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Econ 309

Week 1: Cost-Benefit Analysis, Risk, and the Value of Life

I. What's the Point of Cost-Benefit Analysis?
   A. Every government policy has a long list of effects.
      1. Intended outcomes
      2. Unintended outcomes
      3. Direct costs
      4. Indirect costs
   B. Question: Is government policy X worth doing?
   C. Cop-out answer: It's all a matter of opinion/depends on your values/there's no right or wrong answer here.
   D. Cost-Benefit Analysis, abbreviated as "CBA", and sometimes known as "efficiency analysis" or "Kaldor-Hicks efficiency analysis," is social scientists' main attempt to avoid this cop-out answer.
   E. Basic idea: Put a dollar value on (or "monetize") all costs and all benefits. Then sum up.
   F. How can you put a dollar value on something that no one buys or sells? By asking, "How much *would* people pay for this?" or "How much *would* people pay to avoid this?"
   G. How can you find out what people *would* pay if they don't actually pay?
      1. Ideally: telepathy.
      2. Or: asking them.
      3. Better: inferring from their behavior. E.g., how much extra do people pay to live in a neighborhood with 10% less crime?
   H. CBA is not the only alternative to the cop-out answer. See any class in political philosophy.
      1. Utilitarianism
      2. Egalitarianism
      3. Libertarianism
      4. Other
   I. Actual governments very rarely use CBA. For fiscal years 2003-2013, the U.S. government passed 37,671 rules – and monetized costs *and* benefits for only 115 of these rules.
   J. Still, since CBA is the main approach in policy analysis, and a useful input from almost any other non-cop-out viewpoint, our class focuses on CBA.

II. Cost-Benefit Analysis of Competitive Markets
   A. Recall a standard competitive market. What happens?
   B. In equilibrium, supply equals demand, and society realizes all surplus.

C. According to CBA, this is the best possible result!
D. At any lower quantity, social benefits exceed social costs, so you're missing out on opportunities.
E. At any higher quantity, social costs exceed social benefits, so you're wasting resources on fake "opportunities."
F. If this model fits everything on Earth, free markets automatically follow the logic of CBA!

III. Adding Externalities
A. By definition, a "standard competitive market" has no externalities. Private and social effects are exactly the same.
B. For practical purposes, CBA begins with the realization that private and social effects can differ.
C. Ex: A thief clearly enjoys private benefits of stealing. But looking only at the thief's benefits misses the big picture: The thief makes himself better off by making others worse off.
D. Ex: A person driving a polluting car is better off from driving, but that person isn't the only one who consumes the exhaust.
1. Contrast with: Worker safety trade-offs.
E. How to measure "social benefits"? The same way we always do: willingness to pay.
F. Externalities can be positive or negative.
G. If some people benefit and some people suffer from a policy, the net social benefits are the SUM of the private benefits (positive and negative).

IV. The Tragedy of the Commons
A. Economists usually focus on how ownership gives people incentives to use resources in a sensible way.
B. But it is *possible* for something to be unowned. This has frequently happened. For example, a pasture may be "common property." Oceans are normally unowned, accessible to all.
C. Common ownership often gives rise to what economists call the "tragedy of the commons." Since no one owns it, people use it without regard to the effect on others.
D. And, once you realize that people think this way, you also have an incentive to take as much as possible NOW, because the resource won't be useful very long. This can "snowball" into an awful outcome.
E. Key idea: If one person owned the fisheries, or a forest, or a pasture, they would have the incentive to maintain it, improve it, and take a long-term perspective.
F. That is the benefit of property rights that is absent in the commons - a benefit not just for owners, but for users as well.

V. Cost-Benefit Analysis of Negative Externalities
A. In sum, the basic idea of the tragedy of the commons is that when no one owns a resource, it gets over-used.
B. Question: What exactly does "over-use" mean in economic terms?

C. Answer: It means that there are costly side effects that selfish agents don't factor into their decisions. Economists call these costly side effects "negative externalities."
D. How do you diagram negative externalities? In addition to the demand curve, draw a "social benefits curve." With negative externalities, the social benefits curve will lie <u>below</u> the demand curve.
E. CBA: Social optimum is at the intersection of the social benefits curve and the supply curve, but market equilibrium is at the intersection of the demand curve and the supply curve.
F. Ex: Pollution. People value better air, but polluters normally have no incentive to care.
G. The key: non-excludability.
    1. There is no feasible way to exclude non-payers from the cleaner air.
    2. Since you do not *have to* pay to use it, selfish people *will not* pay to use it.
    3. And if no one will pay for it, why would selfish producers provide it?
H. CBA: With negative externalities, markets produce some products where market value minus the value of side effects is less than their cost.

VI. Cost Benefit Analysis of Positive Externalities
A. Positive externalities are the other side of the coin. Positive externalities are **beneficial** side effects that selfish agents don't factor into their decisions.
B. How to diagram? Draw a social benefits curve *above* the demand curve.
C. CBA: Social optimum is at the intersection of the social benefits curve and the supply curve, but market equilibrium is at the intersection of the demand curve and the supply curve.
D. Non-excludability is once again the key attribute. If you can't exclude, there is no incentive to pay; if there is no incentive to pay, there is no incentive to produce.
E. Ex: Defense. People value defense, but how can suppliers be paid to provide it?
F. CBA: With positive externalities, markets fail to produce some products where market value plus the value of side effects is greater than their cost.

VII. Cost-Benefit Analysis of Gratis Goods
A. Governments often give costly products away for free (“gratis”). Almost everyone likes this.
B. Question: What does CBA say about such giveaways?
C. Answer: All goods consumed *because* they’re sold below cost lead to waste!

1. Why? Because people value them less than their cost. Like an expensive but unappreciated Christmas present.

D. How to diagram this. Notice the difference between giving unlimited amounts of a good away versus imposing a price control of zero.

E. Positive externalities reduce the problem; negative externalities increase the problem. Real-world governments give away goods with both!

VIII. Why Actions Speak Louder Than Words

A. In practice, some CBAs just ask people for their valuations. This has obvious problems.
   1. Simple innumeracy: "What's 100 cubed?"
   2. Hyperbole: "No matter the cost!"
   3. Embarrassment: "Which do you value more: children's toys or alcohol?"

B. CBA is supposed to use *true* values, not stated values.

C. Ideally, this requires telepathy, which no one has. Right?

D. Alternative: Look at actions! If someone says, "No matter the cost!," but then changes their behavior when the cost goes up, their actions show they actually care about cost after all.

E. This is a very general principle. Examples:
   1. "My religion is the most important thing in my life."
   2. "If it saves one life."
   3. "We refuse to compromise a single inch."
   4. "Never settle."
   5. "Do what you love, and the money will follow."
   6. "X is infinitely better than Y."

F. A classic of "Actions speak louder than words": "If you really hate X so much, why don't you leave?"
   1. LA's Million Dollar Babies

G. "Actions speak louder than words" isn't just great for avoiding absurd conclusions; it also helps CBA reach more specific answers.

H. Ex: Using rents or property values to measure the disvalue of crime.

IX. Risk, Discount Rates, and Cost-Benefit Analysis

A. Question: Suppose a policy has a 10% chance of causing $1,000,000 of damage. How do we count it?

B. Answer: Multiply the loss by the risk. A 10% chance of -$1,000,000 = -$100,000.

C. Moral: Since the real world is uncertain, CBA depends heavily on probability estimates!

D. Question: Suppose a policy causes $1,000,000 of damage 10 years from now. How do we count it?

E. Answer: We discount using the interest rate and temporal distance. If the interest rate is 10% per year, a $1,000,000 loss ten years from now only costs $1,000,000/(1.1^10), the amount of money

we'd need to put in the bank today in order to have $1,000,000 ten years from now.

F. Moral: The higher the discount rate, the less good *and* bad things in the future count.

G. Time discounting bothers many people. Why should a remote loss count less than an immediate loss?
   1. Cop-out answer: Future is less certain. True, but we should handle that with a risk adjustment, not a time discount adjustment.
   2. Better answer: Positive interest rates are a sign that we expect to be richer in the future than today. So it makes sense to borrow against our future wealth.
   3. Best answer: Actions speak louder than words. If you just wanted to maximize your wealth, you'd save every penny above subsistence!
   4. The Benjamin Franklin bequest.

X. Application: The Value of a Life

A. "You can't put a value on human life." This sounds good, but it's absurd.
   1. Whenever you do anything other than the safest possible action, you are putting a value on your life.
   2. Whenever you do anything that other than the safest possible action for others, you are putting a value on *their* lives.
   3. Example: Driving to a restaurant.

B. Moral: There's a trade-off between safety and other goods.

C. Still not convinced? OK, can you put a value on human *time*? Everyone does this routinely.

D. This suggests a simple way to monetize life: Just count the value of the lost time.

E. Does this mean that the value of a life equals a person's salary? No! People clearly value their leisure time, too.
   1. At minimum, you should assign the salary that you *could* have earned if you were a total workaholic. Say 2-3x your potential salary.

F. Added complication: You should adjust for *quality* of life too. How many years of high-pain life would you give up for a year of pain-free life?

G. Does this mean that younger lives are worth more? Of course!
   1. Young people lose more years of life when they die.
   2. Young people have better health.

H. What about externalities? If you die, people will miss you. But who do we miss more: the young or the old?
   1. Obviously the young, as Darwin predicts. Consider the death of a child versus the death of a grandparent.

2. If you're brutally honest, consider how many old people's deaths actually come as a relief to their loved ones.

I. Why bring this up? Lots of government policies are matters of life and death, so you have to assign a value of life to do CBA on them.

XI. Social Returns and CBA

A. Business people care about private returns: If you invest $1M of *your* money, what percent "returns" to *you* every year?

B. "10% return" means "You get back 10% of your money every year."

C. If your return exceeds the market interest rate, you've made an economic profit; otherwise, you've endured an economic loss.

D. Policy analysts who do CBA care about *social* returns. If *humans* invest $1M of human money, what percent "returns" to *humanity* every year?

E. Why is there a difference between private and social returns? Externalities!

F. Semantic equivalence: "Passes a CB test" = "Has a social return > market interest rate." "Fails a CB test" = "Has a social return < market interest rate."

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Week 2: Covid Policy Versus Cost-Benefit Analysis

I. Contagious Disease and Health Externalities
   A. Contagious disease has obvious negative externalities: Taking actions that make you sick risk making strangers sick.
   B. Fighting contagious disease has obvious positive externalities: Taking actions that make you less likely to be sick also make strangers less likely to be sick.
   C. Until 2020, contagious disease received only a small share of government health funding. During Covid, however, things dramatically changed.
   D. The US government spending trillions of dollars "fighting Covid" – almost all of it for Covid relief rather than disease control, vaccines, etc.
      1. About $5T on relief.
      2. About $30B on vaccines total.
      3. Operation Warp Speed cost: $12B.

II. Covid and the Value of Life
   A. Key fact about Covid: the steep age pattern of death (and severe symptoms generally).
   B. Relative Infection Fatality Rates (IFR) by age, via the CDC:

Age group rate ratios compared to ages 18 to 29 years[1]

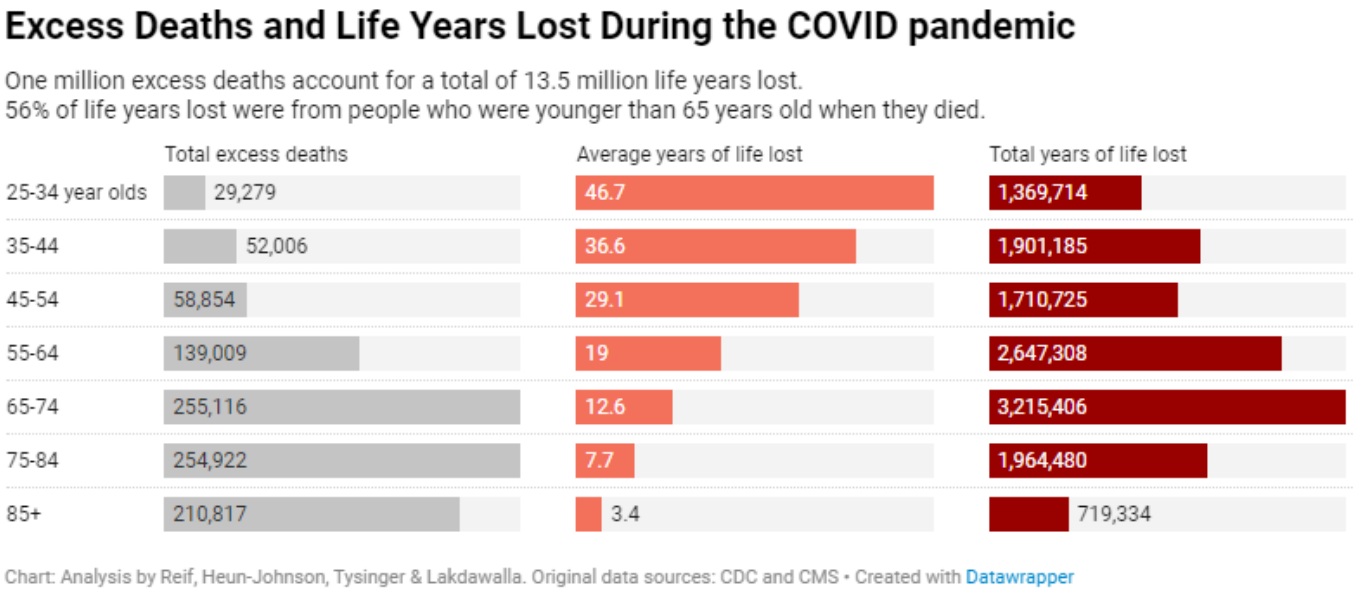
Rate compared to 18-29 years old[1]	0-4 years old	5-17 years old	18-29 years old	30-39 years old	40-49 years old	50-64 years old	65-74 years old	75-84 years old	85+ years old
Cases[2]	0.5x	0.7x	Reference group	1x	0.9x	0.8x	0.6x	0.6x	0.7x
Hospitalization[3]	0.6x	0.2x	Reference group	1.5x	1.9x	3.1x	4.8x	8.6x	15x
Death[4]	0.2x	0.1x	Reference group	3.5x	10x	25x	60x	140x	350x

   C. Thus, an 85+ year-old has about 2000x the IFR of a 0-4 year-old.
   D. The older you are, obviously, the fewer life-years you lose. Life expectancy at birth is almost 80. Life expectancy at 85 is 6-7 years.
   E. Pre-existing health problems are a strong independent predictor of death. If you split people into "some pre-existing problems" and

"none," you multiply the probability of death about 4x for the former category.

1. People with pre-existing problems already have reduced life expectancy, so simple averages overstate the loss of life-years.

F. Estimates of years of life lost from Covid based on these patterns: about 14 million years for the U.S. as of January, 2022.



G. Assuming the relationship between deaths and life-years is constant, 13.5 million until January 30 translates to 15.9 million for March 15, 2020 to September 15, 2022 (the first 2.5 years).

H. What if we adjust life-years lost for quality? Harder, but still vital for CBA. For example, you could try counting all years from 25-54 equally, then discount each subsequent bracket by 20%, to get: 11.8M prime life-years lost.

I. Of course, you'd also want to adjust for suffering while sick, plus any long-term problems for survivors. (But note: "There is vigorous debate over whether this is a real entity with a biologic basis or whether it is psychosomatic." *American Journal of Medicine)*

J. Additional factor to think about: How much survivors miss the victims, as a function of age.

III. The Value of Life: Quantity Versus Quality

A. Without CBA, you might conclude that this loss of life-years is an overwhelming argument in favor of radical action.

1. At minimum, for all the actions taken.
2. Probably for doing a lot more.

B. With CBA, however, adding up life-years lost is only the beginning.

C. Next, you have to estimate how many life-years were *saved* by the adopted measures – and how many additional life-years could have been saved with additional measures.

D. Finally, you have to consider the cost of these measures.
E. Crucial point: Cost isn't just fiscal cost! You also have to consider the cost in terms of *quality of life*.
F. How can we do this? Simplest approach: For any anti-Covid measure, ask: How many months of regular life is a year under this anti-Covid measure worth?
G. Example: How many months of normal life is a year of solitary confinement worth? Many people in assisted living endured something very close to solitary confinement.
H. Similarly: How many months of normal life was the first year of Covid worth to you?
I. Suppose the average answer for Americans is "10 months." The U.S. population was 330 million in 2020, so the first year of anti-Covid measures cost *55 million* life-years in terms of reduced quality of life.
    1. As you relax prevention measures, of course, the additional cost per person falls. But if the next ten months were at 95% value, that's still an additional loss of another 14 million life-years.

IV. NMIs, Private Precaution, and Covid Prevention
A. Until vaccines were released, virtually the sole anti-Covid measures adopted by governments were mandatory behavioral changes or "Non-Medical Interventions" (NMIs).
    1. Lockdowns
    2. Banning social events
    3. Mandatory masking
    4. Mandatory distancing
B. During the first few weeks of Covid, there is little evidence that these NMIs changed behavior. Why not? Because people were initially extremely cautious whether or not the government mandated caution.
C. Before long, however, fatigue set in. In places with stricter government policies and enforcement, behavior stayed different for longer.
D. This raises two separate questions:
    1. How much did NMIs change caution?
    2. How much does caution matter?
E. Public debate usually focused on the second question. Questions like "Do masks work?"
F. Researchers focused more on the first question: "Do mask mandates change masking?"
G. If you're assessing the value of NMIs using CBA, you have to *multiply* the answers!

V. Crunching the Numbers

A. We'd have to spend months reading papers to do a top-notch CBA of Covid restrictions. But we can get a ballpark estimate quite easily.
B. Step 1: Get a properly-weighted estimate of life-years actually lost from Covid.
C. Step 2: Estimate how much higher the loss would have been counter-factually.
D. Step 3: Compare the answer to the loss of life-years due to reduced quality of life.
E. Step 4: Multiply by standard value of a life-year, if necessary.
F. Exercise #1: What if the U.S. had adopted stricter Canadian measures instead?
G. Assume this would have given the U.S. the Canadian death rate: 1275 per million instead of 3345 per million, with proportional change in life-years lost.
H. Next question: How many months was a year of Covid time worth in Canada versus the U.S? Restrictions were lower and shorter in the U.S., so say 10.5 months versus 11 months per year for a period of 2.5 years.
    1. Multiply it out: The extra cost in life-years would have been 34 million.
    2. Unadjusted for age, that saves (15.9-6.1)=9.7 million life years. Adjusted for age, about (11.8-4.5)=7.3 million life years.
    3. Net destruction: About 27 million life years!
    4. Adjusting further for demographic differences between the U.S. and Canada makes the gain even smaller.
I. Exercise #2: What if the U.S. had done nothing – not even extra personal precaution?
J. Assume this would have given the U.S. the same death rate as Peru, the world's worst performer: 6481 per million instead of 3345 per million.
K. Multiply it out:
    1. The quality of life gain is 1 month per year for a period of 2.5 years for the whole population: 69 million life-years.
    2. Unadjusted for age, that costs an extra 14.9 million life-years. Adjusted for age, 11 million life-years.
    3. Net destruction: 58 million life-years!
    4. What if doing nothing gave us double the Peruvian death rate? Age-adjusted, that's still only 34 million life-years saved versus 69 million life-years destroyed.
L. Don't like the assumptions? Tell me what to change and we'll re-do the arithmetic.

VI. Focused Protection
A. This doesn't mean that no anti-Covid measures passed a CB test, only that what we did was worse than nothing.

B. An alternate proposal, made famous by the "Great Barrington Declaration," was called "focused protection." Basic idea: Strive to protect the old and sick, while letting the rest of the population live more-or-less normally.
C. This clearly helps the CBA of Covid prevention. If 90% of people live normally, only 33 million people endure lower quality of life instead of 330 million people.
D. However, it plausibly also raises infection and mortality. After all, there is no way to totally isolate the old and sick. Many, if not most, live with younger and healthier people – even in assisted living.
    1. Counter-argument: Ignoring most of the population lets us concentrate our resources and mental effort on the old and sick. See bizarre nursing home policies during the initial hysteria.
E. Suppose we compare focused protection to doing nothing, assuming:
    1. Average quality of life falls to 11.95 months per year.
    2. Mortality of older Americans goes from the Peruvian level to 30% higher than actually happened.
    3. Quality of life lost due to focused protection: 3.4 million life-years.
    4. Age-adjusted quantity of life saved due to focus protection: (11-4-7.1)=4.3 million life-years.
    5. CBA: Focused protection > nothing.

