
1. Intuitively: Suppose you can earn \$30k per year, but pay \$5k in taxes, and receive \$10k if you don't work. If you care only about yourself, you'll work if you value your time less than \$15k. If you care about everyone, you'll work if you value your time less than \$30k.

2. For taxes, I continue to use the 2011 tax code. For transfers, I assign the sum of Medicaid and SNAP to anyone out of the labor force. (The single, childless assumption is crucial here).
  3. However, note that signaling cuts these social benefits: boosting everyone's education has less effect on workforce participation than boosting only one person's education. (If this seems implausible, look at workforce participation by education over time).
- D. Crime? The raw correlation between education and crime is very strong. Correcting for IQ and grades only mildly cuts the observed link, but adding controls for early antisocial behavior reduces the estimated effect by 75%.
- E. Still, the social benefit of this crime reduction could be big, because the all-inclusive cost of crime is enormous. Even after setting aside victimless crimes, the best available estimate comes to \$3,728 per American per year. Combining these estimates, we get:

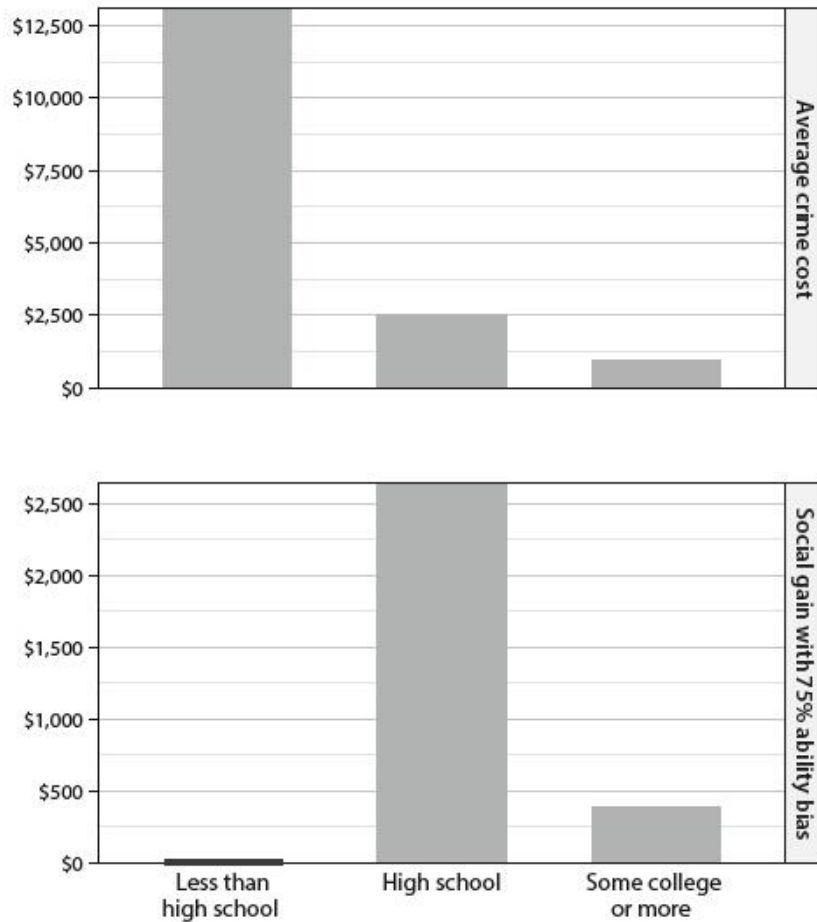


Figure 6.3: Average Annual Social Cost of Crime by Education (2011 Dollars)  
 Sources: D. Anderson 1999 for aggregate crime costs; Harlow 2003 for incarceration by education level.

1. As usual, signaling implies that education's effect on social criminality is smaller than its effect on individual criminality.

