Noah Blaylock's Study Guide to

The Case Against Education

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Order of Content

Signaling

- The Trifecta
- Signaling Objections
- Signaling Evidence
- Human Capital Purism (HCP)
- Brief Note
- Sheepskin Effect (SSE)
- Malemployment and Credential Inflation
- The Speed of Employer Learning
- The Education Premium: Personal vs National
- What about Test Scores
- Labor Economists Versus Signaling

Curricular Irrelevance

- Transfer/Learning How to Think
- Retention
- Fadeout (Makes you Smarter Claim + Retention Facts)
- Usefulness of Curriculum
- Failing vs. Forgetting
- How people get good at their Jobs / Most Job Skills are acquired through on-the-job training
- Large Gap Between Skills Students Learn and the Skills Workers Use
- Artificial Supply Creates Artificial Demand
- Subtle Improvement
- Making you Smarter
- Education "Broadens Students' Horizons"
- Who You Know
- Discipline and Socialization

Rewards

- The Handsome Rewards of Education
- Ability Bias
- Correcting for Ability Bias
- Labor Economists versus Ability Bias
- Wheat vs Chaff
- Is Credentialism a creature of the State?
- IQ Laundering
- Underrating the Benefits of Education?
- The Real Rewards of Education

The Selfish Return to Education

- Selfish Return Basics
- Counting everything That Counts
- The Case of the Good Student

- The Case of Everyone Else
- Practical Guidance for Prudent Students
- Doubts

The Social Return to Education

- Social RTE Intro
- Brief Selfish vs Social Gains
- Purely Social Benefits
- Crunching Society's Numbers: Cautious Signaling
- Crunching Society's Numbers: Reasonable Signaling
- Crunching Society's Numbers: You call that Reasonable?
- Searching for Social Returns
- Doubts
- The Educational Drake Equation

The White Elephant in the Room / The Cost of Education

- Pro-education Arguments: What's Wrong with Them
- How Big is your Elephant?
- Cutting Education: Why, Where, How
- Signaling and Social Justice
- Why Not Tax Education?
- The False Savior of Online Education
- The Politics of Social Desirability Bias

Vocational Education

- Vocational Intro
- Why Vocational Education Rules
- What's wrong with Child Labor?

Nourishing Mother

- Is Education Good for the Soul?
- Meritorious Education
- The Soulful Fallback
- High Culture Falls on Deaf Ears
- Getting Out the Vote
- Broadening Horizons
- The Merit of Play
- The Cynical Idealist

Signaling

The Trifecta

- The Labor market doesn't pay you for the useless subjects you master; it pays you for the preexisting traits you reveal by mastering them
- Statistical discrimination
- Why is it any more weird or implausible to claim employers statistically discriminate on the basis of educational credentials? Employers are running businesses not logic classes. Hiring decisions, like all business decisions, are based on prudence, not proof.
- Why is educational signaling so central? An initially tempting answer: Good Jobs are intellectually demanding and education is just a signal of intelligence
- Intelligence alone story cracks: Consider this vignette: Mark and Steve both got perfect scores on their SATs when they were 16.
 20 years later, Mark has a Ph.D. from MIT, but Steve has only a HS degree

If the only thing you knew about Mark and Steve was their educational credentials, you would jump to the conclusion that Mark is a lot smarter. Given their SAT scores you almost automatically shift to the view that Mark is a lot harder worker, once you know Steve's test scores you instantly infer he's pathologically lazy - or perhaps a "free-spirit"

In an interview Steve would pose as a diligent worker bee. He'd make excuses or change the subject to his strengths. But given his educational history the typical employer would be nervous.

Lesson: Education also signals conscientiousness

• Next Vignette:

Jenn and Karen scored higher on their SATs than 3 out of 4 students. After High School Graduation, both of them took on full time jobs. However, they spent their evenings very differently. Jenn spent 20 hours/week earning her college degree part time. Karen in contrast, spent 20 hours/week creating the world's biggest ball of yarn. 5 years after high school graduation, Jenn has her degree, Karen her record-breaking ball of yarn

Jenn and Karen don't just seem equally smart; they seem equally conscientious. Both had the stick-to-itiveness to complete a challenging project in their spare time. Yet Jenn sounds more employable because she has toiled in the service of a socially approved goals. Karen in contrast pursued her eccentric vanity project. Jenn's degree signals her deference to social expectations; she's a team player. When the boss says jump, she'll ask "how high?" Karen's ball of yarn sends a mixed signal at best. she works hard when she puts her mind to something, but will she work hard to please her boss?

<u>The Vignette's lesson: Education also signals conformity- the worker's grasp of submission to</u> <u>social expectations.</u>

- You could signal any of the 3 traits through other means, but educational credentials are so much more enticing. So why education? It signals the package
- Heterodox signals of your strengths, offsetting weaknesses.
- Score well on SAT, but never went to college. Employers will believe you are smart. But if you are
 so smart, why didn't you go to college? As long as your conscientiousness and conformity are in
 normal range, it should have been a snap. Once your employer sees your SATs, they naturally infer
 you're below average in conscientiousness and conformity. The higher your scores, the more
 suspicious your missing diploma becomes.
- this is even clearer if you try to signal your braininess by say, blogging about science fiction. If you
 have the brains to master Isaac Asimov, you should also excel in school- unless of course your
 "issues" keep getting in the way
- if you have the work ethic to copy the dictionary by hand, completing college should be a cakewalk- unless you're slow witted or play poorly with others
- unconventional signals of conformity suffer from a deeper flaw- and outright catch 22. Alternative signals of conformity signal nonconformity. Once a conventional bachelor's degree is the standard signal of conformity, "outside the box" substitutes are suspicious at best. Telling employers "I'm self-taught" or "I graduated from a brand-new internet university" makes you sound weird. The further outside the box you signal conformity, the more it backfires. Tell employers, "I'm not Jewish, but I keep kosher to prove I can conform to intricate rules". They'll take you for a freak.
- The catch 22 of conformity signaling is so binding that people occasionally withhold good signals to avoid looking socially unaware. Considers norms against bragging. You aren't supposed to trumpet your strengths, even if you can prove every word you say. Braggarts therefore send mixed signals at best: even if they're as smart and accomplished as they say, they're boors.

a STRIKING illustration from the job market: while employers rarely request applicants standardized test scores, applicants remain free to provide these scores on their resume. Few Do. What do applicants have to lose? The word on the street: putting high scores on your resume suggests your smart but socially inept. You're doing something that's "simply not done" As Bryan Caplan once heard a professor berate a graduate student: "Putting your GRE scores on your resume makes you look like a student. Departments want to hire promising assistant professors, not brilliant pupils."

Signaling Objections

Objection: Signaling Purism (strawman)

This is an egregious straw man. Education currently has some capital. The point of the signaling model isn't to deny the obvious, but to explain the mysterious: How come so many subjects in the curriculum don't seem useful- and Why does the labor market nevertheless reward you for learning them?

Objection: Signaling = "signaling intelligence alone" (strawman)

"diplomas signal intelligence, but so does an IQ test" Education signals more than intelligence.

Objection: Signaling drags on for years, which "doesn't make sense"

They picture a simplistic version of the model for granted. They picture a signal as definitive proof of a worker's quality; once you send the signal, the truth shines forth for all to see. For many traits however,

there is no definitive "show stopping signs". you can always enhance employer's confidence. When the competition sends better signals and you don't, employers unsurprisingly think less of you.

Consider this vignette:

Fred and Dana seem equally smart in their interviews. Both insist they're "hard working team players". But Fred dropped out of college after his first year. Dana, in contrast, has a degree in her hand.

The Labor market will clearly favor Dana. Employers may get a good read on Fred and Dana's intelligence during their interview. Their conscientiousness and conformity, however are fakeable. An employer can't ask Fred "Are you a hardworking team player?" and hire him when he says "yes". An employer can't just watch Fred work for a few hours. With a job at stake, even a slacker will work like a dog. The same holds for when Fred finishes one year of college. A lazy rebel will toil and conform for two semesters is the wage is right. To signal you're the real deal, a hardworking ream player must outlast the posers and wannabes.

The signal must be grueling and costly, otherwise it fails to sort out the best job candidates. Signaling is a war of attrition. Giving up early is surrender. The longer you endure, the stronger, you look. The victors- the people who get the best jobs- are the last students standing.

Objections: You can't fool the market for long

Some maintain that employers can discern their employee's true productivity in a matter of months. After this brief trial period, the market no longer pays big bucks for mere credentials.

When researchers explicitly gauge the speed of employer learning, the process seems to take years or decades, not months [CH 1 NOTE 34]

For Argument's sake, let's say that this objection is correct: In 3 months employers see beyond credentials to reality. This hardly makes signaling futile. Instead, it suggests the main reason to signal is to get your foot in the door-to secure your first good job. By definition, this only happens once in a lifetime, yet it is no small affair. Until your foot is in the door, your talent and character go to waste.

"You can't fool the market for long" ≠ "The market won't overlook you forever"

The flipside of this problem is that employer lack the ability to spot "diamonds in the rough"-to discover workers whose diplomas understate their performance, b/c to do so is exorbitantly costly: employers can't afford to give every applicant an interview much less a job.

What's a diamond in the rough to do? Get the credentials you need for your "big break". 3 months later, when your boss sees the real you, your credentials don't suddenly become a mistake. Without those credentials, your career would never have gotten off the ground in the first place.

SIGNALING AND HIRER'S REMORSE

This critique also naively assumes that employers automatically dismiss any worker who fall short of expectations. Labor regulations and lawsuits aside, firms are not run by robots. When humans work side by side, they develop fraternal feelings for one another. As long as their business is not in jeopardy, many employers retain moderately subpar employees indefinitely. And even if the boss is bereft of empathy, most of their employees won't be. Disgruntled workers are less productive workers. Any boss who "deprives someone of their livelihood" had to fear the blow to remaining workers' morale.

Give people a chance, observe how they do, fire them if they don't measure up: a "Hire, look, flush" personnel policy sounds both profitable and fair. Yet group identity and pity get in the way. After a firm hires you, you're part of a team. If you don't measure up, firing you isn't like returning a blender to Walmart. Your teammates either have to live with your poor performance, or feel sorry to see you go.

Employers do have one guilt-free way to reverse a bad hiring decision. Human Resources calls it "dehiring". Instead of firing the unwanted worker, help them jump ship. Privately urge them to find new opportunities. When firms call for reference, shade the truth- or lie. Labor law punishes firms that reveal negative information about their personnel. [CH 1 NOTE 39]

Yet the law merely enforces social psychology. As soon as the unwanted worker leaves for their new job, their coworkers and boss can stop feeling sorry for the departed-and start feeling happy for themselves. Everyone wins-except for the new firm. [CH 1 NOTE 40]

The more firms fear to fire, the more educational signaling matters. Once employers get hire's remorse, they're stuck in an awkward position. Relying on credentials is a good way to avoid getting stuck in the first place. A strong academic record tells employers, "I'm not going to make you choose between feeling a sucker and feeling like a heel."

Employers who ignore the uncredentialled may seem narrow minded, but they hire with peace of mind.

Lesson: Strong educational signals durably help your career, employers notwithstanding. In the real world, Harvard degrees pay off because Harvard grads are great workers.

Vignette: Imagine you have the world's only perfectly forged Harvard diploma. With any luck, you'll ride the Harvard Gravy Train for years. Your fake diploma lands you a sweet job. By the time your boss sees your flaws some of your coworkers will be your friends. Maybe the boss retains you out of pity, or to avoid a blow to morale. If and when the boss's patience runs out, they probably won't blatantly fire you. Instead, they'll nudge you to "find a better match". When potential employers check up on you, your current employer has every reason to cover for you- allowing you to reboot your saga of deception and disappointment.

Signaling Evidence

Some blatant facts are inexplicable without the signaling model

The best education in the world is already free.

All complaints about elite colleges' impossible admissions and tuition are flatly mistaken.

FACT: Anyone can study at Princeton University for free.

While tuition is over 45K/year, anyone can show up and start attending classes. No one will stop you. No one will challenge you. No one will make you feel unwelcome.

If you keep your learn-for-free scheme to yourself, professors will assume you're missing from their roster owing to a bureaucrat mistake. If you ask permission to sit in, most professors will be flattered. After 4 years of "guerilla education" there's only one thing you'll lack: A DIPLOMA. Not too enticing is it?

Imagine this stark dilemma: You can either have a Princeton education without a diploma, or a Princeton diploma without the education. Which gets you further on the job market?

For a human capital purist, the answer is obvious: 4 years of training are vastly preferable to a page of paper. But try saying that with a straight face.

But you NEED signaling to explain why choosing between an education and a diploma is a head-scratcher rather than a no brainer.

OBJECTION: No one takes advantage of "guerilla education" That's EXACTLY the point. The fact that almost no one grabs a free elite education shows human capital purism is false.

Unlike Capital purism, signaling can explain these facts -Best Education being free -Choosing a degree over education -forgetting and failing having wildly different consequences -etc. Without torturing them first

Easy A's

If human capital purist are right, why do students struggle to get into the best schools, then struggle to avoid acquiring skills once they arrive?

Students hunt for professors with low expectations.

Professors who want to fill a lecture hall hand out lots of As and little homework.

On the popular Rate my professor website, students grade their professors'

"easiness" "helpfulness" "clarity" "hotness"

not

"marketable skills taught" or "real world relevance"

SIGNALING TO THE RESCUE

Schools have national, even global, reputations.

Students and employers know the difference between Princeton and Podunk state. Most professors, in contrast, have only local reputations. Students know some teachers are easy or hard As. Employers don't.

Anyone who likes money and dislikes studying has an obvious 2-part strategy:

1. Choose the best school that admits you so you get a good job after graduation

2. Choose the easiest professors on campus so you have a good time before graduation Human capital purism can't explain this.

Cheating

According to capital purism, the labor market rewards only job skills, not academic credentials. Taken literally, this means that cheating is futile. Sure, a failing student can raise their grade by coping and A+ exam or plagiarizing a term paper from the internet.

The HCPM doesn't just imply cheaters are wasting their time. It also implies all educators who try to prevent cheating are wasting their time. All exams might as well be take home. No one needs to proctor tests or call time. no one needs to punish plagiarism. Learners get job skills and financial reward. Fakers get poetic justice.

Signaling, in contrast, explains why cheating pays- and why schools are wise to combat it. In the SM, employers reward workers for the skills they think those workers possess. Cheating tricks employers into thinking you're a better worker than your really are. The trick pays because unless everyone cheats all the time, students with better records are, on average, better workers.

Why discourage cheating?

Because detecting and punishing cheaters preserves the signaling value of your school's diploma. Every time your school expels a cheater, you protect the good name of your graduates, past, present, and future.

Why do students rejoice when a teacher cancels class?

If HCPs are right, then such rejoicing is bizarre. Since you go to school to supposedly acquire job skills, a teacher who cancels class rips you off. You learn less, you're less employable, yet your school doesn't refund a dime of tuition.

In Contrast, in construction, contractors don't jump for joy if their roofers skip shingling to go gambling. In School, however students jump for joy if their teachers cancel class to attend a conference in Vegas.

When students celebrate the absence of education, it's tempting to blame their myopia on immaturity. Tempting, but wrongheaded. Once they're in college, myopic, immature students can unilaterally skip class whenever they'd like. Why wait for the teacher's green light?

For most students there's an obvious answer: When you skip class, your relative performance suffers. when your teacher cancels class, everyone learns less, leaving your relative performance unimpaired.

HCP reject the "obvious answer". Employers reward you for your skills, not your skills in relation to your classmates.

Signaling in contrast, takes the "obvious answer" over the finish line.

Why do students cheer when their teacher cancels class? Because they escaped an hour of drudgery, without hurting their GPA.

Why don't students unilaterally skip class? Because if they skip class and their classmates don't, their grade suffers (There being no reliable way to orchestrate such an event consistently).

Why do students focus on grades rather than learning? Because they follow the money.

Lead into Gold

If you single mindedly focus on graduates' paychecks, education turns lead into gold.

Waiters walk in, economic consultants walk out.

Do teachers really transform waiters into economic consultants? Or do they merely evaluate whether waiters have the right stuff to be economic consultants?

By analogy, both sculptors and appraisers have the ability to raise the market value of a piece of stone. The sculptor raises the market value of a stone by shaping it. The appraiser raises the market value of a piece of stone by judging it.

How much of education is shaping vs judging?

Issue	What Pure Human Capital Says	What Pure Signaling Says	Advantage?
Learning-Earning Connection	Only job-relevant learning pays.	Irrelevant learning pays too, as long as it's correlated with productivity.	Signaling
Collegiate Exclusion	Colleges prevent unofficial attendance so students actually pay tuition.	Colleges ignore unofficial attendance because the market doesn't reward it anyway.	Signaling
Failing vs. Forgetting	Employers reward workers only for coursework they still know.	Employers also reward workers for coursework they used to know.	Signaling
	and the second	Laboration of settleday on the state	
Easy As, Cancelled Classes, and Cheating	Students care about only marketable skills, not gradua- tion requirements or grades.	Students care about only graduation requirements and grades, not market- able skills.	Signaling
Sheepskin Effect	Graduation years won't be especially lucrative.	Graduation years may be especially lucrative.	Signaling
Malemployment	Degrees required to get a job depend solely on skills re- quired to do a job.	Degrees required to get a job rise when those degrees become more com- mon.	Signaling
Employer Learning	Employers instantly discover and reward true worker produc- tivity.	Employers never dis- cover or reward true worker productivity.	Signaling
Personal vs. National Returns	Education equally enriches individuals and nations.	Education enriches individuals but not nations.	Signaling

Human Capital Purism (HCP)

HCP advances a single explanation: education pays because education teaches a lot of useful job skills. A tempting story...until you stare at

- what schools teach
- what students learn
- and what adults know

Then HCP looks not just overstated, but Orwellian. Most of what schools teach has no value in the labor market. Students fail to learn most of what they're taught. Adults forget most of what they learn.

When you mention these awkward facts, educators speak to you of miracles: studying anything make you better at everything. Never mind educational psychologists' century of research exposing these so-called miracles as soothing myths.

An optimist could reframe the summary of the facts. If most of what of what schools teach no value in the labor market, then some of what school teaches has value. if students fail to learn most of what they're taught, then students learn some of what they're taught. If students forget most of what they learn, then they remember some of what they learn.

Fair enough.

Yet the question remains:

Can the modest job skills we learn in school explain the extra pay we earn after graduation? It depends on the size of the premium. At least on the surface, modern education seems highly lucrative.

Does modest learning genuinely lead to immodest earning?

Or are the apparently ample rewards of educational illusion?

Brief Note

When you have a weird experience, you doubt yourself. What's weird: the world, or you? The answer for education, as we've seen, is the world.

The Signaling model elegantly rationalizes this weirdness. Signaling doesn't just reconcile the psychology of learning with the economics of earning. Once signaling clicks your first quarter of life finally makes sense. It fits our firsthand knowledge experience- and it's hard to imagine any other way to reconcile the facts about learning with the facts about earning.

Sheepskin Effect (SSE)

SCENARIO: You're one class away from a B.A. You're biking to the final exam, secure in your mastery of the coursework. Suddenly, a car smacks into you. Though your injuries are minor, you miss your test. The professor denies you a makeup, so you flunk the class and fail to graduate. Once your outrage cools, you weigh your options.

SHOULD YOU:

- 1. Enroll in one more semester to complete your diploma
- 2. Give up and get on with your life

the HUMAN CAPITAL MODEL

urges you to quit school. While your accident deprived you of a diploma, you still possess all the skills required to earn that diploma. Hiring you for a "college graduate's job" is usually perfectly legal. Since employers value skills, not diplomas, retaking your missing class would waste your time and money.

the SIGNALING MODEL

in contrast, urges you to finish what you started. In our society, graduation is a sacred milestone. Graduation tells employers, "I take social norms seriously- and have the brains and work ethic to comply."

Quitting tells employers, "I scorn social norms-or lack the brains and work ethic to comply"

If you graduate, the SM says the market will lump you with the winners and pay you a special diploma bonus-often called a "Sheepskin effect".

(b/c diplomas use to be printed on sheepskins)

If you quit, the SM says the market will lump you with the losers and withhold the sheepskin's reward. After all, employers won't know why you failed to finish your degree. They'll only know you failed.

Labor Economists normally neglect sheepskin effects. By default, they assume all years of education are created equal, then estimate "the" effect of a year of education on earnings. [CH 4 Note 2] Yet economists who trouble to look almost always find pay spikes for diplomas. [CH 4 Note 3]

- High School graduation has a big spike: 12th grade pays more than grades 9, 10, and 11 combined. In percentage terms, the average study finds graduation year is worth 3.4 regular years.
- College graduation has a huge spike: senior year of college pays over x2 as much as freshman, sophomore, and junior years combined. [CH 4 Note 4]
- In percent terms, the average study finds graduation year is worth 6.7 regular years.
- Results are similar for advanced degrees. In several studies, their payoff is nothing but a sheepskin effect. [CH 4 Note 5]

Firsthand Experience

When pay spikes, so does education itself. "Finish your degree, then rest on your laurels" is the classic student strategy.

- 1/3 of the US population spends 12 years in school, gets a HS diploma, then stops
- only 2% quit HS right after 11th grade
- 1/7 spends 16 years in school, gets a bachelor's degree, then stops
- only 2% quit college quit college right after junior year.
 [CH 4 Note 6]

Signaling has an instant explanation for all the spikes. Why does pay spike pay for degree years? Because finishing sends employers a much better signal than quitting. Why does education pay spike for degree years? Because students run, walk, or crawl to grab the handsome cash prize they see just over the finish line.

General Social Survey (GSS)

To get a better feel for the SSE, let's put workers in the GSS under the microscope This massive survey of the U.S. public begun in 1972 and is still underway (as of 2018). The GSS is ideal for isolating the SSE: 99.5% of participants declare both:

- 1. Their years of education
- 2. Their highest completed degree.

and all and the second	Effect on Earnings		
Education	If Only Years of Education Matter	If Diplomas Matter Too	
Years of Education	+10.9%	+4.5%	
High School Diploma	opies a barra copital.	+31.7%	
Junior College Diploma	n sa filita 10- sontan	+16.6%	
Bachelor's Degree	in another to star Willer	+31.4%	
Graduate Degree	ha and den toward	+18.2%	

Ignoring degrees, the GSS features a large education premium: take another year of school, get a 10.9% raise (SEE table 4.1)

Correcting for degrees, however, this annual payoff plummets to 4.9% [CH 4 Note 7] Over 60% of the education premium turns out to be Sheepskin Effect. High School and 4-year college diplomas are especially lucrative: Crossing each of these thresholds boosts income by almost a third.

As expected, the most lucrative years are also the most popular.

- 30% have a high school diploma with exactly 12 years of schooling
- only 5% finished 11 years but not 12

- 11% have a bachelor's degree with exactly 16 years of school
- only 3% finish their junior year but not their Senior year

How could SSE not reflect signaling?

- The simplest story is that schools save the best for last: graduation years pay extra because that's when schools suddenly focus on marketable skills. As far as I know, no one defends this idea. Graduation year is "goof-off" year, not "finally lean some job skills" year
- 2. Most skeptics try to undermine the SSE-Signaling connection from a totally different angle: **Ability Bias**. [CH 4 Note 8]

Sure, graduation looks lucrative. Yet, the reason supposedly, is that graduates had far better career prospects than all dropouts all along. If Ability Bias fully explains the SSE, an untimely bike accident that derails your graduation will leave your career unscathed. (SEE top of page)

As usual, the best way to test for Ability Bias is to measure an correct for ability. Multiple papers on the SSE carry out such tests. None conclude that the SSE vanishes after correcting for ability. [CH 4 Note 9] Instead, correcting for ability usually modestly cuts the effect of both years of education and diplomas- holding the RELATIVE payoff for diplomas steady.

Table 4.2: Sheepskin Effects and Ability Bias in the General Social Survey (1972–2012)

Ser Sain Local	Effect on Earnings		
Education	Only Years of Education Matter	Diplomas Matter Too	
Years of Education	+10.3%	+4.2%	
High School Diploma	Constant of the second states	+32.0%	
Junior College Diploma	- dear sand	+10.4%	
Bachelor's Degree	i da valiss- dagerda	+29.8%	
Graduate Degree	unding gan - add worth	+17.8%	
All results adjust for age, age participants; and are converte	e squared, race, sex, and cognitive ability; are limited to labor fo ted from log dollars to percentages.		

Results from the GSS are typical. Table 4.2 shows what happens to Table 4.1 after correcting for cognitive ability.

Standout Result: the SSE for junior college falls by about a third. Otherwise, there's not much to see.

Absolute payoffs for high school diplomas, bachelor's degrees, and graduate degrees barely budge- and their relative payoffs actually rise. [CH 4 Note 11]

Ability Bias explanations for SSEs aren't just hard to square with the statistical evidence; they're hard to square with the glaring fact that education spike in degree years.

- If the labor market ignores credentials, why do so many college grads opt for zero graduate education?
- Are we supposed to believe 1/3 of the population has exactly the right ability to finish high school, but not advance to college? [CH 4 Note 12]
- 1/7th of the population has exactly the right ability to finish college, but not advance to grad school?

You could say, "College is far harder than High School so many decent high school students reasonably expect to fail college." Yet nowadays, high school and college curricula plainly overlap: about 40% of traditional undergraduates take at least 1 remedial course. [CH 4 Note 13]

(NEB) BUT if there's no SSE and the SM is not valid, then HCP says you should be able to significantly increase your income through only 1 or 1.5 years of college, so High School Grads wouldn't have a fear of not completing college, because they wouldn't see a need to graduate to gain a decent increase in income. Plenty would go intentionally for 1-3.5 years.

 True believers can always protest "<u>The SSE shall vanish once we get better ability measures.</u>" Such forecasts, to be blunt, are empty promises. SSE looks massive. To debunk them, researchers would have to pinpoint fantastically potent yet neglected abilities.

But that's not all.

To debunk SSE, correcting for these neglected abilities would have to drastically cut the payoff for degrees but nor the payoff for years of schooling.

What abilities would even conceivably qualify?

- A. After digesting all the evidence on the sheepskin effect, you may feel ready to channel King Solomon. HC and S come before you as litigants. They ask you to split the education premium between them. A ruling with a great ring to it: "Human Capital gets credit for the payoff of the years of education, while signaling gets credit for the payoff for degrees." This implies a HC/S split of roughly 60/40 for high school, and 40/60 for college. Yet on reflection, this Solomonic ruling treats HC too generously. The SSE doesn't measure signaling. Instead, the SSE sets a LOWER BOUND on signaling. "King Solomon" should award signaling all the payoff for diplomas + some of the payoff for years of education- and HC gets whatever's left.
- To see why, picture a world that lacks the notion of "graduation." Can we safely declare
 educational signaling would vanish in such a world? Of course not. In the absence of diplomas,
 education, continues to signal intelligence, conscientiousness, and conformity. The main
 difference between this imaginary world and our own: its signals are smooth. If you get slightly
 more education, you look slightly more employable.
- In the real world, we know what graduation is-and view graduates and dropouts as separate species.
- This doesn't mean that we ignore unfinished education. In our society, credentials define you in broad strokes, but years of education add valuable details, Consider this vignette:

 Jane got her high school degree and never went to college. Doris got her high school degree, finished a year of college, then quit school for good. Who do you hire?

Suppose Doris got her high learned no job skills in college. You would still expect her to be a better worker than Jane. Why? Because Jane met a minimal social expectation, while Doris surpassed them.

If you want a worker who goes the extra mile, Doris is the better bet.

We should not be surprised then, that some SSE studies solid rewards for the first year of college [CH 4 Note 16] In the eyes of the labor market, tis better to try and fail than never to have tried at all.

Modern life tells us the sheepskin effect is big but only, but only scholarship can tell us how big. It also inoculates us against the seductive view that diplomas no longer matter in the age of billionaire dropouts. Perhaps most importantly, SS scholarship shows us commonsense and social science converge.

Malemployment and Credential Inflation

Researchers have 3 main measures of malemployment (When your education is too good for your job). [CH 4 Note 18]

- "Atypical Education" Method See if your education is abnormally high given your occupation. [CH 4 Note 19] This method usually yields a 10-20% malemployment rate. [CH 4 Note 20] The Atypical drawback: it rules out the possibility that the TYPICAL worker in an occupation is overrated: If every bartender has a Ph.D., the "atypical education" approach reports 0% malemployment for bartenders.
- 2. "Self-Report" Method

Researchers ask workers if they have too much, too little, or just enough education for their jobs. This method usually yields a 20-35% malemployment rate. [CH 4 Note 21] The self-report approach's main drawback: calling yourself "overqualified" is a bitter admission of failure, so true rates are likely higher.

3. "Job Analysis" Method

After dissecting occupations one by one, researchers judge how much education the occupation "really requires" - then check whether workers' education exceeds this requirement. [CH 4 Note 22]

This method also usually yields a 20-35% malemployment rate. [CH 4 Note 23]

The Job Analysis approach's main drawback: skill requirements both rise and fall over time. Some innovations simplify once complex jobs. other innovations complicate once simple jobs.

REGARDLESS of your preferred measure, all 3 approaches **reveal abundant malemployment**. This is a rare topic where economists and sociologists have a meeting of the minds. The only way to deny the ubiquity of malemployment is to dogmatically insist, "The education workers have is by definition the education workers need." Try telling that to a waiter with a Ph.D. in Astronomy.

Most researchers agree that malemployment is on the rise.

- one leading team found
 - US college grad's malemployment rate rose form 25.2% in 2000 to 28.2 % in 2010 (3% in 10 years)
 - During the depths of the great recession, malemployment for the youngest college grads neared 40% [CH 4 Note 25]
- Another research team focused on the long run evolution of education in 500 occupational categories
 - from the early 1970s to the mid-1990s, workers' average education rose by 1.75 years
 - About 20% of this increase (.3 years) reflected the switch to higher skill occupations
 - The remainder stemmed from credential inflation: average education within individuals occupations rose 1.2 Years [CH 4 Note 26]
- A longer run study for 1972-2002 gets nearly the same ration
 - average education rose by 1.75 years
 - but growth of higher skilled jobs drove only 19% of the increase. [CH 4 Note 27]
- Credential Inflation has even ravaged academia itself
 - today's professors are MUCH more likely to have Ph.Ds. than they were in the 1960s [CH 4 Note 28]

Despite clichés about the information age, workers are changing much more rapidly than their work. [CH 4 Note 29]

A. By itself, Malemployment is compatible with the HCPM

How? Graduates could be malemployed because they failed to acquire marketable job skills in school.

- This might mean malemployed graduates failed to learn/retain the curriculum. Recall that on the NAAL,
 - over 50% of high school grads have less than intermediate literacy and numeracy
 - almost 20% of college grads have less than intermediate literacy and numeracy
- Or it might mean malemployed graduates learn an irrelevant curriculum. Recall that
 - over 40% of high school coursework score low in usefulness
 - over 40% of college majors score low in usefulness

When a B.A. bartender asks "why oh why can't I get a better job?" HCP answers "because despite your credentials, you didn't learn how to do a better job"

B. <u>Signaling weaves a contrary Tale</u>

A Tale where malemployment reflects workers never ending struggle to outshine each other. Picture an arms race. Rising education automatically parks credential inflation.

As credentials proliferate, you must study harder and longer to convince employers to hire you. In an everyone-has-a-B.A. dystopia, an aspiring janitor might need a master's in janitorial studies to land a job scrubbing toilets.

When a B.A. bartender asks "why oh why can't I get a better job?" Signaling ruefully answers, "Because too many competing workers have even more impressive credentials than you do."

As 2 noted sociologists explain:

In an over-qualified labor market, employers will fill the "highest" jobs with those who have the "highest" credentials. Since over-schooling means there are too many workers who are highly educated, some of these workers are necessarily allocated to "mid-level" jobs. This process is repeated for those with mid-level qualifications, where since there are not enough mid-level jobs, many are forced to compete for low-level jobs.

C. If both HCP and Signaling allow for malemployment, why raise the issue? Because the 2 stories diverge on one crucial point: Does the labor market reward workers for education they do not use? Human Capital says "NO"; signaling says "YES"

Take bartenders with B.A.s. Plausibly assuming college does not transform students into better bartenders, the HCPM predicts B.A.s will fail to raise bartender's income. The Signaling Model predicts the opposite: bartenders with B.A.s will out-earn bartenders without B.A.s. Why?

Because bars, like all businesses, seek **INTELLIGENT, CONSCIENTIOUS, CONFORMIST** workers.

and a B.A. signals these very traits. Given a choice, then, bars favor applicants with B.A.s despite the onthe-job irrelevance of the academic curriculum.

How well does the labor market pay workers for education they do not use?

The bet data on this question, ironically, comes from enthusiastic promoters of college expansion. Researchers at Georgetown University's Center on Education and the Workforce use the 2007-2009 American Community Survey to tabulate earnings by education level for over a quarter million workers in 500 occupational categories. [CH 4 Note 32] Their data confirm 2 patterns.

- <u>High School grads out-earn high school dropouts in almost all occupations.</u>
 214/500 include at least 10 High School dropouts and at least 10 high school grads. High School Grads out-earn dropouts in 93% of these occupations, with a median earnings premium of +37%
- <u>College grads out earn high school grads in almost all occupations.</u>
 270/500 Occupations include at least 10 high school grads and at least 10 college grads. College grads out-earn high school grads in 90% of these of these occupations, with a median earnings premium of +28%

To weigh the power of HCM vs Signaling, however, we must zero in on occupations with little or no plausible connection to traditional academic curricula. Despite many debatable cases, there are common jobs that workers clearly don't learn in school.

Almost no one goes to high school to become:

- bartender
- cashier
- cooks
- janitor
- security guard
- waiter

No one goes to a 4-year college to prepare for such jobs. Yet as Figure 4.1 shows, the labor market pays bartender, cashiers, cooks, janitors, security guards, and waiters for high school diplomas and college degrees.



Figure 4.1's occupations were selected to reduce controversy. You can argue college prepares people for being an electrician, real estate agents, or secretaries. But it's hard to say "College prepares the next generation of cashiers and janitors" without smirking Now, let's cast a wider net.



Roughly 1/3 of occupations in the <u>American Community Survey</u> have at least 10 workers in in each of the main education categories:

- High School Dropouts
- High School Graduates
- 4 Year College Graduates

About 1/3 of these occupations at least arguably build on traditional academic coursework. [CH 4 Note 34] The remaining occupations' tie to the academic curriculum is tenuous at best.

FIGURE 4.2 compares median educational premiums for occupations that are:

- Arguably Academic
- Non-Academic

Human Capital Theorists can draw comfort form the fact the college premium is x2 as high for arguably academic occupations. But not too much comfort: the high school premium is slightly higher for nonacademic occupations. When high school dropouts and college graduates are in the same line of work, college graduates typically earn 70-90% more-even in occupations high schools and colleges studiously ignore.

What would King Solomon conclude about the HC/S split?

The combined premium plainly reflects both HC and S.

The nonacademic premium, in contrast, presumably reflects something close to pure signaling. The Solomonic verdict just divides the nonacademic premium by the combined premium. This works out to nearly 100% for High school, and 80% for college.

Why are academic credentials so lucrative, even in decidedly nonacademic lines of work? The Georgetown researchers who compiled this data propose 2 conspicuously implausible options:

- a. employers are fools
- b. schooling greatly boosts productivity in virtually any line of work:

Unless we concede that employers are paying more to some than to others for the same skill sets-an irrational economic action-it becomes clear that workers with a Bachelor's degree are able to translate their added skills into higher pay. Further, jobs that were once held by workers without college degrees decades ago have been transformed to require many more skills, as evidenced by a wage premium in those positions.

Signaling is the obvious alternative. School certifies employability. Yes, waiting tables for 4 hours teaches you more about being a waiter than being in classes for 4 years.

But the chasm between the academic curriculum and the food service industry is beside the point. From the employer's point of view, similarly only one thing matters: hiring good student is a shortcut to better waiters.

From the waiter's point of view, similarly, only one thing matters: being a good student is a shortcut to better restaurants.

Is there any way to escape signaling's grip?

- Skeptics could appeal to ability bias: high paid waiters with college degrees would have been every bit as successful if they skipped school. But there's no reason to believe this extreme story; controlling for ability shrinks but never eradicates the education premium. [CH 4 Note 37] In any case, the overall education premium and the nonacademic premium are almost the same. This parity would only make sense if workers with above-average ability were less likely to use their book learning on the job. The opposite holds.
- Critics of signaling could also affirm that education "builds character" so it's not absurd to claim school transforms students into better bartenders, cashiers, cooks, janitors, security guards, and waiters. The chief flaw in this story as we've seen is that both work experience and education "builds character"- and it would be amazing if a year of school better instilled the work ethic than a year of work.