VII. Operation Warp Speed, Human Challenge Trials, Market Pricing, and Vaccines
A. Regulation normally delays the introduction of new drugs for years. The CBA is pretty clear: If a drug saves 10,000 life-years per year, and you delay it for 5 years, regulation destroyed 50,000 life-years.
B. CB rationale? Regulation (a) prevents bad drugs from killing people, and (b) encourages use of good drugs by reassuring the public.
    1. Think about the math, though. How many bad drugs would actually be released, how bad would they be, and how much does regulation reassure us, anyway?
C. During Covid, the government greatly expedited its drug approval process and heavily subsidized pharmaceutical companies, all parts of a policy called "Operation Warp Speed."
D. A standard estimate is that vaccination reduces the risk of death by 90%. If we use $100,000 per year of life, and figure 4 million age-adjusted life-years lost per year without vaccines, then speeding up approval by just one year is worth $360B (versus $30B spent on vaccines total).
E. Was there any way to speed approval even further? During the process, officials sometimes adjourned for a week or two due to standard operating procedure.

1. CBA: These breaks costs many billions of dollars worth of human life.

F. Policy analyst favorite: Human Challenge Trials. Instead of just testing the vaccine and waiting months to see who gets sick, try to *deliberately* infect experimental subjects after they're vaccinated. This could easily have proven vaccines' effectiveness months earlier.
   1. "But it's unethical!" Why? The test subjects are volunteers – and when people volunteer for dangerous missions to help others we usually call them heroes and thank them.

G. Defenders of Operation Warp Speed often argued that ordinary profits wouldn't sufficiently incentivize rapid delivery. A key premise, though, was that vaccine prices would be tightly capped!

H. Imagine if companies could have charged millions of dollars for the first few weeks, then gradually cut the price.
   1. CBA?

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Week 3: The Theory of Market Failure versus the Practice of Government

I. Correcting for Negative Externalities
   A. A common initial reaction people have to negative externalities is: "Ban it!"
   B. Obvious objection: The cure is worse than the disease. Many valuable activities (like driving) – and even many activities essential to life (like breathing!) - have negative externalities.
   C. If they grasp this point, many people's next impulse is to set quantitative limits – like emissions inspections, or technological mandates - like new emissions standards for cars.
      1. A particularly crazy variant: "Best Available Technology."
      2. Perverse effects of technological mandates: Since they raise the price of new cars, they encourage people to keep driving old cars that pollute a lot more.
   D. *These approaches are highly inefficient.* Quantitative limits and technological mandates ignore heterogeneity: Some firms can reduce pollution more cheaply than others; some people may value polluting more than others; some technologies may cost more than they are worth.
      1. Application: Carpool lanes.
   E. *More efficient regulatory solutions that take heterogeneity into account exist*:
      1. Taxes
      2. Tradable permits
   F. Advantage: This gets you the same pollution level at a lower price. Firms that can easily switch to less polluting technologies sell their permits to firms where reducing pollution is expensive.
   G. Complication: Getting the margin right. A tax on cars reduces the number of cars produced, but does nothing to discourage people who own cars from polluting.

II. Correcting for Positive Externalities
   A. A common initial reaction people have to positive externalities is: "This is a job for government, not the market."
   B. Obvious objection: Overkill. There is no need for government to take over the whole industry just because of some positive externalities.
   C. A much less intrusive option is for government to subsidize activities with positive externalities.
   D. Getting the margin right: Suppose there are positive externalities of voter education, but not math. If you subsidize ALL education, adjusting for the externalities of voter education leads to an

inefficiently high level of mathematical education.

III. The Logic of Pigovian Taxes and Subsidies
  A. According to CBA, how high should these taxes and subsidies be?
  B. The economist Pigou explained the logic:
    1. Tax goods with negative externalities until the SB and S curves intersect. (This is called a Pigovian tax).
    2. Subsidize goods with positive externalities until the SB and S curves intersect. (This is called a Pigovian subsidy).
  C. Key ideas:
    1. The bigger the externality, the bigger the optimal tax or subsidy.
    2. As long as you're willing to pay the new market price, you can produce and consume as much as you like.
    3. Other than collecting the taxes and sending the subsidies, there is no additional role for government!

IV. The Reality of Government Policy
  A. In the real-world, governments barely use Pigovian taxes or subsidies.
  B. Counterexamples?
    1. Sin taxes
    2. Gas taxes
    3. Cost-sharing for artificial lawns, solar panels, etc.
    4. Toll roads
  C. If they see social problems, governments usually respond with a massive body of detailed regulations or outright prohibition.
    1. Carbon taxes versus carbon policy
    2. Drug policy
    3. Worker safety
    4. HOV
  D. If they see unrealized social gains, governments usually respond with direct ownership and giveaways.
    1. K-12
    2. National health care
    3. National highway system
  E. The world's most Pigovian country: Singapore.
  F. What's the harm? Massive efficiency losses. Pigovian taxes deliver much better results than the status quo.
    1. Indeed, the status quo could easily be worse than doing nothing, even when there are large externalities.
  G. Even when they do charge, governments rarely try to set market-clearing prices.
    1. Traffic
    2. Parking
  H. Even worse: Governments make little effort to measure externalities, or even get the sign right.
    1. Education and credential inflation

2. Delaying vaccines

I. Critics of markets often use Pigovian logic to condemn markets in theory. But Pigovian logic also condemns government in practice, because zero governments are even close to Pigovian.

V. What Goes Wrong: The Logic of Decisiveness

A. People usually blame bad policies on lack of democracy. But Pigovian taxes and subsidies are almost non-existent even in democracies.

B. Why is this so? Almost certainly because the status quo is much more popular than the Pigovian alternative.

C. This is not a local or short-lived problem. No earthly government in recorded history has been close to Pigovian.

D. Economics and common-sense tell us that for all their faults, people aren't complete fools. Can they really be complete fools in politics?

E. I say yes, because of a key asymmetry between markets and politics.

1. In markets, if you figure out a better approach, you can adopt it and improve your life.
2. In politics, if you figure out a better approach, you can't adopt it unless you convince a majority of voters first.
3. Have you ever convinced a majority of voters of anything? I haven't.

F. But doesn't "every vote count"? Only microscopically. The chance that your vote flips an electoral outcome, also known as the "probability of decisiveness," is roughly 0.

1. Mathematically: $p \approx 0$

G. For chance that your decision changes the contents of your shopping cart, in contrast, $p \approx 1$.

VI. The Myth of the Rational Voter

A. In my first book, *The Myth of the Rational Voter: Why Democracies Choose Bad Policies*, I use these insights to build a grand theory of government failure.

B. Quick version: Since voters' probability of decisiveness is roughly 0, people make little effort to think rationally about politics.

C. Instead, they respond emotionally. In markets, self-interest gives you strong reasons to control your emotions; in politics, the opposite is true.

D. Selfishly speaking, what happens if you vote randomly – or emotionally?

1. The same thing that would have happened otherwise!

E. What happens if the whole electorate votes emotionally?

1. Lots of stuff that violates CBA.

F. Analogy: Politics isn't a grocery market; it's a common pool. We all throw our intellectual garbage into the pool, even though it's our sole source of drinking water.

G. What ideas do voters finding emotionally appealing? In *MRV*, I

focus on:

1. Anti-market bias
2. Anti-foreign bias
3. Make-work bias
4. Pessimistic bias

VII. Social Desirability Bias

A. Now I have a much more general story about what voters find emotionally appealing. We'll talk about this over and over, so pay attention.

B. Question: Am I fat? Regardless of my weight, there is only one socially acceptable answer: No, of course not, you're beautiful just the way you are.

C. This illustrates a general principle: When the truth sounds bad, people lie.

D. Furthermore, if the lies become pervasive enough, they stop sounding like lies. People say the pretty words without thinking hard enough to feel insincere.

E. The technical name for this in psychology: *Social Desirability Bias*.

F. Key to SDB: The gap between words and actions.

G. Illuminating example: Aborting a Down Syndrome baby:

"The decision to undergo an induced abortion varied depending on whether participants were prospective parents recruited from the general population (23%-33% would terminate), pregnant women at increased risk for having a child with DS (46%-86% would terminate), or women who received a positive diagnosis of DS during the prenatal period (89%-97% terminated)." (*Journal of Midwifery and Women's Health*)

H. Social Desirability Bias (SDB) is everywhere. Standard examples:

1. Patriotism: "I'd gladly die for this country" versus actual evidence on self-sacrifice.
2. Religion: "God is the most important thing in my life" versus actual church attendance rates.
3. Political priorities: If you ask a politician, "Which should be our higher priority: children or disabled veterans," they dodge question. Instead, they'll tell you something like, "Our great country can easily afford to give our children *and* our disabled veterans the very best possible care."
4. Hyperbole: "If we stand together, victory is certain!"
5. Price insensitivity: "We'll pay any price to save Ukraine" or "I'd do anything to help stop hunger."
6. Moral causation: Blaming problems on "the rich" sounds a lot better than blaming problems on "the poor." Blaming foreigners sounds a lot better than blaming fellow citizens.

I. You can even see SDB in basic grammar. If a friend asks you, "Would you like to come to my party?," the polite answer is the SDB-laden "Sorry, I can't." Which is almost always literally false. 99% of the time, you *can*, but have something better to do.

J. The "Want to bet?" challenge to SDB.

VIII. SDB and Politics

A. So what? In politics, SDB crushes CBA!
B. Look at political arguments. CBA plays almost no role. All sides just try to say what sounds good – and goad their opponents into saying what sounds bad.
C. Think about Covid policy: How often did you hear *anyone* discuss the trade-off between loss of quantity of life and loss of quality of life?
D. Instead, the standard arguments were:
    1. Pro: "This saves lives!"
    2. Anti: "No it doesn't!"
E. Almost no one stood up for fun over health. Much more common to concoct absurd health arguments against lockdowns like, "Keeping gyms closed is killing people, too."
F. Same goes for virtually any policy. Both sides try to sound good, with almost no measurement or math – practically the definition of "demagoguery." Examples:
    1. Taxes
    2. Education
    3. FDA
    4. Carbon emissions
    5. Immigration
G. When policies don't match CBA, apologists often say, "People just care more about equity." But migration patterns show this apology is largely SDB, too!
    1. How so? Because material well-being is a *much* better predictor of migration than any measure of "equity."
    2. Lots of California Democrats moved to Texas.
    3. The Gulf monarchies have no trouble attracting migrants.
H. Unlike rhetoric, actual policies have to use at least *a little* measurement and math. Resources are finite and there are multiple problems, so no government actually "Does everything possible" for any one problem.
I. Still, SDB is a *vastly* stronger predictor of actual policy than CBA.

IX. Action Bias and Politics
A. When was the last time you heard a politician say, "We should do nothing about this problem"?
B. "We should do something" may sound like common sense, but it's not. What should you do about mosquito bites, for example? Leave them alone.
C. In psychology, the technical name for our urge to "do something" is "Action Bias." While you can easily think of it as a special case of SDB, it's so pervasive in politics that it's worth a separate discussion.
D. When does CBA recommend "doing nothing" about a problem?
    1. When you are extremely ignorant about how to help.
    2. When you know that helping is costly.

E. In politics, however, it is extremely unusual to argue:
    1. “We don’t know how to help, so let’s do nothing until we learn more.”
    2. “We could solve this problem, but the cost is too high.”
F. Even if we’re doing something, Action Bias pushes us to do *more* when any new problem emerges. CBA says this is a silly presumption.
    1. Ex: If you get into one car accident in ten years, does this show you should change your driving habits? Maybe one accident per decade is optimal.
G. Action Bias also pushes us to design bespoke “solutions” for every notable problem. E.g., instead of just giving the poor money for necessities, to have separate programs for food, housing, and energy assistance.

X. Availability Cascades
A. Closely related: Kuran-Sunstein’s “availability cascades” model of mass hysterias and political crusades.
B. Cognitive psychologists have found that people frequently estimate probabilities based upon *how easy it is to think of examples*. Psychologists call this the “availability heuristic.”
C. This often leads to systematically biased estimates. Psychologists call this "availability bias."
D. This bias is normally demonstrated in simple experiments. How does it play out in the real world?
E. The cycle of hysteria:
    1. The media gives massive coverage to shocking but rare events in order to get good ratings.
    2. The public watches. Watching makes it easier for the public to think of examples of the events the media covers.
    3. One effect: The public begins to think the problems are quantitatively serious, so it gets easier to sell the public similar stories.
    4. Other effect: Politicians begin trying to solve the "problem" to win votes.
F. Examples:
    1. Nuclear power
    2. Genetically-altered food
    3. School shootings

XI. The Ubiquity of Government Failure
A. The Pigovian framework highlights endless ways for markets for fail CBA, then provides a recipe for governments to design remedies that pass CBA.
B. This often leads economists and other social scientists to defend almost all of government’s current activities, plus many more.
C. To repeat, however: No government on Earth is remotely Pigovian!
D. Governments don’t use CBA to decide whether markets fail.

Instead, they use SDB: Does market performance *sound* good?

E. Governments don't use CBA to decide how to "fix" markets, either. Instead, they use SDB: Does this remedy *sound* good?

F. The problem: CBA shows that lots of good stuff sounds bad, and lots of bad stuff sounds good. So real-world government actions routinely fail CBA.

G. Or so I claim. The rest of the class uses CBA on actual government policies. Let's see what we find.

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Week 4: Universal Programs

I. CBA and Redistribution
   A. At first glance, redistribution automatically fails CBA. Taking money from some and giving it to others does not enrich society, and the "handling fee" is a social cost.
   B. On further thought, however, there are three main ways for CBA to recommend redistribution.
   C. Rationale #1: Redistribution as insurance. The value comes from imagining what people would pay to reduce uncertainty about their welfare.
      1. Not so philosophical: unemployment insurance
      2. Highly philosophical: low-ability insurance
   D. Rationale #2: Redistribution as altruism. The value comes because some people sincerely care about the poor, sick, etc. Even if no individual cares a lot about the poor, it adds up.
   E. Rationale #3: Redistribution as Pigovian remedy. Even if you don't directly care about the poor, you might want to help them so they don't commit crime, join revolutions, and so on.
   F. Don't forget that these rationales could turn out to be SDB!
   G. Redistribution as insurance? If people really want insurance, why can't markets just provide it? In any case, how can you call a policy "insurance" once you already know your outcome?
   H. Redistribution as altruism? People almost certainly overstate how much they really care. And if it's altruism, how come there's almost no international redistribution?
   I. Redistribution as Pigovian remedy for crime and revolution? Then how come there is so little money available for healthy young males?

II. The Leaky Bucket: The Deadweight Costs of Redistribution
   A. You need one of the preceding arguments to establish that redistribution has *gross* social benefits.
   B. Yet that alone does not establish that redistribution has *net* social benefits, because redistribution always has some costs, too.
   C. In addition to transferring wealth, redistribution also destroy some wealth in the process.
   D. The leaky bucket: in the process of transferring wealth, some "slips out," benefiting no one.
      1. Landsburg on "Why Taxes Are Bad."
   E. How can wealth simply be destroyed? Many ways.
      1. Paperwork and processing.
      2. Production foregone because of taxes

3. Production foregone because of redistribution
4. Diversion of effort into less productive - but less taxed - lines of work
5. Producing things people value less (like medicine) instead of things they value more (like vacations).

F. Basic idea: A tax that can't be avoided ("lump-sum taxes" or "head taxes") merely transfers income. A tax that can be avoided will have deadweight costs because people change behavior to do so.

G. Similarly: Redistribution that you get "just because" merely transfers income. Redistribution that you get for a *reason* will have deadweight costs because people change behavior to do so.

III. Universal Versus Means-Tested Redistribution

A. The latter insight highlights a fundamental distinction between two kinds of redistribution:
1. Universal redistribution that everyone (or at least everyone in a country) gets.
2. Means-tested redistribution based on need or other criteria.

B. Standard argument for universal redistribution: Since everyone gets it automatically, no one changes their behavior in order to get it.

C. Problem: Universal redistribution is *very* expensive precisely because everyone gets it. So even if the redistribution itself does nothing to change behavior, the massive taxes required to fund the universal redistribution will!

D. Furthermore, if you're paying attention, few "universal" programs are universal in every respect, so they still change behavior. Universal health care, for example, gives more to people with poor health, which encourages poor health habits.

E. This week: universal redistribution. Next week: means-tested.

IV. Effective Altruism Versus Universality

A. A major philanthropic movement known as "Effective Altruism" (EA) tries to get donors to use CBA.

B. What's the problem?
1. Ineffective charities
2. Poorly targeted charity
3. Classic example of a cost-ineffective charity: Make a Wish Foundation.

C. Typical EA measure: Maximize lives saved per dollar.

D. EA-favored charities:
1. Deworming
2. Malaria nets
3. Payments for vaccinating kids
4. Give Directly

E. A charity almost all EAs would reject: Giving equally to every person on Earth.

F. Why is this a terrible idea? Because you waste almost all of the money on low priority problems. Using $8B to give $1 to every

human is absurd.

G. The EA alternative: Focus on high-priority problems with easy logistics: war orphans, unvaccinated kids, and so on. This yields the biggest philanthropic bang per buck.

H. How is this relevant for universal government redistribution? Existing governments are spending *trillions* of dollars on wasteful philanthropy! Many, perhaps most, of the recipients could easily take care of themselves.

I. This is even clearer once you realize that this money could have been spent on absolutely poor foreigners instead of relatively poor natives.

V. Government Retirement Programs

A. Almost all countries have a universal government retirement program. *Every* citizen gets money from the government once they reach the right age.

B. This is hard to justify with CBA. Taxing everyone to help everyone is futile at best. Further downsides:

1. Extra taxes to fund these massive programs disincentivize work throughout people's careers.
2. Government pensions encourage earlier retirement as well.

C. Why not just have a much smaller program for helping the very poor elderly?

D. Justifications?

1. Insurance. Very weak. Everyone knows they'll be old one day.
2. Altruism. Why care so much about "everyone"?
3. Pigovian remedy. Will the elderly really turn to crime?

E. SDB diagnosis: "Guaranteeing a dignified retirement to every American" sounds great, and the political system barely cares about cost or collateral damage.

VI. The Universal Basic Income

A. Retirement programs are, by definition, limited to the elderly. Many reformers are pushing a much more expansive universal program, the Universal Basic Income (UBI).

B. Key idea: Everyone (or sometimes just every adult) gets automatic free cash from the government if they have $0 income. Every dollar you earn reduces this grant.

C. The cost for any substantial UBI is off-the-charts. The U.S. spent $1.2T on SS in 2022. To give $15k to every American would cost more than 4x that - almost $5T.

D. Who would pay for it? UBI would effectively put the whole tax on a sliver of the population. Exercise:

1. How much money should each person get if they earn $0? Call this M.
2. What fraction of your earnings should you lose if you make an extra $1? Call this T.

3. Family of four remains a net recipient until family income hits 4*M/T. M=$15,000, T=25% means families over $240k pay for everyone else. That's the 94th percentile of the 2022 family income distribution.
4. This ignores taxes required to fund all *other* government spending!

E. Couldn't you fund the UBI by getting rid of all other redistribution? According to the one economist I know of who calculated the maximum annual UBI you could get by eliminating all other non-medical programs: In 2022 dollars, less than $5000.

F. Got a better idea? UBI is worse than the status quo.

VII. Gratis Health Care Versus CBA

A. Almost all governments, including the U.S., spend heavily on health care.

B. The U.S. has two main programs:
1. Medicare, a universal program for the elderly.
2. Medicaid, a means-tested program for the poor.

C. Global aspiration: To make health care totally free. Not just for contagious disease, but for everything.

D. "Free health care for all" badly fails CBA for standard EA reasons. Giving free health care to people who can pay for it themselves is very wasteful.

E. Furthermore, giving people medicine instead of cash is also very wasteful. Why? Because people value marginal medicine at less than cost – and the cost is exorbitant.