- F. Politics? You can't value education's political effects without figuring out which policies are ideal, so I omit these from social returns calculations. (Chapter 9 measures political effects without pricing them).
- G. Children?
  1. Estimates of education's effects on child *quality* require a thorough study of nature versus nurture. Building on my last book, I set these to zero.
  2. Estimates on education's effects on child *quantity* require us to assess the value of human existence. Again, this question is too big to resolve here, so I omit it from social return calculations. (Chapter 9 measures these effects without pricing them).
- V. Crunching Society's Numbers
  - A. Given Cautious signaling, Good Students get mediocre social returns for high school and poor social returns for college. Note the contrast with selfish returns!

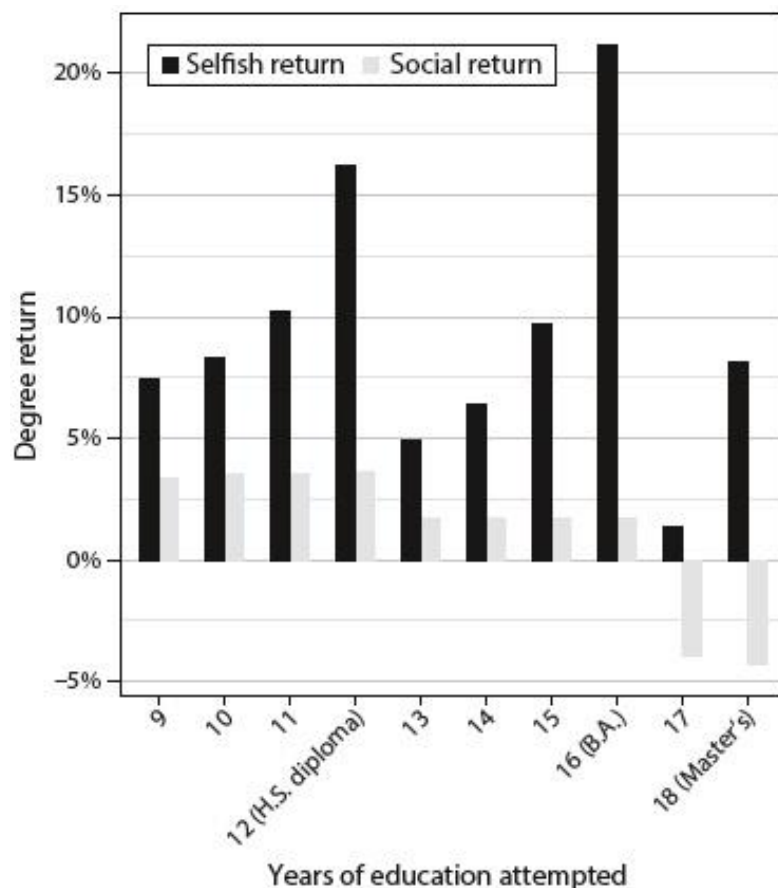
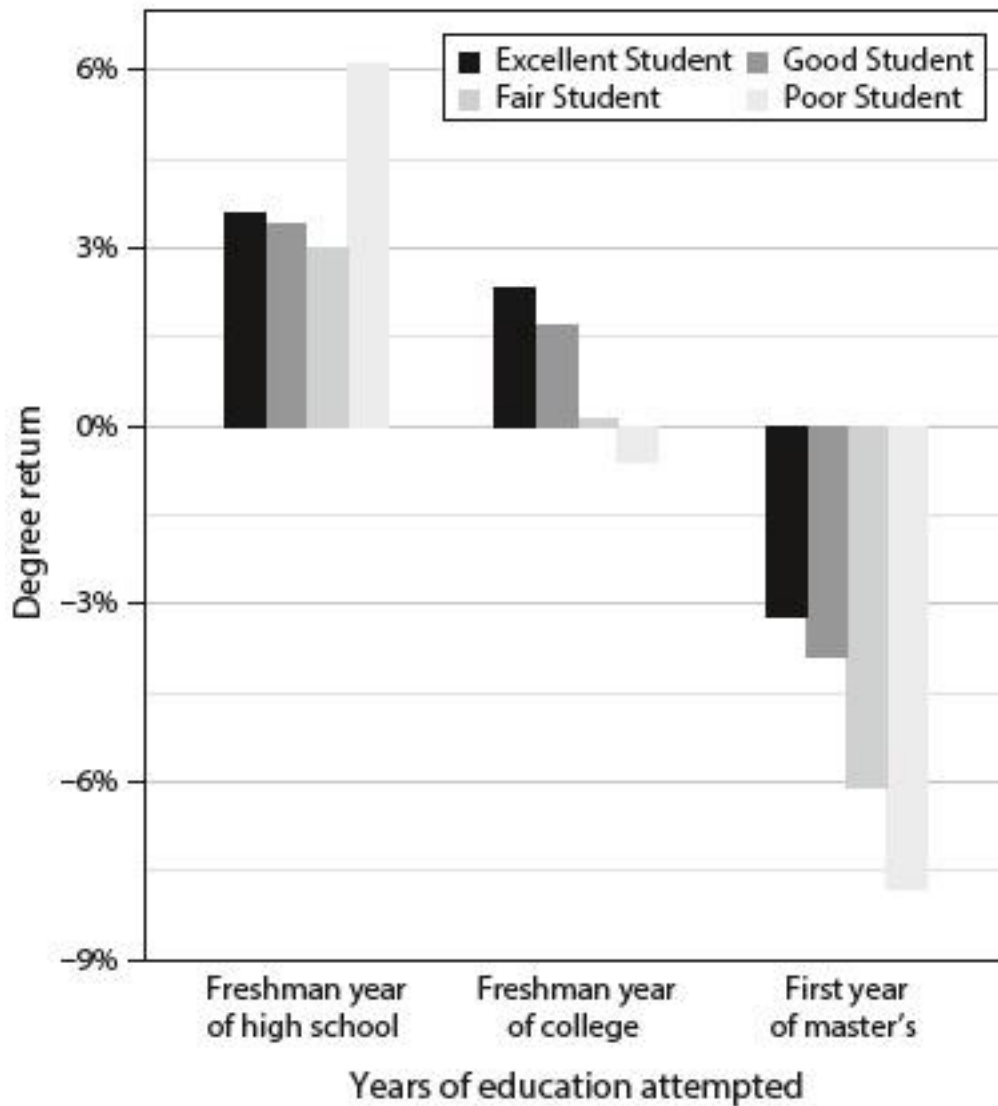


