An Introduction to Economics and Labor Economics

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Roadmap

1. Introduction
2. What is Economics
3. What is Labor Economics
4. How to learn (Labor) Economics
5. The last

Introduction

- Until my PhD, it wasn't clear to me **what economics is**, **what economists do**, and **how to learn economics**; I guess the same may go to other econ students
  - Many myths and misunderstandings about economics in society
  - Some information missing or hidden in standard curriculums
- This talk
  - addresses and clarifies some of these misperceptions
  - introduces labor economics, arguably the best field to illustrate how economists perceive the world
  - showcases some learning techniques and resources
- Many are "my own views";
  - You should be 'Bayesian' (and w/o too strong priors)
  - Last year's slides also uploaded have more details

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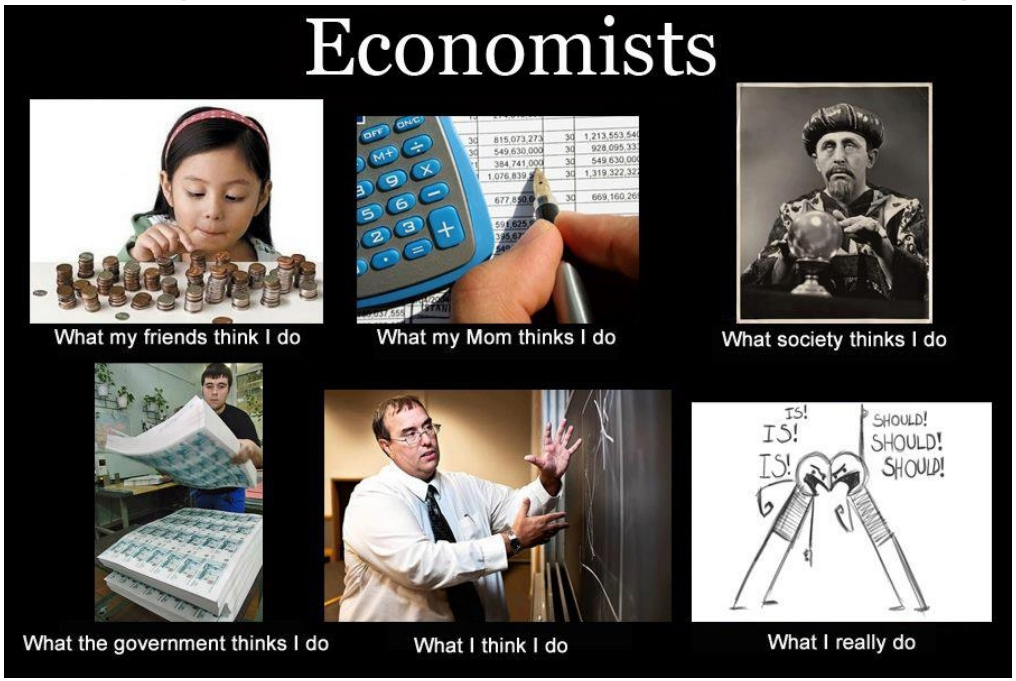
What is Economics?

- Common view: money, business, finance, stock market, ...
- A tricky view: what economists study



- But there are different types of economists
  - Media/Private-sector economist $\neq$ Academic economist
  - An analogy: skydiving coach vs physicist

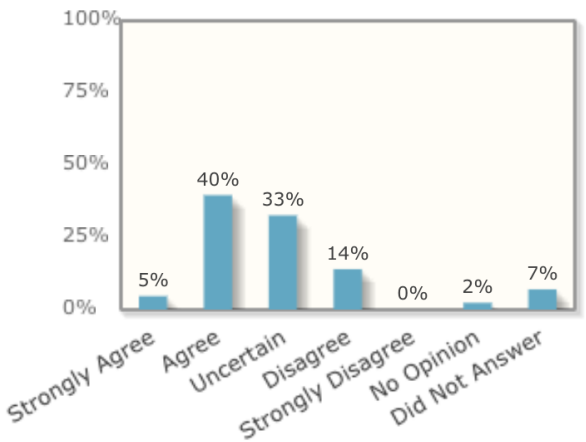
What is Economics?