F. Remember the diagram: Gratis is not great.

VIII. Free Markets Versus Moral Hazard and Adverse Selection

A. When economists want to defend government funding of health care, they routinely invoke two textbook arguments: moral hazard and adverse selection.

B. The idea of moral hazard: Health care is expensive, so people naturally want insurance. Once insured, however, people adopt higher-risk lifestyles.

C. The idea of adverse selection: For any insurance deal, the most eager customers will be the least healthy. This encourages healthy people to refuse to buy insurance, which amplifies the problem.

D. These are weird arguments for government funding.

E. First, there are obvious market remedies for both problems:
1. To mitigate moral hazard: Limit coverage, and impose punishments for violation. E.g. Refuse to cover smokers, and fine smokers who claim to be non-smokers.
2. To mitigate adverse selection: Adjust premiums for risk.

F. Second, while free health care for all does solve the adverse selection problem, it *maximizes* moral hazard!

G. Third, while some regulations make a minor effect to mitigate moral hazard (e.g. require seat belts), other regulations *greatly* amplify

adverse selection.

1. Limits on risk-adjusted premiums; ban on pre-existing conditions clauses.

H. The best explanation for the status quo, as usual, is just SDB. A free market would charge sick people more, which sounds bad. So governments pass a law saying that everyone has to be treated equally, which leads to high premiums, which in turn fosters demand for universal coverage.

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Week 5: Means-Tested Programs

I. The Logic of Means-Testing
   A. Means-testing encourages people to change their behavior, usually in perverse ways.
      1. Help the poor, get more poor.
      2. Help the sick, get more sick.
   B. A massive literature measures these effects.
      1. Ironically, the more you downplay these behavioral changes, the worse the case for universal benefits gets!
   C. Still, means-testing has one huge advantage: It saves enormous amounts of money.
   D. Furthermore, the stricter the means-testing, the fewer people's behavior you potentially change in perverse ways.
   E. Example: Giving a UBI to everyone is extremely expensive, and heavily discourages work. But giving money to low-income seniors – who probably wouldn't be working anyway – costs much less and discourages work much less.
   F. "College kids already have a UBI." True?

II. Cash Versus In-Kind Redistribution
   A. In practice, governments often redistribute "in kind." Instead of money, they give free or subsidized medical care, housing, education, and such.
   B. Big problem: This often means giving people expensive products they barely appreciate.
   C. What's the point?
      1. Paternalism: The poor don't know their own interests.
      2. Child protection: Money for children gets funneled through parents, so we don't want them misusing it.
   D. Big danger: What if governments thinks it knows better when it doesn't? Then we get massive waste.
   E. Strong example: health care. Standard view among medical researchers is that medicine has a much smaller effect on health than most people suppose. Lifestyle and genes matter much more.
      1. Costa Rica, which spends under $1000 per year per person on health care, has a higher life expectancy than the U.S.!
   F. Another example: FDA and new vaccines. The FDA banned vaccination until *they* decided vaccines were safe and effective, which killed a lot of people who wanted earlier vaccination.
   G. The main means-tested health program in the U.S., Medicaid, spent $734B in 2021 on just 19% of the population, which comes to almost $12k per recipient.

H. What share of these recipients would rather have $12k in cash instead?
I. Alternate formulation: How much would recipients typically pay for last $1000 of medical care?
1. Question for the paternalist: Is this really such a foolish choice?
2. The case of Cuba

III. The Success Sequence
A. Why are there so many poor people in a rich country like the U.S.?
B. Main answer is behavioral: Live responsibly, and you are highly unlikely to be poor.
C. Specifically, researchers define the following "success sequence":
1. Finish high school
2. Work full-time after graduation
3. Marry before having kids
D. Americans who follow this sequence have a 97% chance of being out of poverty by early adulthood. Wang and Wilcox: "97% of Millennials who follow what has been called the 'success sequence' — that is, who get at least a high school degree, work, and then marry before having any children, in that order—are not poor by the time they reach their prime young adult years (ages 28-34).
E. Is this really causal? How could it not be?
F. Is this really easy? Yes, because:
1. Standards in high school are low.
2. The poor themselves heavily agree that finding a job is not hard.
3. People understand where babies come from, and effective birth control is widely available.
G. Of course, 3% who follow the success sequence are still in poverty, but compare this to 15% for the general population – and 53% who violated all three steps. Many of the 3%, moreover, are only temporarily in poverty.
H. Upshot: Almost all adults really are able to provide for themselves if they are moderately prudent. If you restricted poverty assistance to people who followed the success sequence, the cost would be very low.
I. In practice, of course, governments rarely impose any such restrictions.

IV. The Political Case Against Means-Testing
A. In a famous debate between Milton Friedman and former HEW Secretary Wilbur Cohen, Cohen attacked means-testing:

"I also oppose any wholesale substitute for the social security system, whatever its name (such as a negative income tax, a guaranteed income or what have you) that makes payments only to the poor. A program for the poor will most likely be a poor program."

B. What is the argument even supposed to be? The story, apparently, is that you have to trick the non-poor into helping the poor by pretending that you're "helping everyone."
C. What evidence is there for this claim? Almost none! Virtually every

country has some means-tested programs. The U.S. spends over $1T per year on such programs.

1. While “welfare” is unpopular, programs to “help the poor” are popular. Just as SDB predicts, because “helping the poor” sounds great.

D. Suppose Cohen’s argument were true. This implies that the true cost of helping the poor is many times the apparent cost. If the poor are 20% of the population, the cost of helping them is 5x the apparent cost.

E. From the standpoint of CBA, this is a strong argument against all redistribution, rather than an argument for replacing means-tested programs with universal programs.

V. EA Versus Nationalism

A. While the total level of redistribution is massive, almost all redistribution is “intra-national.” The U.S. helps Americans, Mexico helps Mexicans, Bolivia helps Bolivians.

B. Foreign aid does exist, but it is a rounding error in most national budgets.

C. From the perspective of Effective Altruism, this is crazy. “Poor people” in the U.S. are rich by world standards.

1. Insurance? If you’re willing to treat having low ability as an insurable problem, how about being born in a poor country?
2. Altruism? Shouldn’t you care about starving people in other countries more than “underprivileged” people in your own?
3. Pigovian remedies? Are poor Americans in Laredo really so much more dangerous to you than poor Mexicans in Nuevo Laredo?

D. Of course, you could just say that, EA notwithstanding, you have high altruism for fellow citizens and little for foreigners.

E. But as usual, actions speak louder than words. How much of their own money do people give to poor fellow citizens? Doesn’t this show that most alleged love for fellow citizens is just SDB?

VI. Why the Standard View of the Welfare State Is Wrong

A. The "standard view" of the welfare state: there is a trade-off between compassion and efficiency. The most compassionate policies would fully take care of the poor, but these would have severe efficiency costs. Real-world policies try to strike a reasonable balance. Life was terrible back in the 19th century before the welfare state existed; only "mean," and "uncaring" people could prefer it to what we have now.

B. This is wrong on several levels.

C. First, most of the welfare state is about helping the old, not the poor.

D. Second, the help for the poor goes to *relatively* poor Americans who are already quite fortunate by global standards.

E. Third, the goal of "helping the (American) poor" is probably the main justification for immigration restrictions that greatly harm poor foreigners.

F. In the 19th century, people had to fend for themselves, but anyone was free to move to the U.S. and try their luck. Policy was far more "compassionate" then than it is now, all things considered.

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Weeks 6-7: Labor Market Regulation

I. The Basics of Labor Demand and Labor Supply
   A. If firms maximize profits, labor demand depends entirely on worker productivity. If an extra worker brings $50,000 into your business, you'll pay up to $50,000 to get him. If he only brings $500, you'll pay up to $500 to get him.
   B. SDB makes it hard to publicly admit this truth, but it's obvious. Tom Cruise makes $30M a movie because Tom Cruise brings in millions of extra customers. The extras in the scene behind him make very little because they bring in almost no extra customers.
   C. Labor supply, in contrast, depends on:
      1. Scarcity of skill
      2. Pleasantness or unpleasantness of the job
   D. Obvious? Yes. The implications, however, strongly violate SDB. So people officially deny them, and policy often reflects popular denial.

II. Unemployment As a Labor Surplus
   A. Intuitively, we often think of "unemployment" as a situation where people who are willing and able to work are somehow denied the chance to do so.
   B. At the equilibrium wage, there are neither labor shortages nor surpluses; unemployment is <u>voluntary</u> (not in the sense that it is cause for celebration, but in the sense that people do not want to work more **at the market wage** for jobs they are **able** to do).
      1. Analogy: Voluntary datelessness.
   C. So how is <u>involuntary</u> unemployment possible? *Only if the prevailing wage is too high!*
   D. This is no different from any other surplus good. "Surplus" means "surplus at the current price."
   E. More generally, there are only three possibilities:
      1. Market wage=equilibrium wage; the labor market clears.
      2. Market wage<equilibrium wage; there is a labor shortage.
      3. Market wage>equilibrium wage; there is a labor surplus.
   F. This simple application of S&D runs contrary to almost all popular beliefs about labor. But there can be little doubt that it is correct.
   G. The general solution to all involuntary unemployment boils down to: reduce the market wage until the surplus disappears.

III. Government Policy in the Real World, I: The Minimum Wage
   A. If markets are slow to adjust, government could try to *force* wages down! They rarely do.

B. Instead, governments around the world deliberately push wages *up* and prevent market adjustment.
C. Classic case: the minimum wage.
D. Suppose the equilibrium wage is $10/hr. If the government imposes a minimum wage of $15/hr., there will be unemployment. Employers will want to hire fewer people than want to work at the market wage.
E. Simple question for proponents: Why not $1,000,000/hour?
F. In the U.S., the federal minimum wage itself is fairly low (about 1% of the U.S. workforce earns it). In other countries like France, the minimum wage affects a large percentage of the workforce.

IV. Government Policy in the Real World, II: Additional Labor Market Regulations
A. There are numerous other laws that work much like the minimum wage. Even if their short-run effect is to increase labor demand, the long-run effect is exactly the opposite.
B. What happens if the government adopts the following measures, while forbidding wages to fall? (Alternately, if strong unions prevent wages from falling).
C. Case 1: Mandated benefits. What if the government mandates new benefits (safety, health, family leave, etc.) and forbids wages to fall?
D. Case 2: Regulations against lay-offs and firing. How will employers respond if they know that they must continue employing workers they don't need? Are bad at their job?
E. Case 3: Plant-closing laws. What if the government penalizes firms for (or forbids) closing plants?
F. Case 4: Employment lawsuits. What if employees can sue their employers for discrimination, harassment, unfair termination, etc.?
G. Case 5: Mandatory overtime. What if employers are legally required to pay "time-and-a-half" for overtime?
H. How do these results change if wages are flexible?
I. CBA of labor regulation.

V. Application: European Unemployment
A. Labor market regulations in Europe are typically very strict. Over the last twenty years, the average U.S. unemployment rate has been roughly 6%, versus 9% for Europe.
B. Most economists blame European countries' stricter labor market regulations.
C. What have European labor policies been like?
    1. High legal minimum wages.
    2. High unemployment/welfare benefits with long durations.
    3. Firing/layoff regulations.
    4. Mandatory benefits (vacation, sick leave, maternity leave, etc.) (How does the interaction between mandatory benefits and nominal and real rigidity work?)

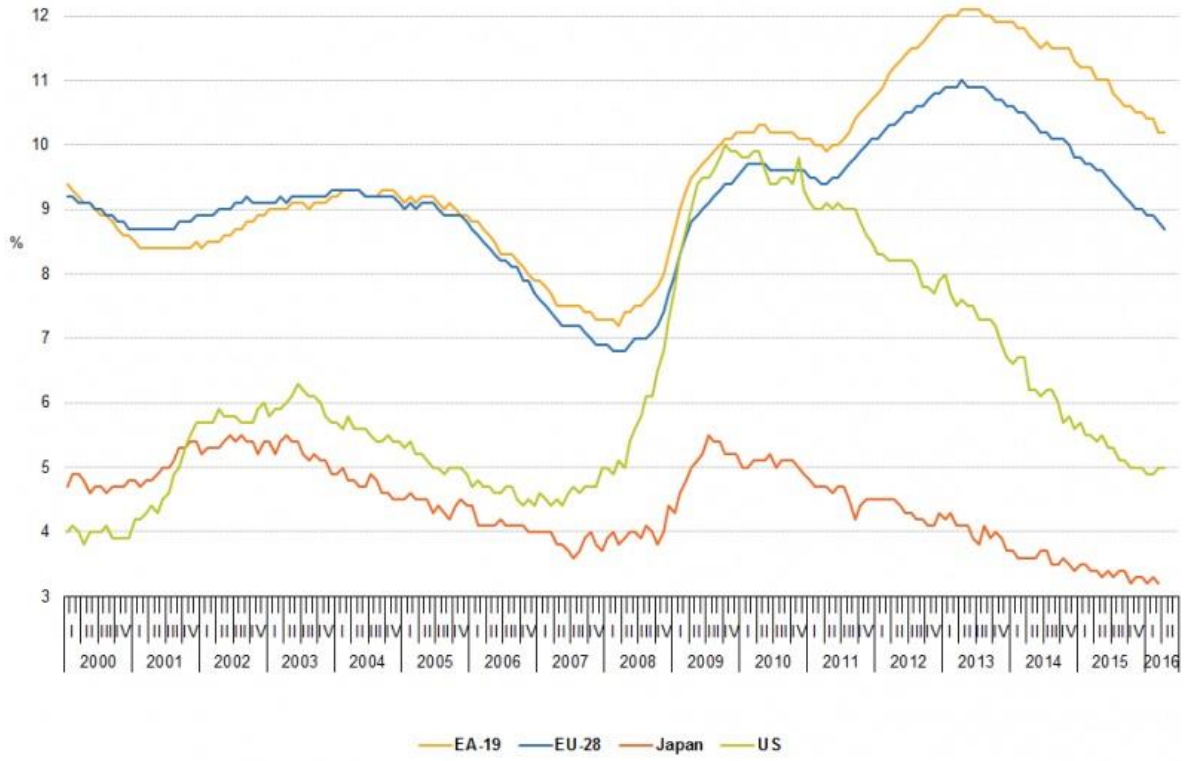
5. High unionization rates with strong legal support for unions. (Note: In some countries like France, non-union workers still have their wages determined by union negotiations).

D. Apologists for European labor marker were quick to note that in March 2009, U.S. unemployment surpassed Europe's. But:
   1. This was only a blip. European unemployment is once again more than 2 percentage-points worse than ours.
   2. You should *expect* more flexible labor markets to respond more rapidly to negative shocks. The key question is long-run performance.

FIGURE 2
Unemployment Rate in the United States and EU-15, 1993-2009

Source: Eurostat (2009).

E. What happened since? What you'd expect. U.S. has recovered, EU has not. And European exceptions have relatively free labor markets.



VI. Occupational Licensing

A. Most econ textbooks discuss labor unions at length, but at least in the United States, occupational licensing is much more important.

1. Almost 30% of American workers now need a license to legally do their jobs. Only about 12% belong to unions – and more than half of them are government employees.

B. Licensing clearly raises the wages of licensed workers; they make about 15% more than you'd otherwise expect. (Roughly as big a bonus as unionized workers get).

C. People often claim that occupational licensing raises quality and protects the public, but:

1. For many licensed occupations – barber, interior decorator, athletic trainer – this argument fails the laugh test.
2. The average study of the effect of licensing on quality finds a moderately *negative* effect on quality. (Not so surprising: Licensing inhibits innovation).
3. Higher quality is often not worth the extra price. Markets (or government *certification*!) let consumers decide for themselves. Licensing makes everyone pay full price.

D. Unregulated markets have simple mechanisms to ensure quality:

1. Reputation
2. Guarantees
3. Lawsuits (much less important, but a useful last resort)

E. We already heavily rely on these mechanisms – see eBay and Amazon Marketplace. Why can't we rely on them in labor markets?

F. Medical licensing: Is this really such a hard case after all?
   1. Medical licensing clearly raises medical prices.
   2. *Many* medical tasks now performed by doctors could easily be performed by less-trained (and cheaper) workers. The same goes for other medical professionals.
   3. HMOs and insurance companies make reputation work much effective than you'd initially think.

G. CBA of occupational licensing.

VII. Why the Standard History of Labor Is Wrong

E. Most history books tell a story something like this:
   1. In the days before the minimum wage, unions, etc., life was terrible for workers because employers paid them whatever they felt like paying them.
   2. But then government became more progressive, and changed the laws.
   3. Life is now better for workers because employers' greed has been tamed.

F. This makes no sense at all. Why?

G. Employers compete with other employers; they care about their own profits, not the profits of employers in general. Workers have always earned their marginal productivity.

H. Why then were workers paid less in the past? Their marginal productivity was lower! As technology progressed, the marginal productivity of workers increased, and labor demand accordingly went up.

I. Suppose government had imposed strict regulations when productivity was low? The result would have been higher wages for the lucky, but permanent unemployment (and probably starvation) for the rest.

J. The problem of workers in the Third World isn't lack of regulation, but low productivity. Of course, low productivity can be a product of a crummy political system, but you can't solve that problem with labor market regulation.

XI. Wage *Differences* versus Wage *Discrimination*

A. People don't earn the same income, and neither do groups. There are, on average, large wage differences.

B. From the NLSY (1992 data): Average annual labor income was $17,100. Compared to white males, what did members of other groups earn on average?

Group	**Labor Income Gap**
Black	-$6200
Other Non-White	-$3700
Female	-$12,000

C. No one disputes that there are large wage differences. The debate, rather, is about *why*. Are these gaps partly or wholly explained by the fact that groups differ in average characteristics relevant to marginal productivity?

D. Two kinds of characteristics: the ones we measure (or "observe") like education and IQ, and the ones we don't, like culture and creativity. Can wage differences be explained by differences in observable characteristics?

E. Let's start with an easy one. What if we control for marital status and number of children? A lot of women have no labor income because they don't work and/or don't work as much because they take care of kids.

F. Suppose we compare never-married, childless males and females? The -$12,000 gap shrinks to a mere -$1,100 gap! It's not even "statistically significant" as econometricians say.

G. Now let's move to something harder. Is there any way to account for racial income differences? Let's start by controlling only for education and experience. What then?

H. The "other non-white" gap essentially disappears, but the white-black gap only mildly shrinks.

Group	**Labor Income Gap**
Black	-$5300
Other Non-White	-$700

I. What if we also control for measured intelligence? (The NLSY administered extensive intelligence tests to people surveyed).

J. Other non-whites actually earn *more* than observably identical whites; the white-black gap drastically shrinks.

Group	**Labor Income Gap**
Black	-$2300
Other Non-White	+$1100

K. Many scholars who have studied black poverty have put some blame on differences in family structure. On average, blacks are much less likely to marry and remain married; yet blacks on average have more children. What if we add in controls for family variables?

L. Remaining black-white gap shrinks still further, becoming statistically insignificant. Other non-whites look even better off than before.

Group	**Labor Income Gap**
Black	-$900
Other Non-White	+$1700

M. There are definitely large differences in labor earnings, and they match the popular stereotypes about which groups the market treats "unfairly."

N. But it is wrong to infer discrimination from inequality. You must control for real group differences first.

O. Once you do so, there is little evidence of discrimination. (And some of it cuts the wrong way!) Labor income differs between groups because - on average - groups differ in education, intelligence, family structure, etc.

XII. Discrimination as a Preference

A. We have seen that the empirical case for discrimination is weak.

B. Interestingly, many economists doubted - on *theoretical* grounds - that discrimination had much effect long before much data was available.

C. Why? Let us begin by defining "discrimination" more precisely. In economic terms, we can think of pure dislike or hatred for others as a *taste for discrimination*, a willingness to pay to avoid people you don't like.

D. For example, suppose a Serbian employer hates Croatians. But how much is he willing to pay for this? Would he give up $1,000,000 to avoid hiring a Croatian? Probably not. There is some amount of money sufficient to make the Serbian hire the Croatian in spite of his discriminatory taste.

XIII. Discrimination by Employers

A. Once we understand this notion of the "taste for discrimination," we can use it to analyze employer-on-worker discrimination.