Figure 6.4: Degree Returns to Education for Good Students with Cautious Signaling

Source: Figure 5.3 and text, assuming:

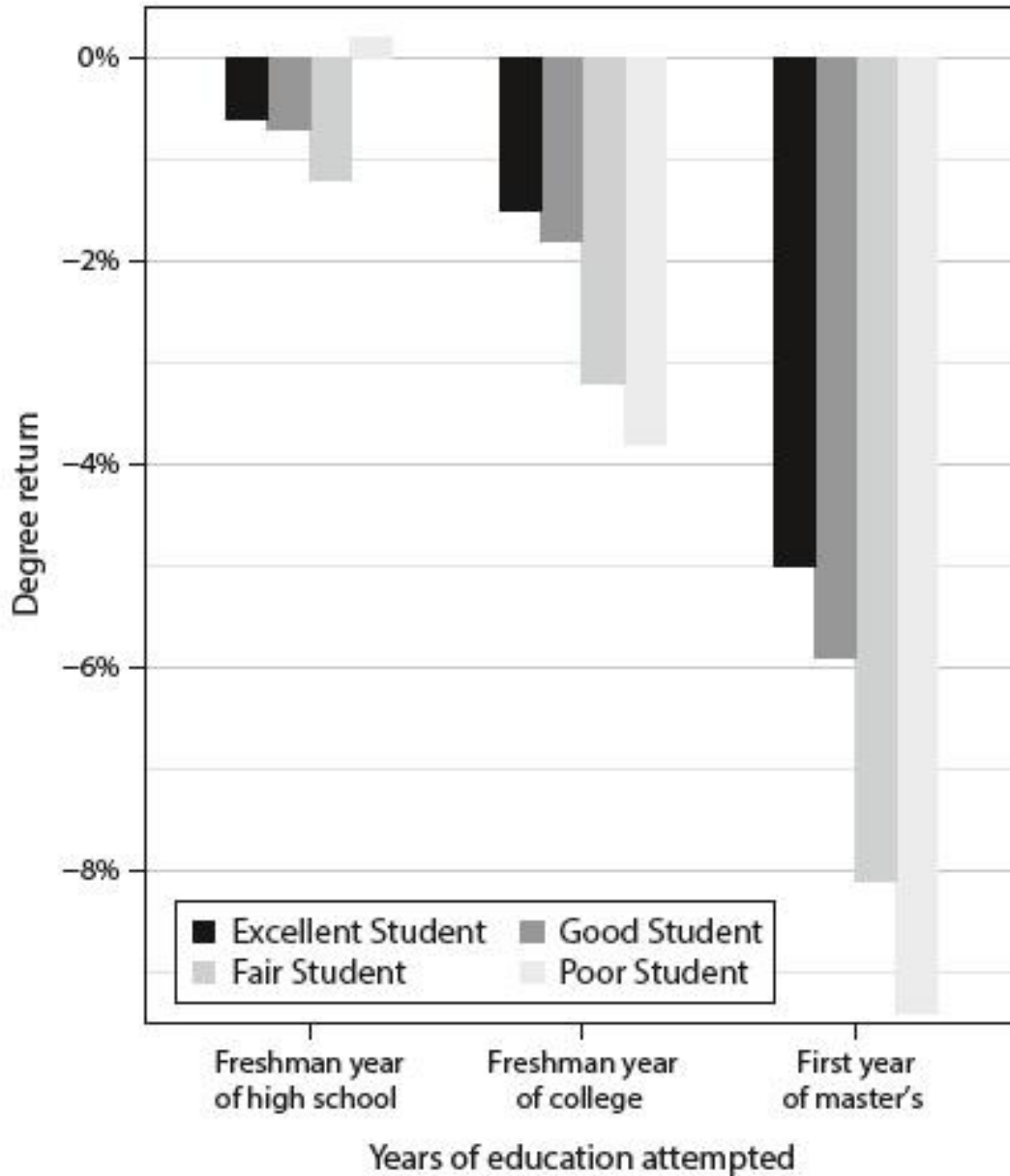
- (a) 45% ability bias for income, benefits, unemployment, and participation effects.
- (b) 75% ability bias for crime effects.
- (c) Sheepskin effects of education reflect signaling; all other effects of education reflect human capital.

B. Social returns by ability, given Cautious signaling:



1. Returns are mediocre to ruinous for all abilities and all levels, except high school for Poor Students (with the latter driven by reduced criminality).

C. Social returns by ability, given Reasonable signaling, are much worse. In fact, they're negative virtually across the board.