Malemployment is not mere "man bites dog" hype designed to terrify English Major's parents. The amount of education you need to get a job really has risen more than the amount of education you need to do a job.

Bartender, cashier, cook, janitor, security guard, and waiter are now common jobs for college graduates. Education helps workers advance in almost any line of work-whether they tap their education on the job. Technology has made many mentally undemanding jobs like cashiering simpler than ever, but the market stull pays educated cashiers a hefty premium.

Signaling is the only theory that explains the totality of these otherwise baffling facts.

In our society, education is a seal of approval. Employers know it. Workers know it. A seals proliferate, workers need extra seals to upstage the competition. You'll never apply most of what you study, but so what? Academic success opens doors. A dysfunctional game, but if you refuse to play, the labor market brands you a loser.

The Speed of Employer Learning

The Signaling theory is a special case of what economists call "statistical discrimination": using true-onaverage stereotypes to save time and money.

Safe young male drivers pay exorbitant insurance premiums because hiring private detectives to rate riskiness person by person is not cost effective. Prudence makes insurers play the averages. You statistically discriminate every time you delete a "make money fast" email unread, or cross the street to avoid a muscular tattooed man. The email could be a legitimate business opportunity; the muscular tattooed man could be a friendly circus performer in need of directions. But idealists who reserve judgement until they closely study the facts pay a high price for their integrity. The idealist does get a consolation prize: gradually phasing our statistical discrimination is profitable. Entering a relationship unleashes a flow of cheap information. Every time you deal with your partner, you discover a little more. As time goes by, discrepancies between true-on-average and true-in-fact comes into focus. Prudence urges you to revise your behavior in light of such discrepancies. When a young male driver has a clean record for five years, a shrewd insurer cuts his rates to retain a great customer.

These truisms extend to educational signaling. Credentials are undeniably important at the hiring stage. Yet once you're hired, your employer comes to know you as an individual. If your education understates your skill, the boss will fear to lose you. Expect good raises or even a promotion. If your education overstates your skill, your employer might hope to lose you. Expect meager raises or even a pink slip. As time goes by, then, your employer should lose interest in mere credentials.

This logic is impeccable, but dodges crucial Questions.

- Employers eventually get to know the real you. But how long is "eventually"?
- In the end, employers pay you what you're really worth. But when is "the end"?

Economists have spent 20 years searching for answers, measuring what they call "the speed of employer learning."

When they attack this problem, economists never measure employer learning directly.

Instead they infer what employers know from what employers pay. As workers gain experience, does the payoff for education go down and the payoff for cognitive ability go up? Then researchers infer learning: as employers get to know workers, they pay less and less for superficial credentials, and more and more for underlying merits. When payoffs for education and cognitive ability plateaus, researchers often conclude employers have reached the truth.

What does this approach reveal?

For most workers, employer learning takes years or even decades, not months, 2 seminal studies of employer learning found that during your first decade in the workforce, the ability premium sharply rises, while the education premium falls 25-30% [CH 4 Note 39]

A subsequent prize-winning article found that education and ability premiums plateau after roughly 10 years of experience; the education premium stops falling, and the ability premium stops rising. [CH 4 Note 40]

Employers seem to be able to see through college graduates much more quickly than less-educated workers. One early researcher confirmed academic ability is a strong predictor of job performance in

both blue- and white-collar jobs. Unlike college graduates, however, high school graduates capture little to no job reward for academic ability during their first 8 years in the labor force. [CH 4 Note 41] A recent high-profile study claims employer see college graduates' ability "nearly perfectly". as soon as they join the labor market. [CH 4 Note 42] Yet the same piece finds less educated workers wait over a decade to get full credit for their talent. [CH 4 Note 43]

The logic of employer learning also suggests that sheepskin effect effects matter less and less as careers progress. The only paper to test this prediction finds Sheepskin Effects take about 2 decades to disappear. [CH 4 Note 45]

In light of all this evidence, I'd call employer learning slow.

Yes, a few studies hail employer's perfect or "almost perfect" knowledge. When closely read, however they paint a sluggish picture. Take the study that proactively claims employers see college graduates' ability "nearly perfectly". The same piece reports high school dropouts enjoy virtually zero payoff for their ability when they first join the labor force. Full catch up takes over 10 years [CH 4 Note 46] In other words: to win your rightful place in the world, you must wither enter the labor force and work for a decade plus, or graduate form a four-year college. Somber news for "diamonds in the rough" whose skills surpass their credentials.

You can use employer learning studies to ballpark signaling's importance.

Before you do, there are 3 CRUCIAL caveats- caveats leading researchers never deny buy casual readers rarely grasp.

• Employer learning research neglects noncognitive ability

When researchers say, "After seven years, employers have full information about worker's intelligence" they almost always mean, "After seven years, employers have full information about a worker's intelligence." They gloss over everything else that could come out in the wash. If researchers measured extra abilities like conscientiousness and conformity, estimates of the speed of employer learning could-and probably would-plummet.

After all, high intelligence is hard to fake, yet almost anyone can temporarily feign high conscientiousness. "The boss is coming, look busy!" is sound advice. "The boss is coming, look smart!" is not.

• Learning Plateaus do not imply perfect knowledge.

Casual readers often equate learning plateaus with perfect knowledge, but stagnation and omniscience are not the same. Perfect knowledge is one plateau. Abject ignorance is another. My knowledge of Swahili has been stuck at zero for my whole life, and I never expect to improve. And of course, you can plateau anywhere in between.

The same goes for employers: their knowledge can plateau anywhere. The boss who learns more about you has a reason to adjust your pay. But when your boss stops tinkering with your pay, you shouldn't imagine the Real you has finally shone through. When the education premium hits a floor, there's no reason to declare employers omniscient or signaling dead.

In most European countries studied, the education premium does NOT decline over time; should we really conclude European employers instantly see through their workers? [CH 4 Note 48]

Suppose during worker's first decade in the workforce, the yearly education premium falls from 10% to 5%, then plateaus. This could mean that after you spend ten years on the job, employers learn all there is to learn about you. In this story, the HC/S premium starts at 5% for HC and 5% for S, and stabilizes at 5% for HC and 0% for S. The split goes from 50/50 to 100/0.

A less fanciful interpretation is that after you spend ten years on the job, employers learn all they can CONVENIENTLY know about you. In this story, the HC/S premium breakdown could start at 1% for HC and 9% for signaling, and stabilize at 1% for HC and 4% for signaling. The split goes from 10/90 to 20/80

If you still have trouble believing in persistent employer ignorance, consider marriage. The fact that you've stopped learning new things about your spouse hardly shows you know your spouse perfectly. How many bewildered souls have cried, "after twenty years of marriage, she suddenly demanded a divorce"? The same applies with greater force in the labor market. If a husband can "never really know" his own wife, how can each and every long-term employee?

• Signals can affect pay even after employers know the truth

Employer learning researchers speak after as if they payoff for signaling ends as soon as the employer know a worker's true worth. They should be more circumspect. For starters, firms often give new workers valuable on-the-job training. As a result, signaling can indirectly boost your productivity.

Step 1. Signal in school

Step 2. Land a good Job

Step 3. Learn useful skills on the job

Step 4. Persistently profit.

If your signal modestly overstates your skill, your employer may soon wish they'd hired someone else. By the time they spot their mistake, your new marketable skills permanently justify your higher pay. [CH 4 Note 49]

The more fundamental reason why signals durably affect pay, is employers underreact to what they learn. Why? Because they want to match pay and perceived productivity WITHOUT SEEMING UNFAIR. When employers spot poor performance, they could swiftly respond with wage cuts, demotions, or terminations. The Catch: such "unfair" measures are bad for morale-and make employers feel guilty.

Stingy raises are less odious, but stingy raises year after year create "inequitably" large pay spreads for workers with the same job description. Most firms avoid such inequities with formal pay scales: every job has a pay grade, and every pay grade has a salary range. [CH 4 Note 52] Unless they change jobs, good workers eventually max out, and bad workers eventually min out. This process is slower than it sounds because few firms base raises to all their workers, then tack on merit raises for high achievers. In the long run, employers who strive for fairness must underreact to bad news about their workers.

Fallout:

A subpar worker can profit from their fancy degree long after their employer sees their true colors. The degree lands them a good job. As truth unfolds, the typical employer responds with stingy raises, not outright pay cuts or demotion. This slowly erodes the values of the signal, but squeamish firms show mercy long before they sync pay with performance. If and when the employer vows to eject the underperformer, both prudence and pity tell them to informally "dehire" rather than blatantly fire. As long as the subpar worker lands another position suitable for their paper persona, the cycle of disappointment, mercy, and deception is reborn. Armed with the research of employer learning, we are once again ready to play King Solomon.

What HC/S split best fits the evidence?

Two key papers face it head on. The first finds that if the initial HC/S split is 50/50, a plausible lifetime split is somewhere between 60/40 and 70/30. [CH 4 Note 54] The second estimates a lifetime split anywhere from roughly 50/50 to 100/0, but the author's favorite estimate is 86/14. [CH 4 Note 55]

While the two papers' conclusions differ, neither is near the 20/80 split I've been pushing. My response is two-fold.

- 1. Both papers concede their research results are fragile; alternate assumptions imply a much bigger signaling share. [CH 4 Note 57]
- 2. Both papers sidestep a glaring hole in their approach: though they claim to estimate the speed of employer learning, they measure learning speed only for easy to see cognitive ability, ignoring hard to see noncognitive ability

Sum:

Employer learning research begins promisingly: prudent employers gradually phase out statistical discrimination. Contrary to casual readers though, research building on this truism never shows the signaling model is dead on arrival. When scholars declare employer learning "fast" or "perfect", you have to read the fine print.

To discredit the signaling model, they must make a series of unreasonable assumptions. Drop these assumptions, and signaling holds its own.

The Education Premium: Personal vs National

According to the **<u>pure HCM</u>**, education lifts income by making you more productive. A worker gets more education; their productivity and income go up. A nation gets more education; its productivity and income go up. If HC is the entire truth, education is a path to individual and national prosperity: education makes the pie bigger, so every worker can enjoy a bigger slice.

According to the **pure SM**, education raises income by making you look more productive. A worker gets more education; their productivity stays the same, but their income goes up. A nation gets more education; its productivity and income stay the same. The personal and national effects diverge because signaling is a rat race. Only one worker can look like the best worker in the country, and only 25% can look like the best 25%. If signaling is the whole truth, education is a path to individual prosperity and national stagnation: education fails to make the pie bigger, so bigger slices for some means smaller slices for others.

Actual education lies between these extremes.

Yet the polar cases of pure HC and pure S highlight another strategy to nail down the HC/S split.

Step 1. Estimate the effect of education of a year of personal education on personal income.
Step 2. Estimate the effect of a year education on national on national income.
Step 3. Compare. HC's share of the truth = (The national Effect) divided by (personal effect). The rest is signaling. [CH 4 Note 59]

Suppose a year of personal education raises personal income by 10%. Then once you know the effect of a year of national education on national income, you are ready to deduce the HC/S split. 10% effect on national income? The split is 100/0. 6% effect on national income? 60/40 0% effect? 0/100.

1. Estimate the effect of education of a year of personal education on personal income.

We already spent a full chapter examining the effect of education on personal income. Punch line" education is lucrative, but less lucrative than it looks. In the modern United States, a year of education raises earnings by 5-10%. When making international comparisons, we can't assume the U.S. is typical. Fortunately, several research teams have studied the education premium country by country, learning <u>two</u> <u>big facts.</u>

- For a rich country, the U.S. education premium is unusually high, especially in recent decades. The US has the largest high school premium and close to the highest college premium in the OECD (Organization for Economic Cooperation).
 [CH 4 Note 60] Two research teams confirm the US has one of the highest-if not the highest-college premiums in the developed world. [CH 4 Note 61] Another study estimated the education premium in 27 developed countries, plus the Philippines. In the average country, a year of education raised male earnings by 4.8% and female earnings by 5.7%. The US premiums were at least 50% higher. [CH 4 Note 62]
- II. <u>The education premium is lower in richer countries.</u> A comprehensive study of 50 countries finds an average annual education premium of 7.4% in high-income countries, 10.7% in middle income countries, 10.9% in low-income countries, and 9.7% for the world as a whole. [CH 4 Note 63] Matching for the ability bias, the world education premium roughly matches the US education premium. [CH 4 Note 64]

2. Estimate the effect of a year education on national on national income.

The effect of personal education on personal income is undeniable. Every economy on the earth works the same way the more school you take, the more money you make. Yes, some of the data are crummy, and clever wonks can lie with statistics, yet if you mercilessly torture the best data in the world, it never recants its original story: selfishly speaking, education has its rewards-at least on average.

When we move to the national level, these clean results vanish. **[CH 4 Note 65]** Some prominent economists find that boosting national education slightly IMPOVERISHES countries rather than enriching them. **[CH 4 Note 66]** Others report small positive effects; one typical estimate is that an extra year of national education boosts national income by 1.3%-1.7% **[CH 4 Note 67]**

Remaining papers find moderate positive effects; the effect of national education on national income roughly equals the effect of personal education on personal income. [CH 4 Note 68]

No matter what they find, researchers usually confess their answers are highly uncertain. [CH 4 Note 69]

You could blame their decidedly mixed results on 3rd world statistics. When you analyze data from Niger, Bolivia, or Azerbaijan, you have to recall the old programming adage "Garbage in, garbage out." But answers remain messy in the developed world. One unusually thorough study examines 21 OECD countries using 8 different measures of education from 5 separate research teams. [CH 4 Note 70] The estimated effect of national education on national income ranges from slightly negative to moderately positive (see Figure 4.3)



Averaging over all eight sets of results yields a puny +1.3% effect Do better measures lead to bigger estimates? It depends on who you ask. Researchers predictably rate their own data highly. The creators of the last 3 measures eagerly market them as new and improved. [CH 4 Note 7]

Neutral observers are less sanguine. After comparing top contestants in the "best educational data" contest, a major review article concludes, "We are not convinced that any one of the available data series is clearly preferable to the

alternatives." [CH 4 Note 72]

Most economists are less thrilled by these results: they're "puzzling," or even "discouraging."[CH 4 Note /3] While some lament their lack of a definite answer, many crave a clear pro-education verdict. [CH 4 Note 74] development. How can the data be so agnostic?

The leading fallback is to point out that country level education data are riddled with measurement error. Several research teams deploy arcane statistical techniques to fix this flaw. The most prominent reports a big payoff. When you fix the data, the effect of a year of education on national income leaps from +1.3% to 6.7%. Yet the answer's uncertainty foes from bad to worse: the team reports a 95% chance that the true effect lies somewhere between NEGATIVE 26% and POSITIVE 40%. [CH 4 Note 77] Deeper worry: the arcane statistical fixes assume everything EXCEPT education is perfectly measured. [CH 4 Note 78] This crazy assumption automatically magnifies the apparent effect of education, regardless of its true efficacy. [CH 4 Note 79]

Economists are so eager to argue education is underrated they neglect strong reason to think education is OVERRATED: reverse causation.

Instead of "When countries invest more in schooling, they get richer," the real story could be, "When countries get richer, they consume more schooling." Almost everyone buys reverse causation at the personal level. Why do rich people spend more money on fancy prep schools and bloated college tuition? Because the rich have money to spend.

On reflection, this reverse causation should be stronger at the national level.

After all, governments, not individuals, pay most of the education tab. Consider K-12. Since the vast majority of American kids to public school, private spending per student in 2008 averaged \$900. [CH 4 Note 80]

Government spending, by contrast, was roughly \$11,000 per student.

Picture what would happen if the United States suddenly became 10% richer, prompting both private and public sectors to spend 10% extra on education. Private spending would go up by a measly \$90 per student. Trivial reverse causation. Government spending would jump up by \$1,100 per person-serious reverse causation.

Intuitively, the idea that national prosperity causes schooling is hard to escape. What real world country wouldn't spend more on education when its tax coffers overflow? Yet serious research on reverse causation is sadly thin. [CH 4 Note 81] The leading paper on this theme strongly supports my suspicions, finding only 1/3 of the alleged "effect of education on national income" is genuine. [CH 4 Note 82] To be honest, this research rests on too many debatable assumptions to convince me. [CH 4 Note 83]

A less rickety approach compares short-run and long-run estimates, on the theory that newfound riches take years to "trickle down" to education budgets, and bigger budgets take years to noticeably elevate the average worker's years of schooling. This theory seems to fit the facts: When a country's workforce's education rises, the apparent effect on national income is small over 5 years, moderate over 10 years, and large over 20 years. [CH 4 Note 84] One way to suppress the taint of reverse causation, is to rely on the short-run results.

1. <u>Compare. HC's share of the truth = (The national Effect) divided by (personal effect). The rest</u> is signaling.

At the global level, a typical year of personal education seems to raise personal income 8% - 12%. A typical year of national education, in contrast, seems to raise national income by only 1-3%. While these ranges are compatible with a wide range of HC/S splits, signaling consistently overshadows human capital. If King Solomon had to announce

<u>а precise HC/S split, 20/80 again sounds about right. [СН 4 Note 85]</u>

Critics of the signaling model often appeal to international evidence to discredit the signaling model. "If signaling is so important, why does extra education have such a big effect on countries' economic growth?

Their question is ill conceived. Macroeconomists, to their dismay, find no clear effect of education on growth. Answers range widely from study to study, but the average answer matches signaling's prediction.

Critics could decry the quality of macro evidence. They should. When researchers vary measures of education, answers change. When they vary statistical strategies, answers change. When they vary the countries or eras they study, answers change. **[CH 4 Note 86]** Yet none of this salvages the confident platitude that education is the path to prosperity. "The evidence reveals inconsistent effects on education, so I concede a dominant role for signaling" is one reasonable reaction to the research. "The evidence reveals inconsistent effects on education, so I stick with common sense" is another. The reasonable take away lies in the middle: "The evidence, such as it is, suggests a tiny effect of education, Advantage, signaling."

What about Test Scores

Social scientists usually measure education the lazy way: years of completed schooling. Over the past decade, however, leading researchers have upped their game. Instead of tallying how much time students put into school, why not measure how much knowledge students take away from school? Better yet, why not pinpoint the knowledge that predicts adult success and national prosperity? The fruits of this toil are intriguing. The Los Angeles Times keeps tabs on L.A. Teachers' "Value added" - how much each educator's students' test scores improve over a year. Value-added varies widely: Los Angeles teachers in the "most effective" category raise their classes' math scores by more than 11 percentiles in math and 6 percentiles in English. [CH 4 Note 87]

Academic gains largely fade out in a few years, but researchers detect lasting effects on adult success. The "kindergarten study" by acclaimed economist Raj Chetty and coauthors finds that kids in high scoring K-3 classrooms grow up to have higher college attendance and earnings. [CH 4 Note 88] Chetty and other coauthors report the same effects for high value-added teachers in grades 3-8. [CH 4 Note 89] The average effect of a good teacher is only a few hundred dollars per student per year. But multiplied my 30 students over their working lives, measured benefits come to hundreds of thousands of dollars.

Many observers see a grave tension between value-added research and signaling.

But where's the tension? The fact that some teachers cause higher earnings is no more informative than the fact that some high school courses and college majors cause higher earnings. The optimistic story is that better teachers give their students a little extra human capital. Since test gains are fleeting, perhaps good teachers inspire slightly higher conscientiousness and conformity. The pessimistic story is that better teachers give their students a slight edge in the ongoing signaling tournament. A good teacher convinces students that school is vital for success, so they study harder and stay in school longer, which eventually impresses employers.

Neither story conflicts with my conclusion that education is mostly signaling.

Other researchers, most notably Eric Hanushek and coauthors, documented that national test scores strongly predicted national prosperity. [CH 4 Note 90]

Unlike years of education, test scores sharply lift the rate of economic growth: in time, modest academic gains would enrich the United States by tens of trillions of dollars. They argue these astronomical figures are legitimately casual, especially for math and science scores. [CH 4 Note 93]

Ultimately, I'm unconvinced, largely because the vast majority of modern jobs use very little math and virtually no science.

Why then do test scores look so potent? Probably because they reflect a deeper-and far less malleableability that promotes success in virtually every line of work: intelligence.

But even if Hanushek is completely right about what education could do, the signaling model correctly describes most of what education currently does. Hanushek himself finds little effect of educational resources on test scores-even though employers around the world amply reward mere time in school. [CH 4 Note 96]

Signaling neatly explains both patterns.

Labor Economists Versus Signaling

Strangely, one body of experts sees little or no merit in the signaling model: Labor Economists, particularly education specialists. [CH 4 Note 98]

In applied labor economics, HCT now reigns supreme. Most scholars see signaling as an irrelevant distraction.

A high-profile chapter in the *Handbook of the Economics of Education* fairly represents labor economists' consensus

"Our review of the available empirical evidence on Job Market Signaling leads us to conclude that there is little in the data that supports Job Market Signaling as an explanation for the observed returns to education." [CH 4 Note 99]

Where precisely do I part company from mainstream labor economics? For the most part I accept their empirical evidence-especially when they rely on standard, transparent statistical methods. My complaint is that mainstream labor economists have an interpretive double standard. When their evidence supports the Human Capital Model, they take the evidence at face value. When their evidence supports the Signaling Model, they wrack their brains to deny signaling an iota of credit.

Consider Sheepskin Effect.

Almost everyone senses that big payoffs for graduation support signaling and undermine HC. As long as the rewards for degree completion were in doubt, labor economists took the SS-Signaling link for granted. **[CH 4 Note 100]** Once evidence of large SS effects became undeniable, labor economists moved the goal posts. Theoretically, the SSE could stem purely from selection. Maybe students who finish their degrees would have been equally well paid if they'd dropped out a day before graduation. Sure the SSE survives standard ability corrections unscathed. But Human Capital purists can demur, "You didn't correct for not yet measured abilities." If labor economists scrupulously enforced this unmeetable burden of proof, their field would vanish.

<u>Or take the cross-national evidence. Signaling predicts education will be more lucrative for individuals</u> than for countries, This is precisely what researchers typically find. Yet few labor economists even grudgingly admit, "Signaling wins this round." Instead they rush to figure out how they've erred. Maybe better data or fancier statistical methods would help. No? Then the question is beyond us. Move along, nothing to see here. My point is not that cross-national evidence is strong enough to settle the HCP/S debate. But if the evidence supported HCP, labor economists would have danced on signaling's grave instead of second guessing their work.

<u>Labor economists don't merely misinterpret their own evidence, They also ignore everyone else's</u> evidence

Psychology, education, and sociology all have useful insights for the HC/S debate, but judging from citations, labor economists rarely read their research-or admit its existence-classic Not Invented Here Syndrome.

Case in Point:

HC says education raises income by imparting useful skills; signaling says education raises income without imparting useful skills. To weigh the two theories, you must investigate what students learn and retain. Psychologists and education researchers are the go-to experts. If they did, they would hear lurid tales of a yawning chasm between learning and earning-precisely as signaling predicts.

Labor Economists' root problem:

They fall in love with education years before they study the evidence. When they meet HC theory, they're instant converts. Two things they love-education and prosperity-go hand in hand. When budding labor economists discover signaling, they rush to reject it.

Most latch on to one of the flimsy "signaling doesn't make sense" arguments from chapter 1:

- "Employers would just do an IQ test"
- "You can't fool employers for long"
- "There's got to be a cheaper way."

By the time they explore the scholarly research, labor economists can't give signaling a fair shake.

Personal experience would admittedly cloud labor economists' judgement even if love of education did not. Why? Because the link between what academics learn in school and what academics do on the job is eerily close. I call it "intellectual inbreeding."

We sit in class, learn some material, then get jobs teaching the very material we studied. Professors can "acquire human capital" by recycling our old professors' lecture notes. The upshot: when we academics reflect on our own lives, school almost automatically seems "relevant." To see the labor market clearly, professors would have to contemplate the alien career paths of the cast majority of students who never enter academia.

Until labor economists renounce human capital PURISM, I cannot take their approach seriously-and neither should anyone else.

Curricular Irrelevance

Transfer / Learning How to Think

When students challenge the relevance of their lesson, teachers often reply, "I teach you how to thinknot what to think."

Therefore "Relevance" is not relevant.

Thinking-all thinking- builds mental muscles. The bigger student's mental muscles, the better they'll be at whatever job they eventually land.

Comforting claims. They soothe teachers' consciences and quiet our self-doubt. But are they true-or merely wishful thinking? Can believers in the power of learning how to think back up teachers' boast with hard evidence? For the most part, no.

Educational psychologists who specialize in "transfer of learning" have measured the hidden intellectual benefits of education for over a century. [CH 2 NOTE 33]

Their chief discovery: education is narrow. As a rule, students learn only the material you specifically teach them... if you're lucky.

In the words of educational psychologist Perkins and Salomon,

"Besides just plain forgetting, people commonly fail to marshal what they know effectively in situations outside the classroom or in other classes in different disciplines. The bridge from school to beyond or from this subject to that other is a bridge too far"

Many experiments study transfer of learning under seemingly ideal conditions. Researchers teach subjects how to answer Question A. Then they immediately ask their subjects Question B, which can be handily solved using the same approach as question A. Unless A and B look alike on the surface, or subjects get a heavy handed hint to apply the same approach, learning how to solve Question A rarely helps subjects answer Question B. [CH 2 NOTE 35]

TRANSFER TEST 1 "Fortress Assault"

This experiment teaches subjects to solve a military puzzle, then tests whether subjects apply what they learned to solve a medical puzzle.

The Military Puzzle:

A general wishes to capture a fortress located in the center of a country. There are many roads radiating outward from the fortress. All have been mined so that while small groups of men can pass over the road safely, any large forces will detonate the mines. A full-scale direct attack is therefore impossible. The general's solution is to divide his army into small groups, send each group to the head of a different road, and have the groups converge simultaneously on the fortress.

The Medical Puzzle:

Suppose you are a doctor faced with a patient who has a malignant tumor in his stomach. It is impossible to operate on the patient, but unless the tumor is destroyed the patient will die. There is a kind of ray that can be used to destroy the tumor. If the rays reach the tumor all at once at a sufficiently high intensity, the tumor will be destroyed. Unfortunately, at this intensity the healthy tissue that the rays pass through on the way to the tumor will also be destroyed. At lower intensities the rays are harmless to the healthy tissue, but they will not affect the tumor either.

What type of procedure might be used to destroy the tumor with the rays, and at the same time avoid destroying the healthy tissue?

The Connection:

There is an analogous "convergence" solution to the radiation problem. The doctor could direct multiple low -intensity rays toward the tumor simultaneously from different directions, so that the healthy tissue will be left unharmed, but the effects of the low intensity rays will summate and destroy the tumor.

Since Subjects hear these two stories back to back, you might think almost everyone would leap to the convergence solution for the medical problem. They don't.

A typical success rate is 30%.

Since 10% of subjects who don't hear the military problem offer the convergence solution, only 1 in 5 subjects transferred what they learned.

Under less promising conditions, transfer is predictably worse.

- Making the surface features of A and B less similar impedes transfer. [CH 2 NOTE 39]
- Adding a time delay between teaching A and testing B impedes transfer. [CH 2 NOTE 40]
- Teaching A, then teaching an irrelevant distracter problem, then testing B impedes transfer [CH 2 NOTE 41]
- Teaching A in the Classroom, then testing B in the real world impedes transfer [CH 2 NOTE 42]
- Having one person teach A and another person test B impedes transfer [CH 2 NOTE 43]

To apply schoolwork in the real world, you must normally overcome each and every one of these hurdles. You must see through surface features to underlying structure. You must select the few relevant lessons and ignore the rest. You must apply what you have learned in a nonacademic location, without your original teacher (or any teacher) to hold your hand.

No wonder even transfer optimists like Robert Haskell lament:

"Despite the importance of transfer of learning, research findings over the past nine decades clearly show that as individuals, and as educational institutions, we have failed to achieve transfer of learning on any significant level."

You might protest that transfer experiments are too artificial or superficial to show much about real world education. If each lesson microscopically hones your thinking skills, the total effect of education on general thinking skills could still be large. Researchers generally find, for example, that college attendance boosts scores on tests of critical thinking. But this s a hollow victory: researchers also generally find that education fails to *durably* improve critical thinking outside the classroom. **[CH 2NOTE 46]**

TRANSFER TEST 2 "No Correct Answer"

The most impressive study of the effect of education on thinking skills collected a sample of first-year high school students, fourth-year high school students, first-year college students, fourth-year college students, first-year graduate students, and fourth-year graduate students. [CH 2 NOTE 47]

The researcher then orally tested their informal reasoning on issues like, "Does violence on television significantly increase the likelihood of violence in real life?" and "Would a proposed law in Massachusetts requiring a 5-cent deposit on bottles and cans significantly reduce litter?"

By design, there were no right or wrong answers; the point of the test was to measure the quality of subjects' reasoning on issue that "permitted elaborate arguments on both sides of the case, led to divided opinions, proved accessible even to the first-year high school group, and did not depend for their analysis on background knowledge that varied greatly across subject population." Judges listened to recordings of the original responses, counting

- a. number of sentences
- b. number of lines of argument
- c. number of objections considered
- d. how many times the experimenter had to remind the subject to stay on topic

The experimenter also asked subjects to explain the connection between one of their arguments and their conclusion. Judges graded the quality of these explanations, as well as overall quality of reasoning. The measured effect of education on informal reasoning, though positive, was tiny.

4Y high school students were slightly better than 1Y high school students.

4Y college students were no better than 1Y college students.

4Y graduate students were barely better than 1Y graduate students.

Respondents with more educational credentials definitely get higher scores. The point is that students barely improve between their first and fourth year of study.

While people with better reasoning skills do complete more education, their reasoning skills are better at the outset.

If education seriously showed students "how to think", 3 additional years of study would sharply amplify their initial advantage. Yet students' scores barely budged.

	1st Year	4th Year
High School	1.6	2.1
College	2.8	2.8
Graduate School	3.1	3.3
TRANSFER TEST 3 "Mental Health and Diets"

Other evidence is equally disappointing. One researcher tested several hundred Arizona State University student's ability to:

"apply statistical and methodological concepts to reasoning about everyday-life events." How, for example, would subjects assess the claim that students should eat more nutritiously because "the majority of students needing psychological counseling had poor dietary habits"? Would subjects realize psychological problems cause poor dietary habits, rather than the other way around? Would they feel the need for experimental evidence?

No. In the author's words:

The results were shocking. Of the several hundred students tested, many whom had taken more than six years of laboratory science in high school and college and advanced mathematics through calculus, almost none demonstrated even a semblance of acceptable methodological reasoning about everyday life events described in ordinary newspaper and magazine articles. The overwhelming majority of responses received a score of 0. Fewer than 1% obtained a score of 2 that corresponded to a "good scientific response." Totally ignoring the need for comparison groups and controls of third variables, subjects responded to the "diet" example with statements such as "It can't hurt to eat well".

The point is not merely that college students are bad at reasoning about everyday events. The point is that college students are bad at reasoning about everyday events despite *years* of coursework in science and math.

Believers in "learning how to learn" should expect students who study science to absorb the scientific method, then habitually use that fruitful method to analyze the world. This scarcely occurs. By and large, college science teaches students what to think about topics on the syllabus, NOT *how* to think about the world.

TRANSFER TEST 4 "4 Majors"

One ambitious study tested undergraduates at the University of Michigan during the 1st term of their 1st year, then retested the same students during the 2nd term of their 4th year. [CH 2 NOTE 57] The test covered verbal reasoning, statistical reasoning, and conditional reasoning. Researchers included 4 kinds of majors: Natural Sciences, Humanities, Social Sciences, and Psychology.

Each major sharply improved on precisely one subtest.

<u>Social Science and psychology majors</u> became much better at statistical reasoning-the ability to apply "the law of large numbers and the regression or base rate principles" to both "scientific and everyday-life contexts."

<u>Natural Science and Humanities Majors</u> became much better at conditional reasoning-the ability to correctly analyze "if...then" and "if and only if" problems.

On remaining subtests, however, gains after 3.5 years of college were modest or nonexistent. <u>Socials scientist's</u> verbal and conditional reasoning scores slightly fell.

<u>Psychologists'</u> verbal scores slightly rose, but their conditional reasoning failed to improve. <u>Natural Science and humanities majors</u> gained slightly in verbal reasoning, and modestly in statistical reasoning. Humanities Majors verbal reasoning barely budged.

With Zero transfer, psychologists could only statistically analyze psychological issues, and natural scientists could only conditionally reason about their scientific specialty. Matters are not quite so dire. As the researchers conclude, their results show "different undergraduates disciplines teach different kinds of reasoning to different degrees".

Yet their results also undermine the view that students fain general and reasoning skills. Students primarily improve in the very tasks they study and practice. Even this isn't guaranteed.

TRANSFER TEST 5 "Graduate Training Improvement (or the lack thereof)"

The same researchers also measured the effect of 2 years of graduate training on verbal, statistical, and conditional reasoning. [CH 2 NOTE 59]

The subjects were law students, medical students, and graduate students in psychology and chemistry at the University of Michigan. No one, not even law students, improved much in verbal reasoning, Chemists' scores on all 3 subtests stayed about the same. But medical and especially psychology students improved in statistical reasoning, and law, medical, and psychology students all improved in conditional reasoning.

Takeaway: if all goes well, students learn what they study and practice.

Psychology and medical students heavily use statistics, so they improve in statistics. Law and Chemistry, rarely encounter statistics so they don't improve in statistics. Why don't chemistry students improve in conditional reasoning? Because unlike psychology, medical, and law students, chemists have "little need to differentiate among the various types of casual relations because chemistry deals primarily with necessary-and-sufficient causes. What chemistry students learn is...chemistry.

Actually, that's optimistic. Educational Psychologists have also discovered that much of our knowledge is "inert". Students who excel on exams frequently fail to apply their knowledge to the real world. Renowned psychologists Howard Gardner explains:

"Researchers at Johns Hopkins, M.I.T., and other well-regarded universities have documented that students who receive honor grades in college-level physics courses are frequently unable to solve basic problems and questions encountered in a form slightly different from that on which they have been formally instructed and tested" [CH 2 NOTE 62]

Transfer Summary

Transfer researchers usually begin their careers as idealists. Before studying educational psychology, they take their power to "teach students how to think" for granted. When they discover the professionalism consensus against transfer, they think they can overturn it. Eventually though, young researchers grow sadder and wiser. The scientific evidence wears them down-and their first-hand experience as educators finishes the job.

Hear the pedagogical odyssey of psychologists Doulas Detterman:

"When I began teaching, I thought it was important to make things as hard as possible for students so they would discover the principles for themselves. I thought the discovery of principle was a fundamental skill that students needed to learn and transfer to new situations. Now I view education, even graduate education, as the learning of information. I try to make it as easy as possible. Where before I was ambiguous about what a good paper was, I now provide examples of the best papers from past classes. Before, I expected students to infer the general conclusion form specific examples. In general, I subscribe to the principle that you should teach people exactly what you want them to learn in a situation as close as possible to the one in which the learning will be applied. I don't count on transfer and I don't try to promote it except by explicitly pointing out what taught skills may be applied." Though some educational psychologists deny that education must yield minimal transfer, almost all admit that actually existing does yield minimal transfer.

The upshot: HCP can't credibly dismiss the disconnect between what we learn in school and what we do on the job. Relevance is highly relevant.

The clash between teacher's claims about "learning how to learn" and a century of careful research is jarring. Yet common sense skepticism is a shortcut to the expert consensus. Teachers' plea that "we're mediocre at teaching what we measure, but great at teaching what we don't measure" is comically convenient. When someone insists their product has big hard to see benefits, you should be dubious by default-especially when the easy to see benefits are small.

In the classroom, educators strive to achieve tangible, self-contained goals-like teaching key Civil War facts. Should we believe educators are better at achieving unmeasured afterthoughts? Students quickly forget most of the material we deliberately try to teach them. Should we believe that students retain more of the skills we idly hope they'll acquire.

You could object common sense cuts both ways. The strongest reason to believe in learning how to learn is also a commonsense claim:

Since physical exercise builds physical muscles, we should expect mental exercise to build mental muscles.

But on reflection, this is another reason to disbelieve in "learning how to learn."