B. Assumptions:

1. Most employers have a taste for discrimination against Asians. Their willingness to pay to satisfy this taste ranges from $2/hour/worker to $0/hour/worker, with an average of $1/hour/worker.
2. No one else has discriminatory tastes.
3. Asian and non-Asian workers are equally productive.
4. Labor markets are competitive and there are no anti-discrimination laws.

C. What happens? Labor demand for Asians is lower and they earn lower wages - at first.

D. Who hires them? The **least-discriminatory** employers! If the wage gap is $1.00, then employers who value discrimination by less than $1.00 hire only Asians.

E. More racism thus means lower profits. Less racist employers hire cheaper Asian labor, while more racist employers higher more expensive non-Asian labor.

F. Thus, over time the most racially tolerant employers become a larger and larger part of the market, and racist employers are driven out of business.

G. This shifts employers' distribution of discriminatory tastes in the direction of tolerance - raising the demand for Asian labor and reducing the demand for non-Asian labor. So the wage gap falls.

H. As long as there are enough employers who care solely about money, not race, the ultimate effect is that racist employers are

driven from the market, and equally-productive labor earns the same wage.

I. Even if most people are racist, selective pressure favors non-racist employers. Businesspeople are competing to make money; any goals other than making money - good or bad - hold them back.

J. In other words, more greedy, less racist employers tend to drive less greedy, more racist employers out of business.

K. Corollary 1: Government regulation is necessary to **sustain** discrimination by profit-seeking employers.

L. Corollary 2: Discrimination is much more likely to appear in the *non-profit* sector.

XIV. Stereotypes and Information Economics

A. Gathering more information takes time, and time is foregone income. Thus, people inevitably - and sensibly - quit gathering information once they think their understanding is "good *enough*."

B. Of course, "mistakes will be made." People are choosing between two evils - wrong judgments and lost time.

C. This is the essence of stereotyping: Generalizing in a useful but fallible way based on limited information.

D. People use stereotypes all of the time. You probably assumed I was the professor the first time you saw me in class. Why? Because I fit the stereotypical age of a professor. Were you irrational to use this stereotype? Hardly.

E. What would your day be like if you used no stereotypes? You use stereotypes about traffic patterns to choose your route to school. You use stereotypes about campus police to decide whether to illegally park. You use stereotypes about couples to guess whether two people are married.

F. Many people think stereotypes are plainly false. But it's an empirical question. This is a huge topic, but there is a lot of evidence that most stereotypes are right on average most of the time.

G. Moreover, people who don't like stereotypes still use them. "Police are bigots" is a stereotype. "White people make more money than black people" is a stereotype. Both may be true on average, but they are stereotypes nevertheless.

H. Not sure? Test your own stereotypes against objective statistics.

I. The basic stereotype fallacy: Confusing averages and universals. But does anyone actually do this?

XV. Statistical Discrimination

A. Suppose employers rely on a stereotype to make employment decisions, and that stereotype is true on average.

B. Is that "discrimination"? In a sense, yes - you are being judged for your group, not yourself. But in another sense, no - the group differences are real, and people don't *dislike* your group as such. Economists call this *statistical discrimination*.

C. A good example: gender and auto insurance premiums.
D. Another example: who cabbies will pick up late at night.
E. Unlike taste-based discrimination, statistical discrimination can survive and thrive in markets. If group differences are real, and it is costly to judge case-by-case, then people who *don't* discriminate lose money.
F. Important point: Statistical discrimination does **not** reduce *mean* group income. It just narrows the distribution. People who exceed their group stereotype's performance level are under-paid; people who fall short of their group stereotype's performance level are over-paid.

XVI. The Effect of Discrimination Laws
A. Suppose, once again, that discrimination is a pure taste. What do anti-discrimination laws accomplish?
B. If they correctly identify discrimination, then very little. Markets already severely punish employers who pay more for workers than necessary.
1. They might however exacerbate worker-on-worker discrimination by forbidding segregation.
C. However, if "discrimination" laws blur the line between "difference" and "discrimination," effects can be severe. The law then effectively requires employers to pay workers of different ability levels the same; employers respond by preferring the more productive group, making life even harder for the less productive group.
D. In other words, discrimination laws act as a price control, requiring equal wages in two labor markets where the market clears at different wage levels.
E. To some extent, though, discrimination laws might be seen as quantity restrictions (hire x workers of group y or else!). The short-run effect of this on group y can be positive; but in the longer-run employers figure out ways to avoid this burden.
1. E.g. Relocate the firm to states with small "protected" populations.
F. For statistical discrimination, discrimination laws have the same negative effects. Groups are really different on average, but the law says employers must treat them the same. Firms then do their best to avoid paying people more than they're worth.
G. Ex: How might unregulated markets induce cab-drivers to pick up late at night in dangerous areas?
H. Similarly, able members of low-productivity groups might - in an unregulated market - agree to work for free on a temporary basis to prove themselves. This would probably be illegal under current law.

XVII. Discrimination Laws In Practice

A. Under the discrimination laws, aggrieved individuals can sue employers for discriminating against them.
B. Employers can defend themselves by showing that the worker was judged on the basis of individual performance.
C. Still, the defense always labors under the equivocation between difference and discrimination.
D. Interestingly, most discrimination suits come from workers who say their current employer mistreated them, **not** from workers who say they were not hired in the first place.
    1. The irony is that an employer who was actually racist, or simply wanted to avoid legal headaches, is probably less likely to be sued than someone who gives individuals a chance.
E. If employers practice statistical discrimination, why would they want to fire a worker after hiring him? Only if he is below his group mean!
F. CBA of discrimination laws.

XVIII. Why the Standard History of Discrimination Is Wrong
A. The standard story: White males arbitrarily discriminated against everyone else out of pure malice. Then activists "raised awareness" and discrimination laws were passed to open up opportunities for people other than white males. While a strong legacy of racism and sexism persists, these laws have created the progress that disadvantaged groups have enjoyed since 1965.
B. Why it's wrong:
    1. Even if average levels of malice were high, employers are among the least racist people around. They are selected to care about profits, not skin color.
    2. White males have earned more money on average, but most or all of that difference disappears controlling for characteristics.
    3. Blacks and other groups were enjoying rapid economic progress long before any civil rights acts were passed. Asians already equaled or exceeded white income - even Japanese-Americans, who lost most of their wealth during WWII internment.
    4. Lower-earning groups enjoyed progress before the civil rights laws in large part because their average characteristics were changing. Blacks were acquiring more education and skills, immigrants were acquiring language fluency, women were changing their family plans, and so on.
    5. Most of the progress that non-white-males have enjoyed has been inevitable. On net, civil rights laws may have impeded their progress by making employers reluctant to hire people who might potentially sue them.

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Weeks 8-9: Education, Human Capital, and Signaling

I. The Economics of Education: A Short History
   A. Economists have intently studied education for about sixty years.
   B. Standard view: education – especially formal schooling – is the main way society "invests in people."
   C. What happens when you invest in people? Just as transforming natural resources yields physical capital, transforming human resources yields "human capital."
      1. Classic story: Schools take illiterate, innumerate children and transform them into literate, numerate adults – who then use their literacy and numeracy on the job.
   D. The human capital view of education is one of economics' most successful intellectual "exports." It's widely used not just by economists, but by:
      1. Other social scientists (education, sociology, psychology)
      2. Pundits
      3. Policy-makers
      4. General public
   E. The human capital view is bipartisan. Liberals and Democrats are slightly more prone to hail education's economic payoff. But liberals and conservatives, Democrats and Republicans – whether social scientists, pundits, policy-makers, or the general public – all see education's economic benefits as immense.

II. Human Capital Purism vs. Signaling
   A. I strongly disagree with this consensus. My book, *The Case Against Education*, explains why.
   B. Big problem: much – if not most – of the academic curriculum at least *seems* irrelevant for almost all jobs.
      1. History and social studies
      2. Music and art
      3. PE
      4. Higher mathematics
      5. Classic literature and foreign languages
   C. Even more puzzling: Employers seem to *care* about performance in "irrelevant" classes – especially if poor performance prevents graduation.
   D. These two observations inspire an alternative economic theory of education, known as "signaling."
   E. Basic idea of educational signaling: Academic success can *certify* worker quality without *increasing* it.
   F. Signaling can make totally irrelevant education lucrative.

1. If people who do well in underwater basket-weaving are, on average, better workers than people who don't do well in this subject, profit-maximizing employers will be happy to pay a premium for such workers.
2. Why? While learning UBW doesn't make you a better worker, it *convinces* employers that you were a better worker all along.

G. Do any economists claim that signaling explains *all* of education's financial payoffs? No! Literacy and numeracy are obviously useful on most jobs.

H. Do any economists deny that signaling explains *some* of education's financial payoff? Yes, especially by default. "Human capital purism" – the view that human capital explains 100% of education's payoff in the labor market – is the standard assumption in the large majority of empirical work and policy discussion.
1. Researchers often measure the effect of education on earnings, then *call* it the effect of education on *skill*.

I. Preview: I claim that signaling accounts for at least 50% of education's payoff. My preferred point estimate: 80%.

III. Ability Bias

A. Earnings rise sharply with education. Results for full-time, year-round workers:

Average Earnings By Educational Attainment (2011)

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

B. Statistically naïve observers leap to the conclusion that education is fantastically lucrative: Give up four years of your life in college, and your earnings rise by 73%!

C. Economists, however, are trained to skeptically assess such claims. How much of the high observed correlation between education and earnings is *causal*?

D. Why would the causal effect of education on earnings be smaller than it seems? Ability bias: Perhaps the well-educated have more pre-existing talent, family connections, greed, favorable location, etc.
1. Sports analogy.

E. Theoretically naïve observers leap to the conclusion that if education has a large causal effect on earnings, the signaling model is false. But the signaling model specifically predicts a causal effect of education on earnings!
1. Signaling doubts education's effect on *skill, not earnings*!

F. There are *three* competing economic theories of education: human capital, signaling, and ability bias. Each takes stances on three distinct issues:
   1. Visibility of skill.
   2. Education's effect on skill.
   3. Education's effect on income.

G. Summary table:

Table 3.2: Human Capital, Signaling, and Ability Bias

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
WYSIWYG="What You See Is What You Get."			

   1. Note: Mixed versions of the three theories are not only possible, but much more plausible than any pure version.

IV. Correcting for Ability Bias

A. Human capital and signaling are competing explanations for whatever effect education has on earnings. But you have to investigate ability bias before you can determine how much effect of education on earnings there is to apportion.

B. Classic approach: measure ability, then compare people with different educations but identical ability. Statistically, this is equivalent to adding control variables to a regression of logged income on a constant and education.

C. IQ (or "cognitive ability" more generally) is the most common control variable. Findings:
   1. Holding education constant, 1 IQ point (mean=100, SD=15) raises earnings about 1%.
   2. Holding IQ constant, the education premium falls 20-30%.

D. Much thinner literature adds controls for "non-cognitive abilities" like conscientiousness and conformity. Relatively small marginal effects of adding these controls, but maybe the measures are poor?

E. Verdict: Cautious estimate of 25% total ability bias (20% cognitive plus 5% non-cognitive); Reasonable estimate of 45% total ability bias (30% cognitive plus 15% non-cognitive).

V. Basics of Signaling

A. There must be different types, varying by intelligence, conscientiousness, conformity, or whatever.

B. Types must be non-obvious.

C. Types must visibly differ *on average*. Though you can't see type directly, you can fallibly *infer* type.

D. Two questions for employers to ask:
    1. Unanswerable question: “Who’s truly the best worker for the job?”
    2. Answerable question: “Which worker sends the best signals?”

E. If employers hire based on the second question, they create an incentive for less desirable types to *impersonate* higher-quality types. To remain viable, signals must, on average, be more costly for types in higher demand.
    1. “Cost” can be financial or psychological.

F. Signaling is just a special case of statistical discrimination.

G. What does education signal?
    1. Intelligence
    2. Conscientiousness
    3. Conformity
    4. More?

H. In a sense, almost everyone conforms to something. What education signals is conformity to workplace norms.
    1. While school and work norms are different, they heavily overlap: obedience to authority, punctuality, tolerance for boredom, good manners, etc.

I. Recurring analogy: You can raise a gem’s market price by skillfully cutting it (human capital) or favorably appraising it (signaling).

VI. The Signs of Signaling

A. Sign #1: The ubiquity of useless education.
    1. High school coursework
    2. College majors
    3. Tests of adult knowledge
    4. Very low Transfer of Learning

B. Sign #2: The handsome rewards of useless education
    1. Large payoff remains after correcting for ability bias.
    2. Wheat versus chaff: high school classes
    3. Wheat versus chaff: payoffs by college major
    4. Government licensing and credentialism

A. Sign #3: The sheepskin effect: Low payoffs per year of education, high payoffs for graduation.
    1. High school: +4.4% for normal year, +15.1% for graduation year.
    2. College: +5.1% for normal year, +34.1% for graduation year.

B. Sign #4: Credential inflation: educational needed to *get* jobs rises even when the educated needed to *do* jobs doesn’t. Long-run estimates:
    1. Early 70s to mid-90s, average education rose 1.5 years; higher-skilled occupations account for only .3 years.
    2. 1972-2010, average education rose 1.75 years; higher-skilled occupations account for only 19%.

C. Sign #5: Personal versus national education premium: Education pays individuals much more than it pays countries.
   1. International results for personal education finds high premium (roughly 10% per year) in all countries.
   2. Results for national education are very mixed. Some prominent economists even find *negative* effects; others, low but positive effects. The rest find moderate positive effects.
   3. Bad Third World data? Problem also holds for OECD. Results for study that tries eight different education measures:

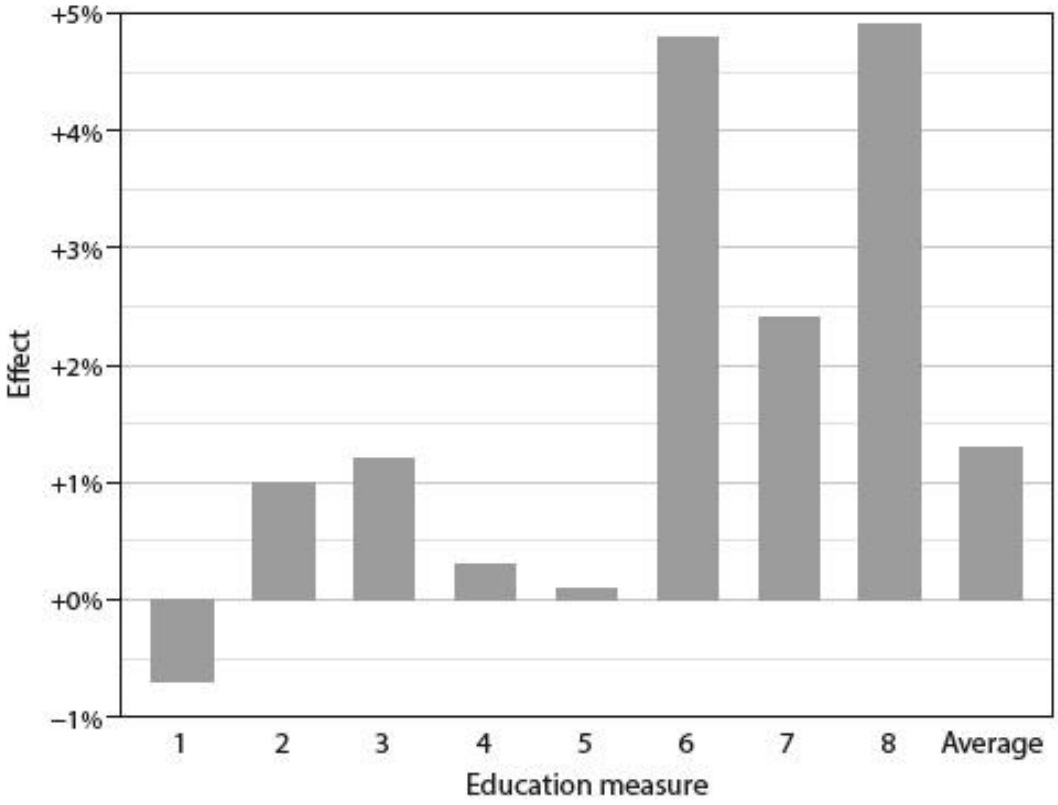


Figure 4.3: Effect of a Year of National Education on National Income
Source: de la Fuente and Doménech 2006b, appendix, p. 52, table A.1.f.

VII. Objections to Signaling
   A. Leading objections to the signaling model don't say it contradicts experience. They say experience is misleading. Leading objections:
   B. "Signaling=100% signaling." Schools teach literacy and numeracy, both useful job skills, so the signaling model is wrong.
      1. Reply: No prominent advocate ever said this. Signaling purism is mythical, but human capital purism is real.

C. "Signaling=signaling intelligence alone." IQ tests are much cheaper ways to measure intelligence than years in school. Why don't employers just use those?
    1. Reply: Education signals more than intelligence - and high IQ scores without matching educational credentials signal low conscientiousness and conformity.

D. "Signaling shouldn't take years." Once you've signaled your quality with a year or two in school, why would employers value anything further?
    1. Reply: There are no "show-stopping" signals of worker excellence. Signaling is a war of attrition, where you can always go farther to look better. If your competitors have many years of education, you need comparable achievements to convince employers you're in the running.

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

VIII. Puzzles for Human Capital Purism

A. Many facts about education are hard to explain *without* signaling. Top puzzles:

B. "The best education in the world is already free." Colleges almost never check attendees' IDs. So if you simply want to build your human capital, you can move near whatever school you believe to be the best, and receive a full education for zero tuition.
    1. Would you rather have a Princeton diploma without a Princeton education, or a Princeton education without a Princeton diploma? If you pause to answer, you must think signaling is pretty important.

C. "Failing versus forgetting." Human capital theory says employers pay you for skills you have, not skills you used to have. But the career damage of failing classes is high, while the career damage of forgetting what you learned is usually minimal.

D. "Easy A's." Why do students seek out professors known for their easy grading, instead of professors known for teaching lots of useful skills?
E. "You're only cheating yourself." In the human capital model, academic cheating is pointless. So is preventing cheating.
F. "Why do students rejoice when the teacher cancels class?" Well?
G. Signaling readily solves all their puzzles.
    1. Why not unofficially attend Princeton? Because employers won't know you did so.
    2. Why is failing worse than forgetting? Because almost everyone forgets, so it doesn't send a bad signal.
    3. Why do students favor easy graders? Because employers don't know which professors are hard, so you get the same signal for less effort. (Easy *majors*, in contrast, are pretty obvious to employers).
    4. Cheating is a problem because it dilutes the value of everyone else's signals.
    5. Students like cancellation because they get the same grade for less work.