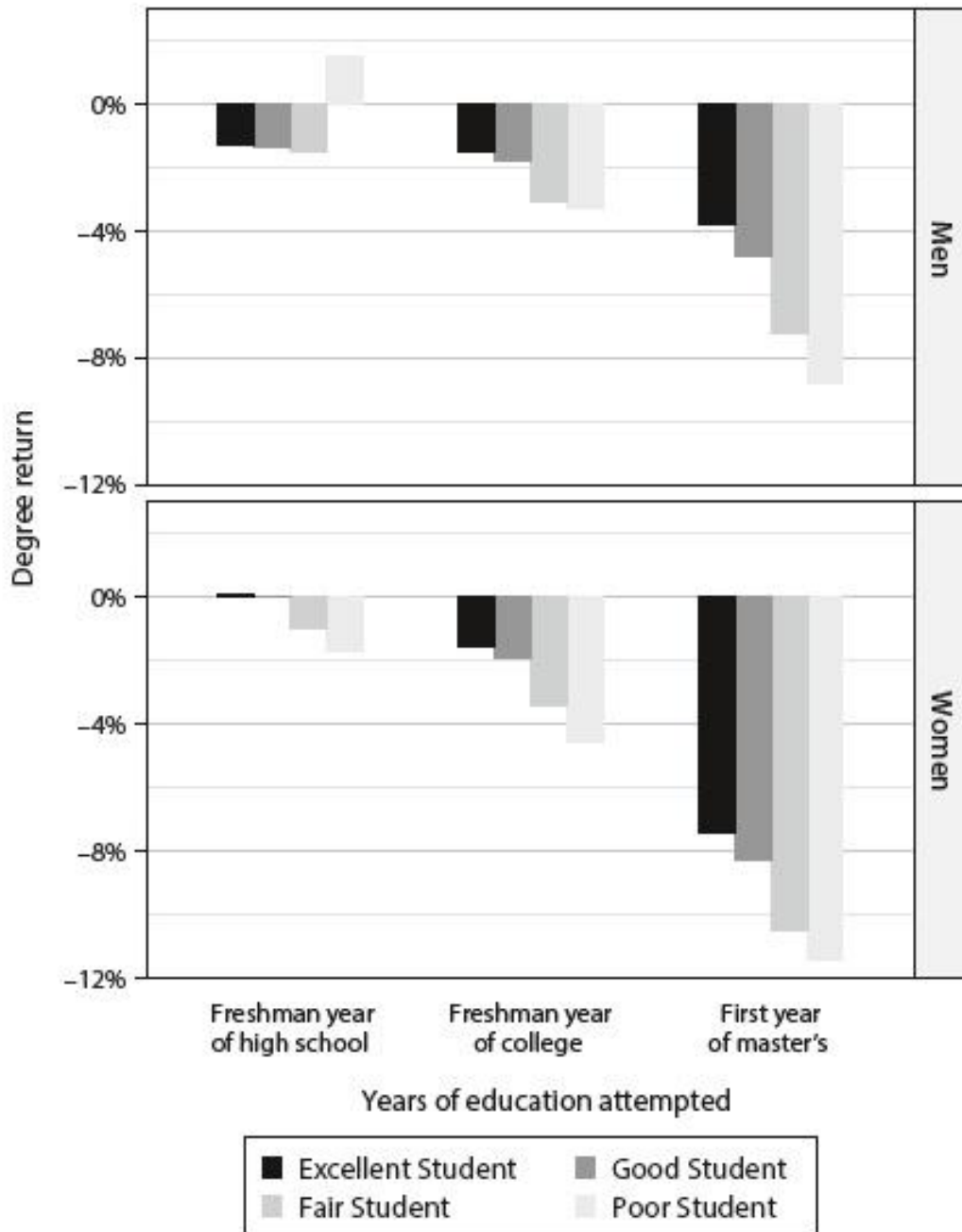
D. Robustness exercises show that even if signaling's share is as low and one-third, college looks mediocre at best. High school, however, looks very worthwhile for Fair and Poor Students.

VI. Searching for Social Returns

A. Majority, selectivity, and attitude all mitigate low social returns. But with Reasonable signaling, the most qualified students studying the most lucrative subjects are still bad social investments.

B. Since males have higher workforce participation and commit more crime, the gender gap for social returns is narrow. Male Fair and Poor Students are better (i.e., less bad) social investments than comparable women. College returns are comparable, and master's returns heavily favor men.





## VII. Doubts and the Educational Drake Equation

### A. Doubts:

1. Signaling's share.
2. Participation and ability bias.
3. Crime, signaling, and sheepskin effects.

B. The original Drake Equation contrasted the enormous opportunities for life with the apparent lifelessness of the universe.

C. My "educational Drake Equation" contrasts the enormous observed differences between high- and low-education people with the low social return to education.