You don't exercise your legs to improve your bench press. You don't even exercise your right leg to strengthen your left leg. Instead, you exercise the muscles you seek to build. Why would "mental muscles" be any less specific? Furthermore, when you stop going to the gym, your physical muscles soon atrophy. Why would mental muscles be any slower to wither?

If exercise analogies prove anything, they prove our education system rest on educators' conceit-the self-serving line that when we teach students whatever interests us, they durable acquire whatever skills they need to be successful in life.

Retention

According to HCPs, the labor market pays you for what you know, not what you knew on graduation day.

For HCPs, the coexistence of a high education premium and low learning/retention would be a puzzle. The less students know and remember, the greater the puzzle.

For the signaling model, in contrast, the coexistence of a high education premium and low learning/retention raises no eyebrows. While students could signal their intelligence, conscientiousness, and conformity by acquiring and retaining a vast stock of knowledge, they don't have to. Students can win employers' favor by learning enough to get a good grade- then forgetting every lesson.

Summer learning loss is only a special case of the problem of *Fadeout*: human beings poorly retain knowledge they rarely use. [CH 2 NOTE 16]

There are few studies showing the effect of post-graduation fadeout.

Shortcut:

Instead of measuring the enduring effect of education on adult knowledge, we can place an upper bound on that effect. It's a 2-step process.

- 1. Measure Adult knowledge about various school subjects.
- 2. Note that schools can't be responsible for more than 100% of what adults know about these subjects.

What people know is therefore an upper bound on the school learning they retain. The Results are stark: Basic literacy and numeracy are virtually the only book learning most American adults possess.

While the average American spends years and years studying other subjects, they recall next to nothing about them.

If schools teach us everything we know about history, civics, science, and foreign languages, their achievements are pitiful.

Literacy and Numeracy

In 2003, the US Dept. of Education gave about 18,000 randomly selected Americans the National Assessment of Adult Literacy (NAAL). [CH 2 NOTE 18]

The NAAL tested

- **prose literacy** "(Knowledge and skills needed to search, comprehend, and use information form continuous texts")
- **document literacy** ("knowledge and skills needed to search, comprehend and use information from non-continuous texts")
- <u>Quantitative Literacy</u> ("knowledge and skills needed to perform computations using numbers that are embedded in printed materials.")
 [CH 2 NOTE 19]

For each of these 3 subtests, the NAAL charitable graded respondents' knowledge as

- "Below Basic"
- "Basic"
- "Intermediate"
- Proficient

Table 2.2 displays sample questions for all 3 subtests at each level.

Summing 2 prices and finding a table in an almanac are Basic (Not below basic). Given these low standards, you might think that virtually all Americans would score at the Intermediate or Proficient level in every Subject. Not even close.

The ignorance revealed by the NAAL is numbing. Only modest majorities are intermediate or proficient on the prose and documents test. Under half are intermediate or proficient on the quantitative test. Reviewing certain questions underscores the severity of the ignorance.

- Barely half know that saving \$.05 per gallon on 140 Gallons of oil = \$7.00
- 35% of Americans can't correctly enter a name and address on a certificate Mail form with no points taken off for misspelling [CH 2 NOTE 20]

Schools do far less to cure illiteracy and innumeracy than we'd like to think

How do the NAAL results look if you break them down by education? If you picture "High School Graduates", you probably see them as Intermediate or proficient in literacy and numeracy. If you picture college students, you probably as proficient in literacy and numeracy. Such mental pictures do not fit the facts.

While today's dropout almost spend at least 9 years in school [CH 2 NOTE 22], over half remain functionally Illiterate and Innumerate.

Over half of high school grads have less than the minimum skills one would naively expect them to possess.

Though College Grads spend at least 17 years in school, under a third (≅ %19) have the level of literacy and numeracy that we assume of every college freshman.

au	Below Basic	Basic	Intermediate	Proficient
Prose	Identify what it is permissible to drink before a medical test, based on a short set of instructions.	Find infor- mation in a pamphlet for prospective jurors that explains how citizens were selected for the jury pool.	Summarize the work experi- ence required for a specific job, based on information in a newspaper job advertise- ment.	Compare view points in two editorials with contrasting interpretation of scientific and economic evidence.
Document	Circle the date of a medical appointment on a hospital appointment slip. This s hourd be WAY below basic	Find a table in an almanac with informa- tion on a speci- fied topic.	Find the time a television pro- gram ends, us- ing a newspa- per television schedule that lists similar programs showing at different times on different channels.	Contrast financial information presented in a table regarding the differences between vari- ous types of credit cards.
Quantitative	Add two numbers to complete an ATM deposit slip.	Calculate the cost of a sand- wich and salad, using prices from a menu.	Calculate the total cost of ordering office supplies, using a page from an office supplies catalog and an order form.	Calculate an employee's share of health insurance costs for a year, using a table that shows how the employee's monthly cost varies with income and family size.





History and Civics

On history and civics, all national surveys find SEVERE ignorance. If we owe all of what we know about history and civics to history and civics classes, we owe next to nothing.

- The American Revolution Center tested 1,001 adult American's knowledge of the American Revolution. [CH 2 NOTE 23] 83% earned failing grades.
- The Intercollegiate Studies Institute tested over 2,500 adult Americans knowledge of American Government and American History. [CH 2 NOTE 24] 71% earned Failing grade.
- Newsweek Magazine gave 1,000 Americans the U.S. Citizenship test. [CH 2 NOTE 25] 38% scored too low to become citizens of their own country.
- On the 2000 American National Election Study, the typical person got 48% of the factual questions right; you would expect 28% by guessing on the test. [CH 2 NOTE 26]

You could blame low scores on the difficulty of the tests rather than the ignorance of the test takers. When you read them, however, you'll notice the public struggles with easy multiple-choice questions. One could look at these facts and conclude the public's historical and civic knowledge is no worse than its literacy. Yet such optimism overlooks a key point:

Knowing half a subject's basic facts does not make you "halfway proficient". If you know only half the letters in the alphabet, you are not "halfway proficient" in reading. You are illiterate.

Question	Response Options	% Who Answer Correctly	% Who Really
From the American Rev	olution: Who Cares? Sur	vey	ICIOW
Which of the fol- lowing rights is not protected by the Bill of Rights?	Freedom of speech Trial by jury The right to bear arms <i>Right to vote</i>	39%	21%
The U.S. Constitution establishes which of the following forms of government in the United States?	A direct democracy A Republic A Confederacy An Oligarchy	42%	24%
Which of the follow- ing events came BE- FORE the Declaration of Independence?	Foundation of James- town, VA The Civil War The Emancipation Proclamation The War of 1812	49%	26%
When did the Ameri- can Revolution begin? Was it in the	1770s 1640s 1490s 1800s	65%	55%
From Our Fading Herita	age (Cribb 2008, p. 18)	ara t	schampin Toble Affr
What are the three branches of government?	[Free response]	50%	50%
The Bill of Rights explicitly prohibits	Prayer in public school Discrimination based on race, sex, or religion The ownership of guns by private individuals <i>Establishing an official</i> <i>religion for the United</i> <i>States</i> The president from vetoing a line item in a spending bill	26%	8%
What part of the government has the power to declare war?	Congress The president The Supreme Court The Joint Chiefe of Staff	54%	39%

Government debt is zero Printing money no longer causes inflation Government is not helping anybody <i>Tax per person equals</i> <i>government spending</i> <i>per person</i> Tax loopholes and special-interest spend- ing are absent	28%	10%
n National Election Study	Inhappy Lynn	ic hornabeline
Larger About the Same <i>Smaller</i>	58%	41%
<i>More</i> About the Same Less	57%	44%
Democrats <i>Republicans</i>	55%	22%
Democrats Republicans	50%	21%
	Government debt is zero Printing money no longer causes inflation Government is not helping anybody <i>Tax per person equals</i> <i>government spending</i> <i>per person</i> Tax loopholes and special-interest spend- ing are absent n National Election Study Larger About the Same <i>Smaller</i> <i>More</i> About the Same Less Democrats <i>Republicans</i>	Government debt is zero28%Printing money no longer causes inflation Government is not helping anybody Tax per person equals government spending per person Tax loopholes and special-interest spend- ing are absent28%In National Election StudyImage: Comparison of the same Smaller58%More About the Same Less57%Democrats Republicans55%Democrats Republicans50%

Science

Accounting for guessing, the public's scientific illiteracy is astonishing.

The General Social Survey.

In recent years, the survey has tested the public's knowledge of 12 elementary facts. Adults answer 60%. While this may seem low, it is a gross overstatement. These are True/False statements so people should be getting 50% only guessing.

Barely half of American adults know that the Earth goes around the sun. Only 32% know atoms are bigger than electrons.

Educators can arguably blame the majority of disbelief in the big bang and evolution on Christian Fundamentalism.

Yet ignorance of the ABCs of science is nondenominational.

Only 7% of adult Americans who deny the Bible's literal truth answered all 12 questions correctly.

Given the ease of the questions, we shouldn't conclude that Americans knowledge of science is mediocre. We should conclude American's knowledge of science is virtually nonexistent.

Question	Response Options	% Who Answer	% Who Really
	C	Correctly	Know
From the General Social	Survey 2006–10	A CONTRACTOR	an and the
The center of the	TRUE	81%	76%
Earth is very not.	TALSE		
The continents on which we live have	TRUE	78%	68%
been moving their lo-	IALOL	1.	
cations for millions of		and a state of the	
years and will continue		ar new pilling	
to move in the future.	the man is		
Does the Earth go	Earth goes around the	73%	54%
or does the Sun go	Sun goes around the	and strates	
around the Earth?	Earth	Le ave a laure	
All radioactivity is	TRUE	68%	50%
man-made.	FALSE	her for minut	and an and
Electrons are smaller	TRUE	52%	32%
than atoms.	FALSE	and the second s	Contraction of the second
Lasers work by focus-	TRUE	46%	25%
The surface has an	TRUE	220/	_3%
with a huge explosion.	FALSE	5570	-370
The cloning of living	TRUE	80%	71%
things produces geneti-	FALSE	the hanguage of	
cally identical copies.	A president and the second	and an an and the	Reading the
It is the father's gene	TRUE	62%	39%
baby is a boy or a girl.	FALSE	termiste conserve	
Ordinary tomatoes	TRUE	47%	29%
do not contain genes,	FALSE	and the second	
while genetically mod-	Inteller ban benueauro	111000 21 201124	

Antibiotics kill viruses as well as bacteria.	TRUE FALSE	53%	14%
Human beings, as we know them today, developed from earlier species of animals.	<i>TRUE</i> FALSE	44%	2%

Foreign Language

Schools make virtually no one fluent in a foreign language. The hard truth:

if you didn't acquire fluency in the home, you almost certainly don't have it. Only .7% claim to have learned a foreign language "very well" in school. Another 1.7% claim to have learned a foreign language "well" in school Since these are self-reports, true linguistic competence must be even worse.



Retention Summary

While people obviously learn outside of school, their total knowledge puts a ceiling on what they learned inside of school. The results are disheartening. Most Americans possess basic literacy and numeracy, but only 13% are proficient. For history, civics, science, and foreign language, few Americans grasp the ABC's. The claim that schools "teach these subjects" is an overstatement. Schools only "teach of these subjects". After years of exposure, American adults know history, civics, science, and foreign languages exist. That's about it.

If we learn so little in school, why do employers so heavily reward education? The simplest response is that employers, like teachers, grade on a curve. Intermediate is way better than basic-or below basic.

The main weakness with this response: even adults who did well in school usually lack basic knowledge of history, civics, science, and foreign language. Yet employers still hold failing grades in these subjects against you. If you fail Spanish, you don't finish High School, you can't go to college, and the labor market punishes you-even though most B.A.s are equally monolingual.

How can HCPs explain that?

Fadeout (Makes you Smarter Claim + Retention Facts)

Suppose for the sake of argument IQ perfectly capture genuine intelligence. When IQ goes up, genuine intelligence automatically rises in sync. Even in this scenario, a large effect of education on IQ would be impressive only if it were *lasting*.

In the short story "Flowers for Algernon" a mentally retarded man named Charlie Gordon receives an experimental treatment to cure his disability. Charlie's intellectual transformation is tragically short lived. By the end of the story, all of Charlie's intellectual progress evaporates. In one sense, the experiment worked. In a deeper sense, it failed. "Flowers for Algernon" is a Science Fiction, but life mirrors art.

Making IQ higher is easy. *Keeping* IQ higher is hard. Researchers call this fadeout.

Fadeout for early childhood is especially well documented.

- After 6 years in the famous Milwaukee Project, experimental subjects' IQ were 32 points higher than controls'/ By age 14 this advantage had declined to 10 points. [CH 2 NOTE 83]
- In the Perry Preschool program, experimental subjects gained 13 points of IQ, but all this vanished by age 8. [CH 2 NOTE 84]
- Head Start raises preschoolers' IQ by a few points, but gains disappear by the end of kindergarten. [CH 2 NOTE 85]

You could object that preschoolers are especially prone to forget what they learn, but the pattern extends all through High School. Extensive research on "summer learning loss" compares students' scores at the end of one school year to their scores at the beginning of the next school year.

The average student intellectually regresses roughly 1 full month during a 3 month summer vacation. [CH 2 NOTE 86] The older students, the steeper the decline.

For reading, to take the clearest case, 1st and 2nd graders slightly improve over the summer. By the time students are in middle school, however, 1 summer vacation wipes out over 3 months of reading proficiency. [CH 2 NOTE 87]

Reformers tend to see summer learning loss as an argument for year-round school. If summer makes students stupid, let's abolish summer.

The flaw in their thinking: everyone graduates eventually. Once you graduate, you're no longer in school- and learning loss kicks permanently.

Usefulness of Curriculum

It's all useful in the trivial sense that it improves students' odds of HS graduation and college admission. But what about "useful" in the stronger sense that students eventually apply their lesson on the job?

HIGH SCHOOL

<u>High Usefulness</u>: In a modern economy, literacy and numeracy are the only skills that almost all jobs require. So English and Math make the cut. Why not science? The Subject if highly useful for our society. However only a handful of specialists apply their knowledge of science on the job. The rest of us merely follow their recipes.

<u>Medium Usefulness</u>: Career/technical classes are potentially useful stepping-stones for students who plan to enter a short list of trades like cooking, sewing, metalworking, woodworking, drafting, or computer programming. By themselves though, high school-level classes do not open career doors 5% of HS graduates in Science or Engineering [C2/3]

Low Usefulness: To belabor the obvious, the arts are rarely useful. We don't speak of "starving artists" for nothing. The staunchest fans of painting, sculpture, and music know pursuing a career in the arts is a "Hail Mary" pass.

Foreign Languages, similarly, are all but useless in the American Economy. Thanks to immigration. employers have a built-in pool of native speakers of almost every living language [CH 2 NOTE 4] The Average American high school student nevertheless spends 2 full years sitting in Spanish, French, German, Italian, or even Latin. Physical Education, the most recognizable form of "personal use" coursework, trains only a handful of professional athletes and the next generation of gym teachers. [CH 2 NOTE 5]

Finally, almost no one pursues a **career** in history or social studies - except teachers of history and social studies.

An optimist might emphasize that over half of students' courses are useful to some degree, and nearly 1/3 are highly useful. The optimist should keep in mind that the usefulness is graded (by BC) on a curve. Even "Highly Useful" subjects are more academic and less practical than they sound.

Take Math, almost every modern occupation requires some math. Yet high schools teach and often require math rarely used outside a classroom.

Figure 2.2 shows the fraction of high school grads who passes various high school math courses- and rate the courses' usefulness.

Geometry is the most common of all math courses: over 4/5s complete it in high school. Yet the subject, featuring countless proofs of triangles congruence, is notoriously irrelevant. Geometry rarely pops up after the final exam, even in other math classes.

<u>Algebra 1</u>, which teaches students graphing and one and two variable equations, has many practical applications. Most students however, continue on to

Algebra 2, which largely exists to prepare students for calculus. [CH 2 NOTE 6]

<u>Calculus</u>, in turn, gets you into college. Once college begins, however, you'll probably never differentiate another equation unless you pursue a degree in math, science or engineering.

Knowledge of <u>Statistics</u>, in contrast, is useful whether or not you go to college. Nobel Prize winner Daniel Kahneman shows that statistical illiteracy underpins many foolish real-world choices. [CH 2 NOTE 8] Yet only 7.7% of HS students pass a stats class.

The point isn't that the current curricula of the American High School is silly by historic or world standards. The status quo is more practical than a "classical education" in Latin or Greek. The point, rather, is that American High school is far from the skill factory we often imagine it to be. Being more relevant than Oxford in 1750 is nothing to brag about.





Source: Snyder and Dillow 2011, p. 234.

* Includes Algebra/Trigonometry and Algebra/Geometry.

College

We can ballpark the practicality of higher education by looking at the distribution of majors. Table 2.1 breaks down all bachelor's degrees conferred in 2008-09 by field of study- and rates their usefulness.

<u>**High Usefulness**</u>: Defenders of real-world relevance of education love to invoke engineering. Engineering students learn how to make stuff work. Engineering; employers hire them to make stuff work. Engineering has well defined subbranches, each with a straight forward applications: electrical, mechanical, civil, nuclear. Before we get carried away, we should accept a key fact: Engineering is a challenging, hence unpopular, major.

Psychologist outnumber engineers. Artists outnumber engineers almost 2 to 1.

What other majors deserve to be in engineering's august company? Let's grade leniently. As long as major explicitly prepares students for well defined technical career , it's "Highly useful".

By this forgiving standard, "health professions" and agricultural majors end up in the same boat as engineers-and the fraction of graduates who EARN a highly useful degree remains under 25%

<u>Medium Usefulness</u>: Majors like business, education, and public administration sound vaguely vocational and funnel students toward predictable occupations after graduation. At the same time, they teach few technical skills, and nonmajors readily compete for the same jobs.

While you could dismiss these majors as low in usefulness, let's give them the benefit of the doubt. You don't need a business degree to work in business, but perhaps your coursework gives you an edge. You don't need an education degree to land a teaching job, but explicitly education could enhance your teaching down the road. You don't need a degree in public administration to be a bureaucrat. By this standard, about 35% of majors end up in the Medium Category.

Why put math majors in the same box as students of education or "parks and recreation"? In a sense, no one acquires more technical skills than mathematicians. However, graduates in pure mathematics have no clear occupational track. Many employers hire them for their general quantitative ability. Outside of academia however, no one pays you to prove theorems.

Low Usefulness: The status of most of the majors in this bin- fine arts, philosophy, women's studies. theology, and such-should be uncontroversial. Liberal Arts programs uphold the idea of "knowledge for knowledge's sake." Few even pretend to prepare students for the job market.

You could argue I underrate the usefulness of communications and psychology. Don't they prepare students to work in journalism and psychology? Yet this objection is almost as naïve as "Don't history programs prepare students to work as historians?"

Psychology, communications, and history's usefulness is low because they prepare students for fields where paying jobs are almost impossible to get.

In 2008-09 over 94,000 students earned their bachelor's in psychology, but there are only 174,000 practicing psychologists in the country [CH 2 NOTE 10]

In 2008-09, over 83,000 students earned their bachelor's degree in communications. Total jobs for reporters, correspondents, and broadcast news analysts, number 54,000 [CH 2 NOTE 11]

In 2008-09 there were 34,000 new history graduates- and only 3,500 working historians in the entire country. [CH 2 NOTE 12]

	Field of Study	# Graduates	%		
	High Usefulness				
	Agriculture and natural resources	24,988	1.6%		
	Architecture	10,119	0.6%		
	Biological/biomedical sciences	80,756	5.0%		
	Computer/information sciences	37,994	2.4%		
4.1%	Engineering	84,636	5.3%		
	Health professions	120,488	7.5%		
	Legal professions	3,822	0.2%		
	Other*	162	0.0%		
	Physical sciences/science technology	22,466	1.4%		
	Statistics/applied mathematics	1,913	0.1%		
	Subtotal	384,431	24.1%		
	Medium Usefulness				
	Business	347,985	21.7%		
	Education	101,708	6.4%		
10 77	Mathematics	13,583	0.8%		
55.3%	Parks/recreation/leisure/fitness studies	31,667	2.0%		
	Public administration	23,851	1.5%		
	Security/protective services	41,800	2.6%		
	Transportation	5,189	0.3%		
	Subtotal	567,696	35.3%		
	Low Usefulness				
	Area/ethnic/cultural/gender studies	8,772	0.5%		
	Communications	83,109	5.2%		
	English	55,462	3.5%		
10-%	Family/consumer sciences	21,905	1.4%		
10.5 %	Foreign languages	21,158	1.3%		
	Liberal arts	47.096	2.9%		

Multi/interdisciplinary studies	37.444	2 20/
Philosophy/religious studies	12.444	0.8%
Psychology	94,271	5.9%
Social sciences/history	168,500	10.5%
Theology	8,940	0.6%
Visual/performing arts	89,140	5.6%
Subtotal	648,242	40.5%
Total	1,601,368	100%
Source: Snyder and Dillow 2011, p. 412. * Library science, military technologies, and	precision production.	G

Usefulness of Curriculum Summary:

The staunchest defenders of education reject the idea of sorting subjects and majors by "usefulness" How do you know Latin, trigonometry, or Emily Dickinson won't serve you on the job?

"A man told me his French once helped him understand an airport announcement in Paris. Without high school French, he would have missed his flight. See, studying French pays!"

These claims remind me of Hoarders, a reality show about people whose mad acquisitiveness has ruined their lives. Some hoarders collect herds of cats, others old refrigerators, others their own garbage. Why not throw away some of their useless possessions?

Stock Answer: I might need it one day. They "might need" a hundred empty milk cartons.

Taken literally, the hoarders are right: there is a chance they'll need their trash. The commonsense reply is that packing your house with trash is almost always a bad idea. You must weigh the storage cost against the likely benefits.

The same goes for knowledge. Yes you "might need" Latin one day. Maybe a time machine will strand you in ancient Rome. Still, does it make sense to study a dead language for years to prepare for a scenario you almost certainly won't face?

You cannot retreat to agnosticism. "no one knows if this trash will come in handy" is a crazy argument for hoarding trash. "No one knows if this knowledge will come in handy" is a crazy argument for hoarding knowledge.

Failing vs. Forgetting

Question: How would your career have been different if you flunked all the classes you've forgotten? If employers reward well-educated workers for skills alone, failing a class and forgetting a class would have identical career consequences. They clearly don't.

Example: Fail Spanish classes and you fail to get into a good school on account of your GPA. Then you fail to get as good of a job due to the disparity in the credentials you could've had versus the credentials that you do have.

Human Capitalist have one way to cope with these facts: Claim that studying a subject improves you in subtle ways long after you forger all your explicit lessons.

Failing to learn course material sends a lousy signal: You were lacking in some/all the trifecta. Forgetting course material on the other hand merely signals you lack the superpower of photographic memory.

Since failing signals send a much worse signal than forgetful students, employers favor forgetful students

Since Failing students suffer far more on the job market than forgetful students, students cram for the final exam and move on, undermining the idea that they gained capital either through the trifecta or the material itself.

How people get good at their Jobs / Most Job Skills are acquired through onthe-job training.

(Schools teach irrelevant curriculum) + (Education effect on intelligence is largely hollow) + (transfer is virtually nonexistent) = People good at their jobs because they practice that job.

If school teaches few job skills, transfer of learning is mostly wishful thinking, and the effect of education on intelligence is largely hollow, how on earth do humans get good at their jobs? The same way you get into Carnegie Hall: PRACTICE.

People learn by doing specific tasks over and over.

For the unskilled, progress is easy. Given commonsense conditions it's almost guaranteed. In the words of K. Anders Ericsson, the world's leading expert on expertise, novices improve as long as they are,

- 1. given a task with a well-defined goal
- 2. motivated to improve
- 3. provided with feedback
- 4. provided with ample opportunities for repetition and gradual refinements of their performance.
- " [CH 2 NOTE 91]

Before long, though, the benefit mere practice plateaus. To get really good at their jobs, people must advance to deliberate practice. They must exit their comfort zone-raise the bar, struggle to surmount it, repeat. As Ericsson and coauthors explain:

"You need a particular kind of practice-deliberate practice- to develop expertise. When most people practice, they focus on the things they already know how to do. Deliberate practice is different. It entails considerable, specific and sustained efforts to do something you can't do well-or even at all."

Attaining world class expertise in chess, music, math, tennis, swimming, running, writing, science requires many years of deliberate practice. Fortunately, the labor market offers plenty of deliberate practice. A few thousand hours of deliberate practice rarely makes you a superstar, but it is ample time to get good in most occupations. [CH 2 NOTE 94]

People don't become skilled workers by dabbling in a dozen different school subjects. They become skilled workers by devoting years to their chosen vocation-by doing their job and striving to do it better. [CH 2 NOTE 95]

Large Gap Between Skills Students Learn and the Skills Workers Use

Look at High School Requirements

-Tennessee

-Utah

- At Granada Hills HS (now GH Charter HS)
- -4 Y English
- -2 Y Algebra
- -2 Y one language
- -2 Y PE
- -1 Y Geometry
- -1 Y Biology
- -1 Y Physical Science
- -1 Y World History
- -1 Y American History
- -1 Y Economy/American Government
- -1 Y Visual/Performing Art
 - All Serves 1 Purpose: College Entry
 - What practical additional function do these serve? For College bound students the answer is "not much."
 - Few College Graduates use higher mathematics, foreign languages, history, or arts, on the job
 - For students who aren't college bound the answer is "virtually none"

see Artificial Supply Creates artificial demand

Artificial Supply Creates Artificial Demand

Social norms take this naturally strong connection [connection between educational success and career success] and make it unnaturally strong.

Step 1: Employers notice the link between success at school and success at work

Step 2: Talented, motivated people notice education's gate keeping role, so they devote themselves to educational success in order to fulfill their career ambitions

Step 3: The frequency of talented motivated people without a strong academic record falls, tightening the link between success at school and success at work

Step 4: RETURN TO STEP 1

This Father-Daughter talk from 2009's *An Education* is a telling dramatization: Jenny: Can I stop going to youth orchestra? Dad: No. No, no. The youth orchestra is a good thing. That shows you're a joiner-inner Jenny: Ah. Yes. But I've already joined in. So now I can stop. Dad: No. No. Well, that just shows the opposite, don't you see? No that shows that you're a rebel. They don't want that at Oxford. Jenny: No. They don't want people who think for themselves.

Dad: No, of course they don't.

Education suffers from "locked-in Syndrome".
If you want the labor market to recognize your strengths, and most of the people who share your strengths hold a credential, you'd better earn one too. Otherwise employers won't take you seriously enough to give you a chance
Eventually we end up where we are, an economy where employers say "Education uber alles" (education over all), curricular relevance not withstanding

Subtle Improvement

BC Vignette: "My Spanish teachers' official goal was to teach me Spanish. It was their native language. They failed. Are we really supposed to believe my Spanish teachers successfully taught me something that wasn't on their agenda? Something that's actually useful on the job? If my Spanish teachers couldn't achieve their official goal despite their expertise, you'd have to be awfully gullible to believe they covertly taught me 'how to work'. "

Making you Smarter

While the facts are secure, the interpretation is shaky. (Studies that show that IQ rises in relation to more education)

<u>1st Objection</u>: People can sharply improve on virtually any test by practicing- and a little practice goes a long way.

A major review pulled together 50 relevant studies of practice on cognitive tests. On average, "a candidate who scored at the 50th percentile on the 1st test could be expected to score at the 60th percentile on the 2nd test and at the 71st percentile on the 33rd test." [CH 2 NOTE 75] Explicit coaching-"teaching to the test"-works even better. [CH 2 NOTE 76]

An optimist might rejoice that mankind is only a few hours away from massive intelligence gains. This optimism, however, leads to absurdity: Can you transform average students into geniuses by handing them the answer key before their IQ test? Most researchers draw the sobering conclusion that test preparation yields only "hollow gains". [CH 2 NOTE 77]

Preparation inflates measured intelligence without raising genuine intelligence. [CH 2 NOTE 78]

Maybe education raises IQ because education is a form of diluted IQ test preparation. As psychologist Stephen Ceci explains:

"It is through direct forms of instruction.... that children learn the answers to many of the questions that appear on a popular IQ (any other aptitude) tests. For example, within a given grade level there is a correlation between the total number of hours of schooling a child receives and scores on verbal and mathematical aptitude tests. Similarly, there are negative correlations between the total number of teacher or student absences and scores on such tests. Also, quantitative and language-related scores are strongly correlated with the length of the school day and with the actual amount of time on task, beginning in first grade. So, it makes intuitive sense that much of the knowledge that aptitude tests, including IQ, tap is accumulated through direct encounters with the educational system. Answers to questions on the WISC-R, such as "In what continent is Egypt?"; "Who wrote Hamlet"; "What is the boiling point of water?"; and "How many miles is New York from L.A.?" are probably learned through direct teaching methods. Teachers may not be aware that they are teaching answers to questions on IQ tests, but this is precisely what they are doing in their history, reading, literature, geography, and math classes."

<u>2nd Objection</u>: Ceci also notes that schools also teach students to offer the <u>kinds</u> of answers IQ tests favor.

How are an apple and an orange alike? IQ tests award only partial credit for such factually correct answers as, "They're both round," "they're both edible," or "They both have seeds." For full credit, you have to say, "They're both fruits."

<u>**3rd Objection**</u>: School also trains students to sit still and pay attention. This help test scores but isn't "intelligence" in any normal sense of the word.

Probably the **best study of the effect of education on IQ** looks at the scores of over 100,000 18 Y/O Swedish men. [CH 2 NOTE 81]

The researchers knew each of the student's exact age and test date, yielding a precise measure of their time in school.

Major Finding:

School days noticeably raise a score on synonym and technical comprehension subtests without raising scores on spatial and logic subtests. The authors infer that education raises "crystallized intelligence" but not "fluid intelligence".

A better interpretation:

Education improves some specific skills without increasing intelligence *at all*. To equate subject specific gains with higher intelligence smacks of double-counting.

see FADEOUT

Does education have any effect on genuine intelligence? Despite decades of research, we don't really know. What we do know is that education has far less effect than meets the eye. The Effect of education on intelligence may not be entirely hollow, but it is largely hollow. The effect of education on intelligence may not be entirely temporary, but it is largely temporary.

In any case, suppose each year of school permanently made you a whopping 3 IQ points smarter. According to standard estimates, this would raise your earnings by about 3%, leaving a supermajority of the education premium unexplained. [CH 2 NOTE 89]

PAGE 3

- Earning premium for graduate is 70%
- Earning premium for a High School graduate is 30% compared to dropping out

Education "Broadens Students' Horizons"

For the most part "broaden" means "expose students to yet another subject they'll never use in real life" If the range of subjects is so that people may know what career to follow, why do students switch major so much?

Who You Know

About half of all workers used contacts- relatives, friends, acquaintances- to land their current job. [CH 2 NOTE 104]

You could argue that education pays despite, "low measured learning" because we're inappropriately measuring what you know instead of who you know. Perhaps studying is overrated. Instead, the upwardly mobile student wins friends and influences people. The better your school, the better your connections after graduation.

This story has a **kernel** of truth and is **occasionally** dead right.

Overall, though, it's weak. The modern economy is vast and diverse.

1. <u>Few of the students you meet will end up in your line of work-even if they share your major.</u> As a result, they'll probably never be in a position to help you. If you're looking for a good job, you don't want generic contacts. You want relevant contacts.

Friends in your narrowly defined occupations are quite lucrative. So are older male relatives (father, uncle, grandfather) who know the boss or vouch for you. When researchers estimate the average benefit of "contacts" or "social networks," though, some find a positive effect on employment and wages, some no effect, and others negative effect. [CH 2 NOTE 108] IF this seems implausible, bear in mind:

2. <u>even if your cousin or college roommate plainly "got you your job", you might have swiftly</u> <u>found as good or better job on your own.</u>

Normally, however, lucrative networking begins after students graduate and find a niche in the sprawling economy.

Discipline and Socialization

Educators boast that they teach their students how to think. Laymen tend to favor a colder, more credible story about what kids learn in school: Socialization and Discipline.

Schools build discipline by

- making kids show up on time
- sit still
- keep their mouths shut
- follow orders
- and stay awake

Schools build social skills by

- making students cooperate
- manage conflict
- work as team
- dress nicely
- speak properly

The typical worker spends the day doing boring work in a hierarchal organization. Perhaps education acclimates children to their future role. These are all plausible claims, especially when you consider all the thousands of hours of drudgery and mingling students endure.

Yet D&S stories overlook a vital question:

If students weren't in school, what would they be doing instead?

What if adults spend their teens working? Work teaches discipline. Work teaches social skills. Why would education be any better at readying us for the world of work that the world of work itself?

What school inculcates us is not so much the work ethic as the school ethic. The two ethics do not perfectly coincide. Both school and work teach you how to follow orders and cooperate with others.



Andrew Carnegie caustically captures this tension:

"Men have sent their sons to colleges to waste their energies upon obtaining a knowledge of such languages as Greek and Latin, which are of no more practical use to them than Choctaw... They have been crammed with the details of petty and insignificant skirmishes between savages, and taught to exalt a band of ruffians into heroes; and we have call them "educated." They have been 'educated' as if they were destined for life upon some other planet than this... What they have obtained has served to imbue them with false ideas and to give them a distaste for practical life...Had they gone into active work during the years they spent at college they would have been better educated men in every true send of that term. The fire and energy have been stamped out of them, and how to so manage as to live a life of idleness and not a life of usefulness has become the chief question to them."

Educators who dismiss Carnegie as Neanderthal or philistine prove the point: school inculcates many attitudes that, regardless of their moral worth, impede on-the-job success. If you're preparing a kid for their adult roles, a year of work experience instills a more suitable discipline and socialization than a year of school.

The imperfect overlap between the school ethic and the work with is especially blatant in modern American colleges. 50 years ago, college was a full-time job. The typical student spent 40 H/W in class or studying. [CH 2 NOTE 98] Since the early 1960s, effort collapsed across the board. "Full time" college students average 27 H/W of academic work- and only 14 hours of studying.

What are students doing with their extra free time? Having Fun. Instead of being socialized for lives of boring work in hierarchical organizations, they're being socialized for lives of play and self-expression.

"If we presume that students are sleeping 8 hours a night, which is a generous assumption given their tardiness and at times disheveled appearance in early morning classes. that leaves 85 hours a week for other activities...What is this additional time spent on? It seems to be spent mostly on socializing and recreation."

Arum and Josipa Roska in Academically Adrift

A week in modern college is a great way to teach students that life is a picnic:

"A recent study of University of California undergraduates reported that while students spend 13 hours a week studying, they also spent 12 hours socializing with friends, 11 hours using computers for fun, 6 hours watching television, 6 hours exercising, 5 hours on hobbies, and 3 hours on other forms of entertainment."

[CH 2 NOTE 101]

Grade inflation completes the idyllic package by shielding students form negative feedback. The average GPA is now 3.2 [CH 2 NOTE 102]

Instead of making students conform and submit, college showers students with acceptance. This doesn't merely fail to prepare students for their future roles; it actively *un*-prepares them. College raises

students' expectations to unrealistic heights., leaving future employers the chore of dragging graduates back down to earth.

Yes, there's always the "college molds character compared to sitting alone in your basement playing videogames" fallback. The relevant alternative, though, is a fulltime job-and compared to that, college is a joke. As long as you avoid rare, demanding paths like engineering and premed in college, prepare to bask in the warmth of a 4-year vacation. If that's "socialization," it's dysfunctional socialization.

In any case, imagine school and work really were equally effective ways to shape kids' souls for the workplace. How effective would that be? Labor economists have spent decades measuring the reward for work experience.

A year of experience typically raises income by 2-3%. [CH 2 NOTE 103]

Some of this payoff has to reflect task-specific learning as opposed to discipline and socialization. Say it's half. Then a year's worth of character building is worth a 1-1.5% raise. Most estimates say a year of education is many times more lucrative. Even on generous assumption, then, discipline and socialization explains only a tiny sliver of the education premium.

Rewards

The Handsome Rewards of Education

	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%

These stats are solid, but what do they mean?

Mainstream defenders of education tend to take the numbers at face value, since college grads earn 73% more than High School grads, expect a 73% raise when you finish college.

Contrarian detractors of education tend to take the numbers at no value. For all we know, college grads would have made 73% extra even if they never did college

Affirming the financial rewards of education often confuses the critics of the signaling model. Isn't it contradictory to claim the market rewards irrelevant experience? NO! The whole signaling model's purpose is to explain why education increases income more than on job skills.

