

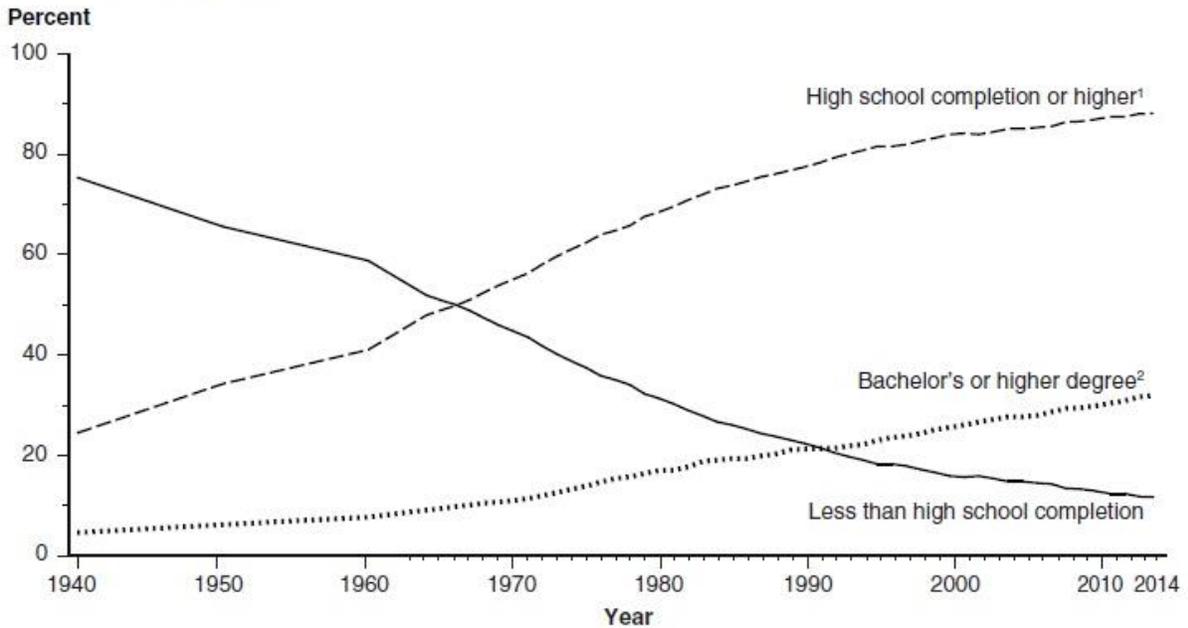
Prof. Bryan Caplan  
bcaplan@gmu.edu  
<http://www.bcaplan.com>  
Econ 496/895