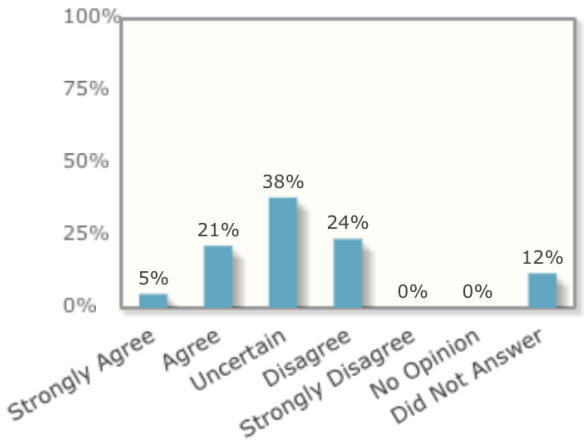
- Academic economists' common view:
  - *"allocation of scarce resources"*
  - *"constrained decision-making"*
- Alfred Marshall: ***"the study of mankind in the ordinary business of life"***
- My take: the study of any human behavior not solely due to biological/physical reasons

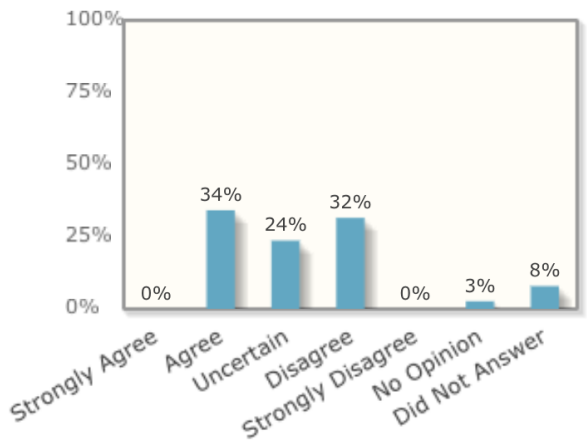
What exactly is Economics?

- Study various fields and topics related to ”business of life”
  - Macro, Micro, Econometrics, Labor, Development, Industrial Organization, Public, Trade, International, Urban, Health, Environment, Organizational, Behavior, Political, Economic History, ...; Finance, Management, and Marketing are near relatives
- Using economics tools
  - Theory vs. Empirics; Micro vs. Macro; Reduced vs. Structural; ...
- **No ”principals” or ”laws”; Only tools, paradigms, and some temporary consensus**
  - Evolution of suitable tools and paradigms
  - Significant disputes exist over many arguments, explanations, and predictions
  - No representative agent for economists (though they often assume), so be careful when hearing ”Economists say ...”
  - You might be unfamiliar with this type of chaos, but welcome to the real world

Economists' views on if raising US federal Minimum Wage to a high level will lower employment of low-wage workers







[$15 (2021; EU ver)] [$15 "stubstantially" (2015)] [$9 "noticeably" (2013)]

The federal minimum wage has been fixed at $7.25 since 2010 (source)

Key concepts in Economics

- Supply & Demand
- Optimization / Incentives / Constraints
- Tradeoff / Marginal benefits vs. Marginal costs
- Equilibrium
- Efficiency / Market failures