Ability Bias

HC and S models both take the effect of education on income for granted. Should they be more skeptical?

Key doubt: The labor market pays for the combined effect of 2 traits that go hand in hand: Schooling and preexisting ability.

Solution: To properly measure the effect of education on earnings, to avoid what economists call "ability bias", you must compare workers with equal abilities but unequal education.

Page 69

(The more useless curriculum is) + (The greater the financial reward of education) = (The stronger the case against education is)

The effect of education on income is like the effect of athletic practice on athletic prowess. People who practice more play better. Professional Athletes practice the most and play the best. This doesn't mean that I can be a professional football player if I practice enough. Why? Because professionals have 2 separate advantages over me: Practice AND Preexisting ability - strength, size, agility, aggressiveness, youth, pain tolerance, and so on.

To properly measure the benefit of football practice, you shouldn't compare me to pros who practice a lot. You should compare me to 165 pound, 46-year-old nerds with bad knees who practice a lot.

Ability Bias Challenges both models.

- 1. Human Capital
- 2. Signaling
- 3. Ability Bias

are 3 separate competing stories about

- 1. education
- 2. skill
- 3. income

They are easiest to grasp in their pure forms.

Story	Visibility of Skill	Education's Effect on Skill	Education's Effect on Income
Pure Human Capital	Perfect	WYSIWYG	WYSIWYG
Pure Signaling	Zero	Zero	WYSIWYG
Pure Ability Bias	Perfect	Zero	Zero
⅓ Human Capital, ⅓ Signaling, ⅓ Ability Bias	2/3	1/3*WYSIWYG	2/3* WYSIWYG

Issue 1: Visibility of Skill

In the Pure HC and Pure AB stories, skill is obvious. Employers effortlessly, instantly, and infallibly know what workers can and cannot do. In the pure signaling story, in contrast, skill is invisible. Employers must infer your skill form your resume.

Issue 2: Education's Effect on Skill

In the pure HC story, schooling enhances skill. Indeed, schooling is the sole reason why more-educated workers are more skilled than less-educated workers: WYSIWYG. In the pure S and pure AB models, in contrast, schooling has zero effect on skill. If students learn anything useful, they forget it all before joining the workforce.

Issue 3: Education's Effect on Income

The pure HC story says schooling raises your income by enhancing your skill. The pure S story says schooling raises your income by certifying your skill. Their bottom-line match: schooling raises your income. Indeed, schooling is the sole reason why more educated workers out earn less-educated worker: WYSIWYG. In the pure AB story, schooling has zero effect on income. Since skill is obvious to employers, and schooling fails to enhance skill, schooling does not pay.

Signaling and Ability Bias both agree that

- Employers value worker's skill
- deny that schooling enhances worker's skill

The 2 stories diverge on the Question of Visibility.

In a pure signaling story, employers never see your skill. So, if your skills mismatch your credentials, the labor market rewards your credentials, not your skills.

In a pure ability bias story, in contrast, employers see your skills as plain as day. So if your skills mismatch your credentials, the labor market rewards your skills, not your credentials.

Although the 3 models are best grasped in their pure forms, the truth is almost surely a mixture of the 3.

Correcting for Ability Bias

How big is ability bias? The most compelling answers

- 1. measure ability
- 2. compare the incomes of people with different educations but identical ability.

IQ

Many researchers have recalculated the education premium after correcting for IQ and other measures of cognitive ability. Almost all the research has 2 conclusions in common.

- 1. IQ pays. Holding education constant, an extra point of IQ raises earnings by about 1%
- 2. Holding IQ constant, the education premium shrinks but never vanishes

In 1999, a comprehensive review of earlier studies found that correcting for IQ reduces the education premium by an average of 18% [CH 3 NOTE 7]

When researchers correct for scores on the Armed Forces Qualification Test (AFQT), an especially highquality IQ test, the education premium declines by 20-30% [CH 3 NOTE 8]

Correcting for mathematical ability may tilt the scales even more. The most prominent researchers to do so report a 40-50% decline in the education premium for men and a 30-40% decline for women. [CH 3 NOTE 9]

Internationally, correcting for cognitive skills cuts the payoff for years of schooling by 20%, leaving clear rewards of mere years of schooling in all 23 countries studied. [CH 3 NOTE 10]

The highest serious estimate finds the education premium falls 50% after correcting for students' 12th grade math, reading, and vocabulary scores, self-perception, perceived teacher ranking, family background, and location. [CH 3 NOTE 11]

Non-Cognitive Abilities

A thinner body of research weighs the importance of non-cognitive abilities, such as conscientiousness and conformity. [CH 3 NOTE 12]

The results parallel those for IQ: noncognitive ability pays, and correcting for noncognitive reduces the education premium.

Correcting for AFQT, self-esteem, and fatalism (belief about the importance of luck versus effort) reduces the education premium by a total of <u>30%</u>. [CH 3 NOTE 13]

The <u>sole study</u> correcting for detailed personality tests finds the education premium falls <u>13%</u>. [CH 3 NOTE 14]

The <u>highest serious estimate</u> says that once you correct for intelligence and background, correcting for attitudes (such as fear of failure, personal efficacy, and trust) and personal behavior (such as church attendance, television viewing, and cleanliness) further cuts the education premium by <u>37%</u>. [CH 3 NOTE 15]

There are admittedly 2 BIG reasons to mistrust these basic results:

- 1. Reverse Causation
- 2. Missing Abilities.

Reverse Causation can be systematically overstating the severity of the ability bias. Missing abilities could systematically understate the severity of ability bias. Need we fret over wither flaw?

Reverse Causation

When you estimate the education premium correcting for ability X, you implicitly assume education does not enhance X.

If this assumption is false, correcting for X leads to misleadingly low estimates of the effect of education on earnings.

The best remedy for this reverse causation problem is to measure ability, then estimate the effect of subsequent education on earnings.

COGNITIVE ABILITY

Research on cognitive ability bias routinely applies this remedy- and uncovers little evidence of reverse causation. The comprehensive review article mentioned earlier separated 2 studies into 2 categories"

- 1. Those that measured IQ **BEFORE** school completion
- 2. Those that measured IQ AFTER school completion

If reverse causation were at work, studies that relied on IQ after completion would report more ability bias than studies that relied on IQ before completion.

In fact, both categories yield similar results of cognitive ability bias. [CH 3 NOTE 16]

Researchers who rely on the AFQT and related tests reach a similar result:

When you correct for cognitive ability bias in 1980, the payoff for posttest education falls at least as much as the payoff for pretest education. [CH 3 NOTE 17]

Correcting for mathematical ability in the senior year of High School shaves <u>25-32%</u> off the male college premium and <u>4-20%</u> off the female college premium. [CH 3 NOTE 18]

NON-COGNITIVE ABILITY

What about reverse causation from education to non-cognitive ability? Truth be told, <u>relevant research</u> <u>is sparse</u>. A few papers grapple with the issue with mixed results. [CH 3 NOTE 19]

Most research, however, either measures non cognitive ability and education at the same point in time, or fails to distinguish between the effect of pre- and posttest education. The shortage of evidence hardly shows reverse causation is a serious problem, but caution is in order.

Missing Abilities

Correcting for ability doesn't fully eliminate ability bias unless you measure ALL relevant abilities. Are there any important abilities we've overlooked?

Family Background

Via Nature or Nurture-is a plausible contender. Perhaps wealthy families us their money to help their kids get good educations and good jobs. Maybe college is a 4-year vacation for rich kids-and a status symbol for their parents. Perhaps children from large families get less educational and professional assistance from their parents. Mayne Well educated workers come from high achieving families-and would have been high achievers even without their schooling. The Mechanism is hard to nail down, but most researchers find correcting for family background reduces the education by 0-15%. [CH 3 NOTE 20]

On reflection, though, <u>correcting for family background probably double counts</u>. Both cognitive and noncognitive ability are moderately to highly hereditary, so you should correct for individual's ability before you conclude family background overstates school's payoff. [CH 3 NOTE 21] This caveat matters. Rare studies that correct for intelligence and family background find that correcting for intelligence suffices. [CH 3 NOTE 22]

Armed with good measures of cognitive and noncognitive abilities, <u>we can probably safely ignore</u> <u>family background</u>. [CH 3 NOTE 23]

The most troubling evidentiary gap: researchers usually settle for mediocre measures of noncognitive ability. Most studies that correct for noncognitive ability rely on 1 or 2 hastily measured traits and find only mild ability bias. [CH 3 NOTE 24] Yet when asked, employers hail the importance of workers' attitudes and motivations- and the study with the best measures of noncognitive ability finds large
ability bias. [CH 3 NOTE 25] Until better measures come along, we should picture existing results as a lower bound on noncognitive ability rather than a solid estimate.

So how severe is ability bias, all things considered? For cognitive ability bias, 20% is a cautious estimate, and 30% is reasonable. For noncognitive ability bias, 5% is cautious and 15% is reasonable.

Figure 3.1 shows education premiums correcting for both abilities, assuming equal bias for education levels.

Correcting for ability gives the education premium quite a haircut-but not a shaved head. Education has a large payoff in every scenario, but the payoff you think you see is bigger than the payoff you really get. On the reasonable assumption of 30% cognitive + 15% noncognitive ability bias:

- dropping out of High School cuts income by almost 15%
- a college degree boosts income by almost 40%
- a master's degree boosts income by almost 70%

When fans of education trumpet the raw education premium, skeptics are right to protest, "College graduates and high school graduates differ in many ways besides the time they sat in classrooms."

Yet after correcting for all the differences we see or suspect, education still pays.



Labor Economists versus Ability Bias

Over the last quarter century, labor economist have surprisingly moved to the view that there's not much ability bias to measure.

A famous review of the evidence by eminent economist David Card concludes ability bias is small, nonexistent, or even negative. [CH 3 NOTE 26]

BC calls this verdict the Card Consensus.

Many, perhaps most, elite labor economists not only embrace the CC but rely on it for practical guidance.

The CC neuters criticism of the omission of ability bias. How can you attack a tacit "0% ability bias" assumption as a fatal flaw when plenty of experts stand ready to defend it as a harmless simplification? This is a disorientating intellectual situation. Statistically naïve laymen infer causation from correlation: Since college grads earn 73% more than high school grads, college causes a 73% raise. Economists who DON"T specialize in labor smirk at the laymen's naivete; they take sizable ability bias for granted. But economists who DO specialize in labor now largely stand with laymen.

While ability bias is intuitively plausible, the CC tells us, "Move along. Nothing to see here."

What about abundant research from last section that detects hefty ability bias? The CC barely acknowledges it. [CH 3 NOTE 30]

Why not? Labor Economists' most common rationale is that no one can measure all the abilities that cause both academic and career success.

True enough, but that just means ability bias is worse than it looks. Supporters of the CC also occasionally muse that high-ability students might leave school sooner:

Some people cut their schooling short so as to pursue more immediately lucrative activities. Sir Mick Jagger abandoned his pursuit of a degree at the London School of Economics in 1963 to play with an outfit known as the rolling stones...No less impressive, Swedish epee fencer Johan Harmenberg left MIT after 2 years of study in 1979, winning a gold medal in the 1980 Moscow Olympics, instead of earning an MIT diploma. Harmenberg went on to become a biotech executive and a successful researcher. These examples illustrate how people with high ability-muscial, athletic, entrepreneurial, or otherwise-may be economically successfully without the benefit of an education. This suggests that...ability bias, can be negative as easily as positive. [CH 3 NOTE 31]

Straightforward Rebuttal: name any ability the well-educated tend to lack. Outliers have ye always. But the well-educated are, on average, abler across the board.

No one hears about someone quitting high school or college and says, "Wow, what a talented kid." At best then, the CC casually throws away a large body of contrary evidence to get off the ground. But it's worse than that. The CC casually throws away the bet evidence. Worried you're improperly giving school credit for preexisting ability? There's a clear statistical cure: measure preexisting ability to allow an apples-to-apples comparison of people with equal abilities but unequal schooling. The cures the CC prizes, in contrast, are anything but clear. Instead of sending researchers in search of better ability measures, it sends in search of "quasi-experiments" - naturally occurring situations that mimic experiments. As a result, labor economists have collected a zoo of alleged educational guasi-experiments.

- Some study twins. As long as identical twins have equal ability but unequal educations, education's true payoff equals their earnings divided by their education gap.
- Other scholars study the effect of season of birth, on the theory that kids who are young for their grade are less legally eligible to drop out of high school. Since 2000 researchers have been most transfixed by changes in compulsory attendance laws. If government forces students who would have dropped out to stay in school, what happens to their income after graduation? [CH 3 NOTE 34]

While technically impressive, all these papers raise more questions than they answer. To treat changes in compulsory attendance laws as a quasi-experiment, for example, we must assume state change these laws at random - or at least for reasons unrelated to the labor market. Once a quasi-experimental approach picks up steam, moreover, critics usually uncover deep flaws. Identical twins with different educations DON'T have identical ability; the more educated twin is usually the smarter twin. **[CH 3 NOTE 35]** Season of birth is not random. it correlates with health, region, and possibly income. On a close look, the supposed fruits of U.S. compulsory attendance laws mask unrelated regional trends, especially in the South. **[CH 3 NOTE 37]**

None of this means quasi-experiments studies of the education premium are worthless, or their critics invariably on target/ But compared to directly measuring preexisting ability, such studies are speculative and unconvincing.

Since the cleanest approach reveals hefty ability bias, and the messy alternatives yield mixed results, we should reject the CC in favor of the commonsense view that ability bias is all too real.

Wheat vs Chaff

How can education be so irrelevant yet so lucrative? There exists one clean explanation that doesn't appeal to signaling

- call it the wheat/chaff theory.

In this story, education is a mixture of high paid wheat (literacy, numeracy, critical thinking, technical training) and unpaid chaff (history, Latin, gym, French Poetry).

Schooling is lucrative because official statistics take "real" classes and "real" majors and lump together "Mickey Mouse" classes and "Mickey Mouse" majors.

The W/C Theory is no ringing endorsement of the status quo.

"The curriculum is a mixed bag of invaluable preparation and irrelevant filler," leaves ample room for improvement. You might even say the W/C theory damns the education system with faint praise. Still, if this story is correct, the education system-for all its faults-genuinely transforms student lead into worker gold.

WCT is exaggerated at best. Wheat arguably pays more than chaff, but chaff definitely pays too. Since most academic programs require ample chaff for admission and/or graduation, the financial rewards of accrued chaff should not surprise you.

Wheat, Chaff, and Coursework

 Several research teams use people's high school transcripts to predict their adult earnings. [CH 3 NOTE 39]

This paper found that, when ignoring preexisting abilities, extra classes in math, foreign language, and industrial arts modestly increases earning and that extra classes in English, social studies, and fine arts modestly reduce earnings.

Correcting for ability, however, the bonus for extra math steeply declines. --->

Payoff of Extra year of foreign language > (payoff of extra year of math + payoff of extra year of science)

- Later Researchers usually detect a bigger Payoff for math-but not for science.
- One pair of researchers finds that extra high school math raises pay for female college graduates. For males and less-educated women, however the payoff for extra math is unclear.
- Another research team reports that, correcting for ability, the following courses increase adult earnings [CH 3 NOTE 42]
 - Algebra/geometry (+1.9%)
 - average English (+1.5%)
 - English Literature (+1.5%)
 - Above level English (+2.5%)
 - foreign language (+1.6%)
- In Britain, high school students [CH 3 NOTE 43]
 - who attain the A-level math earn almost 10% extra after 6 years?
 - Natural Science is no more lucrative than humanities or social science
- The most optimistic estimate of the benefit of high school math finds that Danish students who were nudged into advanced math eventually earned 21% more.
 The Reason: students who took advanced math are more likely to go to college. Danes who took advanced math without upping their educational ambitions reaped little or no gain [CH 3 NOTE

<mark>44]</mark>

Overall, these are NOT the patterns a devotee of the W/CT should expect. Yes math classes probably pay extra. But natural science classes probably don't. Yes, English courses sometimes seem lucrative. But foreign language courses consistently seem lucrative. A stubborn fan of the WCT could declare physics a "Mickey Mouse" subject and French a "real" subject.

The natural explanation though is that Wheat/Chaff Theory is overblown. Since Employers value diplomas, and diplomas require chaff, chaff pays.

Wheat, Chaff, and Major

WCT is right about one thing: Major matters. Engineering is near the top, business average, educational near bottom.

Fortunately for education majors, the AVERAGE premium is high. SEE Figure 3.2

Page 77



Source: Altonji et al. 2012a, p. 216, selected majors, correcting for highest level of educated tained. Observations included if the individual has at least a bachelor's degree, works >34 hours per week and >40 weeks per year, and is 23–59 years old. Original results converted from log dollars to percentages.

In the American Community Survey, college grads earn 78% more than high school grads. [CH 3 NOTE 45]

Business, the most common major, is roughly average.

So, while the PESSEMIST could say could report, "Business majors earn 40% more than education majors."

an OPTIMIST could report, "Education majors earn 27% more than high school graduates"

As usual, don't take these numbers at face value. The major premium, like the college premium, steeply falls after correcting for ability. Strong students tend to major in high-earning subjects. Natural Science majors, for example, outshine social science and humanities majors on the math and verbal section of the SAT. [CH 3 NOTE 47]

To measure the true effect of majoring in engineering rather than education, you need to correct for standardized test scores, high school grades, math background, and so on.

When researchers make these vital corrections, the college major payoff palls by about half. <mark>[CH 3 NOTE 48</mark>

Take engineering. On a naïve, figure 3.2 says the average education major would make 75% more money by switching to engineering.

But the average education major's SAT scores, high school GPA, and math preparation says otherwise. How much extra would the average education major who switched really earn?

Estimates from 10 separate papers range from +25% to +60% with an average of +44%. These corrected figures are actually optimistic, because they take the education major's ability to complete the engineering curriculum for granted.

In practice, even eager engineering students frequently flee to easier majors.

In any case, a proper test of the WCT shouldn't compare high earning majors with low earning majors. Since the WCT claims that chaff is worthless in the job market a proper test should compare low earning college majors with high school graduates.

Figure 3.3 shows how various majors fare, correcting for both the college premium and the major premium for preexisting ability.

The WCT is believable if you focus on the best paid majors.

To test the WCT, though, you should scroll to the worst paid majors.

Result: the least lucrative majors, in the student handbook command an earnings premium of roughly 20%.

Many widely ridiculed majors boost earnings by around 30%, including:

- anthropology
- archeology
- English
- Liberal Arts
- sociology
- history
- communications

Political Scientists earn as much as business students- and both slightly out earn biologists.



Figure 3.3: Ability-Corrected Earnings for College Majors vs. High School Grads Source: Figure 3.2 and text, assuming:

(a) 45% ability bias for both the college and major premiums.

(b) Male business majors earn the average return for men; female business majors earn the average return to women.

Original results converted from log dollars to percentages.

The most vivid strike against WCT is that econ majors earn almost as much as engineers. [CH 3 NOTE 50]

"I assure you that my profession makes near-zero effort to train our undergrads for the job market. We're easy on our students, even at elite schools like Berkeley and Princeton. Frankly, most econ professors practice a variant of the old Soviet adage, "We pretend to teach, they pretend to learn." During four years of study, our better students acquire only two marketable skills: elementary statistics, and ability to calculate a present discounted value. How then do economists fill eight semesters of coursework? With watered-down versions of topics that fascinate the faculty: supplyand-demand problems, mathematical economic growth, and a long list of fields that are far less "applied" than they sound-macroeconomics, industrial organization, labor economics, regulation, public choice, economic history. From the standpoint of job skills, an economics degree is almost entirely chaff (except for budding economics professors.) Yet despite our failure to prepare econ majors for their careers, the job market treats our graduates like engineers." - Bryan Caplan

To be fair, economics is an outlier. The most lucrative majors tend to be vocational. Engineers and computer scientists rule the roost- and finance, accounting, and nursing aren't far behind. Yet the fact remains: students can major in underwater basket weaving, enjoy a 4-year vacation, and reasonably expect to out earn peers who said "I'm not going to college because it's a waste of time" by 25%.

Wheat, Chaff, and Mismatch

How closely related is your job to your major? College Graduates Say: 55% - Closely Related 25% - Somewhat Related 20% - Not Related

Ego presumably skews these answers; who wants to confess their job and their majors are "not related". People who admit to mismatch earn about 10-12% less than the typical person in their major. The more vocational the major, the lower the mismatch risk. [CH 3 NOTE 51]

While all these facts are consistent with WCT, there's one discrepancy: The market penalty for mismatch is greater for <u>more</u> vocational subjects.

- Mismatched Engineers and computer scientists earn over 20% less.
- Mismatched health professions majors earn almost 30% less

For less vocational majors, in contrast, the mismatch penalty is nearly 0.

- mismatch English and foreign language majors earn about 1% less
- mismatched philosophy and religion majors earn about 20% EXTRA!! [CH 3 NOTE 52]

To capture the full benefit of a "real Major" you need a job that uses your training. To capture the full benefit of a "Mickey Mouse" major, in contrast, you need only a job that requires a degree.

And Contrary to the WCT, the full benefit of a Mickey Mouse majors is nothing to laugh at. The degree may not help you do a better job but still helps you get a better job. Studying anything pays more than studying nothing.

Is Credentialism a creature of the State?

Why do employers reward useless education? The signaling model assumes they do so of their own free will: firms filter on credentials because credentials are the most cost-effective way to tell good workers from bad.

Some argue, however, that government is ultimately to blame. Maybe useless education pays because good government jobs require credentials. Maybe useless education pays because good jobs require occupational licenses - and government limits such licenses to people with credentials. Maybe useless education pays because government persecutes IQ testing, forcing employers to rely on credentials instead.

How do such stories fare against the facts?

Government Credentialism

Some 3rd World governments employ the vast majority of their county's educated workers.

 In the 1960s, Egypt notoriously guaranteed every college graduate a government job. By 1988, 66.66667% s of Egypt's male college graduates and 80% of its female college graduates worked in public sector. [CH 3 NOTE 55]

Throughout the world, public sector employees tend to be more educated than private sector workers. [CH 3 NOTE 56]

- In the US, <mark>52%</mark> of government employees have a bachelor's degree or more VERSUS
- In the US, 34% of private employees who have a bachelor's degree or more [CH 3 NOTE 57]
- Government positions for high school dropouts have all but vanished: Between 1960 and 2000, the fraction of American public sector workers who hadn't finished high school dropped from 34% to 3%

If government credentialism really explained the payoff for useless education, we would expect the education premium to be higher in the public than the private sector. When government pays the educated more than they're worth, private employees need not follow suit. Business could instead scoff, "If government wants credentialed workers so badly, it can have them." Indeed, if government credentialism artificially inflates the education premium, refusing to match inflated government salaries is the profit-maximizing response.

In the real world, however, the private sector values education more than the public sector.

Researchers consistently find that government pay scales are "compressed": governments overpay the least educated workers and underpay the most educated workers. [CH 3 NOTE 59]

The US federal government is a case in point. SEE Table 3.3

	Federal Government			Private Sector		
ad alatto ad alatto addata da adata da alatta da	Average Total Com- pensation (\$/hour)	Raise	Education Premium over H.S./ Less	Average Total Com- pensation (\$/hour)	Raise	Education Premium over H.S./ Less
High School Diploma or Less	\$39.10	nand in Rang an Rang an	ny codian kay mataka kanalan sa	\$28.70		- destar objectio objectio
Some College	\$45.70	\$6.60	+17%	\$34.70	\$6.00	+21%
Bach- elor's Degree	\$57.20	\$11.50	+46%	\$49.70	\$15.00	+73%
Master's Degree	\$65.30	\$8.10	+77%	\$60.50	\$10.80	+111%
Profes- sional Degree or Doc- torate	\$73.20	\$7.90	+87%	\$89.60	\$29.10	+212%

Public debate focuses primarily on the issue: "Do we overpay federal workers?"

On average the answer is clearly Yes. But

"Do we overpay federal workers for credentials?'

is a distinct question- and the answer is clearly No.

- The least educated federal workers hit the jackpot. Yet once they're on the federal payroll, the • average college grad makes \$18.10/H more than the average worker who never went to college-a 46% premium.
- In the private sector, the average college graduate makes \$21/H more than the average worker ٠ who never went to college- a 73% premium.
- In the federal Government, a professional degree/doctorate get you \$39.9/H more than a • bachelor's degree-an 80% pay bump.

Researchers find similar patterns for US state and local government and abroad. [CH 3 NOTE 60] The rise of government unions seems a key factor. [CH 3 NOTE 61]

Whatever its origin, the fact remains: if private sector adopted the civil service pay scale, education would pay less, not more.

Licensing

Occupational licensing is now more prevalent than union membership at its peak in the 1950s. Almost 30% of U.S. Workers need a government license to legally do their jobs. [CH 3 NOTE 61] The most obvious effect of licensing is to raise wages by restricting competition. While payoff varies from job to job, the average license raises income by 10-15%

Why bring this up? Because education and licensing often pair up.

- Only 12% of high school dropouts need a license to do their jobs VERSUS
- 44% with advanced degrees [CH 3 NOTE 65]

In some occupations, licenses require educational credentials. Given these facts, you could say, "Who needs the signaling model? Employers reward useless education because government forces them"

Yet this story has a fatal flaw: the education premium dwarfs the licensing premium.

Suppose licensing boosts income by 15%. Since advanced degree holders are 32 % points more likely to need licenses than high school dropouts, licensing should, on average, boost advanced degree holder's earnings by 5%. [CH 3 NOTE 66] Even correcting for ability however, master's degree holders earn 92% more than dropouts. [CH 3 NOTE 67]

Licensing has large effects on the overall labor market. The topic deserves more attention from researchers, policy makers, and voters. The case for deregulation is strong: do we really need government to protect us from bad barbers, florists, or decorators? Yet if occupational licensing were abolished today, the market's rewards for useless education would barely budget.

see IQ Laundering

IQ Laundering

HCP often protest, "Why on Earth do workers signal ability with a 4-year degree instead of a 3-hour IQ test?"

Response: Employers reasonably fear high IQ, low education applicants' low conscientiousness and conformity.

Other critics of the education industry, however, have a more streamlined response: IQ tests are effectively illegal.

Thanks to the landmark 1971 *Griggs vs. Duke Power* case, later codified in the 1991 Civil Rights Act. Anyone who hires by IQ risks pricey lawsuits. Why? Because IQ tests have a "disparate impact" on black and Hispanic applicants. To escape liability, employers must prove IQ testing is a "business necessity." [CH 3 NOTE 68] Since this legal hurdle is nigh insurmountable, employers turn to higher education to "launder" their workers IQ scores. As Jonathan Last succinctly states:

"In Griggs, the court held that employers could not rely on IQ-type tests if minorities performed relatively poorly on them...

So, what employers do is this: They launder their request for test scores through the college system, because colleges are allowed to use such considerations. The universities get rich, students and their parents go into hock, and everyone pretends that Acme Widget is hiring Madison because they value her B.A. in sociology from Haverford, and not because her admission to Haverford proved that she is bright-a fact which a three hour written test could have demonstrated just as well. If Griggs were rolled back, it would upend the college system at a stroke."

The IQ laundering story has a kernel of truth. Taken literally, the "business necessity" standard for IQbased hiring is almost impossible to meet. [CH 3 NOTE 70]

Yet this argument proves too much. Taken literally relying on diplomas to "launder" IQ is equally illegal. The original Griggs case explicitly ruled that both IQ tests and educational credentials have a disparate impact, so neither is permissible unless employers prove their business necessity. [CH 3 NOTE 71] Yet in the real world, employers require educational credentials without bothering to prove a thing.

How do employers get away with it? Because the legal system normally ignores the letter of the law. [CH 3 NOTE 72]

For all its bluster, Griggs "bans" nothing; it's more like tax on out-of-favor hiring methods. Defenders of the IQ laundering story can't make their case by reciting the law. They have to show the tax on IQ-based hiring is steep enough to convince employers to hire educated workers for inflated prices instead of smart workers for bargain prices. • At the outset the IQ laundering story faces an awkward fact: 10-30% of large employers admit they use cognitive ability tests. [CH 3 NOTE 73]

The obvious retort is without the "test tax" cognitive ability tests would be much more common. How can we measure the burden of the test tax? By studying enforcement:

- number of lawsuits
- size of the awards
- size of settlements
- legal costs
- plaintiff's chance of winning

No one has comprehensive data, but existing research yields a ballpark figure.

The total number employment discrimination cases filed in federal court peaked in 2007 [CH 3 NOTE 74] The average cash award if you win a trial is large-about \$1.1 Million for 1990-2000. [CH 3 NOTE 75] But only 2% of plaintiffs actually go to trial and win, so annual awards summed to less than \$600 Million. Most plaintiffs (58%) manage to get an out of court settlement. [CH 3 NOTE 77] Settlements are usually confidential, but the average settlement is about 5% as large as the average trial award. [CH 3 NOTE 78] Annual settlements therefore sum to less than \$800 Million. If plaintiffs' lawyers work for 40% contingency fee, and defense outspends them by a factor of 3, employers' legal costs still sum to less than \$1.7 Billion. Updating these mid-1990s figures for inflation, employers total legal burden sums to under \$5 Billion/Year.

Compared to total labor costs, \$5 billion is trivial. Now remember that \$5 billion is a high estimate of the cost of all employment discrimination cases. The tax on IQ testing is far smaller. Only 4% of federal discrimination cases brought between 1987 and 2003 alleged disparate impact. [CH 3 NOTE 80] That amounts to under a 1000 annual cases against any form of employment testing. If disparate impact cases cost the usual amount, employers' total test tax is under \$200 Million/year. [CH 3 NOTE 81]

Compared to the total upcharge a nation of employers pays for college graduates, this is a
pittance. If IQ testing really let employers hire college quality workers for high school wages,
prudent employers would freely test IQ and treat the occasional Lawsuit as a minor cost of doing
business.

Remember: correcting for ability, college grads earn 40% more than high school grads. If IQ laundering were a central function of higher education, courts could raise the test tax 100-foldand IQ testing would remain profitable. [CH 3 NOTE 82]

- To the best of BC's knowledge, proponents of IQ laundering story have never grappled with this arithmetic. Their main evidence is timing: The education premium started its meteoric ascent suspiciously soon after the 1971 Griggs decision. Yet on closer look, their own data shoe the college premium stayed flat for almost a decade. [CH 3 NOTE 83] Why would it take years for the slightest hint of IQ laundering to surface?
- In long-run historical perspective, IQ laundering is even less credible. Employers amply rewarded college diplomas decades before discrimination laws were on the books.
 Between 1914 and 2005, the US college premium was roughly U shaped: high for 3 decades before WW2, moderate for the 3 decades after WW2, then high again. [CH 3 NOTE 84] By prewar standards, today's college premium is normal. Instead of viewing the rise in college premium as a belated response to discrimination law, why not view it as a rebound form a historic low?

- Proponents of the IQ laundering story should also be troubled by the labor market's lackadaisical hunt for loopholes. The World is full of covert IQ tests. Employers could replace IQ tests with tests of "job knowledge" "skill" and "problem solving." Don't want to leave a paper trail? Measure IQ with intellectually challenging interviews. If employers' hands are tied, ambitious applicants will gladly help them bend the rules by stapling their SATs to their applications. In every other area of the economy, costly regulations inspire creative evasion. Why not here?
- The most blatant flaw of all: the IQ laundering story implies the labor market will reward not college diplomas, but college admission letters. [CH 3 NOTE 85]
 Instead of paying a college \$100 K to launder your test scores, you'd pay a \$100 application fee. If you object, "an admission letter signals good IQ, but skipping college signals bad character," you'd be back to my story: the root cause of educational signaling is the timeless problem of imperfect information, not a lawsuit from 1971.

Disparate impact laws are like speed limits. Taken literally, almost every driver breaks the law. Why? Because speed limits, like disparate impact laws, are highly inconvenient and laxly enforced. If employers really want to test applicants IQs, IQ-based hiring would be as common as driving 60 when the "maximum" is 55.

We shouldn't totally dismiss IQ laundering. If disparate impact law were suddenly banished, IQ testing might slightly expand, leading to a slightly lower education premium. Employers arguably overestimate the size of the test tax; clear cut legalization would clam their fears. Testing job seekers intelligence is somewhat more common outside of the United States. [CH 3 NOTE 87] Furthermore, while the average test tax is low, plenty of firms aren't average. Copyright violation is rampant, but copyright litigation still bankrupted Napster. If Walmart loudly embraced IQ testing, it might meet Napster's fate. [CH 3 NOTE 88]

Overall, though, IQ laundering is an extreme tail wagging the dog story. The idea that employers pay hundreds of billions in extra labor costs to avoid hundreds of millions in extra legal costs is not credible.

Underrating the Benefits of Education?

Does the labor market really reward useless education? Skeptics have a long list of doubts. After a careful review, many turn out to be partly valid. Yet after amply correcting for each and every doubt, education still pays. Even fine arts degrees. To fairly measure the payoff of a fine arts degree, however, you can't just review the main reasons to think the degree is less lucrative than it seems on the surface. You must also review the main reasons to think the degree is more lucrative than it seems on the surface. We'll ponder intangible benefits later in this book. For now, let's stick to crude materialism.

Unemployment

Educated workers are, as a rule, less likely to face unemployment.

- Between 1972 and 2000, the average unemployment rate was
 - almost 8% for high school dropouts
 - slightly under 4% for high school graduates
 - about 2% for college graduates [CH 3 NOTE 89]

- Since the great recession, the media have been full of stories about college-educated workers losing their jobs- and recent college graduates who can't find jobs in the first place.
- Yet the rule that educated workers are LESS jobless is as true as ever-and recent graduates are no exception. SEE figure 3.4

The real question, as usual, is not whether educated workers have lower unemployment rates, but WHY. Ability bias takes many forms. Perhaps the well-educated were better at finding and keeping jobs before they set foot on campus. The best way to handle ability bias, once again, is to measure ability, then correct for it. Such research is sadly sparse, but one high quality study measures the effect of American's education on unemployment, correcting for a host of abilities. [CH 3 NOTE 91]

- 29% of the effect on education on unemployment vanishes once you correct for IQ
- Correcting for IQ, fatalism, self-esteem, and antisocial behavior, less than half the apparent effect of education on unemployment remains



Fringe Benefits

- Health insurance, pensions, and other employee benefits are not almost a 1/3 of total private sector pay,
- and over a 1/3 of total public sector pay. [CH 3 NOTE 92]
- Better educated workers get better benefits. In the 2010 wave of the National Longitudinal Survey of Youth, educated Americans are more likely to have all the following employee benefits: medical insurance, life insurance, dental insurance, parental leave, a supplemental retirement plan, flexible hours, training, and a child care. [CH 3 NOTE 94]
- Correcting for intelligence shears educations impact but normally leaves it well above 0. [CH 3 NOTE 95]

Mismeasurement

How do researchers measure people's education? The ultimate source, in most cases, is asking them, "How many years of education do you have?" or "What's the highest degree you have?" Since people err a lie, all real-world education data is flawed.

Education skeptics could use these undeniable flaws to dismiss everything we think we know about the payoff of education. Yet the correct statistical inference is almost the opposite. The less reliably you measure X, counterintuitively the GREATER X's true effect. [CH 3 NOTE 96] Ignoring mismeasurement lets competing factors "steal" credit from education, leading us to underestimate how valuable education really is.

Imagine a world where 5 workers have high school diplomas and 5 have college degrees. Workers with high school degrees earn \$50K/Year. Workers with college degrees earn x2 as much. Yet neither high school nor college teaches students to carefully complete surveys. When the census inquiries about their education, one of each group checks the wrong box. What happens? The data

- OVERESTATES earnings for high school grads and understate earnings for college grads. Measured earning is 60K for high school grads (b/c one alleged high school grad went to college)
- and \$90K for college grads (b/c one alleged college grad didn't go to college)

The true difference in earnings is \$50K; the true college premium is +100%. Yet thanks to human error, the measured difference is only \$30K, and the measured premium is only +50%.

This example illustrates a general principle: mismeasurement of education shrinks the perceived education premium. Labor economists frequently correct for this distortion and conclude the true effect of education is about 10% larger than it looks on the surface. [CH 3 NOTE 97]

On closer look, however, their approach stacks the deck in education's favor. While labor economist often corrects for this distortion, to prevent competing variable from "stealing" credit for the effect of intelligence. [CH 3 NOTE 98] They rarely correct for mismeasurement of personality, to prevent education from "stealing" credit for the effect of personality.

Indeed, they rarely correct for mismeasurement of ANYTHING other than education.