IX. The Selfish Versus the Social Returns of Education
A. Both human capital and signaling models agree that education is individually rewarding. They disagree about *why*.
    1. Human capital: Education pays because it raises skill.
    2. Signaling: Education pays because it *reveals* skill.
B. So is this a purely academic dispute? No. The models disagree about education's *social* rewards. What happens if *average* education rises?
    1. Human capital: Average skill rises, so society is richer.
    2. Signaling: Average skill stays the same, so society is no richer. (In fact, since education costs time and money, society is poorer).
C. Basic estimates of education's selfish return:

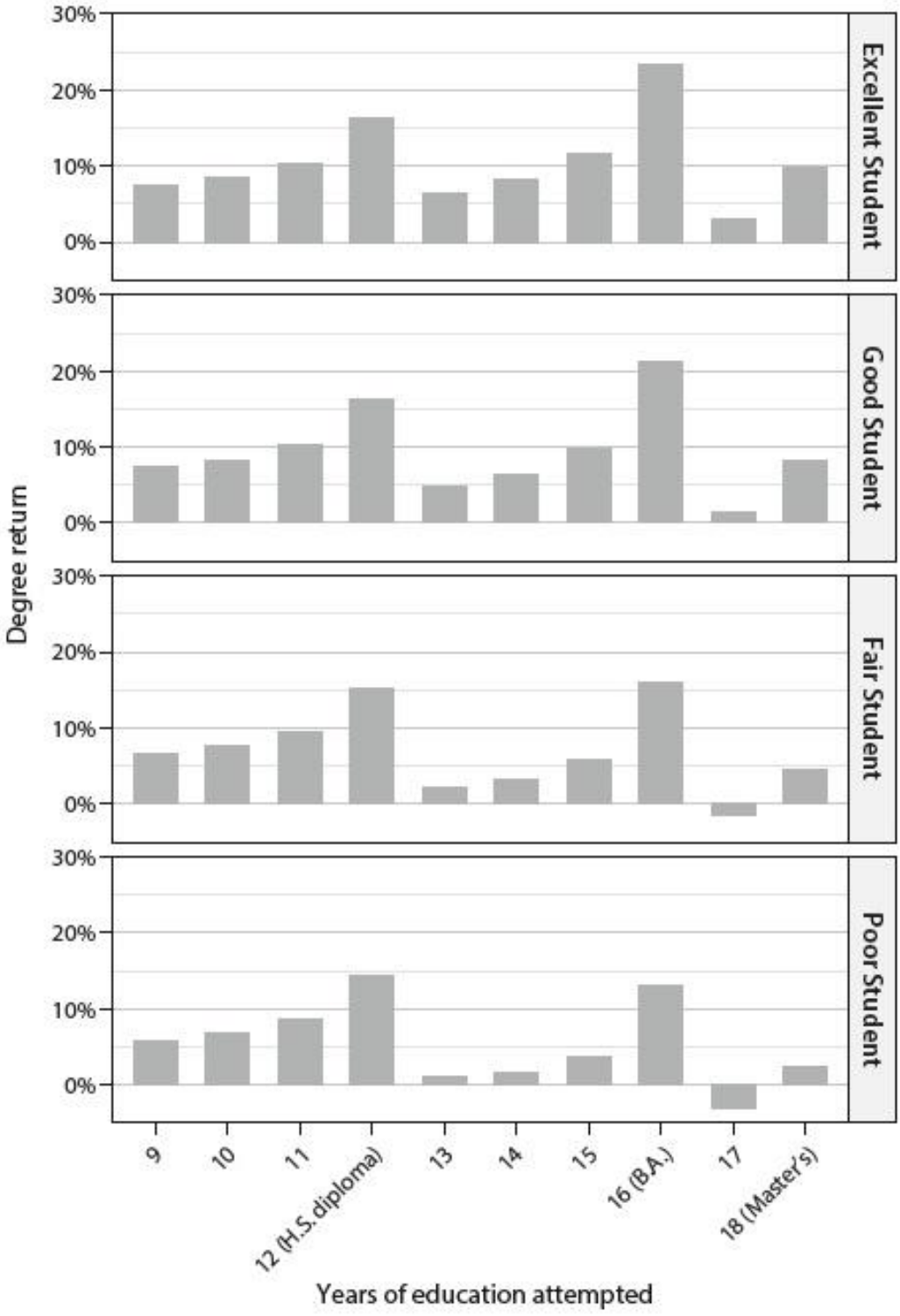
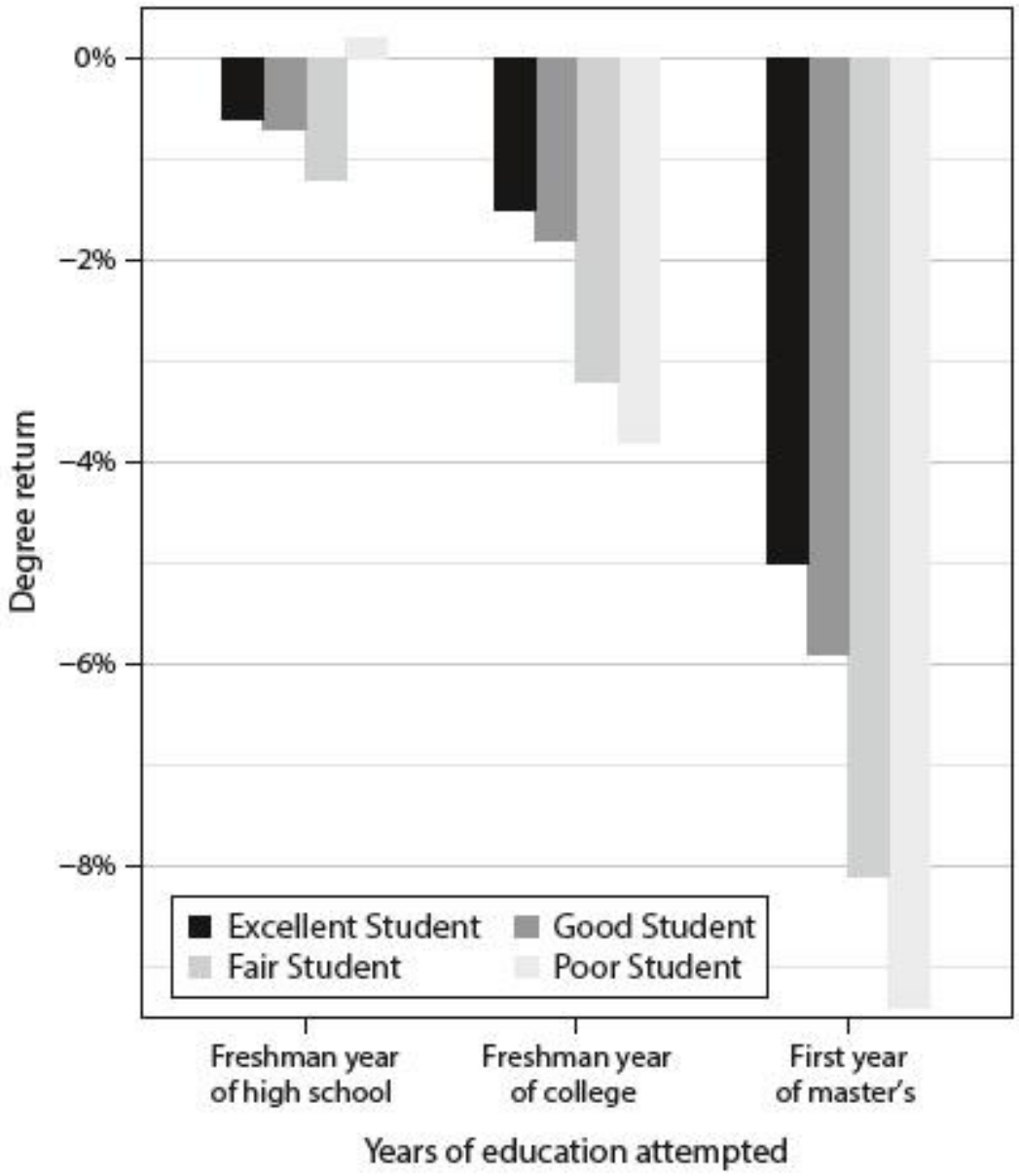


Figure 5.7: Selfish Degree Returns by Student Ability
Source: Figures 5.5 and 5.6 and text.

D. Basics estimates of education's social return:



X. CBA and the Case of Educational Austerity

A. With signaling, rising education yields credential inflation. Workers need more education to get the same job.

1. The Fallacy of Composition: Insofar as signaling is true, education is "smart for one, dumb for all."

B. Social returns below the market interest rate clearly indicate that the quantity of education exceeds the level recommended by CBA.

C. Zero and negative social returns are a strong sign that the quantity of education *greatly* exceeds the level recommended by CBA.

D. *Can* education levels fall? Sure. If you think government funding raises education, simply cutting that funding will have the opposite effect. And current government funding is massive, so there's plenty of room to cut.

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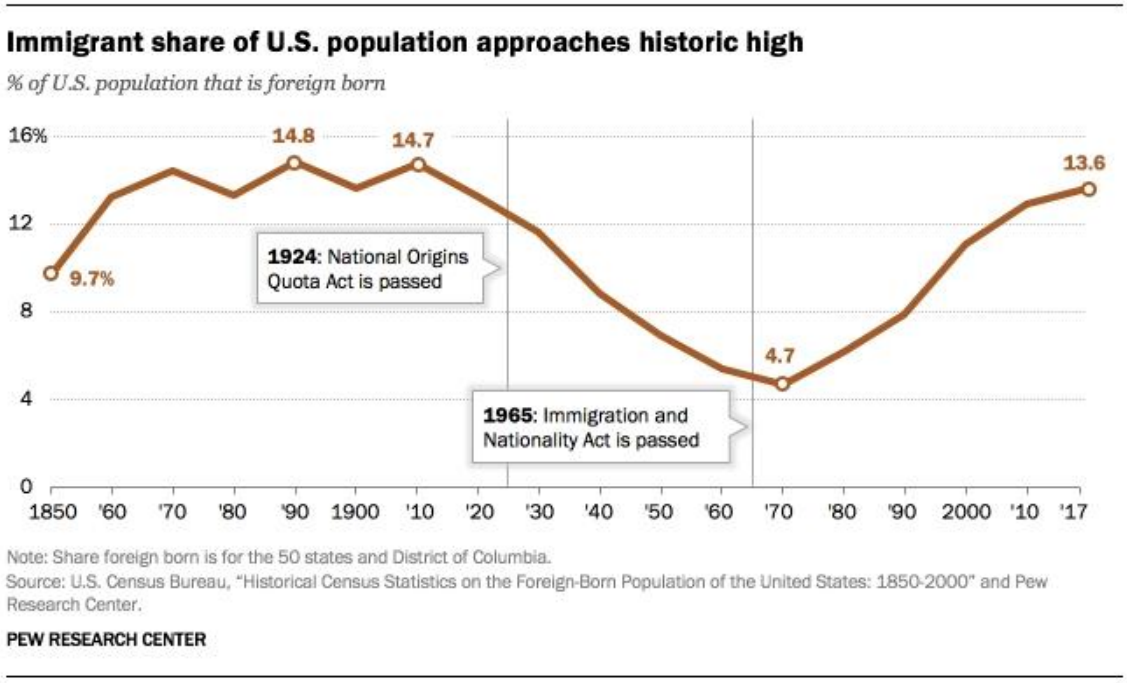
Weeks 10-12: Immigration Restrictions

I. Basics of Immigration, I: The Numbers
   A. Migration remains rare. Roughly 3.5% of human beings currently reside outside their nation of birth – up from 2.8% in 2000.
   B. Where do migrants come from? Asia, then Europe, Latin America, and finally Africa.
   C. Where do migrants go to? Asia, then Europe, North America, and finally Africa.
   D. The U.S. contains more migrants than any other country by a large margin. According to the U.S. Census, we're slightly below the historic high as a share of the population.



   E. As a percentage of population, however, the foreign-born share in the U.S. is moderate. Micro-states (<1M population) aside, the highest foreign-born shares are in UAE (88%), Qatar (79%), Kuwait (72%), Oman (46%), Macao (40%), Hong Kong (40%), Saudi Arabia (38%), and Singapore (37%). (All U.N. 2019 figures)
   F. Out of Western democracies, the highest foreign-born shares are in Australia (30%), Switzerland (30%), New Zealand (22%), Canada (21%), and Sweden (20%).

II. Basics of Immigration, II: Regulation in the U.S. and Globally
   A. Despite its open borders history, the U.S. foreign-born share is now fairly typical for a First World country.

B. The U.S. gives roughly 1 million per year lawful permanent resident status, and grants citizenship to roughly 750,000 per year.

C. Breakdown for new lawful permanent residents in 2018: 44% immediate relatives of U.S. citizens, 20% family-sponsored, 19% refugees/asylees/crime victims, 13% employment-based, and 4% diversity lottery.

D. How many wish to come? Multiple sources of evidence confirm the rationing is draconian.
   1. Black market prices
   2. Surveys – For 2018: over 750M want to migrate; 158M name U.S. as first choice, over 100x the typical annual number admitted.
   3. Diversity lottery – about 0.8% make the first cut; about 80% of these apply; about half of these get accepted. Even if everyone who wants to come applies (!), this implies about 12.5M more immigrants per year.

E. How can strict regulation and high illegal immigration co-exist? Simple: Immigrants migrate despite the high costs because the gains are vast.

F. Why isn't illegal immigration higher?
   1. Geography
   2. High smuggling cost (+ credit market imperfections)
   3. Punishment (especially for "illegal *re*-entry")
   4. Danger

G. Globally: The Gulf monarchies have the easiest immigration policies, but even they have considerable regulation – and make naturalization almost impossible.

H. The EU has near-open borders internally, but strict regulation for non-EU members – especially from Third World nations.
   1. The outsourcing of draconian measures

I. Countries like Canada and Australia allow relatively high levels of skilled-based immigration, but strictly regulate other kinds of immigration.
   1. Remoteness and seas substitute for direct enforcement.

J. The number who say they want to come vastly exceeds the number any rich country allows to come.

Top Desired Destinations for Potential Migrants

To which country would you like to move?

	2010-2012	2015-2017	Estimated number of adults
	%	%	(in millions)
United States	22	21	158
Canada	6	6	47
Germany	4	6	42
France	5	5	36
Australia	4	5	36
United Kingdom	7	4	34
Saudi Arabia	5	3	24
Spain	4	3	21
Japan	2	2	17
Italy	3	2	15
Switzerland	2	2	14
United Arab Emirates	2	2	12
Singapore	1	1	11
Sweden	1	1	9
China	1	1	9
New Zealand	1	1	9
Russia	1	1	8
Netherlands	1	1	7
South Africa	1	1	7
Brazil	1	1	6
South Korea	1	1	6
Turkey	*	1	6

III. What's the Optimal Number of People?

A. People often worry about "overpopulation" or "underpopulation." What does this mean in economic terms?

B. It's tempting to say "optimal population"="population with maximum GDP per capita." But:

1. Anyone who has a baby rejects this at the household level. When my wife and I had twins, our family's per-capita income fell by 50% as a matter of pure arithmetic.
2. By this standard, the existence of life-loving but below-average people is "suboptimal."

C. Even by the "maximize per capita GDP" standard, though, the world still might be underpopulated. Consider: Over the last two centuries, both population and per capita GDP have massively increased.

D. Furthermore, over the last 150 years, the real prices of food, fuel, and minerals have fallen by about 1%/year. The main commodity that keeps getting more expensive: labor. If we're "running out" of anything, it's people.
E. In any case, economists' real standard for over- or underpopulation is whether *the marginal baby born has (on net) negative or positive externalities*.
F. Slogan: "You don't have to raise the average to pull your weight."

IV. Negative Externalities of Population
A. As Landsburg notes, many people think that each child born gets a 1/7 billion share of world resources - implying negative externalities.
B. This isn't how the world really works. Instead, when a family has one more child, each child in that family gets a *lot* less, with little effect on anyone else.
C. This is especially clear from bequests. Picture a simple agricultural economy where kids always divide their parents' landholdings equally. If everyone but you has lots of kids, your kid inherits just as much land – and his land will actually be worth more due to higher demand.
D. Lesson: With private property, parents who care about their kids automatically internalize any "poverty externality." Under old-school socialism, in contrast, the poverty externality is very real. You can have an many kids as you like without reducing your family's consumption at all.
E. Poverty aside, people also often worry about the negative *environmental* externalities of population.
F. Key economic point: Limiting population to reduce environmental externalities is using a sword to kill a mosquito. Why not just raise the price of environmental damage with e.g. pollution taxes?
G. The same applies to congestion externalities. If the roads are crowded at rush hour, rush hour tolls are a much cheaper and more humane solution than preventing people from existing.

V. Positive Externalities of Population
A. Does population have any *positive* externalities? Yes!
B. Existence externality: Most people are happy to be alive, but parents can't charge you for the privilege of existing.
    1. In Singapore, though, you are financially responsible for your elderly parents.
C. Idea externality: Progress depends largely on ideas, and ideas come from people.
    1. Historically, almost all progress comes from populous, connected regions of the world – especially Eurasia.
    2. Historically, isolated areas with low populations have low, zero, or negative progress. See Tasmania.
D. Notice: Technology has now connected the whole world. A great idea anywhere quickly becomes a great idea everywhere.

E. Population increases both the supply and demand for new ideas. This is most obvious for languages, but works in all areas of idea creation.
   1. Imagine deleting half the names in your music collection, or half the Nobel prize-winners.

F. Choice externality: More population means more choices. See NYC vs. Hays, Kansas. The fact that urban rents are higher than rural rents shows that people prefer (people + the indirect effects of people) to splendid isolation.
   1. Pointed question: Why don't people who complain about overpopulation move to the middle of nowhere?

G. Retirement externality: Government old-age programs are pyramid schemes. With lots of kids, low taxes can sustain high benefits. Low birth rates are a major reason why Social Security and Medicare are going to be in big trouble.
   1. What if government benefits for the elderly depended on your number of kids?

H. Even without government programs, the elderly benefit if other people have kids. Imagine: What would happen in seventy years if everyone stopped having kids today?

VI. Immigration as Trade, I: Potential Gains

A. With identical workers, immigration raises the workforce without raising worker productivity, so labor supply rises, labor demand stays the same, and native workers are worse-off.
   1. Does this mean that immigration is bad for humanity, or for natives generally? Absolutely not: basic CBA of markets still holds!
   2. The secret of mass consumption is mass production.

B. In the real world, native workers and immigrant workers are *far* from identical.
   1. Most obvious difference: Current immigrants tend to be either low-skilled or high-skilled compared to Americans.
   2. Potential immigrants tend to be very low-skilled compared to Americans.
   3. Slightly less obvious difference: Holding overall skill constant, natives usually speak much better English.

C. This implies that immigration can actually raise wages. Why? Comparative advantage: People with different skills produce more *total* output if they specialize and trade.

D. Suppose that in a day, American and Mexican women can produce:

	American Woman	Mexican Woman
Computer Programs Written	4	.1
Children Cared For	2	2

E. Both sides can increase production by immigration and specialization! Have ten Mexican women switch from writing computer programs to childcare (-1 program, +20 childcares), and

one American woman switch from childcare to computer programs (+4 programs, -2 childcares). The world is richer by 3 programs and 18 childcares.

F. As usual, comparative advantage implies mutually beneficial trade even when one side is worse at *everything*.

VII. Immigration as Trade, II: The Regulatory Barriers

A. Well-established fact: Immigrants to the First World earn vastly more than seemingly identical people who stayed in their home country.

B. Question: What happens if we analyze *these* earnings gaps using the same method we use to measure discrimination?

1. Note: Since we're comparing immigrants to people from the same country who stayed home, we're measuring the effect of discriminatory government treatment (some people can migrate; the rest can't) rather than employer discrimination.

C. Clemens, Montenegro, and Pritchett pursue this question in their paper on "The Place Premium." They use a Becker-type setup to estimate the effect of *mandatory segregation* on wages.

D. Estimates are massive. Results by country:

Nigeria	16.308	Peru	4.153
Yemen	15.114	Guyana	4.067
Haiti	14.245	Jamaica	3.790
Egypt	13.526	Brazil	3.769
Cambodia	9.139	Nicaragua	3.643
Vietnam	8.395	Panama	3.635
Ghana	8.160	Chile	3.582
India	7.859	Guatemala	3.226
Sierra Leone	7.608	Uruguay	3.181
Cameroon	7.477	Colombia	3.068
Pakistan	7.433	South Africa	2.985
Indonesia	7.069	Paraguay	2.907
Nepal	6.692	Thailand	2.828
Sri Lanka	6.657	Turkey	2.735
Venezuela	6.532	Belize	2.633
Jordan	5.593	Mexico	2.589
Bangladesh	5.487	Argentina	2.486
Ecuador	5.368	Costa Rica	2.194
Uganda	5.286	Dominican Republic	2.084
Bolivia	5.106		
Ethiopia	4.585	Morocco	2.026
Philippines	4.504		

VIII. Immigration and Wealth Creation, I: Migration and Labor Productivity

A. If these place premium results are even close to correct, they imply that migration *massively* increases global wealth creation.

B. Key intuition: When a Nigerian who produces $2000/year in Nigeria moves to the U.S., he starts producing 16x as much - $32,000/year, enriching *the world* by $30,000/year.

1. If 15M Nigerians move, global wealth rises by $30,000*10M=$450B per year.

C. Note: This is *not* the trivial point that increasing population increases the GDP of the receiving country. This is the deep point that moving population from low-productivity countries to high-productivity countries increases G*W*P – Gross World Product.