## **Week 1: The Magic of Education**

---

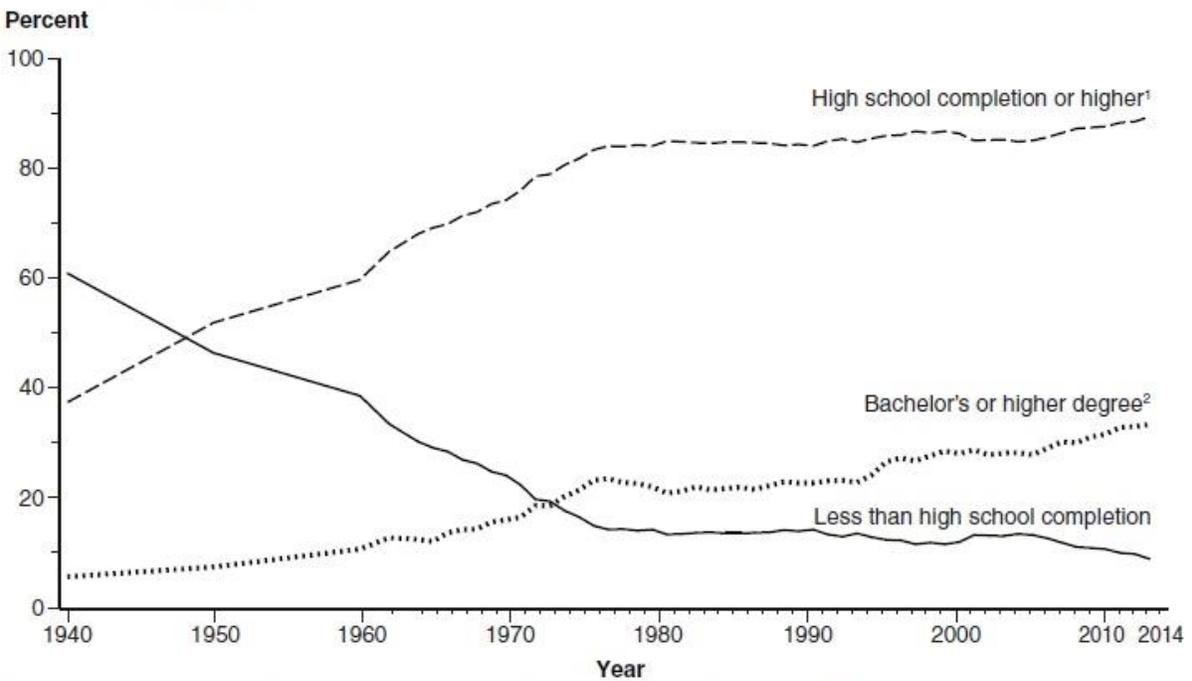
- I. The Economics of Education: A Short History
  - A. Economists have intently studied education for about sixty years.
  - B. Standard view: education – especially formal schooling – is the main way society “invests in people.”
  - C. What happens when you invest in people? Just as transforming natural resources yields physical capital, transforming human resources yields “human capital.”
    1. Classic example: Schools take illiterate, innumerate children and transform them into literate, numerate adults – who then use their literacy and numeracy on the job.
  - D. The human capital view of education is one of economics’ most successful intellectual “exports.” It’s widely used not just by economists, but by:
    1. Other social scientists (education, sociology, psychology)
    2. Pundits
    3. Policy-makers
    4. General public
  - E. The human capital view is exceptionally bipartisan. Liberals and Democrats are slightly more prone to hail education’s economic payoff. But liberals and conservatives, Democrats and Republicans – whether social scientists, pundits, policy-makers, or the general public – all see education’s economic benefits as immense.
  - F. I strongly disagree with this consensus. My book, *The Case Against Education*, explains why.
  - G. The purpose of this class is to methodically and carefully examine this book, learning relevant background material along the way.
  - H. You absolutely do not have to agree with me to excel in this class. But you must be able to explain and analyze my arguments in detail.
- II. Basic Facts About Education
  - A. Adults’ average years of education has risen tremendously over the last century around the world. The U.S. used to be one of the most-educated countries in the world, but it’s now fairly typical for developed countries.
  - B. U.S. educational attainment data from *The Digest of Education Statistics* 2014:

**Figure 3. Percentage of persons 25 years old and over, by highest level of educational attainment: Selected years, 1940 through 2014**



<sup>1</sup>Includes high school completion through equivalency programs, such as a GED program. For years prior to 1993, includes all persons with 4 or more years of high school.  
<sup>2</sup>For years prior to 1993, includes all persons with 4 or more years of college.  
 SOURCE: U.S. Department of Commerce, Census Bureau, *U.S. Census of Population: 1960*, Vol. I, Part 1; J.K. Folger and C.B. Nam, *Education of the American Population* (1960 Census Monograph); Current Population Reports, Series P-20, various years; and Current Population Survey (CPS), March 1961 through March 2014.