As a result, labor economists bypass the crucial question" Is education, on net, a victim or a thief? Do intelligence personality and so on steal more credit from education than education steals from them?

The rare papers that face this challenge find measurement error is a red herring. [CH 3 NOTE 101] The true effect of education on income is no bigger than it looks.

The Real Rewards of Education

Challenge the data all you want.

- Correct for brains, motivation, family background, choice of major, and beyond. The education
 premium will shrink before your eyes. Yet the shrinking stops long before the education premium
 disappears.
- Vocational majors are especially lucrative, but even archeology degrees boost your income by 25%.
- Why would shrewd, money grabbing employers pay such exorbitant rates for archeologists? Education's contrarian detractors typically blame the government, but their stories fall flat.
 - \circ Government sinecures? The private sector pays more for education than the public sector
 - \circ $\ \$ Regulation? The education premium in licensed and unlicensed is roughly the same
 - Lawsuits? Legal doctrine notwithstanding, the IQ "test tax" is a pittance.

Contrarian detractors should stop avoiding the cleanest explanation: signaling. Going to school to certify skill can be as lucrative as going to school to enhance skill. If archeology B.A.s are better workers than high school grads, employers needn't waste time wondering, "What useful skills do archeology programs really teach?" Instead they'll skip to the bottom line: "When I pay 25% extra for an archeologist, I get my money's wort. End of story."

Education's contrarian detractors and mainstream defenders have one illusion in common: Both think they can kill 2 birds with 1 stone.

The detractors find little effect of education on job skills, so they ignore the evidence that education mightily enhances worldly success.

The defenders find a large effect of education on worldly success, so they ignore the evidence that education barely enhance job skill.

Both sides make strong cases as long as they stick to the evidence they know.

The wise approach is to take ALL evidence seriously. To understand education, we have to look at skill and success, learning and earning. Irrelevant education really is financially rewarding. Human Capital purism can respond only with denial and dismay. The signaling model, thankfully, is ready, willing, and able to pick up the slack.

The Selfish Return to Education

Selfish Return Basics

Signaling says education increases the size of the pie, signaling says education redistributes the pie. What difference does it make, especially to those who know all they have to do is follow the money?

Socially speaking, the HC/S split is all important.

The closer we get to HCP, the more education benefits mankind.

As signaling's share rises, education's social benefits fade. When we near the signaling pole, education becomes an incinerator that burns society's time, money,

and brains in a futile attempt to make everyone look special.

The chapter in progress asks: When you invest in your own education, how well does your investment pay off for you?

The question is surprisingly involved. You have to consider:

- income
- fringe benefits
- unemployment risks
- job satisfaction
- health
- etc.

When you weigh the value of education, knowing the benefits of education is not enough. You also need to know the COSTS and TIMING

Example:

Imagine you could raise your income .1% from now until your retirement by singing Mary Poppins. You only have to sing it once. In this world, researchers who knew people's income and musical history would detect a .1% "Poppins Premium." Is that a good payoff? Yes! Singing the musical takes 3 hours. With an annual salary of \$50,000 a .1% premium means \$50 extra every year for your entire working life. Not bad, even if you hate classic Disney.

The answer would tilt, naturally, on a full price Disney Cruise. Unless you already planned to take this vacation, you presumably value the cruise less than the fare. Say you value the \$2000 cruise at only \$800. Now, to capture the .1% premium, you have to fork over 3 hours of your time plus the \$1,200 difference between the cost of the cruise and the value of the vacation. To further sour the deal, imagine the .1% income only kicks in 5 years after your performance.

The Rate of Return to Education / Return to Education

Answers 2 questions.

If you invest in education,

- 1. how much comes back (or "returns") to you
- 2. and how long you must wait to collect?

Laymen cringe when economists use a single metric-rate of return-to evaluate bonds, home, insulation, and college. Hasn't anyone ever told them money isn't everything!

The Superficial Response:

Economists are by no means the only folks who picture education as an investment. Look at students. The Higher Education Research Institute has questioned college freshmen about their goals since the 1970s. The case majority is openly careerist and materialist. In 2012, almost 90% called "being able to get a better job" a "very important" or "essential" reason to go to college. Being "very well off financially" (over 80%) and "making more money" (about 75%) are almost as popular. Less than half say the same about "developing a meaningful philosophy of life". **[CH 5 Note 2]** These results are especially striking because humans exaggerate their idealism and downplay their selfishness. **[CH 5 Note 3]** Students probably prize worldly success even more than they admit.

The deeper response to laymen's critique:

Economists are well aware money isn't everything - and have an official solution. Namely: <u>counting everything people care about.</u>

The trick: For every benefit, ponder, "How much would I pay to avoid it?" Maybe you value a fulfilling job at \$5,000/year or disvalue boring classes at \$3,000/year. While most things don't come with VISIBLE price tags, you can slap mental price tags on absolutely anything. A cynic isn't someone who puts a price on the sacred; a cynic is someone who puts low price tag on the sacred.

Once you grasp the return on a 1-year loan, you can decipher the return on any investment whatsoever. Educational investments are messy. In practice, most economists take the easy way out. When they calculate the selfish (or "private") RTE, they focus on

1. Benefit

- The Education Premium
- 2. Costs
 - tuition
 - foregone earning

The education premium:

Even after scrupulously correcting for ability bias, education raises earnings. The crucial question is: How much? When they answer, economists conventionally assume all years of education are created equal, and plug in "the" education premium. [CH 5 Note 5]

Tuition:

Tuition is the most blatant cost of education, but you should carefully distinguish tuition form room and board. Nonstudents have living expenses too, so they aren't really a "cost of education." To be precise, you should count only the cost of a comparable lifestyle outside of school.

Foregone earnings:

Going to school makes it harder to hold down a job. Few do both full time. So, another major cost of education is the extra income you would have earned if you weren't in school.

As long as these 3 factors are the whole story, computing the RTE is straightforward. Start with the yearly sum you can now earn full time- say \$50,000. Plug in a good ability corrected estimate of the education premium for a year of school-say 10%. Find the cost of a year of tuition-say \$10,000. Then you're essentially investing \$60,000-\$50,000 foregone earnings plus \$10,000 tuition-in order to earn an extra \$5,000 every year for the rest of your working life. Assume you'll retire 40- years from today. Then math savants know enough to compute the RTE in their heads, and the rest of us can consult a spreadsheet. The answer is 7.9%. Intuitively, you would end up equally rich if you'd stayed in the labor force for the year, saved all \$60,000, then repeatedly invested that nest egg at 7.9%.

Estimates of the RTE arrive adjusted for inflation. In economic jargon, RTE are "real" not "nominal."

Last Question: What's a good rate of return? The evasive will tell you,

"It depends on

- current interest rates
- risk
- risk tolerance
- liquidity
- leverage
- the rest of your portfolio
- etc."

In lieu of this evasive answer, I employ these helpful rules of thumb:
An inflation adjusted RTE of 10% is excellent
An RTE of 7% is very good-about average for stocks.
RTE 5% is pretty good.
RTE 3% is so-so.
2% is poor.
<=1% is awful.

Counting everything That Counts

If you seek practical guidance, you can't blithely assume education has precisely 1 benefit, and 2 costs. Instead you must strive to count everything that counts.

This open-ended calculation begins with brainstorming- identifying every semi-plausible benefit and cost of education. Fortunately, an army of researchers has been brainstorming for decades. Education conceivably enhances not only compensation and employment, but job satisfaction, health, happiness, and beyond. Obtaining these benefits requires more than tuition and foregone earning. You might miss valuable job experience and endure agonizing classroom boredom. And there's a big catch: you can pay some, most, or all the costs of education, yet fail to earn your degree.

Page 94

When brainstorming, DOUBLE COUNTING is the key pitfall to avoid.

If genuine, we must

- 1. measure the size of the effect, scrupulously correcting for any ability bias
- 2. Ballpark the dollar value of each and every effect.
- 3. With all the ingredients, fairly compute the RTE

Counting everything that counts is split into two legs

- 1. Methodically analyzing the RTE for a cartoonish "Good Student."
- 2. Methodically analyzing the leading causes of higher and lower returns.

By the end, you'll be armed with numerate, customized educational advice for anyone.

All our calculations are guess work, but be not alarmed. Whenever possible, guesswork builds on canonical data and careful academic research. Such data and research are available for every major building block in the calculations. For minor building blocks, however data and research are often thing. Rather than pleading agnosticism - as academics are wont to do - I use my best judgement. If my "best judgement" on a component of the calculations seems off, substitute you own. Waiting for omniscience is not an option. Educational decisions confront students, workers, voters, and policy makers here and now. Instead of imagining we can live without guesswork, let us strive to guess with care.

The Case of the Good Student

The "Good Student" (GS) keeps busy

- Full time student /OR/ Full time worker
- Single
- Childless
- attends nearby public schools at all levels of education
- Picture the GS as someone who *fits the profile* of the B.A. who did not continue to graduate/professional school.

"Fits the profile" is deliberately all-inclusive: The GS has B.A.'s AVERAGE cognitive ability, character, background, and everything else.

In practice, we never know all this information; we have to do our best with what's available. In terms of measured cognitive ability, the GS stands out at the 73rd Percentile. [CH 5 Note 9]

Compensation

3 Vital facts about the effect of education on compensation.

<u>Thanks to ability bias, education's financial benefits - cash and noncash - are smaller than they look.</u>
 A reasonable estimate is that only EE% of the apparent promium is genuine. [CHE Note 11]

A reasonable estimate is that only 55% of the apparent premium is genuine. [CH 5 Note 11]

2. Most of Education's financial benefits are sheepskin effects.

In percentage terms, the last year of high school is worth about x3.4 as much as a regular high school year, and the last year of college is worth about x6.7 as a regular college year. Since sheepskin results for the masters are sparse, I assume they match the bachelor's ratio. [CH 5 Note 12]

3. Noncash benefits are a Big Deal.

Compensation exceeds income by an average of 44% [CH 5 Note 13] While more educated workers earn higher benefits, the ratio of benefits to income mildly falls as education rises. [CH 5 Note 14]

What does this imply for the Good Student? If he stops his education after finishing college, then by definition he earns the average compensation for a college graduate. What if our Good Student stops school sooner or stays in school longer? Then we can estimate education's on income by taking Table 3.1's raw earning for full time, year-round workers, then adjusting them for ability bias and Sheepskin effects. [CH 5 Note 15]

To reach education's effect on noncash benefits, calculations start with the Congressional Budget Office's benefit/income ratio for private sector workers, then assume ability bias and Sheepskin Effects for benefits match those for income. [CH 5 Note 16]

Figure 5.1 shows the output. A regular school year-in high school, college, or graduate program-boosts annual compensation by 2K or 3K. Crossing academic finish lines, is far more lucrative: the annual bonus is

- \$9,000 for a High School Diploma
- \$20,000 for a bachelor's degree
- \$13,000 for a master's degree

Employment

Figure 5.1 shows income for full time, year-round workers, who, by definition work at least 50 weeks/year. Yet sometimes in the actual labor market, people who want to work year-round sometimes struggle to work at all.

Labor statisticians distinguish 2 ways to lack a job.

- 1. If you're lacking a job but have yet to find one, you're "unemployed."
- 2. If you're not even hunting for a job, you're "out of the labor force."

When calculating the RTE, some researchers adjust for both forms of idleness. [CH 5 Note 18] On reflection, this is a mistake. Reducing your risk of unemployment is a clear gain; it only means you're more likely to have a job when you want one. Reducing your risk of being out of the labor force, is not a clear gain; it only means you're more likely to want a job. [CH 5 Note 19] While all workers risk unemployment, the risk falls with education.

From 2000 to 2013, the average unemployment rate was 10.0% for drop outs, 6.3% for high school grads, 3.4% for college grads, and 2.7% for those with masters. [CH 5 Note 20]

By definition, a Good Student who only finishes a B.A. gets the average unemployment rate for college grads: 3.4%. To predict unemployment for Good Students with other educational levels, I adjust raw gaps for ability bias for unemployment, and - to the best of my knowledge - no papers estimate sheepskin effects for unemployment. [CH 5 Note 21] Given this sparse evidence, the natural approach is to assume education affects employment the same way it affects compensation. (SEE figure 5.2)





Figure 5.1: The Effect of Education on Compensation for a Good Student (2011) Source: United States Census Bureau 2012d, 2012e, assuming:

(a) Full-time, year-round employment.

(b) 50/50 gender balance.

(c) 45% ability bias.

(d) Private sector ratios of overall compensation to cash compensation by education level from Falk 2012, pp. 6, 10.

(e) Finishing the last year of high school has 3.4 times the percent effect of one ordinary high school year, finishing the last year of four-year college has 6.7 times the percent effect of one ordinary college year, and finishing the last year of a master's has 6.7 times the percent effect of one ordinary master's year.



Source: Federal Reserve Bank of St. Louis 2015, assuming:

- (a) 50/50 gender balance.
- (b) 45% ability bias.
- (c) Sheepskin breakdown from Figure 5.1.

Taxes and Transfers

When a new degree lands you a higher paying job, you don't pocket the entire raise. Uncle Sam demands his cut. When your lack of degree leads to a layoff, you don't starve in the streets. Uncle Sam sends you an unemployment check. How do these taxes and transfers sway educational payoff? The complexity of the U.S. Tax code is legendary. To ballpark federal taxes, I apply the 2011 tax code to worker's expected income. **[CH 5 Note 22]** Calculations assume workers take the standard deduction and pay an additional flat rate of 10% in state and local taxes. Noncash benefits are untaxed. Since the Good Student is by assumption single, childless, full time worker, he is eligible for only one important transfer: unemployment benefits. **[CH 5 Note 23]** Calculations assume unemployed workers receive the average 2011 unemployment benefit of 300\$/week. **[CH 5 Note 24]** While state-by-state formulas pay larger benefits to workers with higher earning histories, statutory floors and ceilings on benefit levels keep payments for full time workers within fairly narrow bounds. **[CH 5 Note 25]**

Job Satisfaction

More educated workers are marginally happier with their jobs. For the most part, however, this stems from higher income. When you compare workers with equal incomes but unequal educations, education has no clear effect on job satisfaction. [CH 5 Note 26] Some researchers actually find job satisfaction goes down as education goes up. [CH 5 Note 27] One plausible reason: education raises expectations. College Graduates are harder to please because they compare themselves to fellow college grads and feel entitled to a "good job." But on balance, we should stick the moderate position that - income aside - education has zero average effect on job satisfaction.

<u>Happiness</u>

Education may SLIGHTLY boost happiness, even correcting for income. One team reports that college graduates are 2% points more likely to be happier than high school grads, and high school grads 4% points more likely than dropouts. [CH 5 Note 29] Research correcting for both income and health, however find education could actually REDUCE happiness. [CH 5 Note 30]

Again, perhaps education inflates expectations: college graduates must be more objectively fortunate to avoid the subjective feeling the universe is against them. Since the evidence is mixed and weak, calculations set the happiness benefits of education to zero.

The agony and ecstasy of learning

Basic observation: Excruciatingly bored students fill the classrooms. Well, "fill" isn't quite right, because so many don't bother to show up.

Objecting: "Some students love school, some hate it. The end." is a cop out.

On average, students are painfully bored. The <u>High School Survey of Student Engagement</u>, probably the single best study of how high school students feel about school, reports that

- 66% of high school students say they're bored in EVERY class EVERY day.
- Only 2% claim they're never bored in class. Why so bored?
- 82% say the material isn't interesting
- 41% say the material isn't relevant. [CH 5 Note 31]

Another research team gave beepers to middle school students to capture feelings in real time.

- During schoolwork, students were bored 36% of the time
- versus 17% for all other activities [CH 5 Note 32]

No wonder <mark>a major Gates Foundation study ranked boredom the most important reason why kids drop out of high school. [CH 5 Note 33]</mark>

Research on college boredom is thin but confirms the continuity of pain. A study of British college students found

- 59% were bored in half or more or more of their lectures
- Only 2 claimed to find none of their lectures boring [CH 5 Note 34]

Since classroom attendance is usually optional in college, we can also reason from students' behavior rather than merely inquiring about their feelings. Look at attendance. Students loathe class so much that 25-40% don't show up. [CH 5 Note 35]

One could protest for every disgruntled student who cuts class, there's an enthusiastic student sucking the marrow out of college. Wishful thinking.

Remember:

Even though college students are generally free to unofficially attend any course, cutting classes is far more common than crashing classes. My teaching is highly rated, and I publicly announce all my courses ate open to everyone on Earth. Yet guests fill under 5% of my seats.

The harsh reality is that most students suffer in school. Nostalgics who paint their education as an intellectual feast are either liars or outliers. In terms of *The Simpsons*, Barts vastly outnumber Lisas. The Simpsons family's most typical student, is Homer.

Homer: Marge, I'm bored.

Marge: Why don't you read a book, then?

Homer: Because I'm trying to reduce my boredom.

When calculating the Good Student's return to education, we must count the pain he faced in the classroom.

Key proviso" Since we're weighing school versus work, we shouldn't count all academic malaise. Instead we should compare the agony of school to the agony of work -

and assign a dollar value to the emotional difference. As long as work feels even worse than school, counting students' malaise actually improves the RTE.

The strongest available evidence on the relative pleasantness of work and school comes from the Princeton Affect and Time Survey (PATS). Surveyors phoned a random sample of Americans and walked them through the previous day to find out

- a. how respondents spent their hours
- b. how each activity made them feel at the time (happy, stressed, sad, interested, pained?)(All PATS emotion scales run from O(not emotional at all) to 6(feeling the emotion very strongly))

Main Result: Ranking activities from most to least pleasant, work and education are BOTH near the bottom of the list. Yet work has a slight edge. During work hours, people are a little less stressed and sad, equally bored, but feel slightly more pain. [CH 5 Note 37] The biggest difference is happiness. Work happiness averages 3.83- versus 3.55 for education. Education barely beats the elder car, the depths of woe. [CH 5 Note 38]

What price tag could you put on school's emotional cost?

Imagine you could make your primary task (work or school) a full step happier on a 0-6 scale. Five percent of your full-time income sounds like a reasonable deal. Then with a full-time income of 20,000, being in school feels \$280/year worse than being on the job. This is small enough to ignore, but initial calculations include it so we can swing back later and recalculate returns for students who love - or loathe - sitting in class.

<u>Health</u>

While laymen tend to see education's apparent health benefit as spurious, the research consensus says otherwise. After correcting for income, intelligence, conscientiousness, time horizon, and risk taking, and more, education still seems to make you live longer and feel healthier. Most of these benefits DON'T look like sheepskin effect; the health benefits of education - unlike career benefits - are fairly smooth. [CH 5 Note 39]

Multiple research teams estimate the effect of education on U.S. mortality using the National Longitudal Mortality Study. [CH 5 Note 40] Research designs vary, but all adjust for age, demographics, and income. Correcting for these traits, typical results imply a year for education increases life expectancy by .1 to .4 years. [CH 5 Note 41]

But in all candor the range is wide.

- One prominent study finds that, correcting for income and lifestyle, education might actually hurt life expectancy. [CH 5 Note 42]
- A study at the other extreme finds a year of education boosts life expectancy by "as much as 1.7 years." [CH 5 Note 43]
- Another research team detects large sheepskin effect for mortality; while most years make little difference, high school graduation boosts life expectancy by a year or more, with even larger effects for college completion. [CH 5 Note 44]

All these figures are probably inflated, as many of the sources themselves admit.

One serious problem is that income, unlike education, jumps around from year to year. As a result, education "steals" some credit that rightfully belongs to long-run income. **[CH 5 Note 45]** Furthermore, some of the apparent effect of education and income on health probably reflects reverse causation: poor health impedes both scholastic and professional success. **[CH 5 Note 46]** The deeper problem is that education often brings better health at onerous personal cost. To a large degree, the better educated are healthier because they have healthier lifestyles. **[CH 5 Note 47]** They drink less, smoke less, weigh less, and exercise more. Looming question: If people enjoy drinking, smoking, eating, and loafing, are healthier lifestyles truly a "benefit"? Suppose education caused celibacy, which in turn raised life expectancy by eliminating all risk of venerable disease. Hailing celibacy-induced longevity as a clear-cut "benefit of education" would still be odd. Why isn't it equally odd to name higher exercise-or lower drinking, smoking, or eating- as clear cut "benefits of education"?

The most tempting response is that the "health benefits of education" are not healthier lifestyles per se, but better-informed health decisions. The more you know about health, the lower the personal cost of being healthy. Yet when researchers directly measure health knowledge, they find little effect on lifestyle. **[CH 5 Note 48]** If this seems implausible, note that to this day, smoking rates fall sharply with education, even though knowledge of the dangers of smoking has been near universal for decades. The same goes for the health benefits of alcohol, obesity, exercise-and celibacy. Taking all these caveats together, my best guess is somewhere between nothing and a 1/5 of a year. Subsequent calculations use the midpoint, .1 years.

Since health is more than survival, researchers also scrutinize education's effect on "wellness." Usual Method: Present health scale, then ask people to place themselves. The general social survey asks, "Would you say your own health, in general, is excellent, good, fair, or poor?" - a 4 step scale. Other surveys use 5 step or 7 step scales; the bigger the scale, the less impressive a one-step gain. While this approach may seem hopelessly subjective, self-rated health is a good predictor of objective health outcomes- and morality itself. [CH 5 Note 49]

As education rises, so does self-rated health. On the General Social Survey's 4 step scale, for example, an extra year of education raises self-rated health about .08 points. Correcting for competing factors cuts the measured effect, but some health benefits almost always remains. In the General Social Survey, correcting for income and demographics halves the benefit of education form .08 points/year to .04 points/year. [CH 5 Note 50]

Research teams using other data sources find similar magnitudes. Correcting for income, demographics, and a range, from a high of .07 steps on a 5-step scale to a low .01 steps on a 7-step scale. [CH 5 Note 51]

All these self-rated health effects are inflated for the same reason lifespan effects are inflated. Income jumps around from year to year, so education is partly a proxy for long-run income. Part of the measured "effect of education is partly a proxy for long-run income. Part of the measured "effect of education on health" is probably an "effect of health on education" [CH 5 Note 52] And to a fair degree, education makes people feel healthier via puritanical habits. When researchers adjust for lifestyle, the effect of education on perceived health falls by about a 1/3. [CH 5 Note 53] Taking all these caveats together, my best guess is that the true benefit of a year of education is somewhere between nothing and .02 steps on a 4-step scale. Subsequent calculations use the midpoint-.01 steps.

Since calculating the RTE to education is our goal, putting price tags on these health benefits is the last step. Start with longevity. Cost benefit analysts' standard "value of a year of healthy life" is 50K, but this absurdly treats leisure time as worthless. [CH 5 Note 54] Setting the value equal to potential annual earnings-roughly two full incomes-is more judicious. So, if a year of education prolongs your life by .1 years, and your full-time income is 50K/year, the life expectancy benefit boils down to 10K. Not 10K/year. 10K total.

For self-rated health, researchers have yet to settle on any "standard dollar value." Indeed, they rarely raise the issue. A plausible rule of thumb, is that a full step on a 4-step scale is worth 20% of your full-time income. So, if a year of education improves self-rated health by .01 steps, and your full-time income is 50K/year, the quality of life benefit boils down to \$100. Not \$100 total, \$100/year. [CH 5 Note 55]

Tuition and other expenses

The cost for a Good Student, who by assumption attends nearby public schools, is drastically lower (then what elites pay).

Instead of \$37,000/year for Philips Exeter Academy, he attends high school free of charge. Instead of \$45,000/year for Harvard, he pays in state tuition at his local college-and unlike the elite, receives a lot of financial aid. For the bottom line, turn to the College Board's annual *Trends in College Pricing*. This report tabulates the list price of college, then subtracts average financial aid to yield "net tuition." For our good student, the final numbers are shockingly affordable. **[CH 5 Note 58]** The out-of-pocket cost of a year of 4-year college - tuition, fees, books, and supplies minus aid - sums to \$3,662. **[CH 5 Note 59]**

Adding the cost of room and board more than triples this figure; the average price of on-campus living was another 8, 890. Yet most researchers avowedly ignore such expenses. You have to live somewhere, and you have to eat something. Since we've already stipulated that the Good Student attends a nearby college, we may as well assume he lives with his family for free, setting the extra cost of college to \$3,662 on the nose.

If you're elite or near elite, \$3,662/year for college sounds like con artistry. You might scoff, "I don't know anyone who paid that." Rather than dismiss the numbers, know you live in a bubble. When folks

like you go to public universities, you pay close to list price. That doesn't stop other kids from getting 4year degrees for less than the cost of a semester at Harvard.

Of course, college students who live at home miss the classical residential "college life" of daily socializing and recreation. Research is scarce, but many students clearly savor these non-academic experiences. The downside, naturally, is the extra expense. To deal with this issue, I make two assumptions:

- 1. Students who live at home have as much fun as workers who live at home.
- 2. Students who live on-campus value the residential experience at cost, so the net benefit of campus socializing and recreation is zero. This is overly pessimistic for extroverted and fun loving students but could easily be too optimistic for students with the opposite temperament.

What about advanced degrees? While solid statistics on net tuition are scarce, financial aid is abundant. [CH 5 Note 60] Overall, setting graduate net tuition = to undergraduate net tution is a tolerable approximation, and we'll use it.

Foregone Earnings

Even if tuition is zero, schooling is not free. Instead of attending school full time, our Good Student could have worked full time. Whatever compensation he fails to earn while in school is a cost of education. Indeed, given the affordability of net tuition, the compensation he fails to earn while in school is the main cost of education.

Can you really measure what you "fail to earn"? We already have. Revisit figure 5.1. (TOP) If you use it to guess how much a Good Student will earn if he spends more years in school, you can also use it to guess how much a Good Student would have earned if he spent fewer years in school.

Full time workers warn full time income and full-time benefits - unless they're unemployed. Is full time compensation times probability of employment a fair measure of everything a student fails to earn? Almost. Main Doubt: many full-time students have part time jobs. We should subtract their pay from foregone earnings. Still, part time worker's low pay - not to mention the prevalence of unpaid internships - calls for only a modest adjustment - say 10% of full-time compensation.

Accounting for Experience

When you have a job, you don't just earn income. Jon experience improves your job skills - and the labor market rewards these extra skills with higher pay - also known as the "experience premium." The longer you stay in school, the longer you wait to learn skills on the job - and the longer you postpone the attendant raises.

The rewards of experience are...complicated. On average, an extra year raises earnings by 2-3%. [CH 5 Note 61] On closer look the first years of career experience are several time as fruitful - and the last years are almost worthless. [CH 5 Note 62] Since more realistic earning paths imply similar rates of Return, my calculations stick to constant growth of 2.5%. [CH 5 Note 63]

Completion Probability

Trying a year of school never ensures success. Students can and do pay tuition, kill a year, and flunk their finals. A small risk of failing a year of school, like a small risk of defaulting on a loan, sharply depresses education's return. Any respectable estimates of the RTE must account for theses academic "bankruptcies." [CH 5 Note 65] The power of the SSE amplifies this truth. You cannot win the oversized prize for crossing the finish line unless you surmount all the intermediate obstacles. Of course, schools often allow students to repeat a failed year, but this gives students who waste a year's time and tuition only the chance to gamble another year's time and tuition. Every Casino offers the same deal.

Unreflective researchers naturally overlook noncompletion because it falls far outside their personal experience. The researchers finished their degrees. So did almost everyone they personally know. How bad can attrition be? Dismal. Overall dropout or "noncompletion" rates are high at all levels of American education. About 25% of high school students fail to finish in 4 years. About 60% of full time college students fail to finish in 4 years. Half of advanced degree students never finish at all. [CH 5 Note 66]

But these are only averages - and you shouldn't expect Good Students to have average completion probabilities. In high school, the good student is a big fish in a small pond. In advanced degree programs, the good student is a small fish in a big pond, so his success rate is worse than normal.

How much better? How much worse? These are tough questions, and research is thinner than you'd expect. After reviewing available evidence, the technical appendix ends up assigning Good Students the following probabilities:

92.3% to finish High School in 4 years

43.5% to finish a bachelor's degree in 4 years

32.7% to finish a Master's in 2 years

Attrition is gradual. To correct education's annual payoff, we need ANNUAL success probabilities. For simplicity, calculations assume constant failure rates. [CH 5 Note 67]

The Punchline for Good Students

Time to pour all the numbers into a spreadsheet and crunch them. If you're a Good Student, how well does education pay? Figure 5.3 shows the results from two different angles:

- 1. the Annual Return
- The Annual Return answers the question, "All things considered-risk of failure included-what is the value of trying the CURRENT year of education?"
- Helps you decide, "If this were my last chance to spend a year in school, should I attend?"
- 2. the Degree Return
- The Degree Return answers the question, "All things considered-risk of failure included-what is the value of continuing to pursue the next degree on the horizon?"
- Helps you decide, "If this were my last chance to earn a degree, should I stay in the program"

Good Students plainly enjoy some hefty Annual Returns; remember, they're adjusted for inflation. High School and college graduation years are far more lucrative than stocks. Even the return for the final year of a master's roughly matches the stock market. The 4.8% rewards for intermediate high school years are pretty good. Intermediate college years, with a return around 2.5%, aren't awful. The only serious disappointment is the master's first year negative return.

Degree Returns are also nasty. When a Good Student starts 9th grade, the next 4 years pay an average annual return of 7.4% Every time he successfully completes a year of high school, the Degree Return ascends. Once he starts 12th grade, the degree return = the Annual Return of 16.2%. Why do Degree Returns rise as a student progress? Because each year of educational success puts them one step closer to wining the pot of gold waiting over the finish line.

College pays poorly by comparison. but it's still a great deal. When a Good Student starts college, the next 4 years pay an average annual return of 4.9%. Since that's adjusted for inflation, trying college is comparable to buying corporate bonds. Not a no-brainer, but a sound investment nonetheless. On the first day of class, a Good Student can expect a paltry Degree Return of 1.4%.



The master's aside, education looks like such a good deal for the good student you may wonder, "Have all the doubts this book raises about education's selfish return been pointless pedantry?" Part of the answer, we'll soon see, is that education is less lucrative for the Fair student, not to mention the Poor student. The rest of the answer is that when you ignore my key doubts-ability bias and completion probability-education is astronomically profitable. If dropouts and Ph.D.'s had equal raw ability, and 100% of students finished whatever schooling they attempted, the selfish RTE would look like this-not just for good students, but for everyone. See Figure 5.4

Check those double-digit financials. Every graduation year has an Annual return of over 20%. When starting high school, students can look forward to degree Returns of 13%. For college, it's 15%. For master's 12% again. Dealing with my doubts hardly turns education into a bad deal. Failing to deal with my doubts, however, turns education into a full-blown get-rich-quick-scheme. Hopefully you've heard the aphorism, "If it seems too good to be true, it probably is."



The Case of Everyone Else

We have reached a ways station. Brainstorming and evidence collection have led us to estimates of the Selfish RTE for Good Students.

Now we're ready to push on to our final destination: computing the Selfish RTE for virtually anyone.

The journey remains treacherous, so we'll step it one step at a time, investigating how the Selfish RTE varies by:

- ability
- choice of major
- school quality
- feelings about school versus work
- gender
- marital status
- and more

Ability and the Selfish RTE

<u>The Good Student, by definition, fits the profile of a typical B.A. who did not continue on to graduate</u> <u>or professional school. Now let's define 3 more ability archetypes:</u>

- The Excellent Student
 - Fits the profile of the typical master's degree holder.
 - cognitive ability: around the 82nd percentile
- The Good Student
 - cognitive ability: around the 73rd percentile
- The Fair Student
 - Fits the profile of the typical high school graduate who does not try college
 - cognitive ability: around the 41st percentile
- The Poor Student
 - fits the profile of the typical high school drop out
 - cognitive ability: around the 24th percentile

[CH 5 Note 70]

Ideally, to repeat, "fits the profile" is all-inclusive, covering:

- cognitive ability
- character
- background
- every other trait

Figure 5.5 shows expected compensation (earnings plus benefits) for each archetype.



The absolute benefits of education are larger for abler students. The Poor student who drops out after 8th grade instead of forging ahead to a master's loses about \$40,000/year. The Excellent student who does the same loses about \$65,000/year. Yet this does not imply Poor Students who quit work to study full time loses far less income than an Excellent student who walks the same path.

This reasoning has led noted labor economists to urge education - especially college - regardless of student ability. [CH 5 Note 71] There is a serious flaw in their logic. Figure 5.5 shows what happens only when students SUCCESSFULLY complete a year of education. The harsh reality is that academic success is never certain and heavily rides on academic ability. How Heavily? The technical Appendix sifts through the less-than-ideal evidence. Figure 5.6 shows my best estimates.



Using my completion probabilities, figure 5.7 shows Degree Returns by ability. Results closely match common sense. High School is lucrative for all 4 archetypes. Even Poor Students can reasonably expect the resources they invest in High School to out-perform high-yield bonds. [CH 5 Note 72] College, in contrast, is a solid deal only for Excellent and Good Students. Largely owing to their high failure rate, Fair students who start college should foresee a low 2.3% return on their investment. For poor students, it's a paltry 1%. Master's Degrees, finally, are a so-so deal for Excellent Students, a bad deal for Good Students, and a money pit for fair and poor students.


Major and the Selfish RTE

Talking about "the" return to education is handy but misleading. Your payoff hinges on WHAT you study. While this presumably holds at all levels, researchers have largely focused on college students' academic majors. Rather than cover all leading majors, I compare business - the archetypical "average" major - to two cases with infamously divergent career prospects: electrical engineering and fine arts. See Figure 5.8

The results are parental wisdom incarnate. The electrical engineering degree pays very well, especially for stronger students. The fine arts pay very poorly, especially for weaker students. Remember: Zero and negative returns don't mean fine arts degrees are worthless in the labor market. A fine arts degree raises expected income over 20%. What zero and negative returns means, rather is that capturing that raise is more trouble for Fair and Poor students than it's worth. Financially anyway. If you love studying the arts- and yearn for an artistic career - you may welcome a seemingly ruinous rate of return. Put a dollar value on your feelings, edit my spreadsheets, and recrunch your customized numbers. When you do, remember you're more likely to find a major you love than a job that uses the major you love.



College Quality and the Selfish RTE

What you study has a big effect in the labor market. What about WHERE you study? Tiger Moms and Dragon Dads strive to place their kids in "top schools." How much does you alma mater's rank matter? Research is oddly mixed [CH 5 Note 75]

The Consensus Point: where you study is less important than what you study. As some early researchers said, "While sending your child to Harvard appears to be a good investment, sending him to your local state university to major in engineering, to take lots of math, and preferably to attain a high GPA, is an even better investment." Deeper expert agreement is elusive. Students from top schools enjoy great success, but the specter of ability bias looms. Ivy league kids are so promising, you'd expect them to excel with diplomas from Podunk State. To cope with this ability bias, researchers compare graduates of diverse colleges after statistically equalizing SATs, high school GPAs, family backgrounds, and so on. Further hurdle: "College Quality" (also known as "selectivity") is vaguer than it sounds. Some researchers use average SAT scores, others Barron's ratings or tuition. Answers vary dramatically. Two prominent papers by Stacy Dale and Alan Krueger find collegiate pedigree is almost worthless. [CH 5 Note 77] While they focus on a subset of largely selective schools, they get similar results in a representative sample. Their most amazing discovery is that students who submit lots of applications to high s-quality schools enjoy exceptional career success whether or not they attend such schools. [CH 5 Note 79] The reason presumably isn't that employers base salaries based on what workers mailed when they were 17 years old. The sensible tale is that college applicants who shoot high and cover their bases are full of ambition and determination - two traits the labor market handsomely rewards. Intriguing as Dale and Krueger's studies are, they remain outliers. Virtually all other specialists detect SOME payoff for college pedigree. Indeed, whenever Dale and Krueger discard what they know about college applications, they detect payoffs for college pedigree too. Researchers who measure quality with Barron's rating typically find graduates from "top" schools out earn graduates of "bottom" schools by about 20%. [CH 5 Note 80] Researchers who measure quality with average SAT scores find raising average SATs by 100 points raises graduates' income by anywhere from 1% to 11%. [CH 5 Note 81] Researchers who measure quality by with tuition find raising it by \$1000 raises graduates' earnings by 0-1%, and raising it by 10% raises graduates' earnings by 0-1.4%. [CH 5 Note 82] Studies also compare graduates of private versus public schools, with mixed results. The most impressive research carefully merges diverse measures into an overall index of college quality. [CH 5] Note 84] Punch line" moving from bottom to the top quartile raises male earnings by about 12% and female earnings by about 8%. [CH 5 Note 85]

Does this mean a money-grubbing college goer should attend the most selective school that will have them? Not necessarily. Intuitively, you would expect better schools to be harder, and harder schools to have lower completion probabilities. Could you even survive at Caltech? A glance at graduation rates shows that students at better schools have unusually high completion probabilities [CH 5 Note 86], but there's an obvious explanation: students at top schools are awesome enough to surmount the toughest coursework with ease. Strangely, most experts on this topic ultimately reject this common sense story. The consensus is that top schools are a free lunch. Hand Princeton a random student, and it boosts their graduation probability along with their salary after graduation. [CH 5 Note 87] How? Maybe studying and slacking are contagious; if you're surrounded by diligent students, you're slacking alone. Personally, I suspect students at the top schools have extra advantages that researchers overlook. Still in light of the evidence, my rates of return treat college quality and completion probability as unrelated. What then is the return for graduating from a top school instead of a bottom school? Since research is mixed, Figure 5.9 builds on low, middle, and high estimates of the quality premium.