D. What exactly is going on? For starters, we have comparative advantage. Migration allows specialization and trade.

E. Why not just have trade in goods? Simple: Because *80%* of a modern economy is services, most of which *must* be traded locally. Consider:

1. Restaurant meals

2. Childcare and eldercare
3. Construction

IX. Immigration and Wealth Creation, II: Effect on GWP

A. Standard trade models estimate the cost of trade barriers.

B. What happens if we use standard trade models to estimate the deadweight cost of immigration restrictions?
   1. Michael Clemens famously does this in his "Economics and Emigration: Trillion-Dollar Bills on the Sidewalk?"

C. The estimates are astronomical. From Clemens, with some relevant comparisons:

Table 1

Efficiency Gain from Elimination of International Barriers

(percent of world GDP)

All policy barriers to merchandise trade	
1.8	Goldin, Knudsen, and van der Mensbrugghe (1993)
4.1	Dessus, Fukasaku, and Safadi (1999)[a]
0.9	Anderson, Francois, Hertel, Hoekman, and Martin (2000)
1.2	World Bank (2001)
2.8	World Bank (2001)[a]
0.7	Anderson and Martin (2005)
0.3	Hertel and Keeney (2006, table 2.9)
All barriers to capital flows	
1.7	Gourinchas and Jeanne (2006)[b]
0.1	Caselli and Feyrer (2007)
All barriers to labor mobility	
147.3	Hamilton and Whalley (1984, table 4, row 2)[c]
96.5	Moses and Letnes (2004, table 5, row 4)[c]
67	Iregui (2005, table 10.3)[c,d]
122	Klein and Ventura (2007, table 3)[e]

D. In 2019, estimated GWP was $142T. So if open borders doubled global production, it would increase GWP by another $142,000,000,000,000 per year.
   1. Present value with 4% discounting: $3.6 quadrillion.
   2. Present value with 4% discounting and 2% continued global growth: $6.8 quadrillion.

E. Intuitively, the annual deadweight cost is huge because you are multiplying a huge loss to the world per worker times a very large number of workers.
   1. The NPV is mind-bogglingly huge because the world gets this annual gain forever.

F. Disclosure: To capture the full gain, billions of people have to move.

X. CBA and the Downsides of Immigration

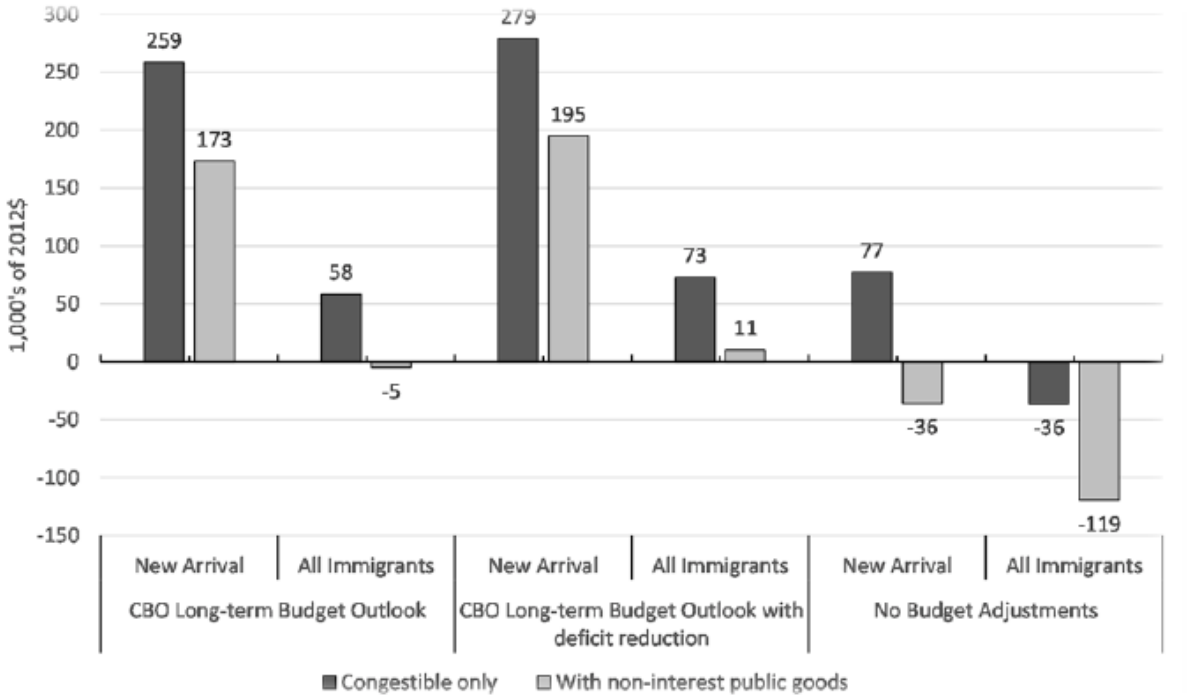
A. If these numbers are even remotely correct, open borders could have hellish downsides and *still* pass a cost-benefit test with flying colors.
B. Why? Because the downsides would have to cause many trillions of dollars of losses, year after year.
    1. $1T - $1B ≈ $1T
C. To be blunt, the vast majority of complaints about immigration are just SDB: vague worries, vivid horror stories, and hyperbolic predictions.
    1. "London's not England anymore!"
D. CBA, however, insists on seeing price tags, which the most thoughtful critics of immigration sometimes provide.

XI. Fiscal Effects of Immigration, I: Basics of Public Finance and Migration
A. Immigrants use public services, which burdens natives.
B. Immigrants also pay taxes, which unburdens natives.
C. In countries like the U.S., the use of public services varies only moderately by income, but the payment of taxes varies tremendously by income.
D. Upshot: From a fiscal point of view, low-skilled immigrants are plausibly a net burden on native taxpayers, while high-skilled immigrants are plausibly a net benefit for native taxpayers.
E. Major complication: Many government services are non-rival; i.e., their cost does not depend on population.
    1. National defense
    2. Debt service
F. With non-rival goods, immigrants can be net taxpayers even though they earn less than average, or even less than the median.
    1. It's the same as the logic of a matinee. Theaters profit by charging some customers much less than AC.
G. Another major complication: Fiscal burden varies heavily by age. School-age children are extremely burdensome for taxpayers, as are the elderly. Working-age people, in contrast, use few services.
H. Remember: Welfare states focus much more on helping kids and the elderly than helping the poor per se.
I. Third major complication: Immigrants come in families – and immigrant parents often have native children.

XII. Fiscal Effects of Immigration, II: Overall, Long-Run Net Fiscal Effects
A. In the face of all this complexity, how can we measure the *net* fiscal effect of an immigrant?
    1. Key point: Most people have an opinion on the fiscal effect of immigration but have zero patience for actually looking at numbers.
B. Easy answer: Measure the Net Present Value (NPV) of all the taxes an immigrant will ever pay minus the NPV of all the services an immigrant will ever consume.

C. Better answer: Count the NPV of the immigrants' descendants as well. This is called the "overall, long-run net fiscal effect."
D. Do these estimates require assumptions? Absolutely, but all assumptions are not created equal.
E. National Academy of Sciences estimates (in $1000s) of overall, long-run net fiscal effects, using a 75-year horizon:

FIGURE 8-23 Net Fiscal Impacts of Immigration, by Budget Scenario, Treatment of Public Goods, and Average Characteristics of New Immigrants



F. Why makes the "No Budget Adjustments" numbers so bad? Because they assume that the U.S. keeps spending vastly more than it taxes… forever.
G. The NAS also breaks numbers down by educational and age category.
A. Primarily due to tax progressivity, more-educated immigrants have a better NPV.
B. **Corrected estimates:** NPV for *actual* 25-year-old high school dropout immigrants is actually -$186,000. NPV for *actual* 25-year-old high school graduates is +$72,000. (Table 8-13)
C. While projecting the fiscal effects of liberalization using current averages is naïve, interacting sub-group estimates with estimates of post-liberalization demographics isn't.

XIII. Cultural Effects of Immigration, I: The Value of Assimilation
A. The American "melting pot" has long been a popular ideal.
B. Though some have put forward the competing "salad bowl" ideal, almost everyone favors immigrant assimilation along *some* important dimensions.

1. Language
2. Support for democracy
3. Support for human rights
4. Educational success
5. Self-support
6. Rejection of extremism

C. What's good about assimilation?

D. Palatable answer: coordination. No culture is "better" than any other, but it is better for people who share a country to share a culture to avoid a "Tower of Babel" situation.

E. Bitter but potentially better answer:
1. Good culture makes countries successful.
2. Successful countries spur immigration from unsuccessful countries.
3. If immigrants assimilate, larger group gets to enjoy the benefits of the "superior" culture.
4. Otherwise, receiving countries will eventually be as bad as sending countries.

F. Example: Is Islamic fundamentalism a good system in culturally supportive countries? Or is it bad everywhere?

G. Of course, some assimilation concerns could be about coordination, while others are about cultural superiority.

H. "Magic dirt" – or magic culture?

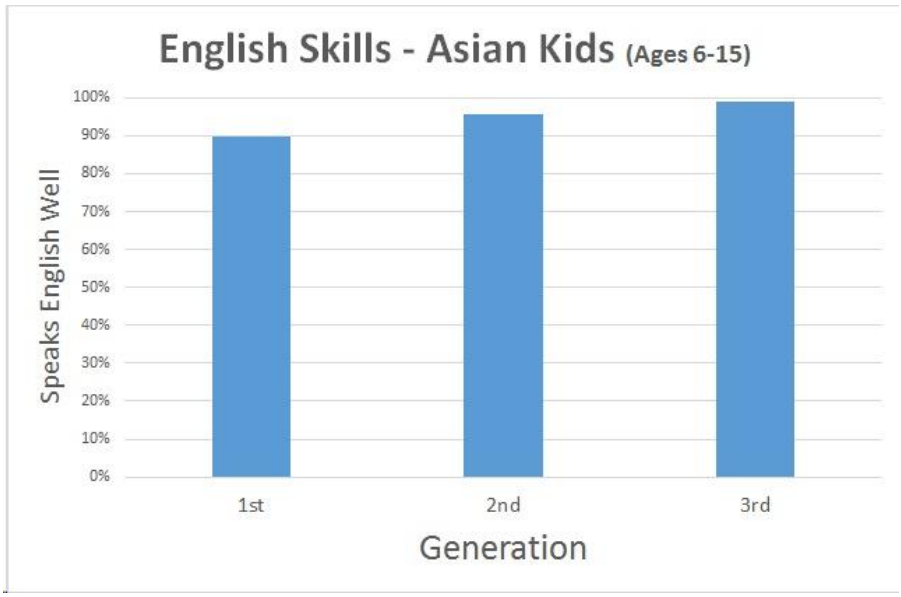
XIV. Cultural Effects of Immigration, II: Linguistic and Educational Assimilation

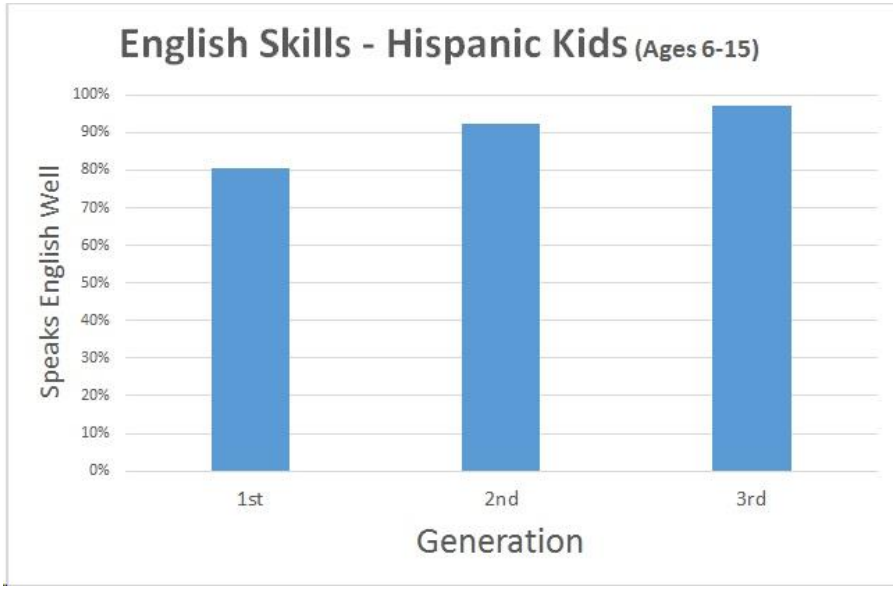
A. There is a widespread perception in the U.S. that the latest wave of immigrants is failing to learn English. Is this true?

B. On the surface, yes. Between 1980 and 2010, the share of the U.S. population that doesn't speak English in the home rose from 11% to 21%. 44% in California!

C. On closer look, immigrants themselves haven't changed much.
1. First-generation adult immigrants from non-English countries rarely became fluent in the past, and rarely become fluent today.
2. Subsequent generations of immigrants, however, continue to attain near-universal fluency.

D. "Speaks English well" results for kids (ages 6-15) by generation.
1. Note: These measures understate *adult* fluency.





E. There is normally a high correlation between parental education and child education.

F. Question: If we admit lots of low-education immigrants, should we expect this to sharply depress the education of the next generation?

G. Answer: No, because the children of immigrants have *much* higher upward mobility than children of natives.

H. The pattern for children of natives:

TABLE 8-9 Predicted Educational Distribution of U.S.-born Children of a U.S.-born Paren Percentages of Parental Offspring Expected to be in an Educational Category (rows add 100)

Parent's education \ Child's education	Less than high school	High school graduate	Some college	Bachelor's degree	More than bachelor's
Less than high school	29.4	50.9	18.4	1.3	0.0
High school graduate	7.6	42.2	42.2	7.8	0.2
Some college	1.0	16.9	50.1	28.8	3.2
Bachelor's degree	0.0	2.3	26.0	51.8	19.9
More than bachelor's	0.0	0.3	7.0	40.3	52.4

Color Scale: 10-20, 20-30, 30-40, 40-50, >50

I. The pattern for children of immigrants:

TABLE 8-8 Predicted Educational Distribution of U.S.-born Children of a Foreign-born Parent, Percentages of Parental Offspring Expected to be in an Educational Category (rows add to 100)

Parent's education \ Child's education	Less than high school	High school graduate	Some college	Bachelor's degree	More than bachelor's
Less than high school	17.1	44.1	32.4	6.2	0.3
High school graduate	4.3	27.2	46.2	20.3	2.0
Some college	0.7	11.9	40.2	38.0	9.2
Bachelor's degree	0.1	2.2	21.7	46.5	29.5
More than bachelor's	0.0	0.6	8.8	37.7	52.9

Color Scale: 10-20, 20-30, 30-40, 40-50, >50

J. Suppose we code the five educational categories from 1-5, then look at the conditional expectation for children's education as a function of parental education. Results:

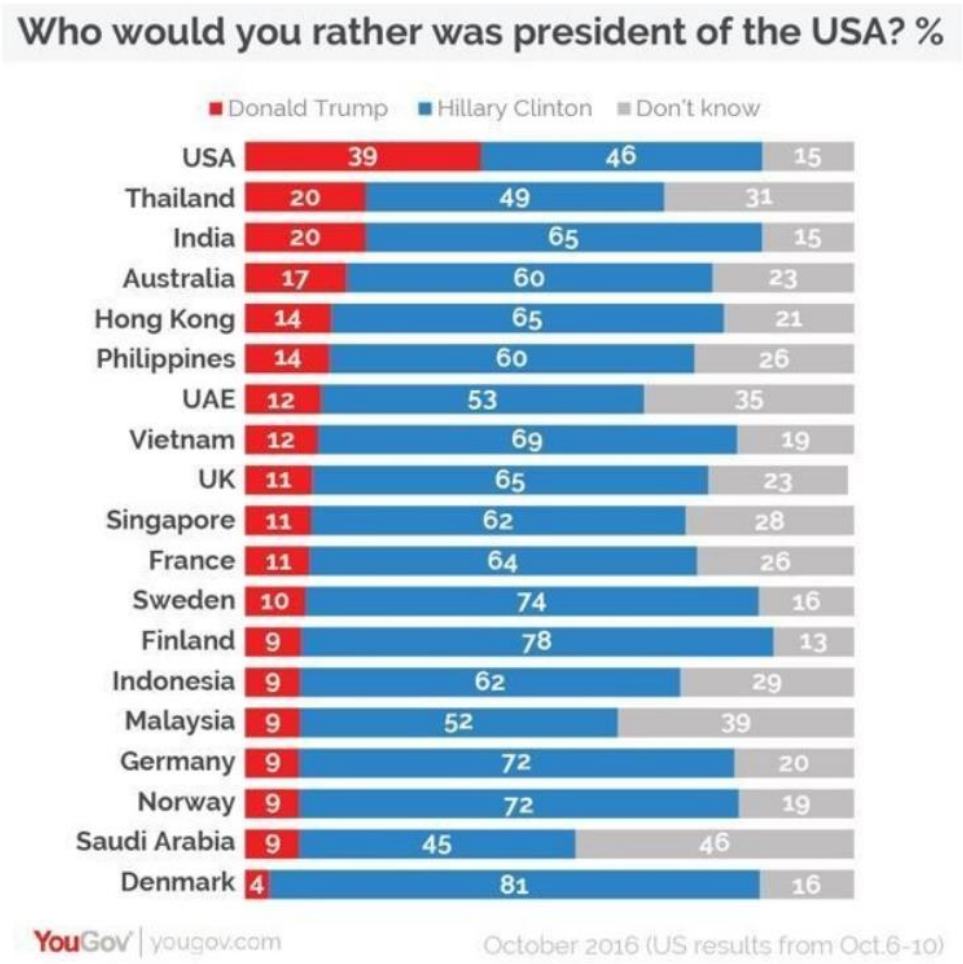
Parental Education	Native Parent	Immigrant Parent
1	1.9	2.3
2	2.5	2.9
3	3.2	3.4
4	3.9	4.0
5	4.4	4.4

K. We can use this information to construct another table mapping immigrants' observed education into their *potential* education – i.e., the education they would have acquired if they'd been born in the United States.

Immigrant Education		**Environment Deprivation**
Actual	Potential	
1	1.67	-.67
2	2.57	-.57
3	3.29	-.29
4	4.20	-.20
5	5.00	-.00

L. This gives us a plausible measure of the environmental deprivation effect of growing up outside of the U.S.
   1. The poorer the country, the greater the likely deprivation.

XV. Political Effects of Immigration, I: Nativity and Party Identification in the U.S.
   A. If you're worried about negative political externalities of immigrant voting (or political participation more broadly), you can't merely show that immigrants vote badly. You have to show that they are *worse* than natives.
   B. "Worse" by what standard? For partisans, the obvious answer is: "Immigrants who vote for my party are good; immigrants who vote against my party are bad."
   C. Back in the 1980s, immigrants were almost as likely as natives to be Republicans. Since then, however, a large gap has opened up.
   D. Foreign-born voters are now 10 percentage-points more Democratic than natives.
      1. The gap is even bigger for immigrants who don't or can't vote.
      2. Worldwide, Democrats are much more popular than Republicans. 2016 international poll:



E. This is not just about race. In 2012, white immigrants voted 9 percent-age points more Democratic than white natives.

F. Why the gap? One popular Republican story points to immigrant self-interest. Yet Republicans also do poorly with wealthy, socially conservative Asians.

1. Consider Indian-Americans, with a 4:1 D/R ratio.
2. Alternate story: the Respect Motive.

XVI. Political Effects of Immigration, II: Nativity, Education, and Policy Opinions in the U.S.

A. Unless you're a professional politician, winning *policies* matter much more than winning *parties*.

1. Ponder: Democrats in Republican states vs. Republicans in Democratic states.

B. Big question then is: Relative to natives, what do immigrants think about policy?

C. Answer: On average, the differences are very mild.

1. Immigrants are microscopically more liberal (.18 gap on a 1-7 scale).
2. Immigrants are moderately more in favor of government activism (.44 gap on a 1-5 scale).