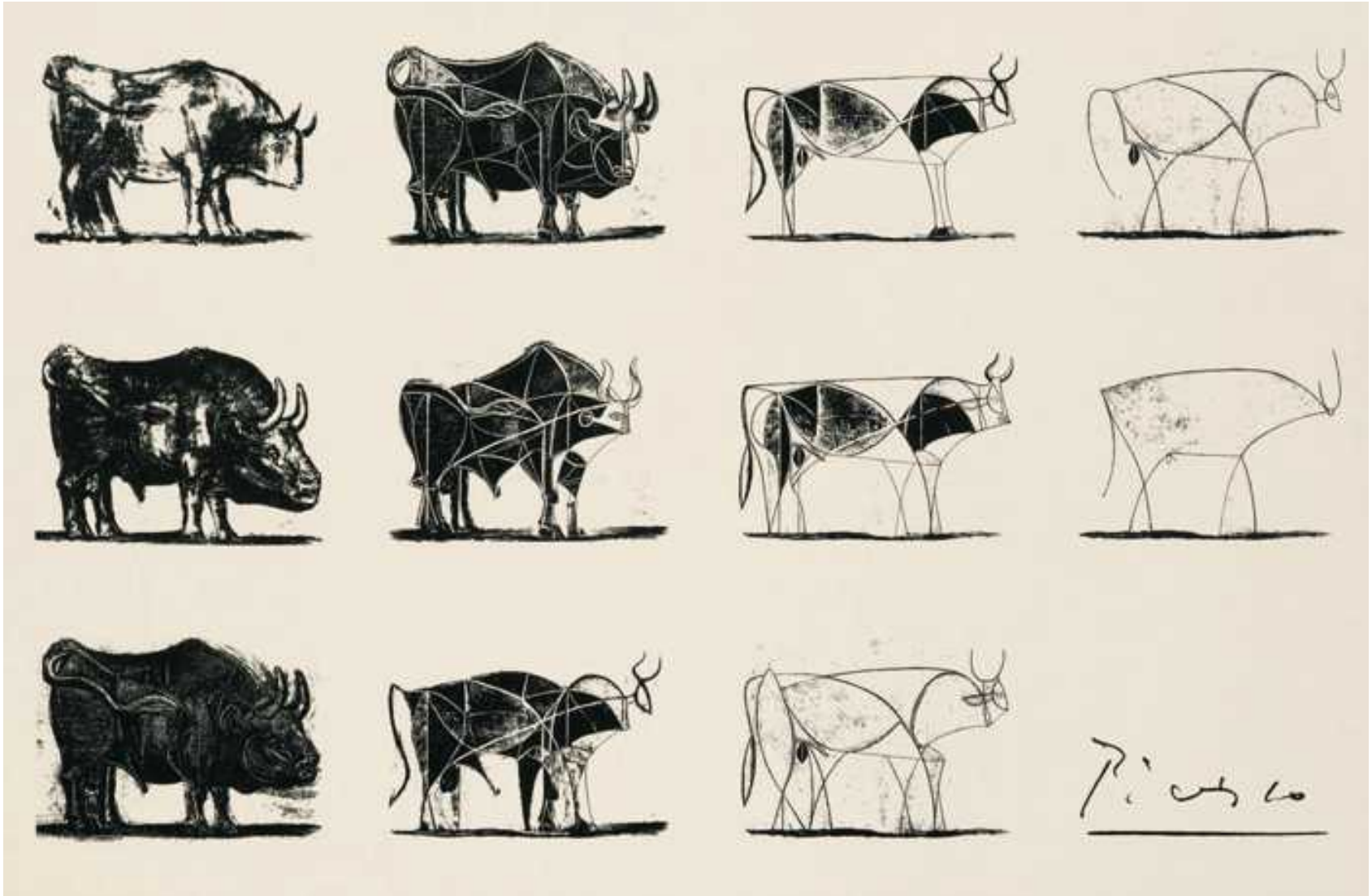
- Institution

- Estimation / Causal inference / Counterfactual

Some myths about Economics

1. **"Economics is all about unrealistic assumptions"**
   - *"relevant question ... is not whether they are descriptively 'realistic', for they never are, but whether they are sufficiently good approximations for the purpose at hand" — Milton Friedman (1953)*
   - *"All models are wrong, but some are useful" —George Box (1978)*
   - Why useful? Simplify complexity; Capture essence; As-If
2. **"Economics is not science"**
   - Modern economics, while for sure way less accurate than many other subjects like physics, does follow the same scientific paradigm: Puzzles $\rightarrow$ Models $\rightarrow$ Tests $\rightsquigarrow$ New puzzles $\rightarrow \ldots$
   - In some sense "more complex" and "more challenging"

How Picasso drew bulls



”Art is not truth. Art is a lie that makes us realize truth...” –– Pablo Picasso

Some myths about Economics

3 **"If economics is useful, economists would be billionaires"**

- Again, physicists need not be good at sky-diving or flying
- It's more about understanding how our human society works
- Economics is increasingly important in policy making or at least in thinking about policy making

4 **"Economics is over-mathematic"**

- Math is just another "language", like English or Python
- It has been proven more powerful in logical thinking (induction and deduction) than natural language

Theory vs. Empirics

- Economics before 1990s: theory dominated
  - Too many theories; Too few tests
- Economics today: empirical works dominate
  - Credibility revolution *(largely by labor economists!)*; "Causality"
- Both are important
  - Theories are necessary to think about complicated empirics
  - Empirical evidence is necessary to motivate and test theories
- So, we will touch both, but with main focus on **basic theories**
  - Learn the language first before telling the stories

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What is Labor Economics?

- **Labor economics study the aspects of everyone's entire life**
  - Marriage, Family, Child birth, Parenting
  - Education, Major, Training
  - Work, Leisure, Home Production
  - Occupation, Career, Tenure
  - Job Search, Unemployment, Retirement
  - Wage, Amenity, Inequality,
  - Gender, Race, Discrimination
  - Many other subtopics and relevant topics
    (Check the sessions and papers of a recent labor economics conference!)
- Also connected with macro, public, trade, urban, dev, org, ...

What exactly is Labor Economics?