The middle estimate is that the top schools lead to a5% higher - and bottom schools to 5% lower - compensation. [CH 5 Note 89] The high estimate is +10% for top schools and -10% for not-so-good schools. For the time being, keep assuming tuition is locked at \$3,662/year.

As long as extra quality neither raises nor depresses completion, every student has but two choices: go to the best college that accepts you. or don't go at all. The curious implication: as the quality premium goes up. college becomes an even better deal for Excellent and Good Students, and an even worse deal for Fair and Poor students. Why? Because strong students can get into good schools - and weak students have to settle for not-so-good schools. The best school that accepts a weak student probably isn't good enough to attend.

Out-of-Pocket Costs and the Selfish RTE

My calculations for bachelor's and master's degrees assume everyone pays public institution's average net price of \$3,362/year. How do returns change if a student gets a full scholarship-or pays list price at a private university.

Figure 5.10 shows how out of pocket costs sway returns if college quality does not depend on cost (or the labor market doesn't pay for college quality)

The numbers are much as you'd expect. For Fair and Poor Students, even full scholarships can't make college a good deal. Paying List Price at public schools is a good deal for Excellent Student, a pretty good deal for Good Students, and a lousy deal for Fair and Poor Students. Unless you're an Excellent student, private school is a mediocre investment at best - even counting the standard rebates. [CH 5 Note]

91] Added complication: the most elite colleges often have VERY generous financial aid for top students from low-income families. If your family income is less than \$75,000, for example, Harvard normally charges less than official in-state tuition at George Mason University. Excellent Students from poor families are well advised to apply to top schools - and go with the lowest bidder.

Doesn't higher tuition buy better degrees? Far from clear.

Measured by Barron's rating or average SAT scores, many public schools- such as UC Berkeley, the University of Virginia, and the university of Michigan - approach the top of the pecking order. As long as your state's best public school admits you, there's no solid reason to pay more.



Figure 5.10: College Freshmen's Selfish Degree Returns by Out-of-Pocket Costs Source: Figure 5.7, S. Baum and Ma 2011, and text. "List price" = "Tuition and Fees" + "Books and Supplies"; "Average Net Price" = "List price" – "Federal Grants and Tax Benefits" – "State Grants" – "Institutional Grants" – "Outside Grants" (S. Baum and Ma 2011, pp. 6, 15).

Final Point: while many parents willingly cover tuition, few ask their ask their kids, "Would you prefer the cash, no strings attached?" Owing to this earmarked parental subsidy, education can be an awful investment for your family and a GREAT investment for you. Suppose you're a Good Student at a private school, and your parents pay full fare. Your family's Degree Return is 2%. Selfishly speaking, you get Figure 5.10's "full scholarship" return of 5.6% - or better if your parents toss in some spending money.

School Versus Work Feeling and the Selfish RTE

My favorite students live and breathe economics, but my favorite students are weird. Most human beings dislike both work and school but dislike work a little less. Many quit school and find a job because school is so boring; few quit work and find a school because work is so boring. What happens if we forget averages and ponder outliers?

This chapter posited that making your primary task (work or school) a full step happier on a 0-6 scale is worth 5% of your full-time income. So, picture 2 characters

One maximally loves school and maximally hates work - enough to pay 30% of full-time income to stay in school.

The other maximally hates school and maximally loves work - enough to pay 30% of full-time income to stay out of school.



How do extreme pro- and anti- school feelings shift degree returns? (see figure 5.11)

Figure 5.11: School Lovers' and School Haters' Selfish Degree Returns *Source*: Figure 5.7 and text.

The clearest lesson: dropping out of High School is imprudent for virtually all shapes and sizes. Even Poor Students who loathe school should foresee returns near 5%.

Other lessons: Higher Education is a good deal for Excellent Students even if they despise school. For Good Students, though, deep-seated hostility makes higher education a close call. The flip-side: College is a so-so deal for Fair Students who truly love school. Otherwise, higher education for Fair and Poor Students is a hail-Mary pass. Unless they get lucky, they can better prepare for their future by getting a job and saving money. The Master's degree, finally, is an okay deal for excellent students who adore school. Everyone else: Beware.

Sex and the Selfish RTE

Hewing to our assumption that all workers stay in the labor force from graduation until retirement, how does men's return to education compare to women's?

Women's rate of return is normally HIGHER. Women's big edge is they're more likely to finish whatever education they start. Their overall high school graduation rate is 8% higher than men's. Their 4-year B.A. graduation rate is 33% higher than men's. [CH 5 Note 94] Women out finish men even when their prior academic records match. [CH 5 Note 95] Women continue to earn smaller paychecks at every education level, but high school and college enrich women by a slightly higher percent, and that's what counts for returns. Figure 5.12 snaps the facts together.



Women's advantages are largest in high school - over 2 percentage points for every ability level. Their premium ramps down in college: men's higher total salaries are more likely to outweigh tuition. For the master's degree, men seize the advantage: they're less likely to finish, but their salaries rise more if they make the grade.

Marriage and the Selfish RTE

From the outset, I stipulated that the Good Student was single. Yet most folks eventually marry - and marriage drastically shifts education's return. The main reason is timeless- like marries like. When your education rises, you shouldn't merely foresee yourself with a higher salary. You should foresee a SPOUSE with a higher salary. This is Good News for strong students, because marriage is one of the purest forms of trickle-down-economics. A lot of your spouse's extra money becomes YOUR extra money by financial osmosis.

Conscious on-campus gold digging may be rare, but extra schooling still improves your odds of striking

gold. Life could be hardly otherwise. Mating requires meeting. In our society, the further you advance in school, the more likely you are to spend your days surrounded by folks who are - or will be - well-off. Even if you RANDOMLY marry an acquaintance, extra education makes you more likely to pair up with a high-income spouse.

And few marry randomly. Instead, humans are attracted to partners like them in age, religion, ethnicity, class, hobbies...and education. [CH 5 Note 97]

The mutual attraction is strong. If you have one more year of education, your spouse typically has an extra .5 or .6 years. [CH 5 Note 98]

About 80% of this effect persists correcting for intelligence, age, year, race, sex, and religion. [CH 5 Note 99]

Using the General Social Survey, we can actually detect sheepskin effects of sheepskin effects. High School Graduation makes you almost 30% more likely to marry high school grad. College graduates makes you another 25 Percentage points more likely to marry a college grad. American marriage is a diploma-based caste system. [CH 5 Note 100]

Traditionally, the marital RTE was sizable only for women, many of whom married soon after graduation and never pursued a career. When I was an undergrad at Berkeley, kids still rudely joked about academically marginal female students earning their "M.R.S." Degrees. Today's world is starkly different - not because modern women stopped earning M.R.S. degrees, but because modern men started earning "M.R." degrees. [CH 5 Note 101]

How lucrative is education's marital payoff? The research is oddly thin for women, and barely existent for men. [CH 5 Note 102] While scholars are well aware high-income men increasingly match with high-income women ([CH 5 Note 103]) they rarely wonder, "How much will be spending another year in school help your odds of marrying money?" Still the few scholars who do mine such questions unearth piles of gold. [CH 5 Note 104]

One explanation for the research shortage is that martial payoffs seem zero-sum. If married couples divide their family income equally, then consume their shares separately, the lower-earner's financial gain automatically implies an equal financial loss for the higher earner. If Wife earns \$60K and husband earns \$40K, marriage makes Husband \$10K richer by making Wife \$10K poorer.

Yet on reflection, married couples save a bundle by sharing their consumption. The adage, "Two can live as cheaply as one" exaggerates. Compared to two one person households, though, one two-person

household plainly saves on housing, furnishings, transportation, utilities, and even groceries, thanks to stores like Costco. How much do couples save? Academics analyze this prosaic question with an array of questions. [CH 5 Note 105] They find savings of 20-40%, with the most credible estimates around 35%. [CH 5 Note 106] Marriage automatically enriches the lower income earning spouse and potentially enriches the higher earning spouse.

I ballpark education's marital return using the General Social Survey.

- 1. I estimate how much your education raises the education of the person you marry.
- 2. I figure out how much your education raises your spouse's income if your spouse is average given their education. [CH 5 Note 107]
- 3. Assuming married couples share equally and save 35% on their cost of living, I calculate your education's Degree Return.

To keep the number crunching tractable, I focus on couples that

- a. marry at 25
- b. always work full time
- c. stay married(See Figure 5.13)



As expected, marriage pumps up the return to education for both gender and all abilities. Marriage raises returns by roughly one percentage point for men and two percentage points for women. This change is often enough to resolve educational toss ups... as long as you know you'll marry young. Incidentally, the marriage market is probably the strongest reason to pay for expensive schools. Going to Harvard may not get you a better job, but almost certainly puts you into an exclusive dating pool for life. Admittedly thin research on this topic confirms the obvious: one research teams finds that over half of women's financial payoff for college quality comes via marriage. **[CH 5 Note 108]**

There is nothing counterintuitive about the idea that schools improve your spouse more than they improve you. If you go to Harvard, you'll be the same person, but you'll MEET the elite. Folk wisdom says, "Don't marry for money. Go where rich people are, and marry for love." This mindset may sound old fashioned, but remains as true as ever. As the gender gap narrows, women's marital return matters less, but men's marital return comes into its own. As a professor married to a lawyer, I ought to know.

Workforce Participation and the Selfish RTE

Until now, I've assumed every student desire to work full time without interruption from graduation until retirement. In technical terms, all estimates assume "100% workforce participation" and "100% full time work" - graduates occasionally struggle to find a job but stop trying to work regular hours until they hit 65. The presumption: anyone who bothers to ask, "Is my education worth it?" wants a full-blown career after graduation. This presumes too much. The most motivated students may exit the labor market to raise a family, "find themselves", or cope with chronic illness. More importantly, if you dispense educational advice, many of your advisees will NOT be highly motivated. Some will stop trying to capitalize on their education - and others won't even start. Workforce participation rises with education but is always noticeably below 100% (see Figure 5.14) [CH 5 Note 109]



Further complication: a sizable minority of workforce and participants - about 9% of males and 22% of females - work part time only. [CH 5 Note 110] Part timers earn a small fraction of full time pay: 31% as much for males, 38% for females. [CH 5 Note 111] For simplicity, my calculations treat part-time workers as fractional full-time workers: a part time male counts as 31% of a full-timer, a part-time female counts as 38% of a full-timer. [CH 5 Note 112]

The part time complication aside, one shouldn't take participation numbers at face value. Part of the gap surely reflects ability bias: people who keep studying before graduation also tend to keep working after graduation. Unfortunately, research on workforce participation and ability bias is extremely thin. The most credible approach is to apply standard corrections for ability bias and sheepskin effects, then recalculate. [CH 5 Note 113]

See Figure 5.15

Basic math ensures across-the-board in Degree Returns. What's remarkable is he size of the fall. Taking participation into account largely wipes out the female educational edge. "Career Women" gain markedly more from high school and college than "Career Men". But the AVERAGE women's advantage over the AVERAGE man is modest for high school, and near zero for college.

Also, notable: High School ceases to be a no-brainer for Poor Students. For female Poor Students, the Degree return plummets from 7.1% to 3.5%. Why the big change? Because less than half such women cash in on their education with full-time jobs.



Practical Guidance for Prudent Students

This advice includes non-monetary value, so the advice it stronger than it sounds.

Go to high school (unless you're a TERRIBLE student, or don't want a full-time career)

High School is a good deal for almost any student who wants a full-time career. Excellent, Good, Fair, and Poor students can count on a Degree return of at least 5%. If you're in the bottom 10-15%, you're odds are so slim that you should quit school and start work. Whatever you do, don't bother with a GED. It sounds like an appealing middle ground, but its chief function is telling employers, "I have the brains, but not the Grit o finish High School. [CH 5 Note 114]

Go to College only if you're a strong student or special case

College is a square deal for Excellent and Good Students who follow 3 simple rules

- 1. Pick a real major
- STEM
- Economics
- Business
- and even Political Science
- 2. Go to a respected public school. It probably won't charge list price, and even if it does, you'll get your money's worth.
- 3. Toil after graduation. Working irregularly after finishing college is like failing to harvest half the crops you plant.

Those who stray far from these rules get burned.

For weaker students, college is usually a bad deal. If you're a Fair Student, go only if you're a special case.

- major in engineering
- elite school miraculously offer a cushy scholarship
- Woman who firmly plans to marry?

Then college may be for you. Otherwise, skip college and get a job.

Poor Students, finally, should not go to college, period.

Don't get a Master's degree unless the stars align

On the day they start a master's degree, even excellent students can expect a lousy degree return of 2.6%. You should enroll, then, only if you have great reason to believe you'll beat the odds.

People's educational decisions are deeply corrupted by inexperience, conformity, and pride.

Doubts

Thousands of papers calculate the selfish RTE. Why should we prefer Caplan's to anyone else's?

- 1. Caplan, to his knowledge, is the only researcher to account for ability bias, sheepskin effects, and completion probabilities at the same time. All 3 forces are so mighty that ignoring even one discredits the answer.
- 2. To the best of Caplan's knowledge, his numbers are the most comprehensive. He investigates every semi-plausible benefit and cost of education, and his calculations incorporate whatever he finds in the return.
- 3. He never retreats to agnosticism. He strives to compile the best available evidence from every relevant field. Yet when the evidence is mixed or weak, He explicitly states his best guess and runs with it.

His refusal to meet uncertainty with reticence may horrify fellow academics. The real world, however, denies us the luxury of waiting for certainty. If researchers withhold

their best guess from students, students have to act on their best guesses - corrupted as they are by inexperience, conformity, and pride.

The CRUCIAL fact to remember: NO important decision can be based on anything better than educated guesswork.

The Social Return to Education

Social RTE Intro

Yet for other purposes, looking out for number one is a lousy guide. As a College professor, I would immensely benefit if Federal, State, and local governments launched a "war on ignorance" by tripling their spending on higher education. But enriching Bryan Caplan is a terrible argument for a War on Ignorance. To persuasively evaluate such a crusade, we have to count everyone's interest, not anyone's interest alone.

- To measure the <u>Selfish RTE</u>, we put dollar amounts on everything one student cares about. This hinges on compensation: How much pay do you forfeit while you're in school, and how much extra pay do they capture after they finish?
- To measure the Social <u>**RTE**</u>, we put dollar values on everything anyone cares about. This, in contrast, hinges on productivity: How much stuff does Society forfeit while you're in school, and how much extra stuff does society capture after you finish?

REMEMBER: Once employers know enough to rank job candidates, further signaling is pure redistribution. When you calculate Education's Selfish RTE, you can ignore this truism. Money is money, even if it ultimately it comes out of others' paychecks. From a social point of view, however, redistribution is sterile.

Students don't pay the full cost of their education: taxpayers fully subsidize public K-12, heavily subsidize public colleges, and partially private colleges. Neither do workers receive the full benefit.

How, item by item, do social and private effects diverge?

- HCP compensation and productivity are equal case by case.
- S Compensation and productivity are equal only on AVERAGE.

To calculate Education's Social RTE, you must know WHY education raises pay and benefits.

- If education boosts compensation solely by raising worker productivity, society's gains equals the worker's gain.
- If education boosts compensation solely by REVEALING worker productivity, society gains far less.

Ranking students have social value, but once the students have been properly ranked, the social value ends. Employer's knowledge of worker quality would be essentially identical if everyone had one less degree.

The Cautious View hands signaling full credit for the Sheepskin effect, but no more. Given our Sheepskin breakdowns, this implies signaling shares: High School - 38% Bachelor's - 59% Master's - 74% [CH 6 Note 5] If Sheepskin is all signaling, this implies a year to year signaling share of:

High School - 57% Bachelor's - 47% Master's - 25%

As signaling's share ascends, so do the spreads between productivity and pay. Scenario: Good Student in different situations

- High School Diploma
- Bachelor's
- Master's

Pay different, although his productivity is not.

If education's payoff is 80% signaling, and a year of education raises earnings by \$5,000, only \$1,000 is a true gain to society. The other \$4,000 is your reward for convincing employers they've been underestimating your value.





Brief Selfish vs Social Gains

Employment

Suppose 4 years of college cut your unemployment risk from 9% to 4%. If education's rewards are 80% Signaling, this means 20% of college grads' reduced risk of unemployment - 1 percentage point - stems from their enhanced productivity. The rest is zero sum. Your college degree lowers your unemployment risk by raising the risk for your unadorned rivals.

Taxes and Transfers

As extra education advances your career, government takes more of your money and gives you less of its help. Yet from a social point of view, such modifications are zero sum. If your education boosts your productivity \$1000, society is \$1000 richer - even if you keep only \$500 after taxes. If your education prompts the government to cut your welfare check\$1,000, society is no poorer - even though your \$1,000 in the hole. In one-way, social returns are more straightforward than private returns. The byzantine tax code and patchwork welfare state are distractions from what counts - production.

Job Satisfaction, happiness, and the joy of learning

Though the better educated have greater job satisfaction and happiness, the reason is largely material: the educated enjoy their jobs and lives more because they make more money, not because their careers feel more fulfilling. [CH 6 Note 7] Does education have any independent impact on job satisfaction or happiness? While some researchers detect mild benefits, others discover that - money aside - the well-educated feel worse about their lives. If you drive a cab for a living, a college diploma makes you see a failure in the rear-view mirror. From a social point of view, education's effect on job satisfaction and happiness is even more questionable.

Humans savor status - a high rank in the pecking order. In our society, status heavily depends on education. **[CH 6 Note 8]** Unfortunately, status is, by definition, zero-sum. As society's education rises, so does the education one needs to feel socially superior. The disturbing implication: even if education were a path to personal happiness, it could remain a dead end for social happiness. Research on this fear is sparse but intriguing. In the General Social Survey, education slightly lifts individuals' job satisfaction and happiness - even if income stays the same. How? By pushing them up the hierarchy. Correcting for status, education's effect on job satisfaction vanishes, and its effect on happiness shrinks by 2/3s. **[CH 6 Note 10]** If there's little reason to think education makes one human happier with their job or life, there's even less reason to think education makes humanity happier with its jobs or lives . Since my selfish returns already set education's effect on job satisfaction and happiness to zero, my social returns do the same.

What about the classroom experience? On average, school is one of people's least-liked activities. They're not fond of work either but resent school slightly more. From a social point of a view, there is every reason to take their feelings at face value. If your teacher bores you to death, the knowledge that millions of other kids are equally bored is scant consolation.

<u>Health</u>

Scholars wonder if "the effect of education on health" is a covert "effect of status on health." Animal experiments confirm status does a body good: altering an animal's rank in the pecking order shifts its health in the same direction. Human health could work the same way [CH 6 Note 11] Insofar as schooling makes you healthier by raising your status, its health benefits are zero sum: you can't raise your rank without dragging others down.

When researchers check, they consistently verify that human health and status go hand in hand. [CH 6 Note 12]

Last chapter named multiple reasons why the health benefit is even smaller than it looks. [CH 6 Note 16] From a social standpoint, the status evidence calls for one last downgrade.

Since the selfish benefit is small, and the status effect substantial, <mark>I mark education's SOCIAL health benefits down to zero.</mark> Academic achievement is not like hygiene. If everyone had a B.A. or more, people who had only B.A.s would stand on the lowest rung of the social ladder-with health woes to match.

Tuition and other expenses

Socially speaking, the relevant cost is not cost to the student, but cost to EVERYONE - especially the taxpayer.

Start with the Full cost of public education K-12

The per student bill varies massively from state to state.

2009-10 Utah - \$7,916 Washington D.C. -\$23,816 US average -\$12,136

[CH 6 Note 17]

This figure is all inclusive, counting

- cost of instruction
- support services
- food
- enterprise operations
- capital layouts
- interest payments

[CH 6 Note 18]

When calculating the social cost of the typical high school student's education, this number isn't quite right.

<u>The Big Glitch</u>: official figures include special education - and special education is expensive. Schools now classify about 13% of their students as disabled, and standard estimates say special education is x2 as costly as regular education. [CH 6 Note 19] Taking official statistics at face value, the SOCIAL cost of educating students who aren't disabled is only 88% of the average. [CH 6 Note 20] Yet common sense balks at the idea that 13% of US students are meaningfully disabled. Critics back up this common sense skepticism, arguing schools have strong incentives to inflate their disability numbers. [CH 6 Note 21] If we subtract out the most elastic special education category - "Specific learning disability" the disabled fraction falls to a more credible 8.2%. [CH 6 Note 22] Using this toned-down figure implies the typical high school student costs 92% of the average, for a total of \$11,165 [CH 6 Note 23]

<u>A Smaller Glitch:</u> the SOCIAL cost of K-12 should exclude food, for the same reason the selfish cost of K-12 should exclude food, for the same reason the selfish cost of college excludes room and board; kids eat whether or not they're in school. Subtracting food costs, per student social cost falls another \$405 to \$10,760. (OR \$11,298 in 2011 Dollars [CH 6 Note 24])

Calculating the full social cost of college has its own complications.

Using list price is tempting, but misguided. Colleges' standard financial strategy is to combine an exorbitant list price with ample discounts. While schools frame this discounting as high minded dogooding, it amounts to what economists call "price discrimination" - tailoring prices to squeeze extra profits out of richer and less flexible customers. Price discrimination is the standard story about why travelers pay vastly more for same day plane tickets. Less tuition does not capture the "true cost off schooling" any more than same day plan fare captures the "true cost of flying."

From this vantage point, there is a fundamental divide between "institutional grants" (tuition breaks offered by schools themselves) and federal, state, private, and employer grants. Institutional grants don't really burn social resources; schools offer them precisely because education costs less than list price to provide. Federal, state, private, and employer grants, in contrast, burn social resources by making students unable or unwilling to defray the cost of their own education profitable to admit. To measure the full social cost of college

- 1. Start with the list price
- 2. subtract average institutional grants. The college board again provides all the relevant figures. Public 4-year colleges offer \$1,133 in institutional grants per student. [CH 6 Note 26] Since list price is \$9,412, this implies a social cost of \$8,279. [CH 6 Note 27]

Financial data on Master's programs is sparse

So, I continue to equate the cost of graduate and undergraduate education. IF anything, this is optimistic, because small graduate classes imply high per-student cost.

Accounting for experience

A trained worker returns to school reluctantly. The more experience they have, the more money they make; the more money they make, the more they sacrifice on hiatus. Socially, the story is the same. The more experience a worker has, the more they produce; the more they produce, the more society sacrifices when the workers take time off. My social return numbers therefore stick with last chapter's 2.5%. annual experience premium.

Completion probabilities

Social investments, like private investments, always risk failure. A percentage point of risk slices 1% off EXPECTED benefits. Suppose an investment, if successful, yields \$1,000 of selfish benefits and \$200 of social benefits. Given a 20% risk of abject failure, expected selfish benefits fall to \$800, and expected social benefits fall to \$160. Last chapter already estimated completion probabilities; social returns must continue to factor them in.

What if a government program shears the risk of educational failure? All else equal, selfish and social returns rise. But "all else equal" is key. The cheapest and surest way to raise high school graduation rates is indiscriminately awarding diplomas to all. Before long, this infinitely merciful system erases the selfish and social gains of graduation: if everyone gets a diploma, no one does.

Purely Social Benefits

If education curtails murders, that is a point in its favor. But it's a lame point until you ballpark

- a. how much extra education costs
- b. how many murders it prevents

Instead of scorning bean counters, we should scrupulously count beans of every description.

Economic Growth

Unfortunately, this stirring sermon (heavy k12 investments fertilize society's creative potential) is wishful thinking. Chapter 4 already reviews research on the national education premium. While the evidence is messy, education seemingly does less for countries than individuals. At the national level, it's not clear that education increases living standards at all, much less that education makes countries' living standards increase at a faster rate.

If you can't tell if your machine moves, you may safely assume it's not a perpetual motion machine. Researchers who specifically test whether education accelerates progress have little to show for their efforts. [CH 6 Note 32]

One could reply that, given all the flaws of long run macroeconomic data, we should ignore academic research in favor of common sense. But what does common sense really say? "An educated people is an innovative people" sounds plausible UNTIL you consider the otherworldliness of the curriculum. In high school, students sped only about a quarter of their time on math and science. In college, about

- 5% of students major in engineering
- 2% of students major in computer science
- 5% of students major in biology and biomedical science
- [CH 6 Note 33]

"Giving students the mental tools, they'll need to innovate" is, at best, an afterthought. In the modern world the brightest minds often end up as University professors, applying their creativity to topics of academic interest rather than commercial value. True ivory tower self-indulgence occasionally revolutionizes the world. Yet common sense insists the best way to discover useful ideas is to search for useful ideas - not whatever fascinates you and pray it turns out to be useful.

Workforce Participation

Extra education reinforces desire to work.

Selfishly speaking, this is no cause for celebration. What's so great about changing your own priorities? Suppose education caused us to spend less time with our families and more time working. It's unclear why this shift would count in education's favor.

Socially speaking, the welfare state makes even voluntary unemployment a burden to others. Idlers get more than they produce via programs like Medicaid and food stamps; workers get less than they produce owing to levies like income and payroll tax. This doesn't mean it's "best for society" to make everyone work. Stay at home parents, retirees, and slackers are part pf society, after all.

The point is that extra workforce participation can simeltaneously be a bad deal for the individual and a good deal for humanity. When education boosts workforce participation, social returns have to count what individuals selfishly ignore: all the taxes they start paying and all the transfers they stop colleting. Intuitively, suppose the government gives you \$10,000 a year while you're out of the labor force. If you worked, your pretax productivity would be \$30,000, but you'd pay about \$5,000 in taxes and forfeit your \$10,000 transfers. If your care only about yourself, you'll work if you value your time less than \$15,000/ If you care more about everyone, you'll work if you value your time less than \$30,000.

Tallying taxes in straightforward, but transfers are messy. As long as workers are full time and childless, even those with 8th grade educations normally earn too much to collect anything beyond unemployment insurance. Once workers exit the job market, their labor earning fall to zero. Most instantly become eligible for government programs we've hitherto managed to ignore.

The big transfer programs are Medicaid, TANF (Temporary assistance to Needy Families, or "welfare") and SNAP (Supplemental Nutrition Assistance Programs, or "food stamps"). Since the passage of the

affordable care act, a single childless adult with zero income can definitely get Medicaid. Valued at cost, this is worth \$4,362/year. [CH 6 Note 38] TANF is limited to households with kids, so single childless adults cannot collect. SNAP's rules are complex: childless adults face time limits or work requirements, but state governments can make exceptions. In 2011, an eligible single adult with zero income collected roughly \$2,192 in food stamps. [CH 6 Note 39] My social return calculations assign the sum of these Medicaid and SNAP payments to anyone out of the labor force.

Signaling, as usual, gets the final wrinkle. Give an individual more education, and they get better offers so they're more likely to want a job. Give everyone more education, and you ignite credential inflation. Implausible? Ponder this: In 1950, only 33% of adult males had finished high school, but male workforce participation was higher than today. [CH 6 Note 40]

<u>Crime</u>

- About 65% of American inmates never earned standard high school diplomas. [CH 6 Note 41]
- 2006-07, 8.7% of male dropouts aged 16-24 were incarcerated. [CH 6 Note 42]
- Around 15% of white male dropouts and 70% of black male dropouts spend some time in prison by their mid-30s. [CH 6 Note 43]
- All these rates are roughly 2/3s lower for men who finished high school, and miniscule for college graduates.

Dwelling on such vast disparities raises high hopes: Maybe society can prevent crime with school instead of punishing crime with prison. Don't the numbers imply universal high school graduation would eradicate half of all crime?

Hardly. As usual, there is less to education than meets the eye. Dropouts troubles emerge long before they quit school. They don't just have low IQs and poor grades; they're precocious troublemakers. [CH 6 Note 44] Future dropouts are much more likely to be suspended from school and get arrested. They smoke more, drink more, use more drugs, and have more sex-and start their risky habits younger.

Before crediting education for observed crime difference, then, you must account for ability bias in all its forms.

Instead of asking, "How law-abiding citizens ate dropouts compared to high school grads?" you should ask, "How law abiding are dropouts compared to high school grads with similar IQs, grades, personalities, and juvenile behavior."

- Correcting for IQ and grades makes education look only mildly less effective at preventing crime. [CH 6 Note 45]
- The came changer is the criminal personality. Future criminals, like future dropouts, are impulsive, aggressive, and defiant and act accordingly. [CH 6 Note 46] Their illegal careers usually start when they're still in school. [CH 6 Note 47] When researchers correct for early antisocial attitudes and behavior, the measured effect of education on crime plummets. [CH 6 Note 45]
- In naïve estimates, an extra year of education reduces expected lifetime jail time by about 4 weeks, and the probability of serving any time by about 2 percentage points.
- But correcting for demographics, intelligence, class rank, personality, and early deviance, an extra year of education cuts expected lifetime jail time by LESS than 1 Week and the probability of serving any time by about .5 percentage points, that is, half of 1 percent point.

Yet even such vestigial effects may be of great social value because of the all-inclusive social cost of crime is titanic. The current budgetary cost of imprisoning a criminal is about \$30,000/year. [CH 6 Note 50] But crimes committed vastly outnumber sentences served. Murder aside, offenses

rarely lead to arrest, much less prison. Only 3-5% of rapes, robberies, and aggravated assaults and less than 1% of property crimes - lead to jailtime. [CH 6 Note 51] Yet for each and every violent and property crime, at least one victim suffers - often horribly. Everyone who takes costly precautions to avoid victimization shoulders an additional burden. Setting victimless crimes aside, the most comprehensive tally of crime's social cost comes out to \$3,728 per American per year in 2011 Dollars. [CH 6 Note 52]

Yet there's a subtler reason to dial down estimates of the pacifying power of education: SIGNALING. If signaling is potent, education can diffuse individual criminality, with little impact on society's criminality. The mechanism should be painfully familiar. Hand one delinquent a high school diploma, and they look better to employers. Hand every delinquent a high school diploma, and the credential loses all worth. It no longer boosts legal income and therefore leaves a crime as attractive as ever.

Think that's a stretch?

In 1950, when adult male dropouts outnumbered high school grads 2 to 1, the US murder rate was no higher than today. [CH 6 Note 53]

Signaling's elegant explanation: Back in 1950, the average dropout stood at the 33rd percentile of achievement, so the employer stigma against dropouts was mild. Today, the average dropout stands at the 10th percentile of achievement, making crime an appealing substitute for honest work.

Recall that the sheepskin effects-oversize gains for crossing academic finish lines - are a telling symptom of signaling, if education truly instilled respect for the law, there would be nothing special about graduation. In crime data, however, high school's senior year stands out like a sore thumb. According to the US census, men who quit high school are almost as likely to jailed as men who finished middle school. But when men pass the 12th grade finish line, their chance of incarceration crashes nearly 50% [CH 6 Note 54]

Research on this criminal sheepskin effect is virtually nonexistent. But extending published work yields a stark result: correcting for ability bias in all its forms, only the senior year of high school cuts crime. [CH 6 Note 55] Since this evidence is thin, I assume the sheepskin breakdown for income: the last year of high school counts as much as 3.4 regular years, and the last year of higher degrees counts as much as 6.7 regular years.

 Final complication - crime is a young person's game, so if education restrains crime, most of the restraint kicks in quickly. Since social returns place heavier weight on earlier payoffs, returns must take this "front loading" into account. Coming calculations handle this wrinkle by merging arrest statistics by age breakdown of the population. [CH 6 Note 56]



Politics

Political involvement rises with education. For argument's sake, let's attribute all of this to education. Either way, the question remains: Does more participation make public policy better or worse? To answer that question, we have to

- a. Figure out the best policies
- b. measure whether education increases voter support for these policies
- c. (Not in the book) ask if political participation would not be better in a free market education system, regardless of whether it would be good or not under our current system

I raise these issues not to settle them, but to quarantine them.

Think of (the quality of) the children

American adults born after 1950. Children of 2 high school drop outs - 37% Graduate High school - 2% Graduate College Children of 2 College Graduates - 98% Graduate High School - 56% Graduate College [CH 6 Note 59] Education conceivably has torrential ripple effects. Unfortunately, no one can tell if the ripples are genuine without facing an ancient debate: Nature Vs Nurture, Hereditary vs Upbringing.

100% Nurture Story - The ripple effects of success are as big as they look 100% Nature Story - The ripple effects of success are illusionary.

Families raise kids, so nature and nurture are hopelessly intertwined. In recent decades, Scientist have studied ATYPICAL families, especially families with adoptees and twins.

- Researchers studied adoptees to isolate the power of upbringing. If you randomly assign children to biologically unrelated families, yet clear family resemblance emerges, the mechanism almost has to be nurture.
- Researchers studied identical and fraternal twins, to isolate the power of genes. If identical twins are more similar than fraternal twins, the mechanism almost has to be nature

This approach, called behavioral genetics, consistently finds strong, pervasive effects of nature, and weak, sporadic effects of nurture.

- In developed countries, nature doesn't merely dwarf nurture on physical traits like height, weight, and longevity; nature also dwarfs nurture on psychosocial traits like intelligence, happiness, personality, education, and income. [CH 6 Note 61]
- The genes your parents give you at conception have a much larger effect on your success than all the advantages your parents give you after conception.
- Behavioral geneticists have isolated the effects of upbringing on years of education, grades, and income. [CH 6 Note 62] Both adoption and twin studies typically find that being raised by an adoptive parent with an extra year of education boosts your education by about 5 weeks. [CH 6 Note 63] In other words, each generational ripple shrinks by a factor of 10. Similar studies find ZERO effect of upbringing on grades. [CH 6 Note 64]
- Scholastic performance runs in families because performance hinges on students' talents, attitudes, and behavior, all of which revolves around genes.
- Adoption and twin studies also surprisingly find upbringing has an even tinier effect on income than education. Growing up in a family with 10% higher income raises your adult income by somewhere between 0-1% [CH 6 Note 65]

In light of all this evidence, a reasonable guess is that whatever raises your income by 10% will raise your children's income by .5% with near 0 effect on later descendants. And there's a catch: the labor market won't reward your children for your efforts until they actually start working. Nowadays this means a multidecade delay, so the ripples have a microscopic effect on education's social RTE. My calculations round down to 0. [CH 6 Note 66]

Think of (the quantity of) the children

Family size goes down as education goes up. Demographers often measure "completed fertility" - the total number of children women have by the time they're 40. In 2012

- women who dropped out of high school had almost 50% more kids than women who finished college
- 12% of dropouts were childless
- 21% of college graduates were childless

[CH 6 Note 67]

For the sake of argument, suppose education is the sole cause of these fertility gaps. The question remains: Is thinning society's membership a social benefit or a social cost?

This is not technocratic issue. You can't begin to answer without taking sides on a litany of controversies.

Conventional thinkers emphasize the environmental dangers of higher population, but critics highlight offsetting economic advantages - especially for innovation. [CH 6 Note 68] New ideas are the engine of economic growth - and ideas come from people. Picture a world where half your favorite writers, musicians, scientists, and entrepreneurs had never lived. Critics of population also often complain about "crowding". But if crowding is so awful, why are urban rents so high? Because crowding has glorious side effects like opportunity, choice, and excitement. Even the birth of clear cut "drain on society" can be a net social benefit if, like most of us, the "drain" is glad to be alive. I raise these issues not to settle them, but to quarantine them.

Chapter 9 narrows down education's true effect on family size.