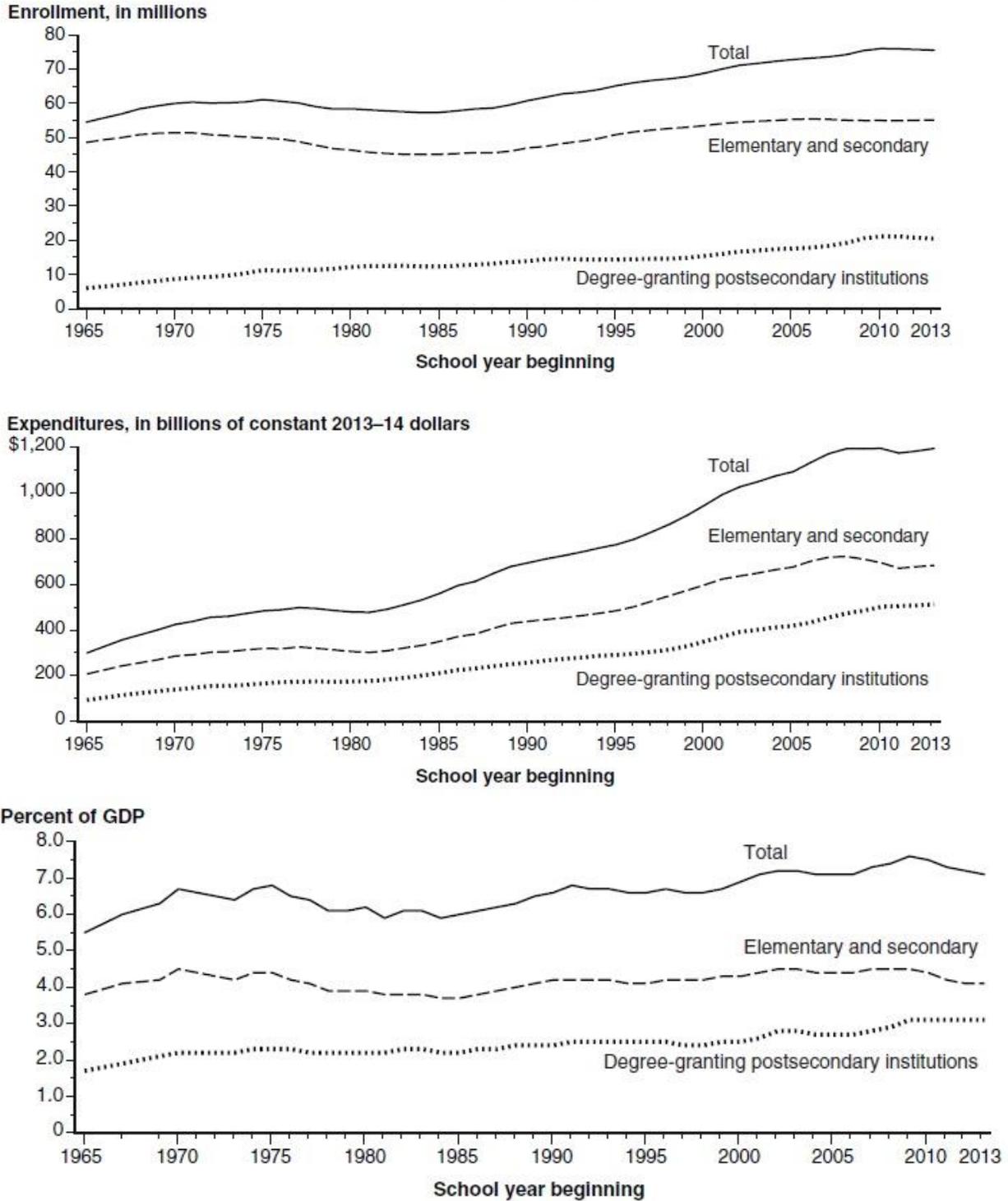
**Figure 4. Percentage of persons 25 through 29 years old, by highest level of educational attainment: Selected years, 1940 through 2014**



<sup>1</sup>Includes high school completion through equivalency programs, such as a GED program. For years prior to 1993, includes all persons with 4 or more years of high school.  
<sup>2</sup>For years prior to 1993, includes all persons with 4 or more years of college.  
 SOURCE: U.S. Department of Commerce, Census Bureau, *U.S. Census of Population: 1960*, Vol. I, Part 1; J.K. Folger and C.B. Nam, *Education of the American Population* (1960 Census Monograph); Current Population Reports, Series P-20, various years; and Current Population Survey (CPS), March 1961 through March 2014.