3. Almost exactly as hostile to taxes on the poor and middle-class, and slightly more hostile to taxes on the rich.

D. Disaggregated results:
   1. Immigrants are more supportive of welfare spending.
   2. Immigrants are less supportive of social security, health, education, and environmental spending.
   3. Immigrants are notably less supportive of defense spending.
   4. N.B. It's all relative, because government spending is absolutely popular with natives and immigrants.
   5. Immigrants are more socially conservative the natives on most issues, including abortion, gay marriage, marijuana legalization, and free speech for radical Muslims.
   6. Finally, immigrants are more pro-immigration (/less anti-immigration) than natives.

E. These are results for immigrants who currently reside in the U.S. But open borders would drastically change immigrant demographics. Mostly notably, it would allow far more low-skilled immigrants.

F. Key question: What are the political opinions of low-skilled foreigners like?
   1. Answer: Quite "populist" – economically liberal, socially conservative.
   2. Free speech index: U.S. mean is at 50th percentile; immigrants without high school degrees 28th percentile; other immigrants 47th percentile.
   3. Statist economic policy index: U.S. mean is at 50th percentile; immigrants without high school degrees 79th percentile; other immigrants 60th percentile.

G. Suppose you consider "populist" voters dangerous. How worried should you be about low-skilled immigrant voters? Only moderately, because…

H. Immigrants have low turnout.
   1. In 2012, 72% of eligible natives voted, versus 48% of eligible immigrants.

I. Low-skilled immigrant voters have *very* low turnout.
   1. In 2012, only 27% of eligible immigrants who dropped out of high school voted.

XVII. Keyhole Solutions

A. Even if these estimates of fiscal, cultural, and political harm are optimistic, none seem remotely close to trillions of dollars of annual harm. The CBA case for radical deregulation is very strong.
   1. But can we do even better?

B. A major innovation in medicine: "keyhole surgery." The idea: Surgeons try to minimize side effects by carefully crafting the least invasive approach required to fix the patient's problem.

C. Keyhole surgery has inspired some policy analysts to develop "keyhole solutions" for social ills. The idea, again, is to minimize side effects by carefully crafting the least invasive approach required to fix society's problems.
    1. Pollution regulations versus pollution taxes
    2. Government provision versus vouchers

D. When people criticize immigration, however, the proposed remedies have little to do with the specific complaints.

E. Instead, the focus is on (a) exclusion, and (b) removal/deportation, despite severe side effects.

F. What would keyhole solutions for immigration problems look like? Let's take the soundness of the main complaints about immigration for granted, then consider how you could craft a cheap, humane remedy.

G. Immigration and American poverty: If immigrants are reducing the living standards of low-skilled Americans, there's no need to reduce immigration. We could simply charge immigrants an admission fee or extra taxes, then use the revenue to compensate low-skilled Americans.

H. Immigration and American taxpayers: If immigrants aren't paying their way, we could restrict immigrants' eligibility for various government benefits.

I. Immigration and American culture: If immigrants aren't learning our language and/or culture, we could make passing grades on language or "cultural literacy" tests a condition of entry.

J. Immigration and American liberty: If immigrants are bad voters, we could restrict their right to vote.

K. If any of these alternatives to immigration restrictions seem unfair, they're clearly *less* unfair than preventing people from coming at all.

L. The Gulf monarchies, the countries with the world's most open immigration, all make heavy use of keyhole solutions.

M. Are keyhole solutions impossible in Western democracies? Hardly. Many are already in use, even in the U.S.

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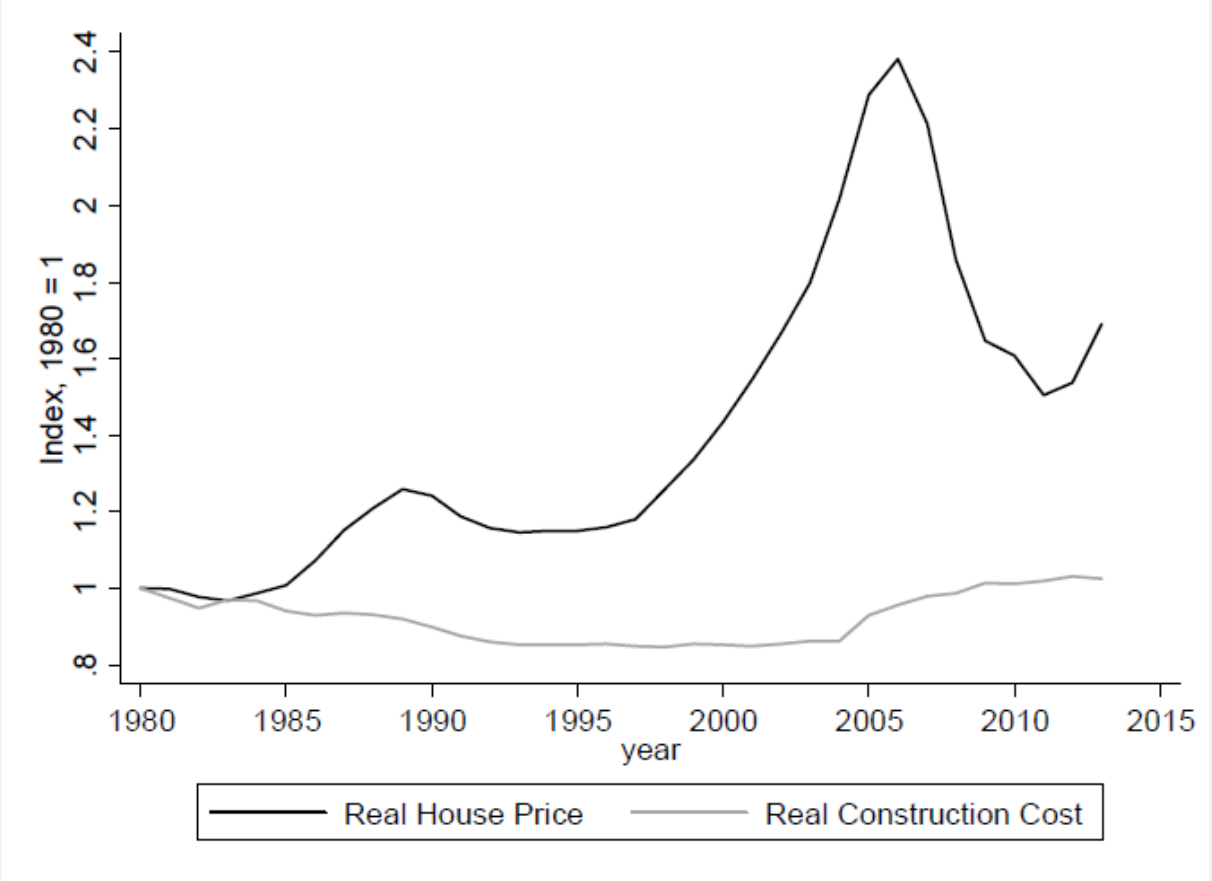
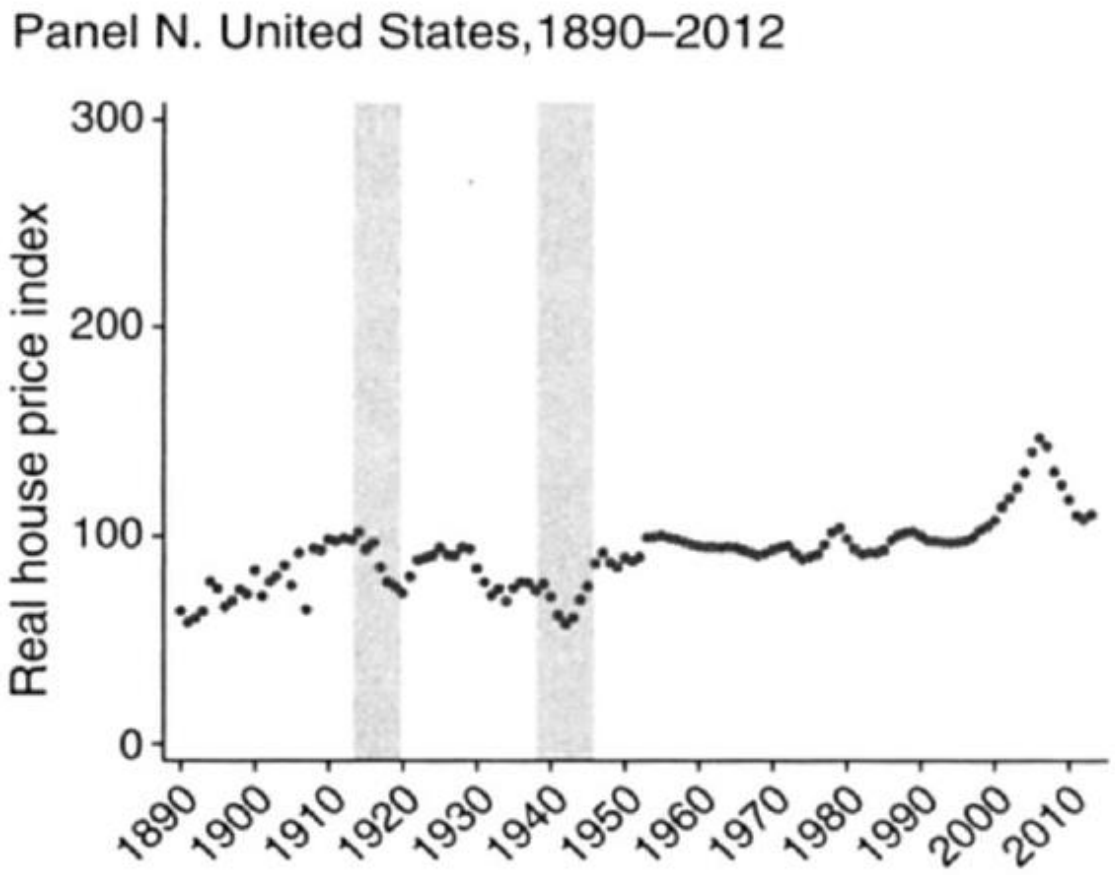
Econ 309

Week 12: Housing Regulation

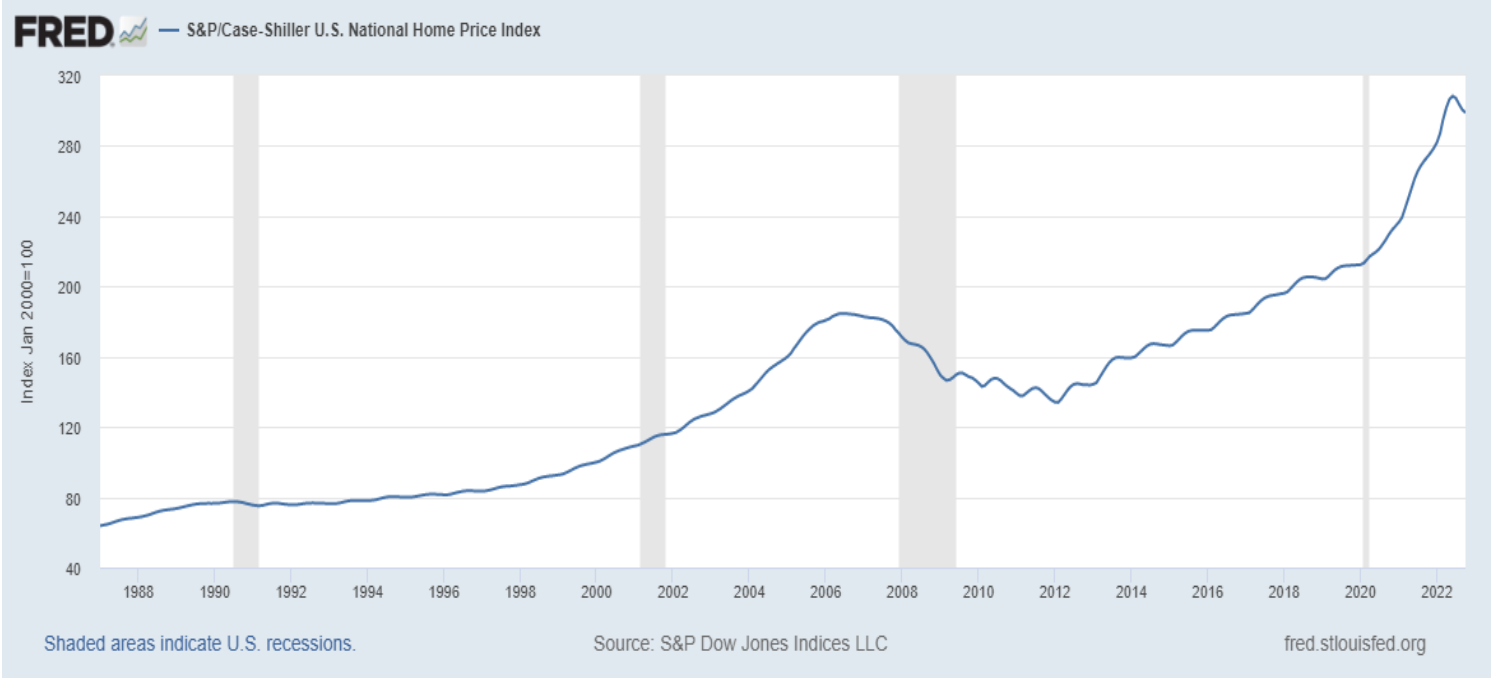
I. Housing Regulation: The Basic Facts
   A. Over the last 50 years, US housing prices have increased much more than inflation, especially in the most desirable areas of the country.
   B. Historically, even large increases in demand had little long-run effect on housing prices. Instead, builders just made more housing until prices fell back to the "breakeven" level.

Figure 1: Real Construction Costs and House Prices Over Time





C. Despite regional differences, the national trend toward higher housing prices actually accelerated during Covid.



D. This is a big deal because Americans spend about 20% of their income on housing.
E. What happened? The go-to answer, as usual, is just "supply-and-demand."
    1. Population keeps going up, so shouldn't demand constantly rise?
F. The puzzle: S&D used to bring housing prices back down to cost in the long-run. Why doesn't this happen anymore?

II. The Effect of Regulation on Housing Prices
A. Almost all economists who study this issue converge on the same story: regulation. Getting permission to build homes is very hard, which keeps housing prices permanently well above cost.
B. The main regulations:
    1. Building height limits
    2. Multi-family restrictions
    3. Minimum lot size
    4. Parking requirements
    5. Government land ownership, especially federal
    6. Environmental regs
    7. Conflicting uses zoning
    8. Historic preservation
    9. Pure delay
C. Hard to say exactly which regulations matter most, but much easier to measure the *total* effect of all regulations. Standard approach:
    1. Look at value of similar homes with slightly different amounts of land.
    2. Use this to estimate the pure value of land.
    3. Then combine with standard estimates of construction costs to see how much homes physically cost to make.
    4. Then, we look at the difference between this estimate and actual market prices.
D. Earlier work found enormous "zoning taxes" in the most desirable areas, but not much elsewhere.
E. Later work with better data on vacant lot prices also finds large zoning taxes in almost all major cities.
    1. If many people actually live somewhere, the zoning tax there is probably very high.
F. Key point: People spend vastly more on housing that on, say, gasoline. So doubling this cost has *large* negative effects on living standards.
    1. Rough estimate: Without regulation, the cost of living would be 10% lower, implying living standards 11% higher.
G. Additional effect: High prices discourage people from migrating to high-productivity areas, further depressing living standards.

H. Thought experiment from Hsieh and Moretti: What if the zoning tax in New York, San Jose, and San Francisco were pushed down to the national median city's?
    1. Caveat: I found an error in H-M, and they confirmed it.
    2. Their conservative GDP estimate: +3.7%→+14%; their optimistic estimate +8.9%→+36%.

III. The Pigovian Defense
A. You could accept that housing regulation drastically increases housing prices, but defend this outcome using CBA.
B. How? Argue that each of the notable regulations is a wise response to negative externalities.
C. Building height limits? They keep builders from blocking the light of existing owners, and protect aesthetics.
D. Multi-family restrictions? They reduce parking and traffic problems, and prevent congestion of public services.
E. Minimum lot size? They, too, reduce parking and traffic problems, and prevent congestion of public services. Plus aesthetics.
F. Parking requirements? They reduce parking problems.
G. Government land ownership? They protect the aesthetics of the entire country.
H. Environmental regs. They protect the air, water, climate, wildlife, and more.
I. Conflicting use zoning. To prevent industrial use from bothering commercial and residential establishments, and to prevent commercial establishments from bothering residential.
J. Historic preservation: "We all benefit from preserving our history."
K. Pure delay. It takes careful study and deliberation to detect and measure negative externalities.
L. Big Problem #1: Pigovian corrections allow people to create all the negative externalities they want as long as they pay the price. Few actual regulations, in contrast, allow you to just buy your way out.
M. Big Problem #2: Many of the so-called "negative externalities" could easily be solved with normal market pricing!
    1. Modern tech allows market-clearing driving and parking fees, but almost no government uses these techs.
    2. Conflicting uses naturally separate. Industry wants to locate near ports and rail to get low transportation costs; commercial wants to locate near main roads to get drive-by customers; luxury homes are worth more next to other luxury homes.
N. Big Problem #3: Pigovian corrections match the severity of the negative externalities. Actual regulations don't.
    1. How severe can the negative aesthetic externalities of adding a skyscraper really be?
    2. How many beloved historic buildings would builders *want* to demolish?

O. Big Problem #4, the biggest problem of all: These defenses only consider the negative externalities of construction, but there are also enormous *positive* externalities!
   1. How do we know? Actions speaker louder than words: You can escape almost all negative externalities by living in a remote rural location, but almost no one chooses to do so.
   2. Prices show that the NET value of all the benefits of density minus all of the costs of density is strongly positive.
   3. What are the positive externalities? Work, consumption, and social opportunities.

P. If it's unclear that housing has net negative externalities, standard CBA of markets makes sense. U.S. housing regulation really does waste roughly 10% of GDP per year, plus additional massive GDP losses from discouraging migration to high-productivity regions.

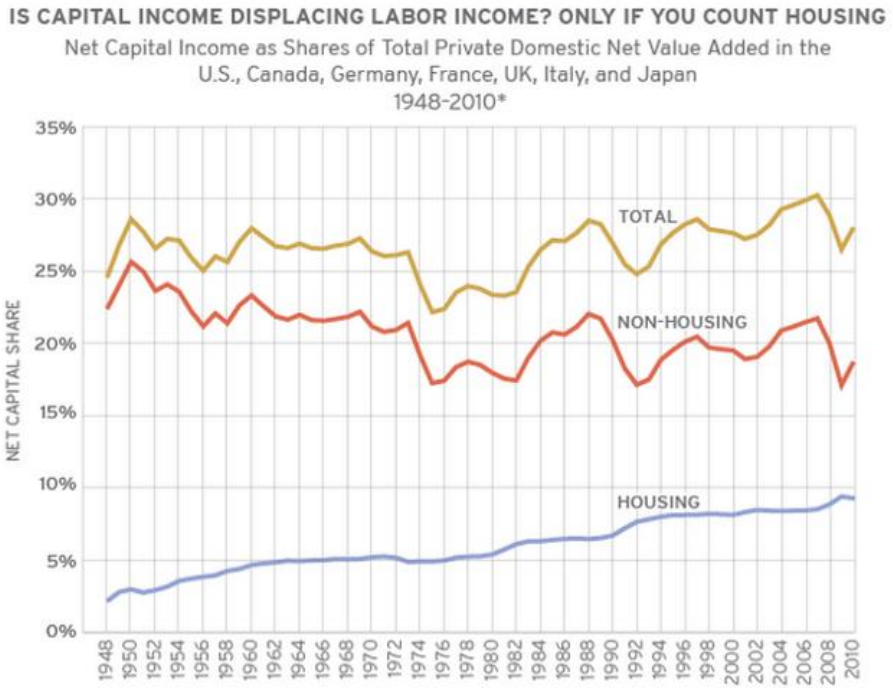
IV. The Panacea Policy

A. Housing regulation also amplifies other social ills.

B. Inequality and poverty: The poor spend more on housing, and homeowners are richer than renters.
   1. Poorest quintile expenditure share: 24.5%; richest quintile 17.7%.
   2. Median 2015 family income for renters: $34k; for owners, $52k.