Crunching Society's Numbers: Cautious Signaling

We have reached another way station. After rethinking education's selfish benefits in a socially minded way, we brainstormed and sifted the evidence on education's purely social effects. Now on to our <u>FINAL DESTINATION: computing the social return to education for virtually anyone</u>. As

expected, social returns hinge on the power of signaling.

Remember: the higher signaling's share, the lower educations social return.

Remember: according to the cautious assumption, all benefits of education *except* sheepskin effects reflect human capital.

The case of the Good Student revisited

Good Students, by definition, have the raw ability of the typical B.A. We've already scrutinized their selfish RTE. How worthwhile is Good Students' education taking EVERYONE'S interest into account? Figure 6.4 compares selfish returns to social returns implied by Cautious Signaling.



(b) 75% ability bias for crime effects.

(c) Sheepskin effects of education reflect signaling; all other effects of education reflect human capital.

Social returns differ from selfish returns in 2 striking ways.

- 1. Unlike selfish returns, social returns within each degree program are nearly flat. Graduation years are unusually lucrative for students, but are not especially constructive for mankind.
- More importantly, social returns are way lower than selfish returns. Factoring in a modest role for signaling, Social Degree Returns are less than half of Selfish Degree Returns. The social return for high school is a so-so 3.4%. The Social return for college is poor - less than 2%. The Social Return for Master's Degrees is ruinous - NEGATIVE 4%

Low returns are the rule even though education provides an array of benefits for society as a whole. All computations grant that education boosts worker productivity and workforce participation, and cuts unemployment and crime. Why the low social return? Because of the meager value of the combined benefits. The world overflows with better ways to invest. The government could pour more money into roads, policing, or debt repayment. Or it could let taxpayers keep more of their own money. Private investors are almost sure to beat 3.4% over the long haul.

Social returns by ability

There's nothing especially awful about investing educational resources in Good Students. Under the Cautious assumption, educational investments usually pay poorly regardless of student ability. The return to college ranges from poor to ruinous (SEE Figure 6.5)

Social returns, like selfish returns, usually rise with student ability. Higher ability students are more likely to complete whatever education they attempt, and use whatever education they complete. The one stark exception: sending poor students to high school is the BEST social investment of all, reaping a handsome 6.1%. Since Poor Students incline to crime, crime has massive social costs, and most offenders are young, mildly curbing Poor Students' criminality more than pays itself.

With Cautious Signaling, education is a markedly worse use of social resources than almost everyone pictures. Sending kids to High School is tolerably rewarding, but hardly a no-brainer. Sending kids to college when they're likely to succeed is a bad investment. Sending kids to college when they're likely to fail is an awful investment. Encouraging college graduates to continue on to the Mater's is folly.



human capital.

Crunching Society's Numbers: Reasonable Signaling

The trouble with the Cautious Signaling assumption, as argued earlier, is it's TOO cautious. Every year of education - not just graduation - signals SOMETHING good. What happens to education's social return given what I call the Reasonable View - namely, that signaling accounts for 80% of education's benefits? (SEE Figure 6.6)



- (a) 45% ability bias for income, benefits, unemployment, and participation effects.
- (b) 75% ability bias for crime effects.
- (c) 20% of the effects of education reflect human capital.

The results are BEYOND bleak. Social returns are VERY low for EVERY level of academic difficulty and EVERY level of student ability. Sending Poor Students to high school earns a wretched .2% Every other educational investment yields a NEGATIVE return.

To Repeat, this does not mean schools fail to improve their students. They do. What it means, rather, is that students typically die of old age long before society recoups the initial outlay of time and money. Schooling's numerous social benefits pale before its staggering social cost.

How can social returns be so low when selfish returns are pretty decent? Because signaling is a REDISTRIBUTIVE game, serving you a larger piece of the pie without enlarging it. Asking, "How can there be too much education if education is lucrative?" is like asking, "How can there be too much air pollution if cars are convenient?"

Crunching Society's Numbers: You call that Reasonable?

Thus, one need not accept 80% Signaling as "Reasonable" to be unfashionably pessimistic (This is from the bottom but sums up this page)

Your best guess about signaling's share likely varies from mine. Indeed, while I'm confident that signaling is high, my 80% "reasonable" estimate remains fluid. How sensitive are pessimistic results to the ubiquity of signaling? Figures 6.7 and 6.8 show what happens to social returns for students as signaling's share rises from a 1/3 to a 1/2 to 2/3s. [CH 6 Note 71]







Figure 6.8: Social Degree Returns to Education for <u>Good Students</u> by Signaling Share *Source*: Figure 6.6 and text.

Excellent and Good Students

- 1/3 Signaling, high school is a good deal, college is pretty good, and the master's is a waste. This doesn't sound too bad for education until you recall that we're discussing STRONG students.
- 1/2 Signaling, high school still looks like a decent deal, college is so-so and the master's is ruinous.
- 2/3s Signaling, social return for even Excellent Students and Good Students crash.

Despite its privileged place in our social mythology, high school as we know it turns out to be a poor use of social benefits.

For Fair and Poor Students, results are grimmer (SEE figures 6.9 and 6.10)

- 1/3 signaling, high school is good or great, but further education dubious or worse.
- 1/2 signaling, high school's social return remains tolerable for Fair Students and ample for Poor Students. Anything more is a waste.
- 2/3s Signaling, wipes out remaining pockets of hope. Sending Poor Students to high school isn't a terrible idea, but the rewards are nothing to write home about.



Figure 6.9: Social Degree Returns to Education for <u>Fair Students by</u> Signaling Share *Source*: Figure 6.6 and text.



Figure 6.10: Social Degree Returns to Education for <u>Poor Students</u> by Signaling Share *Source*: Figure 6.6 and text.

Thus, one need not accept 80% Signaling as "Reasonable" to be unfashionably pessimistic.

By mainstream standards, even 1/3 signaling shames education. While almost everyone should try high school, college is a good deal only for Excellent Students, and a disaster for Poor and Fair Students. The Master's is a bad deal across the board. 50% signaling raises the doubts about college for Excellent Students and undermines the social value of High School (Social Returns).

High School's only clear Social dividend is embarrassing: slightly curtailing Poor Students shocking propensity for crime. By the time signaling hits 2/3s, the case against education is nearly complete. High School for Poor Students pays tolerably, but returns on every other level-ability combination range from poor to ruinous.

Searching for Social Returns

Averages conceal a lot. Do any educational investments enrich society despite the power of signaling?

Major, selectivity, attitude, and social returns

On inspection the skill acquisition story is overrated. About 75% of STEM majors - and 50% of engineers end up in jobs that DON'T use their specialized training. [CH 6 Note 72] STEM degrees impress a wide swath of employers, opening doors to careers in not only technology, but finance and business. What does this mean for social returns? With Cautious signaling, Excellent and Good Students in high earning majors like electrical engineering still do well. With Reasonable signaling, however, the most qualified students studying the most lucrative majors remain a burden to society. [CH 6 Note 73] The same goes for students at highly selective but affordable colleges, and students who

love school: social investments in their education are relatively rewarding but absolutely wasteful. [CH 6 Note 74]

Gender and social returns

Working women usually get a higher selfish return than working men. Socially speaking, 2 weighty offsetting factors arise. First, women are less likely to apply whatever job skills they learn in school because fewer women seek jobs. Second, women regardless of education, commit virtually no crime. Male college graduates are more criminally inclined than female high school dropouts. [CH 6 Note 75] The social value of curbing female criminality is therefore low. (SEE Figure 6.11)

How do the sexes' social returns compare when you snap the pieces together? In high school, investing in women usually pays better, with the key exception of male Poor Students. This isn't because female Poor Students are less morally deserving. Quite the opposite: investing in women is socially unprofitable because women avoid wrong doing of their own accord. Beyond high school, educational investments in men perform better across the board - though "better" only means "not as wasteful."



Figure 6.11: Social Degree Returns to Education by Sex with Reasonable Signaling *Source*: Figure 5.12 and text, assuming:

- (a) 45% ability bias for income, benefits, unemployment, and participation effects.
- (b) 75% ability bias for crime effects.
- (c) 20% of the effects of education reflect human capital.

Doubts

Candor trumps caution. If researchers withhold their best guess from students, students have to act on their best guesses - corrupted as they are by popular pieties about the glories of education.

<u>Signaling's share</u> - signaling is so understudied that energetic researchers could quickly double the totality of our knowledge, warranting major rethinking.

<u>Crime, signaling, and sheepskin effect</u> - The social benefits of schooling weak male students hinges on crime control. Crime researchers rarely test for sheepskin effect, so I set SSE for crime proportional to sheepskin effects for earning. However, preliminary research suggests the SSE accounts for all of education's effect on crime. Since Cautious signaling treats SSE as socially worthless, the social benefits my calculations attribute to crime control may be a mirage - making the case against education as monolithic as ever.

The Educational Drake Equation

The Drake equation says the mind-boggling requirements for life must offset the mindboggling opportunities for life. Educational statistics can inspire Saganian awe. The disparity between all facets of life of a graduate with and engineering degree and a high school dropout is so astronomical. Imagine if every high school dropout transformed into an engineer. Former Harvard president Derek Bok once quipped, "If you think education is expensive, try ignorance."

With gains this massive, why fret about cost? Because education's power of SOCIAL transformation are galactically overrated.

For workers

Education's social benefit = (the observed dropout-engineer gap) x (the probability of successfully completing the education) x (the fraction of the gap NOT due to preexisting ability differences) x (the fraction of the gap not due to signaling.)

ESB = OG x CP x GNPA x GNS

Suppose the average engineer contributes, on balance, x3 as much to society as the average dropout, but each of the other terms in the EDE = 50%

Then education's true effect is the

(+200% observed Gap) x (50% completion rate) x (50% not due to ability bias) x (50% not due to signaling) = a mere +25%

Why does my approach deliver unfashionably wretched social returns?

Others, usually tacitly, and sometimes explicitly, set every other term in the Educational Drake Equation up to 100%.

- Everyone who starts school finishes
- none of the gap is due to ability bias
- none of the gap is due to signaling
- everyone works

This is like rounding all the terms in the original Drake Equation up to 100%, then announcing that our Galaxy contains billions of advanced civilizations.

Yes, the well-educated are model citizens - skilled, employed, and law abiding - but education is not a path to a model society. Indeed, plugging in sensible numbers into the Educational Drake Equation shows the path to a model society starts with a U-turn. Deep educational cuts won't transform us, but we can work wonders with the billions upon billions of dollars we save. (And the endless time saved as well.)
The White Elephant in the Room

The Cost of Education

Page 146

Pro-education Arguments: What's Wrong with Them

What inspires this pan ideological affection of education? Pro education industrial policy is so popular advocates have little need to share their reasons. When pressed, laymen's justifications are emotionally powerful but logically pitiful.

- "We need to invest in people"
 - <u>Reply: We usually rely on the free market to provide crucial investments. We can do the</u> <u>same for education</u>
- "Nothing is more important than education!"
 <u>Reply: Food's more important, and we rely on the free market for that</u>
- "Government has to make sure that even the poorest children receive good education!"
 - <u>Reply: Means-tested vouchers can cheaply handle this problem. There's no need for</u> government to run schools or subsidize tuition for kids who aren't poor.

Laymen's arguments almost never confront the question, "At what point would education spending be excessive?"

"We've done enough for education" is as heretical as "We've done enough for paralyzed veterans."

The Onion published an article titled <u>U.S. Government To Discontinue Long-Term, Low-Yield Investment</u> <u>In Nation's Youth</u>. In the article Secretary of education Rod Paige takes a calmly analytical approach that would cost any politician their job.

"Testing is exactly the sort of research the government should do before making spending decisions," Paige said. "How else will we know which individuals are sound investments and which are likely to waste our time and money?"

Despite countless variants, their arguments fall into 3 big intellectual boxes

- Irrationality
 - Tacitly equate selfish and social returns, then argue free markets leave selfishly profitable, socially valuable educational investments unexploited
- Credit Constraints
 - Tacitly equate selfish and social returns, then argue free markets leave selfishly profitable, socially valuable educational investments unexploited
- Positive Externalities
 - explicitly distinguish selfish and social returns, then argue free markets fail to exploit socially valuable educational investments because they aren't selfishly profitable.

Irrationality

In irrationality stories, the free market fails to **convince** students to make selfishly profitable educational investments.

- Maybe students underrate education's payoffs
- Maybe they're too myopic to care about payoffs far in the future
- Maybe they're too young to grasp what an "investment" is

Whatever the reason, irrational students left to their own devices short-change themselves and us by finishing high school prematurely. Government support for education helps confused students spot the golden opportunities by making education's benefits too massive to miss.

Credit Constraints

In these stories, the free market fails to give students the **opportunity** to make selfishly profitable educational investments. Suppose the normal market rate of interest is 4%. Inferring, "Students will stay in school as long as the return to education exceeds 4%" is dogma. In the real world, plenty of students can't afford living expenses, much less tuition - and their credit rating is too poor to borrow the difference. For minors, this is undeniable. Who wants to extend a \$50,000 line of credit to a 14-year-old to pay for high school? The lender could know the return to education exceeds 4%, yet still reject the loan for lack of collateral. Left to their own devices, credit constrained students short change themselves and us by finishing high school prematurely. Government support for education hands strapped students the seed capital to invest in themselves.

Externalities

The last best argument for education subsidies says the free market fails to give students the **incentive** to make socially valuable educational investments. Rational students with good credit hungrily exploit selfishly profitable educational opportunities. Trouble arises when their education benefits bystanders - people with no earthly reason to reward them for their help. Unless students are saints, they'll repay bystanders ingratitude by ignoring their interests. Before responding, "Tough luck for them," remember we're all somebody's bystanders. Left to their own devices, selfish students short change us - but not themselves - by finishing school prematurely. Government support for education entices these students to prolong their socially valuable stay.

Irrationality, credit constraints, and positive externalities: all three stories are plausible. In a vacuum, each bolsters the case for pro-education industrial policy. There's just one small problem: we're not in a vacuum. An intellectually serious case industrial policy must account for offsetting forces. Student irrationality cuts 2 ways:

- 1. Students who underestimate education's return could easily overestimate their probability of graduation
- 2. Students too myopic to care about payoffs in the far future might pursue long-shot degrees to impress their friends or avoid disappointing their parents

The same goes for externalities.

In technical terms, signaling implies NEGATIVE externalities: when students stay in school to impress employers, they hurt bystanders in the labor market who look worse by comparison. Honest defenders of pro-education policies must pool all factors and look at the grand total.

In a free market, evaluating the case for some pro-education policies would be straightforward. Estimate education's social return, then see if it exceeds the market interest rate. If it doesn't doing nothing for education is better than doing something. Otherwise, doing something for education may be better than doing nothing.

Why only may? Because government might overshoot. Instead of delicately fostering education until its social return reaches the market rate, government might spend money like a drunken sailor, driving social returns below the market rate.

Chapter 6's results: Education's social return ranges from mildly below market value to dramatically below market value. Education researchers' arguments for pro-education policies could be as valid as far as they go/ My own calculations incorporate multiple positive externalities. What low and negative

social returns show is the standard pro-education argument is INCOMPLETE. They fail to face the Educational Drake Equation in all its dismal splendor. Counting everything that counts, industrial policy for education has clearly gone too far. The United States - and probably the rest of the world - is overeducated.

Schoolcraft as Soulcraft

Some of the most prominent and heartfelt pro-education arguments don't talk about selfish or social returns. Instead, they praise education for instilling admirable values and uplifting the human personality. Education is good for the soul. How can you put a price on that? Economists may scoff, "Unless your budget is infinite, you HAVE to put a price on everything." But most people, including me, still find "schoolcraft as soulcraft" a compelling idea.

The idea is so compelling, Chapter 9 is dedicated to this argument.

How Big is your Elephant?

"It will be a great day when our schools get the money they need and the air force has to hold a bake sale."

Spending on Education far surpasses total military spending.

2010-2011 school Year, education was 7.5% of the American economy. Spending came to over \$1.1 Trillion

2010-2011 school Year, defense was 4.7% of the American economy. Spending came to a little over \$700 Billion

Schools overtook the military back in 1972 and sharply widened their lead after the Cold War. [CH 7 Note 12]

Who could oppose ample funding for education? Anyone who takes signaling seriously. \$1,100,000,000,000 is nearly \$3,600 for every person in America - NOT every student, mind you, but every PERSON. Chanting "investment" does not make it so. If half is wasteful signaling, we're wasting over half a trillion dollars a year. And that's only budgetary cost. A full damage report would include tens of billions of emotionally taxing, socially fruitless classroom hours.

One notable difference between defense and education is that all defense spending is government spending, but education spending is partly private. If government spent zero on education, education spending wouldn't disappear - and neither would wasteful signaling. Yet government support, modern education would be unrecognizable. Like a rich uncle, government helps us waste. Whenever we can't or won't waste our own money on schooling, federal, state, and local governments are standing by to waste taxpayers' money on our behalf.

How much do US governments really spend on education? A tough question.

- We can't blithely equate public schools with government spending and private schools with individual spending. Some public schools receive hefty private funding. Some private schools receive hefty government funding.
- Neither can we blithely sum federal, state, and local spending, because higher level governments often turn their education budget into grants for lower level governments. That risks double- or triple- counting: If the feds give California \$10 Billion for education and California hands every

penny over to local schools, total government education spending is not \$30 Billion, but \$10 Billion.

<u>The best path to a solid answer measure begins with the US Census.</u> The Census estimates state and local governments' direct education spending on K-12, higher education, plus "assistance and subsidies to individuals, private elementary and secondary schools, and private colleges and universities, as well as miscellaneous education expenditures." [CH 7 Note 13]

The 2010-2011 figure is \$861 Billion. This counts all state and local spending funded by federal grants, but not direct federal education spending or assistance to INDIVIDUALS.

Direct Federal Spending is hard to pin down, but probably small enough to ignore. Federal assistance to individuals in contrast, exceeds \$100 Billion. Main complication: the federal government chiefly offers loans, not grants. If it charged market interest rates, you could claim student loans cost taxpayers nothing. Yet despite loud complaints about usury, even "unsubsidized" student rates are well below market. Loan guarantees have no visible upfront cost, but you probably don't want to cosign my personal loans for free. The Congressional Budget Office finds an average subsidy rate of 12%: every dollar of student "loan" contains a hidden taxpayer gift of 12 Cents. [CH 7 Note 14] Figure 7.1 Tallies the census numbers, federal grants to individuals, and implicit student loan subsidies.





Many Americans imagine public education operates on a shoestring budget. Private education, in contrast, looks so pricey it's implausible government does much to make it affordable. Both Perceptions are wildly at odds with the facts. Figure 7.2 puts the figures into perspective.

Government provides more than 4/5s of all education spending. Government support for education comfortably exceeds notoriously bloated defense spending. Even at the height of the War on Terror, there was more government money for education than the military.

Where does the money go? The US government, like governments around the world, prioritize K-12 over college. But higher education is more dependent on taxpayers than it looks, because so much "private" tuition has government fingerprints on it. In 2010-11, government spent at least \$565 billion on K-12 - that's 87% of the total - and at least \$317 Billion on higher education - 67% of the total. [CH 7 Note 16] The "bake sale" bumper sticker has misled a generation. The US doesn't starve schools to feed its war machine. It serves both a resplendent banquet.

Citizens are understandably nervous when they picture a government war on educational investment. Fortunately, no crusade against an external enemy is necessary because, as the cartoon <u>Pogo</u> famously quipped, "We have met the enemy, and he is us." Governments have a nearly foolproof remedy for educational waste: spend less. Cut budgets for public education; cut subsidies for private education. Once citizens embrace educational austerity, the central question isn't, "How" but "Where do we start?"



Cutting Education: Why, Where, How

- Argue education is largely wasteful signaling
- They Agree
- "Let's waste less by cutting spending"
- "NO! Education budgets should be redirected, not reduced.

Such confidence is misplaced. The discovery of wasteful spending does not magically reveal constructive alternatives. Prudence dictates a 2-step response.

- 1. Stop wasting the resources
- 2. Save those resources until you discover a good way to spend them

Not spending resources is simple and speedy. Finding good ways to spend resources is complex and slow

Money saved on education could be spent on

- roads
- curing cancer
- cutting taxes
- paying off our MASSIVE debt before our financial day of reckoning
- Let taxpayers keep the money so they can buy better homes, cars, meals, vacations

Analogy:

Your toenail fungus cream is proven to not work.

I say, "Stop wasting your money on that worthless cream."

Would your reply be, "Not until we find a toenail fungus remedy that works?" No way.

Continuing to waste money on quackery until a cure comes into your possession is folly.

Saying, "There must be a cure!" is childish and dogmatic.

The signaling model highlights 2 desirable forms of educational austerity.

- 1. Cutting fat from the curriculum
- 2. Cutting subsidies from the curriculum

Cutting fat from the Curriculum

From a selfish point of view, useless subjects pay. From a social point of view, these selfish rewards don't count.

No need for K-12 to teach history, social studies, art, music, or foreign languages.

This is especially clear if you recall how much students forget.

Save money by cutting the classes, and by ending school the moment useful learning is done.

Cutting subsidies from the curriculum

Education officials have little incentive to cut fat. They are dependent on the education system for their income. Trusting them to trim down the system they've built is naïve.

Yes, cutting education sounds outrageous to most Americans. They'll call it awful, crazy, mean, and foolish.

Educational austerity is a secular heresy, a view no "decent" member of society entertains. Once we grant the ubiquity of educational signaling, the main conclusion follows.

Rich societies can afford to waste trillions, but why settle for that? Rich societies face countless opportunities. The trillions spent boring youth might cure cancer, buy driverless cars, or end world hunger. Collective complacency seems harmless but it kills by omission.

Signaling and Social Justice

Worrying about the Poor

• <u>Credential inflation</u>

These concerns would be well founded if education were largely about teaching useful job skills. Awarding a scholarship to one poor youth makes that individual better off. Award scholarships to all poor youth, and the signal inflates. That means better off and wealthier students do more to out compete the poor. As education rises, workers - including the poor - NEED MORE education to get the same job. That's heaping up requirements and work load onto the poor. Where's the social justice in that?

• <u>Subsidies Hurt the Poor</u>

Educational subsidies hurt the poor. They reshape hiring and promotion to the poor's detriment. Picture a society where half the population can't afford college. In this setting, reserving good jobs for college grads is bad business. "There are plenty of qualified candidates who didn't go to college" is not wishful thinking, but literal truth. Education signals something, but lack of education is not the kiss of death. When asked, "Why didn't you go to college?" "I couldn't afford it" is a great excuse. Heavy subsidies take it off the table. Indeed, what excuses are left? "I'm a bad test taker"? "I didn't feel like going to college"? "I figured I could learn better on the job"? Once the good excuses are gone, employers have little reason to stay open-minded.

- Subsidies SEEM to promote social justice. To detect subsidies downside for social justice, you must dwell on the opportunities the poor have LOST because of credential inflation
- When most Americans didn't finish High School, dropouts faced little stigma in the labor market. The stigma is now severe.
- When few Americans finished college, high school grads could plausibly work their way up the corporate ladder. No longer. The main difference isn't that the "economy changed" but that education rose, so workers needed higher credentials to compete.
- The point isn't that we shouldn't seek to help others, but that the trillions we fitter away on schooling every year could help: Hungry kids. hopeless adults, refugees from war and tyranny. Even if your quest for social justice stops at the nation's border, why not fork over hundreds of billions to America's underclass? Human Capitalist purists may protest that this squanders our country's seed grain. But letting the poor eat the seeds is better than burning the seed signaling to each other.

Why Not Tax Education?

- This would discourage skill creation as much as signaling.
- A stronger antitax argument begins by noting government has long heavily sponsored wasteful education. Given the track record, trusting it to do the opposite is naïve. Picture the complexity of the tax code and opportunities for abuse- if the education tax varied by major or school ranking.
- Since the proposal is untried, its effects remain speculative and we shouldn't try it unless we know it works wonders. (In terms of helping education on the folly argument that "discouraging education is a good thing, so why not take it further by taxing it?")
- Also, notice how "tax education like any other business" usually is never followed by "Because X needs funding"? That's because we've grown accustomed to taxing everything. So most don't propose taxing it for any other reason than they want the government to have more money, because its just acceptable at this point to take money for any reason. (NEB)

The False Savior of Online Education

Education is not a bubble, but stable waste. As long as education receives 100s of Billions of taxpayer dollars every year, the status quo will stand. Online education will slowly carve out a niche but that is all.

Technophiles have a compelling case <u>*IF*</u> education's sole function were teaching job skills. Online education does GREAT in the human capital arena

- Great teachers
- learn at their own pace
- Pausing when they need to reflect
- rewinding whenever they need a review
- Fast forward as soon as they master the material
- Can drop a level without looking like a loser
- Can jump a level without looking like a nerd.

UNFORTUNATELY, students aren't hungry for human capital. They're hungry for signal. Why? Because the job market mainly pays for credentials acquired, not skills learned.

Kevin Carey, of the New America Foundations

"3 years ago, technology was going to transform higher education. What happened? The failure of MOOCs [Massive Open Online Courses] to disrupt higher education has nothing to do with the quality of the courses themselves, many which are quite good and getting better. Colleges are holding technology at bay because the only thing MOOCs provide is access to world-class professors at an unbeatable price. What they don't offer are official college degrees, the kind that can get you a job. And that, it turns out, is mostly what college students are paying for." Education is about signaling? Fine. Then online education will soon let students send the labor market more accurate and detailed signals than brick-and-mortar schools ever dreamed. Employers want to know how smart you are? How Conscientious? Great. Online schools will devise world class tests of intelligence and conscientiousness, credibly communicate scores to employers and their enrollment skyrocket.

<u>There's just one glaring problem</u>: testing traits OFFLINE has been dirt cheap for decades. Employers take standardized tests from uncredentialled applicants seriously. Testing will be cheaper online than offline, but how does making cheap tests even cheaper change the way employer think? Technophiles shouldn't predict an online testing revolution until they can explain why there wasn't an offline testing revolution.

Also:

Education also signals conformity - submission to social expectations. This traps students in a catch-22: trying to unconventionally signal your conformity signals nonconformity.

In our society, you're supposed to go to college if you value success.

The online education will begin when promising students say, "I've decided to drop out of school and study online." and adults unsarcastically respond, "Good idea!"

Why believe Caplan, and not Technophiles? Technophiles terrible track record

- Videotapes of the world's best teachers could have replaced meat space lecturers 40 years ago. They didn't
- Employers could have substituted standardized tests for traditional diplomas a century ago. They didn't
- Online education is growing, yet it is not threatening the status quo

This isn't an all-purpose, "If your idea was good, we would have used it" argument. The point is that slight variations on the technophile's ideas HAVE BEEN tried for decades, and NONE gained momentum.

Without a conventional diploma "I took a bunch of online classes" is as almost as worthless as "I read lots of blogs."

The Politics of Social Desirability Bias

Americans relentless grip about schools and colleges. So why is it universally popular? The Wisdom of Crowds is fallible. When spending PERSONAL resources, you are wise about your spending. When spending COLLECTIVE resources, in contrast, second-guessing popular ideas is selfishly futile. Taxpayers who discover beloved programs are junk must pay taxes like everyone else, even if you don't like it. And hating on it will make you enemies.

The moral: In politics, Critical thinking is an act of charity. Objective truth has to beg for spare change to survive. Owing to these perverse incentives, almost any political idea that becomes popular tends to stay popular. [CH 7 Note 49] Even if it's false. Even if it's always been false.

Why would the false become popular in the first place?

Because human beings don't like expressing - or believing - ugly truths. Instead, we gravitate in word and thought, to vies that "sound good." This is social desirability bias.

"There's no such thing as a stupid child" sounds better than "10% of children are stupid" "We will win the war on terror" sounds better than "There's a 50% chance the war on terror reduces terrorism, a 30% chance it makes no difference, and a 20% it makes terrorism worse."

Isn't "what sounds good" occasionally true? Certainly.

When skinny people ask "Am I fat?" the unbiased response is "no."

Social desirability bias distorts responses to "Am I fat?" because we want to say "No" to everyone.

"Give a man a fish, and he'll eat for a day; teach him to fish, and he'll eat for a lifetime" sounds nice. So does:

- "In a modern society, every child needs the best possible education."
- "Education is the most important investment we make in or children's future"
- "We have to ensure everyone who might benefit from college attends"

Such statements aren't blatant falsehoods. But we're inclined to hastily accept them regardless of their truth because they are emotionally appealing.

How can Social Desirability Bias explain the ubiquity of pro-education sentiment?

- Appeal to Human universals. Underneath our diverse cultural baggage, we're much alike.
- Calling any popular view, a "fallacy" is socially undesirable and the human mind is naturally prone to the fallacy of composition. Since education has pretty good selfish returns, humans hastily infer matching social returns. What's true for the part must be true for the whole, right? SDB deters us from our first-hand knowledge of the irrelevance of the curriculum to challenge this fallacy even in the privacy of our own minds.

What's so bad about SDB? It is the fountain head of wasteful and counterproductive policies. You know the mechanism, almost all governments on Earth crave popularity. In democracies, leaders who fail to remain popular fail to remain leaders. In dictatorships, leasers who fail to remain popular can cling to power, but cling they must. Either way leaders have incentives to be crowd pleasers, doing whatever is popular.

Vocational Education

Vocational Intro

"As anyone who has ever taught high school will attest, even among teens who attend the very best high school, many simply hate school. They have never done well in school, see no relevance in it never do assignments, and habitually cut classes or are truant...Why do policy makers seem to want to deny the existence of students who exhibit these attitudes and behaviors?"

-Kenneth Gray, "Is High School Career and Technical Education Obsolete?"

We should be pessimistic about these about improving basic skills though our current system. Why? Because the goal has long been popular, the research has long been ample, yet basic skills remain mediocre [CH 8 Note 3] The logical inference is that either

- a. pinpointing ways to improve basic skills is elusive
- b. schools spurn the methods that work

Intellectually, for example, the case for firing bad teachers is solid, but who expects it to prevail? While there are signs of academic progress, they mostly look like "teaching to the test". Until uncoached adults score better on reading, writing, and math tests, we should presume basic skills remain static.

Vocational Education take many forms:

- Classroom Training
- Apprenticeships
- On-the-job Training
- straight up work experience

The standard case for vocational education start with the bitter facts.

- Plenty of students find academics daunting
- Plenty of students find academics dull
- College graduation not to mention elite careers is unrealistic for each student
- THUS, they are better off training to be plumbers, electricians, or mechanics

The standard case against vocational education starts with sweet slogans.

- College prep readies students for "whatever they choose to do with their lives"
- The world is full of "late bloomers"
- Every child can grow up to be president

Signaling takes the debate to a new level - and heavily tilts it in favor of vocationalism. The Signaling Model begs us to ask:

- "Why is education lucrative?"
- "Does it teach students how to DO a better job or merely how to GET a better job

Education that teaches that builds job skills is more socially valuable than education that merely impresses employers - even if both forms of education are equally profitable for the students themselves.

Why Vocational Education Rules

"Career and Technical Education is to some students what advanced placement and honors courses are to others."

-Kenneth Gray, "Is High School Career and Technical Education Obsolete?"

The Selfish Return to Vocational Education

In Proponents' eyes, vocational education

- raises pay
- reduces unemployment
- increases high school completion

Core Insight: Vocational students are typically "academic underachievers" before entering the vocational track.

The right metric isn't, "How do Vocational students compare to average students"

The right metric IS, "How do vocational students compare to COMPARABLE students who didn't study a trade"

Vocational education fares well by this metric.

- It raises pay more than academic coursework [CH 8 Note 9]
- It reduces unemployment more than academic course work [CH 8 Note 10]
- It boosts high school graduation: the academically uninclined are less prone to quit school when they don't detest all their classes [CH 8 Note 11]
- It deters crime [CH 8 Note 12]

Most will warn more if they replace some, but not all, of their standard courses with vocational alternatives. [CH 8 Note 13]

A notable paper finds that once workers reach their 50s, vocational backgrounds mildly retard employment rates. [CH 8 Note 14]

Given all the advantages of vocational education for all those under 50, this is praising with faint damnation. Higher wages, higher employment higher completion rates: snap all 3 together, and the selfish return to vocational education in high school is at least a percentage point higher than normal. Weak and disgruntled students enjoy especially rich rewards.

The Social Return to Vocational Education

What fraction of vocational education's selfish benefits stem from signaling?

<u>The lowest estimates</u>, strangely, come from vocational education's critics. Many inadvertently set its signaling share below zero. How so? Critics fear that vocational education bears a stigma. Specializing in auto shop tarnishes your image because society infer that you "lack the talent for anything better." Restated in the language of signaling: the vocational path sends bad signals about raw ability. In this scenario, vocational ed enriches society more than it enriches vocational students. Society gains the extra productivity, but students capture the extra productivity less the stigma. Imagine you're an average student contemplating the vocational track. With academic training, you produce \$100/day. Vocational training boosts your productivity to \$120/day. Unfortunately, the average vocational student's raw ability is \$10 below average. If you go into vocational, employers assume you fit this

profile. Skills and stigma are a package deal, so you earn \$110/day - the productivity of the average vocational student - even though you personally produce \$120/day.

Table 8.1: Selfish	Benefits, Social Bene	fits, and Stigma	Your minister of
ethick the second	Academic Track	Vocational Track	Gain
Income	\$100	\$110	+10% selfish gain
Productivity	\$100	\$120	+20% social gain

Does Vocational study really so tarnish your image? While it's tempting to declare, "The jury is still out," the truth is more like, "The jury has yet to be convened." To my knowledge, this lamented stigma remains unmeasured. Still, the critics probably go too far. In our society, even incurable snobs rank vocational students above high school dropouts. The signal vocational ed sends is WEAK not bad.

Vocational ed stands out because it prepares student for COMMON jobs. According to the Bureau of Labor Statistics, the US has roughly

- 900,000 carpenters
- 700,000 auto mechanics
- 400,000 plumbers
- 129,000 writers
- 64,000 Translators
- 3,800 Historians

[CH 8 Note 16]

What then is vocational education's signaling share? Bearing both stigma and job relevance in mind, half of normal is a reasonable guess. Suppose the earlier 80% signaling figure is correct, so 40% of vocational education's payoff stems from signaling. Then IGNORING the selfish advantages of learning a trade, the social return for vocational ed surpasses regular high school's by at least 4 percentage points. The social return for Poor Students - especially male Poor Students - exceeds 7%.

Fiddling with the signaling assumption naturally shifts the bottom line, but as long as conventional schooling's signaling share exceeds 50%, halving it dramatically boosts social returns.

What makes vocational ed's social return so ample? Status is Zero-sum. Skill is not. Conventional education mostly helps students by raising their status, but average status cannot rise. Vocational education mostly helps students by building their skills. And average skill CAN rise.

Why are social returns especially ample for Poor Students? Because vocational ed trains these crime prone students for productive work without igniting sever credential inflation. [CH 8 Note 17]

What's wrong with Child Labor?

"Child labor has not always been thought of as evil. There have been times when it was treated as unpleasant to the child, but nevertheless desirable, somewhat akin to our contemporary view of education."

-Kaushik Basu, "Child Labor"

School is not vocational education's only venue. If learning job skills in school is good, wouldn't learning job skills on the job be better?

Innocuous and infamous label for kids learning job skills on the job: "Child Labor"

Kids don't belong in gray workshops, toiling all day long, cogs in the machine. They're kids, not robots! Well, unless the gray workshop is called a "school" and cogs earn zero wages. No one cares if kids devote every free minute to basketball or violin, but gainful employment is for grown-ups. Hostility to child labor admittedly mellows as "children" approach adulthood, but we're still supposed to spurn the idea of 16-year-olds quitting school to work full time.

Child labor laws reflect these popular sentiments. Federal Regulations do more than exclude minors from dangerous jobs. Outside of family businesses, farming, newspaper delivery and performing arts, work for kids under 14 is all but prohibited. U.S. Federal law caps 14- and 15-year-olds' work at 3 hours/day on school days and 18 Hours/week on school weeks. [CH 8 Note 19] Plenty of states have stricter regulation. Under California law, 16- and 17-year-olds may not work without school permission or more than 4 hours on a school day. [CH 8 Note 20]

When children languish in school, adults rush to rationalize.

Making kids sit at desks doing boring busywork may seem cruel, but their pain trains them for the future.

Why then is child labor so reviled? Toil may not be fun, but it too trains kids for their future.

Child labor has a dark side.

Then again, so does book learning. When my mom was a schoolgirl, the nuns in charge freely hit kids with sticks. Judging either activity by long gone creepy abuses is folly. IN modern times, is there any decent reason to discourage kids from getting jobs and learning job skill?