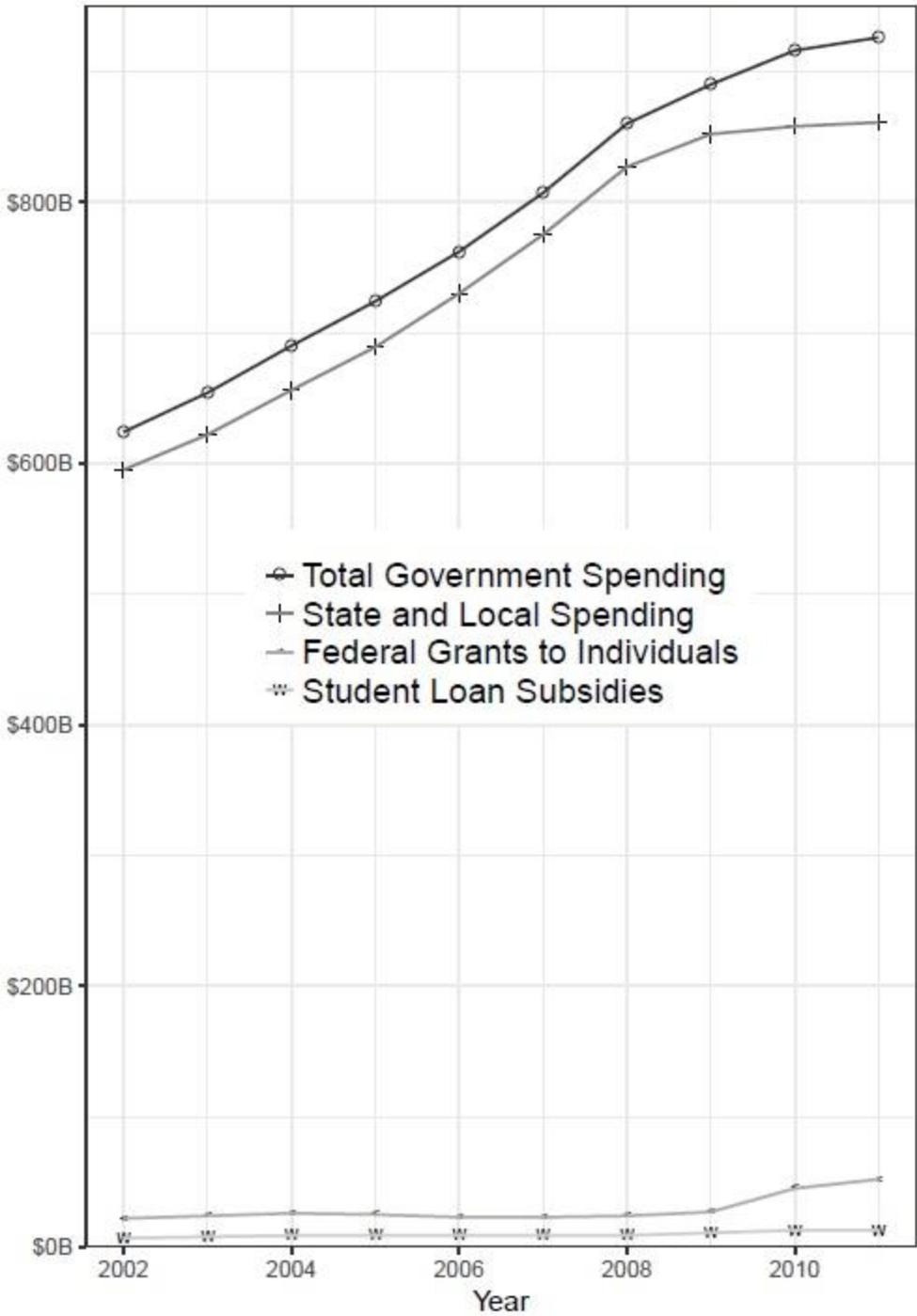
C. The U.S. contains over 70M students. Total spending – public and private – exceeds \$1T per year. Data:

Figure 2. Enrollment, total expenditures in constant dollars, and expenditures as a percentage of the gross domestic product (GDP), by level of education: Selected years, 1965–66 through 2013–14