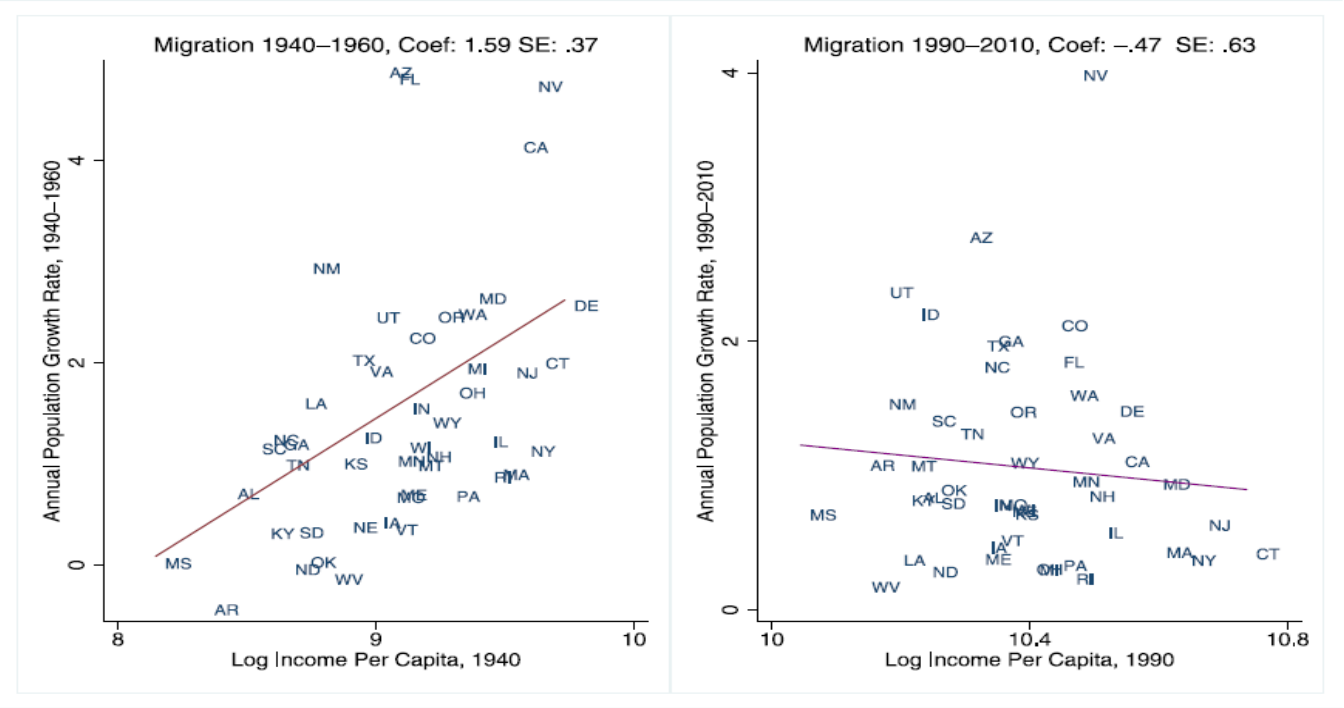
C. So deregulation clearly reduces inequality, and is especially helpful for the poor.
   1. How should CBA count this?

D. Rognlie's diagram on capital's rising share and housing regulation:



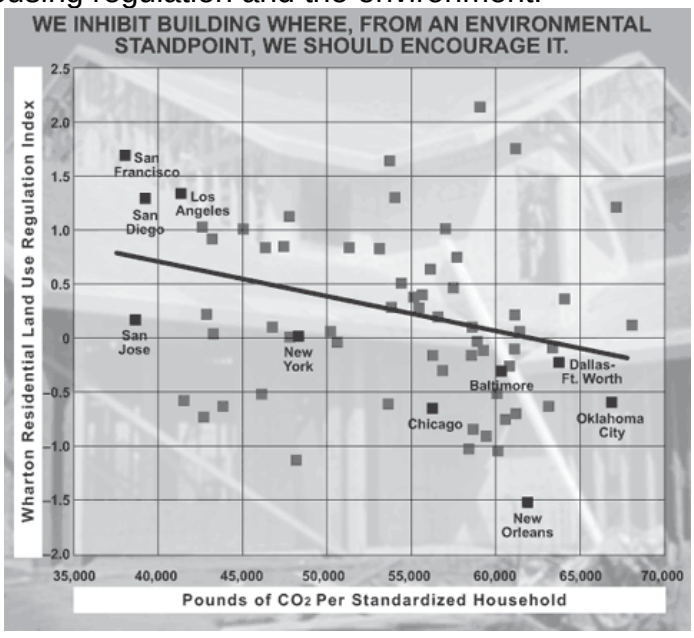
E. Mobility: When housing prices were close to cost, moving from a poor state to a rich state was a reliable way to raise your income. And many Americans took advantage of this opportunity.

F. Due to regulation, the extra housing cost in high-income states often exceeds the wage gain. Now Americans tend to move *away* from high income areas to get cheaper housing.



G. Housing regulation and crime: Notable experiment shows that vacant lots cause crime. So allowing construction should cut crime.

H. Housing regulation and the environment:



1. Central cities are 5-10% greener than surrounding areas.
2. California is greenest; the South is least green; Northeast is in-between.
3. New homes, though bigger, are greener.
4. Areas with most housing regulation are (coincidentally!) greener.
5. Upshot: Housing deregulation would move development into greener locations (and greener buildings).

I. Regulation and low birthrates: Multiple papers find cheaper housing raises fertility.

J. "Deaths of despair" and non-college males.
1. "Revive construction, not the Rust Belt."

V. Parking, Traffic, Schools, and Pricing

A. Remember the problems with gratis pricing?

B. Congestion often amplifies the waste, because crowding degrades the quality of the product.

C. Standard complaints about new housing:
1. Parking
2. Traffic
3. Schools

D. All of these problems arise because governments refuse to charge market-clearing prices (or often, any price at all).

E. Obvious remedy: Deregulate housing and raise prices on congested goods.

F. If local redistribution is an excuse to exclude the poor from your locality, why have local redistribution in the first place?!

VI. CBA Versus Voter Self-Interest

A. Most critics of housing regulation – including economists – blame crafty NIMBYs. ("Not In My BackYard.")

B. The story: Even though regs fail CBA, they are in NIMBYs' self-interest. "I'm just protecting my property value here."

C. But this story is grossly overrated.
1. If true, people would happily allow development if existing owners got a property tax discount, and new owners paid a property tax premium.
2. "Let's make a deal!"
3. What about owners who want to upgrade? Who want their adult kids to live nearby?
4. Renters favor regulation, too.
5. In polls, just mentioning developers' profits sharply reduces public support.

D. Alternate stories:
1. Economic illiteracy
2. Status quo bias/myopia ("The history of the future.")
3. Innumeracy
4. Paranoia

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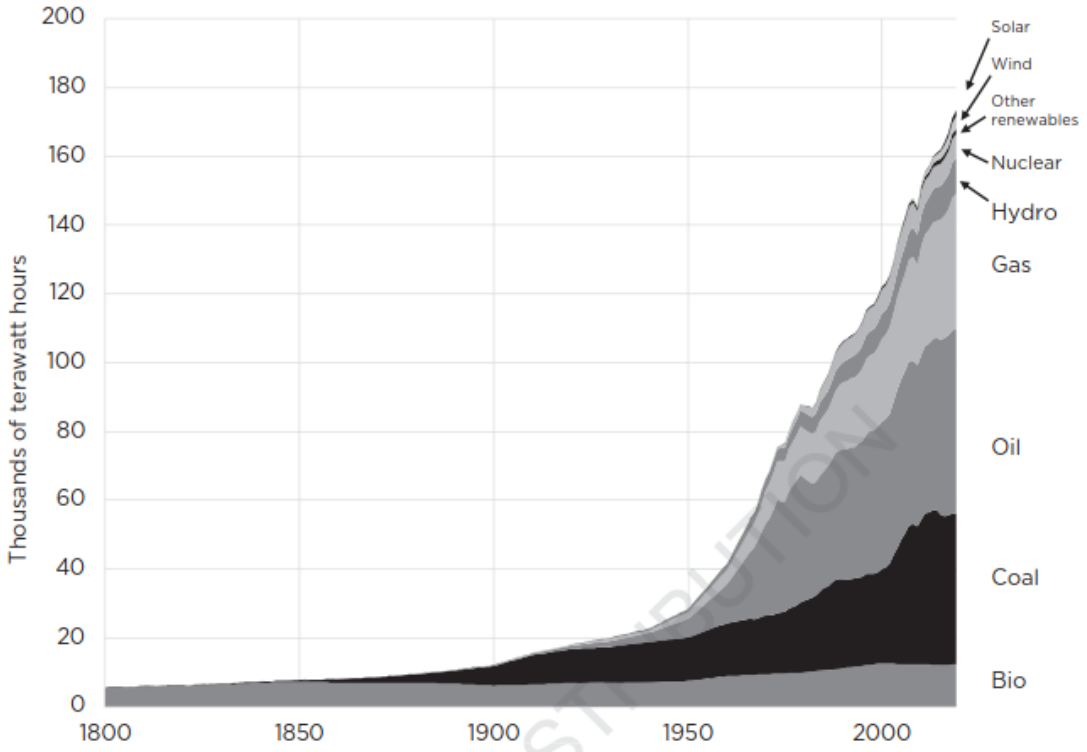
Week 14: Energy and Environmental Policy

I. Energy: Why We Need It, Where We Get It
   - A. By itself, human labor power is pathetically weak. Even with unlimited calories, the amount of physical labor your unaided body can complete in a day is small.
   - B. As a result, humans routinely augment their productivity with outside energy sources. For most of human history, these were just:
     1. Wood
     2. Dung
     3. Domesticated animals
   - C. In recent centuries, however, humans figured out how to use much more advanced forms of energy. To start: coal.
   - D. Later: oil, natural gas, and nuclear.
   - E. Humans use energy for four main purposes:
     1. Electricity
     2. Transportation
     3. Residential heating
     4. Industrial heating
   - F. Where did humanity get our energy for the last 200 years?
     1. Until 1850, virtually all still came from “bio” – wood, dung, and such.
     2. Then coal slowly took off, reaching about half of all energy by 1900.
     3. Coal kept replacing bio, but after a couple decades, oil becomes important. By 1960 or so, oil matches coal.
     4. Natural gas becomes important by 1970 or so. Now there’s roughly a three-way tie globally between coal, oil, and natural gas.
     5. Around 1970, nuclear looks ready to take off, but soon plateaus at less than bio.
     6. Everything else is a rounding error. If you’ve seen bigger numbers, it’s probably because they’re only looking at electricity rather than all four energy uses.

FIGURE 1.1 **Only Fossil Fuels Provide Low-Cost, On-Demand, Versatile, Global-Scale Energy**



Source: Our World in Data; Vaclav Smil (2017); BP Statistical Review of World Energy

G. Notice that the y-axis shows *absolute* energy consumption, which has risen in step with rising population and rising living standards.

II. Why Fossil Fuels Dominate and Renewables Don't

A. Good energy sources have the following traits:
   1. Concentrated: Lots of energy by weight and volume to allow easy transportation.
   2. Reliable: Available whenever you need it.
   3. Abundant: High quantity in convenient locations.

B. Fossil fuels have the whole package.
   1. Concentration: Gasoline, for instance, has 31,000 calories per gallon. If humans could digest gasoline, you'd only need two gallons per month!
   2. Reliable: You can burn them anywhere and anytime you want energy.
   3. Abundant: Despite recurring fears of "running out," known sources are large, and finding new sources is pretty easy.

C. Added bonus: Humans have been figuring out ways to harness fossil fuels for about 200 years, so we've gotten really good at it.

D. By the first three measures – concentration, reliability, abundance – nuclear energy is even better than fossil fuels. Uranium has 18 billion calories per gram!
E. At least for now, however, we have much less experience figuring out ways to harness nuclear.
F. More importantly, regulation of nuclear power is extraordinarily strict. The last American nuclear plant to be built opened 2016; the previous plant opened in 1996.
    1. Nuclear energy is simultaneously subsidized and penalized, but the penalties far outweigh the subsidies. The 2016 plant took 43 years to complete.
    2. Just to replace existing fossil fuels with nuclear would require us to scale up construction of nuclear by a factor of over 500x.

III. The Problems of Renewable Energy
A. The leading renewables, in contrast, lack all three traits of good energy sources. Wind and solar are:
    1. Diffuse: You have to collect low levels over a large area.
    2. Unreliable: After you drain your batteries, they don't work unless the wind is blowing or the sun the shining.
    3. Not naturally abundant: They've been subsidized for decades but still provide little energy.
B. What would it take to solve the unreliability problem? Vastly better batteries, or a massive global grid far beyond anything that now exists.
C. Optimists usually focus on wind and solar electricity, but electricity is only one of the four main categories of energy. Using wind and solar for heavy transportation (like planes or container ships) or industrial heating (like steel mills) are still fantasies.
D. How do we manufacture windmills and solar panels? Fossil fuels.
E. Aren't wind and solar quickly becoming more competitive? Even now, wind and solar are only widely-used where they are heavily subsidized.
F. Rich countries that use a lot of wind and solar have a full fossil fuel backup system – and pay the fixed costs to maintain both systems.
G. Could all of this suddenly change? Anything's possible, but the best predictor of the future is the past.
    1. Who wants to bet on it?
H. What about hydro? It works well in areas with abundant water sources, but it is also heavily regulated.

IV. CBA, Externalities, and the Value of Nature
A. Despite their incredible performance as energy, fossil fuels also have notorious problems.
B. Classic problem: air and water pollution. Early coal burning turned whole cities black with soot. Modern fossil fuels are much cleaner,

but many researchers still find that air pollution does serious damage.

C. Modern problem: climate change. Burning fossil fuels releases carbon dioxide. At the levels that humans now use fossil fuels, this is enough to measurably warm the entire planet.

D. Many people fear that this warming will, in turn, cause numerous other severe environmental problems: storms, flooding, ocean acidification, and much more.

E. More extreme environmentalists also have a per se objection to humans tampering with nature:

"In the late 1980s, inaccurate reports that fusion was close to commercial reality caused some of our designated experts to be asked what they thought about the prospect of an incredibly low-cost and clean form of energy. What did they say?

"Paul Ehrlich: Developing fusion for human beings would be 'like giving a machine gun to an idiot child.' Jeremy Rifkin, another designated environmental expert: 'It's the worst thing that could happen to our planet.' Amory Lovins was already on record as saying, 'It would be little short of disastrous for us to discover a source of clean, cheap, abundant energy, because of what we might do with it.'"

F. Just a few extremists? Explain the strict regulation of hydro and nuclear, which emit no air pollution or carbon dioxide.

G. There are even notable environmental objections to wind and solar, because they require filling large regions with windmills and solar panels.

H. If people really value unspoiled nature, CBA counts their willingness to pay. Due to severe SDB, however, it's unlikely that true willingness to pay is high.

1. How much can people *really* care about an oil spill in an uninhabited area of Alaska?

I. Remember how Pigovian remedies work: Add a tax the matches the negative externalities, then let people do what they want.

V. Negative *and* Positive Externalities of Energy

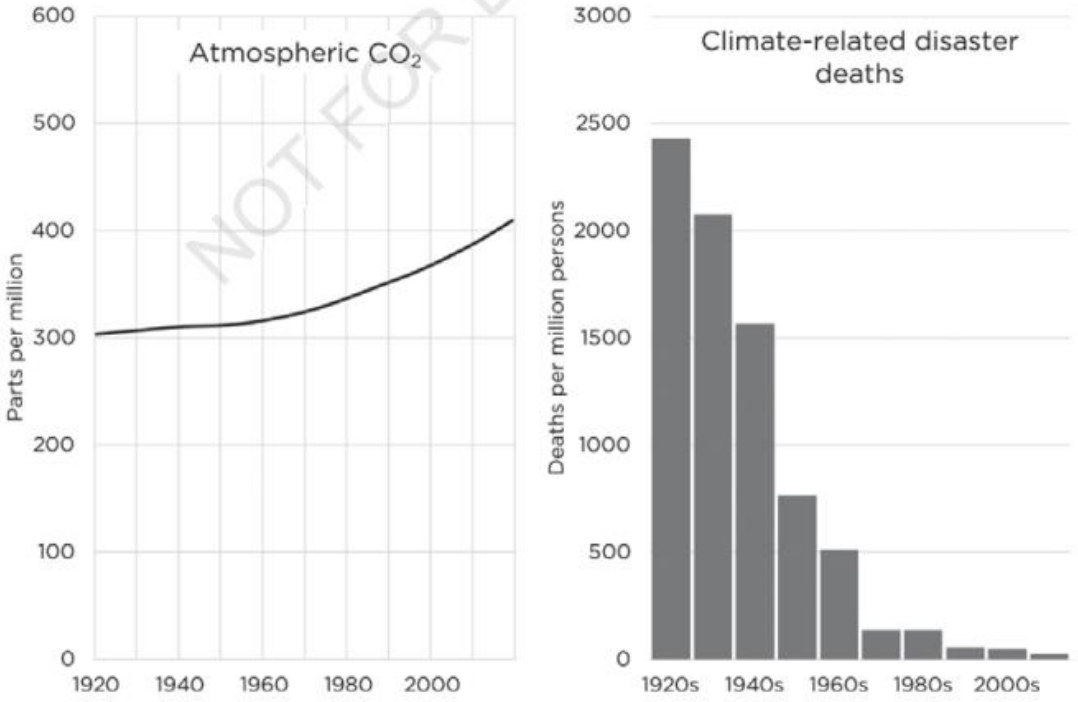
A. Energy, like population, has greatly neglected positive externalities.

1. Effect of carbon dioxide on plant growth.

B. In at least some important cases, the positive externalities clearly outweigh the negatives.

C. Most notable example: climate deaths.

FIGURE 2.2 **More Fossil Fuel Use, Plummeting Climate-Related Disaster Deaths**



Sources: Scripps Institution of Oceanography; EM-DAT; World Bank Data; Maddison Project Database

D. Carbon emissions are definitely warming the planet, so how is this possible? Because fossil fuels power the modern economy, which (a) shelters humans from harm, and (b) rescues them from harm that still occurs.

E. Other positive externalities? Fossil fuels power the modern economy, which makes humans rich, which creates surplus resources for innovation.

F. Epstein points out that even coal has clear positive externalities… when it replaces dung and wood.

G. Published estimates of the effect of carbon emissions on GDP are doing a thought experiment where we *costlessly* find a perfect replacement for fossil fuels.

H. Is this likely? Humanity discovered nuclear power, a fantastic replacement for fossil fuels, almost a century ago. It would be miraculous if we found something better, but we barely use the replacement we have.

VI. Climate Change and Climate Mastery

A. Realists who write about climate change usually admit that part of the solution is “adaptation.” Low-lying coastal areas, for example, will find that building seawalls is their least-bad option.

B. From this perspective, however, adaptation sounds very risky. When disaster strikes, what makes us so sure that we can readily "adapt"?

C. Epstein's central lesson: We should stop thinking of adaptation as a new, untested process. The reality is that Earth is *naturally* a dangerous place for humans – and we've been "adapting" to it for thousands of years.

1. Imagine the Virginia winter with only wood and dung for heating.

D. Historically, this adaptation was spotty at best; just look at climate deaths in 1920.

E. In the last century, however, humans' adaptation has become amazingly good. So good, in fact, that Epstein proposes a replacement phrase: "climate mastery."

F. We don't just use fossil fuels, then struggle to "adapt" to the world we've ruined.

G. Instead, fossil fuels change Earth from one dangerous place to a different kind of dangerous place. We already used fossil fuels to practically eliminate all the familiar dangers.

H. The only question is whether the new dangers are outside the range of what we've already been able to handle – and we already handle a *huge* range of dangers – every climate from equatorial to Arctic.

VII. The Problem of Tail Risk

A. Isn't there at least some small probability that continuing fossil fuel usage will lead to total disaster? A disaster that exceeds our climate mastery?

B. Sure, but we face multiple disaster scenarios. Most obviously, what if the world's governments disallow fossil fuels before we have any cost-effective replacement?

C. More likely: What if energy regulations force the Third World to stay in poverty for a few extra decades? Taking away energy from rich countries will probably be much harder than preventing poor countries from getting energy in the first place.