The silliest objection is that businesses "exploit" our children, handing them pittance for their toil.

- No one expects schools to pay their students; the training kids receive is payment enough. Why hold firms to a higher standard?
- College students ferociously compete for unpaid internships because training is valuable compensation and total compensation, not cash alone, is what counts.
- If the young were really grossly underpaid, employing them would be extraordinarily profitable and thanks to competition, few business models stay extraordinarily profitable for long.

Another complaint is that children are too immature to know a bad deal when they see it. We normally rely on parents to protect kids from their own childishness. Under current US law, moms and dads can already can employ their sons and daughters on almost any terms they please. [CH 8 Note **23]** The natural rationale is that few WANT to mistreat their flesh and blood. Exceptions notwithstanding, parents are children's best guardians. Once we trust them to decide whether they're fairly compensating their kids, why not trust parents to decide whether someone else is fairly compensating their kids?

A more thoughtful objection is that work is good is good, but school is better. Child labor distracts youth from their primary mission: academic success. The critical premise is that the academic path is so reliably superior that leaving students the OPTION to prioritize work over school is dangerous. On cursory look, the facts fit: working students' average lower grades, worse behavior, and more trouble with the law.

But a closer look tells another tale altogether. Working student's visible shortcomings to predate their employment.

When researchers compare working students to comparable nonworking students, work has a clear upside and no clear downside. Early job experience has durable dividends, boosting post-graduation earnings by 5, 10, or even 20% for at least a decade. [CH 8 Note 24] The link between work and academic success, in contrast, is weak. [CH 8 Note 25] The same goes for crime and other bad behavior. [CH 8 Note 26] According to one intriguing study, looser child laws cut education AND crime; locking work-oriented students in school makes them "act out." [CH 8 Note 27] The 2/3s of 16-19-year-olds who don't even try to work during the school year are missing a major opportunity. [CH 8 Note 28]

 To be clear, none of this research urges teens to quit high school to get a full-time job. Researchers who hail the long run benefits of youthful employment remain skeptical of "intense" work - 30 or 40 hours a week. For selfish returns, they're probably right. In our society, high school dropouts bear a savage stigma.

For public policy, selfish returns are a distraction; social returns alone matter. Since stigma hurts only selfish return, wise policy analysts ignore it. Instead, they compare skills students learn in class to skills students learn on the job. Frankly, there's no comparison. Doing ANY job teaches you how to do a job. [CH 8 Note 29] If this seems a low bar, recall that <u>almost 1/2 of dropouts and</u> almost a 1/3 of high school graduates these days aren't even LOOKING for work. Acclimating them to any form of employment would be a step up.

Since the <u>minimum wage</u> doesn't vary by age or experience, we shouldn't worry that youths will be "exploited".
 We should worry that youths -especially Poor Students- won't be hired at all. Under current law, untrained workers must produce the cost of their training plus \$7,25/hour to be profitably.

untrained workers must produce the cost of their training plus \$7.25/hour to be profitably employed. [CH 8 Note 31] Quite a catch-22, especially for slow learners: you need to training to become productive worker, but firms won't train you unless you already are a productive worker.

Aren't <u>unpaid internship</u>s a MASSIVE loophole? Not taking the law literally. In the for-profit sector, the US Department of Labor allows unpaid internships only if "the employer that provides the training derives no immediate advantage from the activities of the intern." [CH 8 Note 32] A bizarre rule. Why would a FOR-PROFIT firm bother hiring workers form whom it derives zero immediate advantage? If you sought to convince a CEO to start an internship program, your pitch would be, "Let's hire a bunch of inexperienced workers to provide our firm with no immediate benefit whatsoever."

Unpaid internships survive because authorities hypocritically fail to enforce the letter of the law. As long as interns are college students or recent college graduates learning a college like job, government turns a blind eye. If McDonald's hired unpaid trainees, prosecution would be swift. Unlike orthodox observers, I hasten to add, I say we need MORE hypocrisy. Instead of ending the unofficial exemption for college interns we should grant it to everyone.

- What else should policy makers do? <u>Deregulate and destigmatize child labor.</u> Early jobs are good for kids and good for society. Parental oversight isn't a perfect way to root out abuses, but we rely on in in virtually every other sphere of life. Parents can make their kids dedicate their childhoods to sports and music no matter how much they hate playing. Parents can sign up their kids up for mountain climbing. Parents can take their kids to dangerous countries. Holding nonfamilial employment to stricter standards than mountain climbing is senseless.
- Once child labor is legal, some teens will take full-time jobs. As long as they have their parent's permission, let them. If this means dropping out of high school, we should set our phobias aside and allow that too. Selfishly speaking, the average dropout is making a mistake. Plenty of students, though, are not average, starting with the silent minority who like work and loathe school. Working enthusiastically probably has a higher selfish return than studying apathetically, because the labor market rewards graduation, not attendance. In any case, education policy should never lose sight of signaling. <u>Students who quit school to work curb credential inflation, opening doors for peers who stay in schoo</u>l because, "You can't get a good job without a diploma." When Bill Gates dropped out of Harvard, he didn't just strike it rich; he struck a blow against credential inflation.
- What about setting up a formal apprenticeship program? The best regimes are jewels, but they're
 notoriously difficult to emulate. Most countries can't be Germany. Internationally, apprenticeship
 programs consistently outshine adult job training programs, but that's faint praise. [CH 8 Note 33]
 Before using taxpayer dollars to jumpstart apprenticeships, government should get out of the way
 and take stock of all the opportunities the labor market provides.

Misvocational Education, or 1>0

"Perhaps no greater mistake in terms is made in our educational practice today than to say that the high-school student who has had four year of Latin, three of Greek, four of English, two of ancient and mediaeval history, two of mathematics, and one year of mathematical physics has pursued a "liberal-culture" course of study. As a matter of fact, his course has been narrowly technical, in that it leads to but a few selected occupations; and he is in no sense liberally educated, for he knows little about the modern world in which he lives."

-Ellwood Cubberley, "Does the Present Trend toward Vocational Education Threaten Liberal Culture?"

Most education experts remain leery of vocational ed. Chief objection: its shortsighted. The vocational track teaches students specific job skills they need for their first job the academic track teaches students specific skills they need for every job. The wise approach is to set everyone on the academic track. Let kids max out their general skills before targeting any particular vocation.

This objection is confused. While literacy and numeracy are genuinely general skills, most academic classes amount to vocational training for ultrarare vocations. Think about classic college prep I literature, history, social science, and foreign language. Only a handful of occupations use the skills these classes teach. Science and higher mathematics are more relevant, but even college grads rarely apply them on the job. [CH 8 Note 35] STEM is vocational training for quants and scientist, not general training for workers.

Ultimately, then, the debate is between two KINDS of vocational education. "traditionalists" want to train everyone for long-shot, prestigious careers like author, historian, political scientists, translator, physicist, and mathematician. So-called vocationalists want to train students for careers they're likely to enter. The traditional route is painless for educators: teach your students whatever your teachers taught you. The vocational route is painful for educators: to follow it, we must keep tabs on student aptitudes and the job market. So be it. TO prepare youths for plausible futures, teachers must feel the pain.

Defenders of traditional academics often appeal to the obscurity of the future. The labor market is an unmerciful mutation. What's the point of prepping students for the economy of 2015, when they'll be employed in the economy of 2025 or 2050?

Fair enough, but this is no argument FOR old-school academics. Ignorance of the future is no excuse for preparing students for occupations they almost surely WON'T have. Ans if we know anything about the future of work, we know that demand for authors, historians, political scientists, translators, physicists, and mathematicians will stay low.

The crowd-pleasing objection to vocationalism s not epistemic, but egalitarian. Placing everyone on the academic success track seems more equal than sorting children by "aptitude" and assigning them to "suitable" training.

You could say equality is already an illusion; despite the fiction of college prep for all, colleges count only honors and A.P. as the genuine article.

Yet the ambitious egalitarian would retort. "Then let's have honors and A.P. coursework for all." This sounds lovely but works poorly.

Egalitarians picture college prep as a free lunch: anyone who fails academically can switch to the vocational track, so everyone might as well start with academics.

This ignores the disturbing possibility that after academic students crash, they'll be too embittered to learn a trade. [CH 8 Note 36] When such students start on the academic route, they learn how to do ZERO jobs. When they start on the vocational track, they probably learn how to do ONE job.

The Vast American underclass shows this disturbing possibility is more than theoretically possible. Keeping bored, resentful kids on the academic track backfires. Instead of "downshifting" to vocational training, they settle for unskilled labor, or worse. Remember: About 20% of Americas never earn a standard high school diploma. [CH 8 Note 37] Training likely dropouts to do a mid-skill job when they're 12 or 14 is no panacea, but it's more realistic than hoping they're "late-blooming" stars. Does this deprive such students of the chance to rise up high up the social ladder? Debatably. Yet it slashes their risk of starting adulthood bereft of marketable skills. [CH 8 Note 38]

High School dropouts aren't the only kids who learn how to do zero jobs. After graduation, plenty of high school and even college students taste how unqualified they are. Think of the timeless question, "What can you do with an English degree?" For many, we've seen the answer is : be a bartender, cashier, cook, janitor, security guard, or waiter. Literally speaking, of course, no one uses their English

degree to guard a warehouse. The real story is their education prepared them for no realistic occupation, so they learned how to guard a warehouse on the job.

Historically, teachers trained students for 3 specific professions: the clergy, law, and medicine. The modern curriculum is more versatile but has changed far less than educators like to think. Today's schools prepare students for careers as authors, poets, mathematicians, scientists, artists, historians, translators, and professional athletes. (NEB: And poorly at that.) Yet the fraction of students who enter these occupations is trivial. Contrary to popular pro-education rhetoric, schools devote little time to "general skills." Instead, students spend their days training for jobs few want and even fewer get. As a result, many leave high school, college, and even grad school with zero realistic career options. Thankfully, most recover by absorbing a few useful skills on the job. Inexcusably, a sizable minority do not. All the years kids sit in school are more than enough to teach everyone how to do at least on job - and knowing one job is vastly better for the individual and mankind than knowing none.

Youth Reimagined

"Pig farmers, electricians, plumbers, bridge painters, jam makers, blacksmiths, brewers, coal miners, carpenters, crab fisherman, oil drillers...they all tell me the same thing over and over, again and againour country has become emotionally disconnected from an essential part of our workforce... Even as unemployment remains sky high, a whole category of vital occupations has fallen out of favor, and companies still struggle to find workers with necessary skills. The cause seems clear. We have embraced a ridiculously narrow view of education. Any kind of training or study that does not come with a four-year degree is now deemed as "alternative." Many viable careers once aspired to are now seen as "vocational consolation prizes," and many of the jobs this current administration has tried to "create" over the last four years are the same jobs that parents and teachers actively discourage kids from pursuing. (I always thought there was something ill-fated about the promise for three million "shovel ready jobs" made to a society that no longer encourages people to pick up a shovel." -Mike Rowe, "The First Four Years are the Hardest"

IN backwards nations, youths work, In advanced nations, youths study. As civilization advances, the young spend ever more years sequestered from paid employment. The modern fear is that wok might interferes with school, never that school might interfere with work. These rules are so ingrained they seem like laws of nature.

The logic is elusive. As society evolves, teaching the young different occupations is common sense. Teaching them no occupations and hoping they adapt to the job market after graduation is not. It doesn't matter how futuristic our society becomes. Making kids study irrelevant material for a decade plus is timelessly dysfunctional.

What's the alternative? Reboot vocational education. Sticking with the classic curriculum instead of trying to forecast the job market is looking for your keys under the streetlight because its brighter there. Sure, teach the genuinely general skills: reading, writing, math. But otherwise, schools should make educated guesses about future career opportunities, measure students' aptitudes, then expose them to plausible occupations. Instead of viewing youth employment as "exploitation" or a risky distraction from school, we should celebrate work as vocational education in its purest form. When the young quit

school to work full time, we should not mourn. Such kids will never cure cancer, but at least they'll be self-supporting members of society.

Isn't this a grim dystopia vision? Not at all. Visualize a world where 16-year-olds have real job skills and earn enough to provide for themselves. Visualize a world a world where academically uninclined preteens look up to apprentices instead of delinquents. Visualize a world where students find their lessons either practical or interesting. If we could raise a new productive, independent, engaged generation, wouldn't that be a great improvement over the bored, infantilized youth of today?

Instead of fearing a dystopian future, we should gawk at our dystopian present. In modern societies, achievement-oriented kids spend almost two decades in school. Most find the curriculum dreadfully dull. During this drawn out ordeal, students are wither poor or financially dependent on their parents. When they finally join the "real world" graduates apply only a sliver of what they studied. Once they have kids of their own, they reexperience extended immaturity from the parent's side. Our status quo isn't 1984. But what if we weren't used to our education system, who would wish for it?

Nourishing Mother

Is Education Good for the Soul?

In Latin, Alma Mater means "nourishing mother."

"Ideas and Culture matter more than dollars and cents!"

I love ideas and culture. "Impractical ideas and "uncommercial" culture are my life. The journey from ignorance to enlightenment moves me. Consider Malcom X's spellbinding story about teaching himself to read in prison:

"I saw that the best thing I could do was get hold of a dictionary — to study, to learn some words. I was lucky enough to reason also that I should try to improve my penmanship. It was sad. I couldn't even write in a straight line. It was both ideas together that moved me to request a dictionary along with some tablets and pencils from the Norfolk Prison Colony school.

I spent two days just riffling uncertainly through the dictionary's pages. I'd never realized so many words existed! I didn't know which words I needed to learn. Finally, just to start some kind of action, I began copying.

In my slow, painstaking, ragged handwriting, I copied into my tablet everything printed on that first page, down to the punctuation marks.

I believe it took me a day. Then, aloud, I read back, to myself, everything I'd written on the tablet. Over and over aloud, to myself, I read my own handwriting.

I woke up the next morning, thinking about those words immensely proud to realize that not only had I written so much at one time, but I'd written words that I never knew were in the world. Moreover, with a little effort, I also could remember what many of these words meant. I reviewed the words whose meanings I didn't remember. Funny thing, from the dictionary first page right now, that "aardvark" springs to my mind. The dictionary had a picture of it, a long-tailed, long-eared, burrowing African mammal, which lives off termites caught by sticking out its tongue as an anteater does for ants. I was so fascinated that I went on—I copied the dictionary's next page. And the same experience came when I studied that. With every succeeding page, I also learned of people and places and events from history. Actually, the dictionary is like a miniature encyclopedia. Finally, the dictionary's A section had filled a whole tablet — and I went on into the B's. That was the way I started copying what eventually became the entire dictionary. It went a lot faster after so much practice helped me to pick up handwriting speed. Between what I wrote in my tablet, and writing letters, during the rest of my time in prison I would guess I wrote a million words.

I suppose it was inevitable that as my word-base broadened, I could for the first time pick up a book and read and now begin to understand what the book was saying. Anyone who has read a great deal can imagine the new world that opened."

<u>Education can definitely be good for the soul.</u> **But** that hardly shows actually existing education achieves this noble end. In practice, education often turns out to be a neglectful or abusive mother rather than a nourishing one.

Meritorious Education

Merit Good -a product with value above and beyond customers' willingness to pay For education to plausibly qualify as merit good, it needs 3 ingredients.

1. Worthy Content

Learning about great ideas and glorious culture uplifts the soul. Learning about half-baked ideas and so-so culture, not so much. While the liberal arts tradition wisely prizes the value of grappling with error, this holds only for WELL-ARGUED, THOUGHTFUL errors

2. Skillful Pedagogy

Learning from enthusiastic teachers who have mastered their subject uplifts the soul. Learning from uninspired teachers who parrot the textbook, not so much. Mediocre instruction is tolerable for practical training, but worthless for intellectual or artistic inspiration.

3. Eager Students

Sharing great ideas with students who find them fascinating uplifts their souls. Force feeding great ideas and glorious culture is not only futile, but cruel. Many educators assuage their consciences by insisting youthful force feeding will in time blossom into mature fascination Even if they're right, the force feeding is a regrettable pathway to the merit good of mature fascination, not a merit good in itself.

How does actually existing education measure up against these standards of merit? As long as you've had a vaguely typical education, you already know the answer.

- 1. The content of education is mixed up at best: pockets of greatness, surrounded by insipid busywork.
- 2. The pedagogy is poor: frankly, most teachers are boring.
- 3. The students are worse: no matter how great the teachers, few yearn for the life of the mind. Private education is arguably SLIGHTLY better, nut it's cut from the same cloth as public education.

Harvard University's Steven Pinker sadly reports that the BEST STUDENTS in the world yawn at the BEST TEACHERS in the world:

"A few weeks into every semester, I face a lecture hall that is half-empty despite the fact that I am repeatedly voted a Harvard Yearbook Favorite Professor, that the lectures are not video-recorded, and that they are the only source of certain material that will be on the exam. I don't take it personally; it's common knowledge that Harvard Students stay away from lectures in droves, burning a fifty-dollar bill from their parents' wallets every time they do."

- When I judge education hollow, it's not just my opinion, it's likely your opinion too. Honestly how
 many educators do you find interesting? Do you really think kids finds them any more interesting
 than you do? Even those who refuse to voice the unseemly answers speak the unvarnished truth
 with their behavior. Modern education's staunchest fans don't nourish their souls by watching
 YouTube videos of average teachers. No one does. The empirics on student boredom we've
 covered underscores the obvious: stimulating education is the exception that proves the rule.
- While the humanist critique of philistine economists rings true, economists have a punchy comeback: cost matters. Suppose opera really is good for the sol, and education genuinely

promotes love of opera. These facts mean little until we know the per capita cost of conversion. "Exposing a single person to opera is worth the expense" is bravado. Costs matter when you spend your own money. How could cost cease to matter when you spend taxpayer money? Every dollar spent is a dollar that could have been repurposed.

The rise of the internet has 2 unsettling lessons for them.

- 1. The humanist case for education subsidies is flimsy today because the internet makes enlightenment practically free.
- 2. The humanist case for education subsidies was flimsy all along because the internet proves low consumption of ideas and culture stems from apathy, not poverty or inconvenience.

BEHOLD: when the price of enlightenment drops to zero, enlightenment remains embarrassingly scarce.

<u>1. The humanist case for education subsidies is flimsy today because the internet makes</u> <u>enlightenment practically free.</u>

This economist comeback is now more than compelling than ever. Ours is an age of science fiction. Almost everyone in rich countries - and about half the Earth's population - can access machines that answer virtually <u>any</u> question and teach virtually <u>every</u> subject. [CH 9 Note 7] The internet doesn't merely satisfy our curiosities; it connects us to global communities that share our curiosities. These global communities are more than clubs of novices; they include many of the greatest teachers on the planet. The internet provides not just stream-of-consciousness enlightenment, but outstanding formal coursework.

This ceaseless intellectual feast is, with rare exception, free of charge. If education is a merit good, the internet is the Merit Machine.

On reflection, this merit machine is swiftly making traditional humanists education policy obsolete. Once everyone can enrich their souls for free, government subsidies for enrichment forfeit their rationale. To object, "But most people don't use the internet for spiritual enrichment" is actually damaging admission that eager students are few and far between. Subsidized education's real aim isn't to make ideas and culture accessible to anyone who's interested, but to make them mandatory for everyone who isn't interested.

2. The humanist case for education subsidies was flimsy all along because the internet proves low consumption of ideas and culture stems from apathy, not poverty or inconvenience.

The internet also undercuts the Machiavellian line that intellectual force feeding ultimately blossoms into sincere appreciation. Today's adults are the product of over a decade of mandatory exposure to abstract ideas and high culture. If educational force feeding worked well, most educated adults would adore these nerdy realms - and eagerly tap the internet to revisit them.

To understate, they rarely do.

"Kim Kardashian" gets about 20x as many Google hits as "David Hume"

Insisting the ends justify the means is comical when progress toward the end is barely visible. A philistine could reply: "of course adults rarely bother studying ideas and culture online. There's no money in it." But this chapter is not aimed at philistines, but at anyone who defends actually existing education as good for the soul.

BEHOLD: when the price of enlightenment drops to zero, enlightenment remains embarrassingly scarce.

The Soulful Fallback

Sure, students rarely feel their souls being enriched. But why not pragmatically equate "enriching the soul" with fostering desirable adult attitudes. and behavior? From this perspective, "education is good for the soul" counts as true as long as education appreciably shifts society in the right direction.

To preview: education does seem to shift student's values, though less than teachers and parents advertise. To isolate education's influence on society, you must unpack how education sways students. Is the mechanism "leadership" - planting teachers' ideas inside students' heads? Then education REMOLDS society.

Is the mechanism "peer effects" - sorting kids into distinct groups? Then education mainly RESHUFFLES society without remolding it. [CH 9 Note 11]

• If you put an extra kid to college, expect him to try and fit into the culture, including secularism. This does not imply that college makes SOCIETY less religious. The existence of college splits kids into 2 subcultures with opposing peer effects. If college kids are less religious than average kids, then non-college kids must be more religious than average kids. Members of each subculture adjust their behavior to locally fit in. Religious conformity pressure in the noncollege pool offsets the pressure in the college pool.

Net effect on society's religiosity: Unclear, even if college demonstrably makes students less religious.

- Leadership and peer effects both exist, but there are 3 hefty reasons to think peer effects outweigh leadership.
 - 1. On dimensions where academic leadership seems most intense, education's effect on attitudes and behavior is mild.
 - 2. Although schools focus their preaching on a handful of issues, educated opinion occasionally spurns the pedagogical consensus.
 - 3. Individual and social effects rarely "add up." Boosting an individual far more than boosting a society's education changes that society.

High Culture Falls on Deaf Ears

Educators try to enrich the soul by, above all else, instilling appreciation of high culture.

- English classes push classic novels, plays, and poetry: William Shakespeare, Washington Irving, Edgar Allan Poe, Mark Twain, Edith Wharton, Sinclair Lewis, Robert Frost.
- Music classes push traditional music: Antonio Vivaldi, Ludwig Van Beethoven, Wolfgang Mozart, and above all John Phillip Sousa.
- Art classes are more hands on but still try to raise the status of visual works in top museums.
- Even schools' iconoclasm is conservative: academic curricula often cover Kurt Vonnegut, Arnold Schoenberg, or Jackson Pollock, but rarely cover George R.R. Martin, Lady Gaga, or Frank Miller.

Though some schools promote high culture more energetically than others, curricula are plainly tilted against pop culture.

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How effectively has this tilt fostered high culture?

As an upper bound, education can't be responsible for more than 100% of the high culture our society consumes.

<u>Books</u>
Consumer demand is shockingly low overall: Americans spend .2% of their income on all reading materials, barely more than \$100/family/year. [CH 9 Note 12]
Americans used to spend more on reading but never spent much: in 1990, well before the rise of the web, reading absorbed .5% of the family budget. [CH 9 Note 13]
Today, Americans spend about 4x as much on tobacco and 5x as much on alcohol as they do reading. [CH 9 Note 14]
Within this small pond, high culture is no big fish. Table 9.1 shows 3 rankings of the best-selling English language fiction of all time. Sales figures include school purchases and assigned texts, so they OVERSTATE sincere affection for the canon.

While sales figures are plainly flawed, all three lists pain similar pictures of the public's long-run literary tastes. High culture is but a niche market. Dickens's *A Tale of Two Cities* tops 2 of the 3 lists. The *Catcher in the Rye, Ben Hur, To Kill a Mockingbird, Gone with the Wind,* and *Lolita* all appear on at least 1 list. But fantasy - Tolkien, Rowling, Lewis - dominates. The point is not that fantasy lacks literary merit; by my lights, *Lord of the Rings* towers over *Catcher in the Rye.* The point is that the books in high school and college hail for their supreme literary merit lose out to much less prestigious genres. By and large, literature teachers fail to "get through" to their captive audiences: they rarely spark love of reading, much less love of their genres they urge their students to admire.

Rank	Wikipedia	Ranker	How Stuff Works
1	The Lord of the Rings (Tolkien)	A Tale of Two Cities (Dickens)	A Tale of Two Cities (Dickens)
2	Harry Potter and the Philosopher's Stone (Rowling)	The Lord of the Rings (Tolkien)	The Lord of the Rings (Tolkien)
3	And Then There Were None (Christie)	The Hobbit (Tolkien)	Harry Potter and the Sor cerer's Stone (Rowling)
4	The Hobbit (Tolkien)	And Then There Were None (Christie)	And Then There Were None (Christie)
5	She: A History of Ad- venture (Haggard)	The Lion, the Witch, and the Wardrobe (Lewis)	The Lion, the Witch, and the Wardrobe (Lewis)
6	The Lion, the Witch, and the Wardrobe (Lewis)	She: A History of Ad- venture (Haggard)	The Da Vinci Code (Brown)
7	The Da Vinci Code (Brown)	The Da Vinci Code (Brown)	Harry Potter and the Half-Blood Prince (Rowling)
8	Harry Potter and the Half-Blood Prince (Rowling)	The Catcher in the Rye (Salinger)	Harry Potter and the Chamber of Secrets (Rowling)
9	The Catcher in the Rye (Salinger)	Anne of Green Gables (Montgomery)	The Catcher in the Rye (Salinger)
10	Harry Potter and the Chamber of Secrets (Rowling)	Black Beauty (Sewell)	Harry Potter and the Goblet of Fire (Rowling)

11	Harry Potter and the Prisoner of Azkaban (Rowling)	Charlotte's Web (White)	Harry Potter and the Order of the Phoenix (Rowling)
12	Harry Potter and the Goblet of Fire (Rowl- ing)	The Tale of Peter Rabbit (Potter)	Harry Potter and the Prisoner of Azkaban (Rowling)
13	Harry Potter and the Order of the Phoenix (Rowling)	Harry Potter and the Deathly Hallows (Rowling)	Ben Hur (Wallace)
14	Harry Potter and the Deathly Hallows (Rowling)	Jonathan Livingston Seagull (Bach)	Lolita (Nabokov)
15	Lolita (Nabokov)	Angels and Demons (Brown)	Harry Potter and the Deathly Hallows (Rowling)
16	Anne of Green Gables (Montgomery)	<i>Kane and Abel</i> (Ar-cher)	and the second second
17	Black Beauty (Sewell)	To Kill a Mockingbird (Lee)	Income in the
18	The Eagle Has Landed (Higgins)	Valley of the Dolls (Susann)	Candonalas Candonalas
19	Watership Down (Adams)	Gone with the Wind (Mitchell)	and a sure of the
20	Charlotte's Web (White)	The Thorn Birds (Mc- Cullough)	Contraction of the

• <u>Music</u>

In music, pop culture's victory over high culture is even more decisive The Three Tenors in Concert is the best-selling classical album ever. [CH 9 Note 16]

With 12 million copies sold, it does not even break into the top 50 albums of all time. Looking at overall sales, classical music is only 1.4% of the US music market. Country is 8x as popular, and rock/pop over 30x as popular. Classical does better globally but still only commands a 5% share of the world's music marketplace. Well, at least it beats jazz. The point is not that classical music alone is aesthetically worthwhile. Bad Religion isn't Bach, but it's good.

The point is that schools' aesthetic priorities have negligible cultural impact. Even if American schools cause ALL U.S. consumption of classical music, their combined efforts boost its market share only from 0% to 1.4%.

Why is high culture so marginalized? Humanists may be tempted to blame poor salesmanship: students would love Shakespeare and Brahms had they only the right teachers.

The straightforward story is that high culture requires extra mental effort to appreciate it p and most humans resent mental effort. Students are overwhelmingly bored by Shakespeare, and the rare fans of high culture would probably have come to love the Bard on their own. Students sample a little high culture when their grades depend on it. Once they submit their final exams, however, the vast majority of students rush back to their low-brow comfort zone.

Getting Out the Vote

Despite some thoughtful naysayers, limited experimental data also show extra education boosts turnout. [CH 9 Note 41]

The catch: education has sharply risen over the last century, but turnout has generally fallen. This could mean offsetting factors masked education's pro-voting effect. [CH 9 Note 42]

But several prominent researchers instead conclude that turnout depends on relative education. [CH 9 Note 43] People vote not because they're educated, but because they're more educated than others. This once again suggests peer effects: the longer you stay in school, the more politically active you become to fit in.

Suppose you're convinced that voting enriches the soul. As long as relative education is what counts, education redistributes the enrichment rather than creating it. Schooling one more person makes them more likely to experience the wonder of democratic participation but also makes the rest of the citizenry less likely to partake in the wonder.

Broadening Horizons

Rhetoric aside, Teachers are just as narrow minded as kids. Most items on the academic tasting menu have the same stale flavor - unsurprising since teachers typically teach whatever they were taught. When schools decry "narrow-mindedness," their real goal is to replace students' narrowness with their own.

Think about what passes for "broadening students' horizons." Teachers expose kids to ossified list of subjects:

- Music
- Art
- Poetry
- Drama
- Foreign Language
- History
- Government
- Dance
- Sport

Yet the greater their excitement, the greater their ultimate disappointment: almost no one grows up to be a violinist, painter, poet, historian, politician, ballet dancer, or professional athlete. Most importantly, all the kids who respond eagerly to none of the above must wait until college for mandatory "broadening" to relent.

The alternative? For starters, give students numerous and diverse options. Instead of making
students study yet another American poem, expose them to Japanese graphic novels. Rather than
forcing kids to perform one more play, show them a few films from the 1980s. When you run out
of ideas, assign a random Wikipedia article. If you want to help kids discover what emotionally
"clicks" for them, trial and error beats academic tradition cold. Anyone who calls Japanese comic
books and old movies "useless" should check their double standard. How are comic books and
movies any more useless than poems and plays?

All else equal, exposing kids to plausible careers is better than exposing them to mere hobbies. To live the adage "Do what you love, and you'll never work a day in your life," students must learn what lovable jobs are available.
 Give students numerous, yet realistic options. Start with the Bureau of Labor Statistics' figures on "employment by major occupational group" and "occupations with the most job growth." [CH 9 Note 67] Expose boys to nursing. Introduce strong math students to insurance. Tell upper-middle-class kids what plumbers and electricians do and earn. See how many students try Python programming if it fulfills their foreign language requirement. When you run out of ideas, have students check out an unfamiliar job from the Bureau of Labor Statistics *Occupational Outlook Handbook*.

The fact that schools probably won't try any of these reforms teaches us a sad truth about actually existing education: "broadening horizons" is a slogan educators us to squelch students' sensible doubts. If educators really wanted to broaden students' horizon, curricula would give students a tour of what the world has to offer - not a tour of what educators were forced to learn when they were students.

The Merit of Play

Education can be glorious. At its best, to quote Roman philosopher Lucretius, it is a "voyage of the mind into infinity." But education is not the SOLE glorious experience.

What could possibly outshine the wonders of education?

It is possible to focus on prestigious experiences like writing a killer app or training for the Olympics. Students' most relevant competing experience, though, is play - savoring the joys of youth. The more time students devote to their studies, the less remains for carefree exploration of their world. There is:

- family bonding with immediate family, grandparents, cousins, aunts, and uncles.
- collecting seashells
- playing Dungeons and Dragons with friends
- traveling the country

If kids spent more time in school, some of this enrichment would be lost. If kids spent less time in school, can there be any doubt that more of this enrichment would be gained?

Psychologist Peter Gray could well be the world's greatest spokesman for the merit of free play. Kids have more fun and learn vital lessons when adults give them space.

""Playing well and having fun are more important than winning" is a line often used by Little League coaches after a loss, rarely after a win. But with spectators watching, with a trophy on the line, and with so much attention paid to the score, on has to wonder how many of the players believe that line, and how many secretly think that Vince Lombardi had it right. The view that "winning is the only thing" becomes even more prominent as one moves up to high school and then to college sports...

In informal sports, playing well and having fun really are more important than winning. Everyone knows that; you don't have to try to convince anyone with a lecture. And you can play regardless of your level of skill. The whole point of an informal game is to have fun and stretch your own skills, sometimes in new and creative ways that would be disallowed or jeered at in a formal game...If you are a better player than others, these are ways to self-handicap, which make the game more interesting for everyone. In a formal game, where winning matters, you could never do such things; you would be accused of betraying your team."

The lesson isn't that all play and no school are best for kids. The lesson is that champions of academic soulcraft shouldn't FIXATE on education. Instead, they should seek out what mix of school and play is best for the soul.

Unfortunately, thanks to the high status of education and the low status of play, we tend to compare school at its best to play at its worst: another hour of angry birds can't compete with a Shakespeare lecture from the teacher Robin Williams played in *The Dead Poet's Society*. The smart way to discover the best mix of school and play is to compare school and play as they really are. Both fall short of their promise, but it's clear which one falls shorter.

In our society, education dominates children's days.

School and study time has been high and growing for decades.

According to leading tabulations of 6 -12-year-olds schedules

- Weekly school and study time rose from 31 hours in 1981 to 37 hours in 1997and 2003
- Playtime is small by comparison, about 10 hours/week

"Play counts computer games, but excludes TV times"

• Play time fell from over 18 hours in 198, to 14 hours in 2003. [CH 9 Note 72]

Outdoor play has atrophied over the last generation:

- over 70% of mothers say they played outside every day when they were kids
- Only 31% of children do the same [CH 9 Note 73]

Only a small minority of elementary schools have abolished recess, but one major study found 20% of school districts trimmed it during the first five years of the No Child Left Behind. Virtually no district made recess longer. [CH 9 Note 74]

<u>College</u>

For college kids, you may recall playtime is now longer than ever. [CH 9 Note 75] The college workload slimmed down as K-12's bulked up. But once you accept the merit of play, the rise of Leisure College, USA, is a blessing in disguise. College gives students ample time for carefree exploration - time they rarely had in childhood. Plenty of undergrads fritter away their opportunity in a drunken stupor. Yet others sample a medley of fascinating options, acquiring passions that last a lifetime.

My undergraduate years were my favorite precisely because classes were so undemanding. Every day was packed with hours for play, and play I did. I read philosophy, listened to opera, wargamed with my friends, and argued with strangers past midnight. I owe my soul to lax academic standards.

The Cynical Idealist

I'm an economist and I am a cynic, but I'm not a typical cynical economist. I'm a cynical idealist. I embrace the ideal of transformative education. I believe wholeheartedly in the life of the mind. What I'm cynical about is PEOPLE.

- I'm cynical about students The vast majority are philistines. The best teachers in the world couldn't inspire them with sincere and lasting love of ideas and culture.
- I'm cynical about teachers The cast majority are uninspiring; they can't convince even themselves to love ideas and culture, much less their students.

• I'm cynical about "deciders"

The school officials who control what students study. The vast majority think they've done their job as long as students obey.

Time has shown that eager students, passionate educators, and wise deciders are hopelessly outnumbered. Meritorious education survives, but does not thrive.

I don't hate education. Rather, I love education too much to accept our Orwellian substitute. What's Orwellian about the status quo? Most fundamentally, the idea of compulsory enlightenment.

Even if you bite the end-justifies-the-end bullet, compulsory enlightenment yields little enlightenment. For all their Orwellian self-congratulation, schools are unconvincing. Despite auspicious conditions, they fail to make wither high culture more popular. Regimentation may be a good way to mold external behavior, but it's a bad way to win hearts and minds - and a terrible way to foster thoughtful commitment. As Stanford education professor David Labaree remarks,

"Motivating volunteers to engage in human improvement is very difficult, as any psychotherapist can confirm, but motivating conscripts is quite another thing altogether. And it conscripts that teachers face every day in the classroom."

Even top students respond to incentivized soulcraft by gaming the system, not reforming their priorities. Unlike those in the United States, British Universities essentially base admissions on academic performance. When British professor Greg Clark began teaching at Stanford University, his elite American students looked like better human beings than their British counterparts. He soon learned Americans' superiority is a ruse:

"In my second year as an assistant professor at Stanford University, I was assigned the task of mentoring six freshman. Each appeared to have an incredible range of interests for an eighteen-year-old: chess club, debate club, history club, running team, volunteering with the homeless shelters. I soon discovered that these supposed interests were just an artifact of the U.S. college admissions process, adopted to flesh out the application forms and discarded as soon as they have worked their magic."

Many idealist object that the internet provides enlightenment only for those who seek it. They're right, but petulant to ask for more. Enlightenment is a state of mind, not a skill - and a state of mind, unlike a skill, is easily faked. When schools require enlightenment, students predictably respond by feigning interest in ideas and culture, giving educators a false sense of accomplishment. When enlightenment is optional, in contrast, educators failure to transform their students is undeniable