D. Public funding greatly exceeds private, especially for K-12.

Figure 7.1: Total U.S. Government Education Spending



E. More-educated workers earn a lot more than less-educated workers:

### Average Earnings By Educational Attainment (2011)

	Some High School	High School Graduate	Bachelor's Degree	Master's Degree
Average Earnings	\$ 31,201	40,634	70,459	90,265
Premium Over H.S.	-23%	+0%	+73%	+122%
<i>Source: United States Census Bureau 2012a.</i>				

### III. Human Capital Purism vs. Signaling

- A. The big problem with the human capital view of education: much – if not most – of the academic curriculum at least *seems* irrelevant for almost all jobs.
  1. History and social studies
  2. Music and art
  3. PE
  4. Higher mathematics
  5. Classic literature and foreign languages
- B. Even more puzzling: Employers seem to *care* about performance in “irrelevant” classes – especially if poor performance prevents graduation.
- C. These two observations inspire an alternative economic theory of education, known as “signaling.”
- D. Basic idea of educational signaling: Academic success can *certify* worker quality without *increasing* it.
- E. Signaling can make totally irrelevant education lucrative.
  1. If people who do well in underwater basket-weaving are, on average, better workers than people who don't do well in this subject, profit-maximizing employers will be happy to pay a premium for such workers.
  2. Why? While learning UBW doesn't make you a better worker, it *convinces* employers that you were a better worker all along.
- F. Do any economists claim that signaling explains *all* of education's financial payoffs? No! Literacy and numeracy are obviously useful on most jobs.
- G. Do any economists deny that signaling explains *some* of education's financial payoff? Yes, especially by default. “Human capital purism” – the view that human capital explains 100% of education's payoff in the labor market – is the standard assumption in the large majority of empirical work and policy discussion.
  1. Researchers often measure the effect of education on earnings, then *call* it the effect of education on *skill*.

- H. Preview: I claim that signaling accounts for at least 50% of education's payoff. My preferred point estimate: 80%.
- IV. Signaling: Private Profit, Social Waste
- A. Both human capital and signaling models agree that education is individually rewarding. They disagree about *why*.
1. Human capital: Education pays because it raises skill.
  2. Signaling: Education pays because it *reveals* skill.
- B. So is this a purely academic dispute? No. The models disagree about education's *social* rewards. What happens if *average* education rises?
1. Human capital: Average skill rises, so society is richer.
  2. Signaling: Average skill stays the same, so society is no richer. (In fact, since education costs time and money, society is poorer).
- C. With signaling, rising education yields credential inflation. Workers need more education to get the same job.
1. The Fallacy of Composition: Insofar as signaling is true, education is "smart for one, dumb for all."
- D. *Can* education levels fall? Sure. If you think government funding raises education, simply cutting that funding will have the opposite effect. And current government funding is massive, so there's plenty of room to cut.
- V. Basics of Signaling
- A. There must be different types, varying by intelligence, conscientiousness, conformity, or whatever.
- B. Types must be non-obvious.
- C. Types must visibly differ *on average*. Though you can't see type directly, you can fallibly *infer* type.
- D. Two questions for employers to ask:
1. Unanswerable question: "Who's truly the best worker for the job?"
  2. Answerable question: "Which worker sends the best signals?"
- E. If employers hire based on the second question, they create an incentive for less desirable types to *impersonate* higher-quality types. To remain viable, signals must, on average, be more costly for types in higher demand.
1. "Cost" can be financial or psychological.
- F. Signaling is just a special case of statistical discrimination.
- G. What does education signal?
1. Intelligence
  2. Conscientiousness
  3. Conformity
  4. More?
- H. In a sense, almost everyone conforms to something. What education signals is conformity to workplace norms.
1. While school and work norms are different, they heavily overlap: obedience to authority, punctuality, tolerance for boredom, good manners, etc.
- I. Recurring analogy: You can raise a gem's market price by skillfully cutting it (human capital) or favorably appraising it (signaling).

## VI. Locked-In Syndrome

- A. Education is one good way to signal to employers, but why do substitute signals play so little role?
  - 1. E.g., if your SAT scores are good, why can't you get a college-type job straight out of high school?
- B. Education signals a *package* of socially desirable traits. If you clearly have one of these traits, educational failure suggests you're deficient in the other two.
  - 1. What do we say about the genius with little education?
  - 2. What do we say about the hard-worker with little education?
  - 3. What do we say about the conformist with little education?
- C. Substitute signals of conformity have an even bigger flaw – a “catch-22”: unconventional signals of conformity signal *non*-conformity.
  - 1. Should you put your SATs on your resume?
- D. What's so special about education? Almost everyone *believes* it's special.
- E. The cycle of conformity:
  - 1. Employers notice the link between success at school and success at work, so they use it as a gate-keeper.
  - 2. Talented, motivated people notice education's gate-keeping role, so they pursue educational success.
  - 3. Frequency of talented, motivated people with little education falls.
  - 4. Return to 1.
- F. As long as sub-par workers are the first to switch from education to alternatives, alternatives send bad signals. This can “lock-in” socially inferior systems, even in the long-run.
  - 1. Current educational system has been stable for centuries, despite massive technological and economic changes.

## VII. “Signaling Doesn't Make Sense”

- A. Leading objections to the signaling model don't say it contradicts experience. They say experience is misleading. Leading objections:
- B. “Signaling=100% signaling.” Schools teach literacy and numeracy, both useful job skills, so the signaling model is wrong.
  - 1. Reply: No prominent advocate ever said this. Signaling purism is mythical, but human capital purism is real.
- C. “Signaling=signaling intelligence alone.” IQ tests are much cheaper ways to measure intelligence than years in school. Why don't employers just use those?
  - 1. Reply: Education signals more than intelligence - and high IQ scores without matching educational credentials signal low conscientiousness and conformity.
- D. “Signaling shouldn't take years.” Once you've signaled your quality with a year or two in school, why would employers value anything further?
  - 1. Reply: There are no “show-stopping” signals of worker excellence. Signaling is a war of attrition, where you can always go farther to look better. If your competitors have many years of education, you

need comparable achievements to convince employers you're in the running.

- E. "You can't fool the market for long." You might need a credential to get hired. But employers soon figure out your true quality, and pay you accordingly.
  - 1. Reply: When researchers measure employer learning, it seems to take years or decades, not months. But even if employers could find and fire phonies in a few months, this can't happen to workers they never hire. "Diamonds in the rough" still need lengthy educations to get their foot in the door.
  - 2. Further reply: The employer learning critique falsely assumes employers fire any worker who falls short of their expectations. In the real world, employers often retain disappointing workers because of hiring costs, legal costs, or pity. And both legal costs and pity argue for "dehiring" (helping unwanted employees find another job) rather than firing, further cementing signaling's rewards.

#### VIII. Riddle Me This

- A. Many facts about education are hard to explain *without* signaling. Top puzzles:
- B. "The best education in the world is already free." Colleges almost never check attendees' IDs. So if you simply want to build your human capital, you can move near whatever school you believe to be the best, and receive a full education for zero tuition.
  - 1. Would you rather have a Princeton diploma without a Princeton education, or a Princeton education without a Princeton diploma? If you pause to answer, you must think signaling is pretty important.
- C. "Failing versus forgetting." Human capital theory says employers pay you for skills you have, not skills you used to have. But the career damage of failing classes is high, while the career damage of forgetting what you learned is usually minimal.
- D. "Easy A's." Why do students seek out professors known for their easy grading, instead of professors known for teaching lots of useful skills?
- E. "You're only cheating yourself." In the human capital model, academic cheating is pointless. So is preventing cheating.
- F. "Why do students rejoice when the teacher cancels class?" Well?
- G. Signaling readily solves all their puzzles.
  - 1. Why not unofficially attend Princeton? Because employers won't know you did so.
  - 2. Why is failing worse than forgetting? Because almost everyone forgets, so it doesn't send a bad signal.
  - 3. Why do students favor easy graders? Because employers don't know which professors are hard, so you get the same signal for less effort. (Easy *majors*, in contrast, are pretty obvious to employers).

4. Cheating is a problem because it dilutes the value of everyone else's signals.
5. Students like cancellation because they get the same grade for less work.