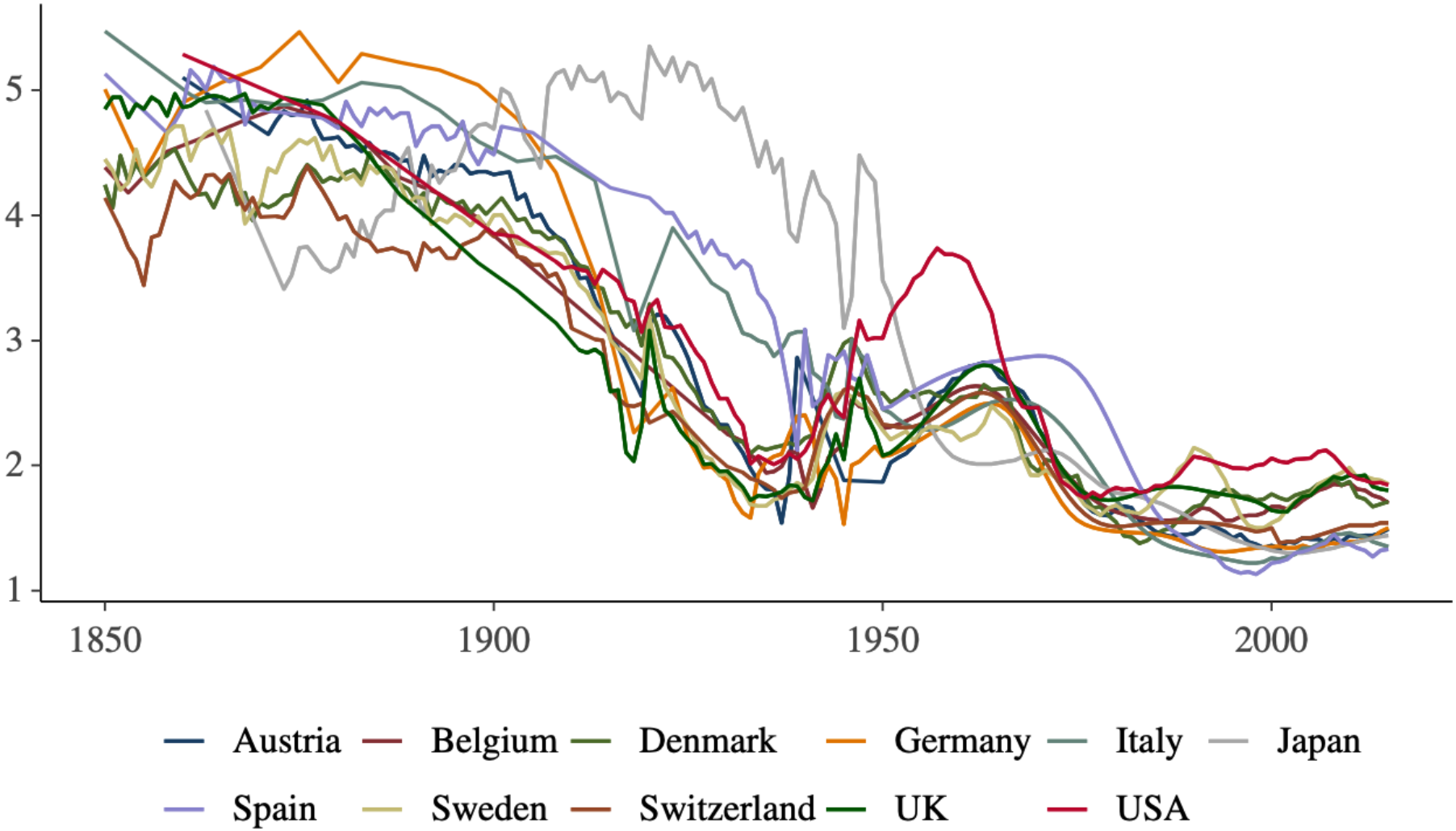
Study these life events and issues through the lens of economics tools

1. Look at ”data” to find stylized facts and economics questions
2. Theoretical explanations of empirical findings
   - ▷ Micro theory
   - ▷ Macro theory
   - ▷ (Causal models)
3. Empirical testing of theoretical predictions
   - ▷ Reduced form estimation $\rightsquigarrow$ Casual inference
   - ▷ Structural estimation $\rightsquigarrow$ Model estimates / Counterfactual
   - ▷ Calibration $\rightsquigarrow$ Model fitting / Counterfactual
4. Policy implication, evaluation, and simulation; Prediction

(1 and 2 will be the focus of this class)

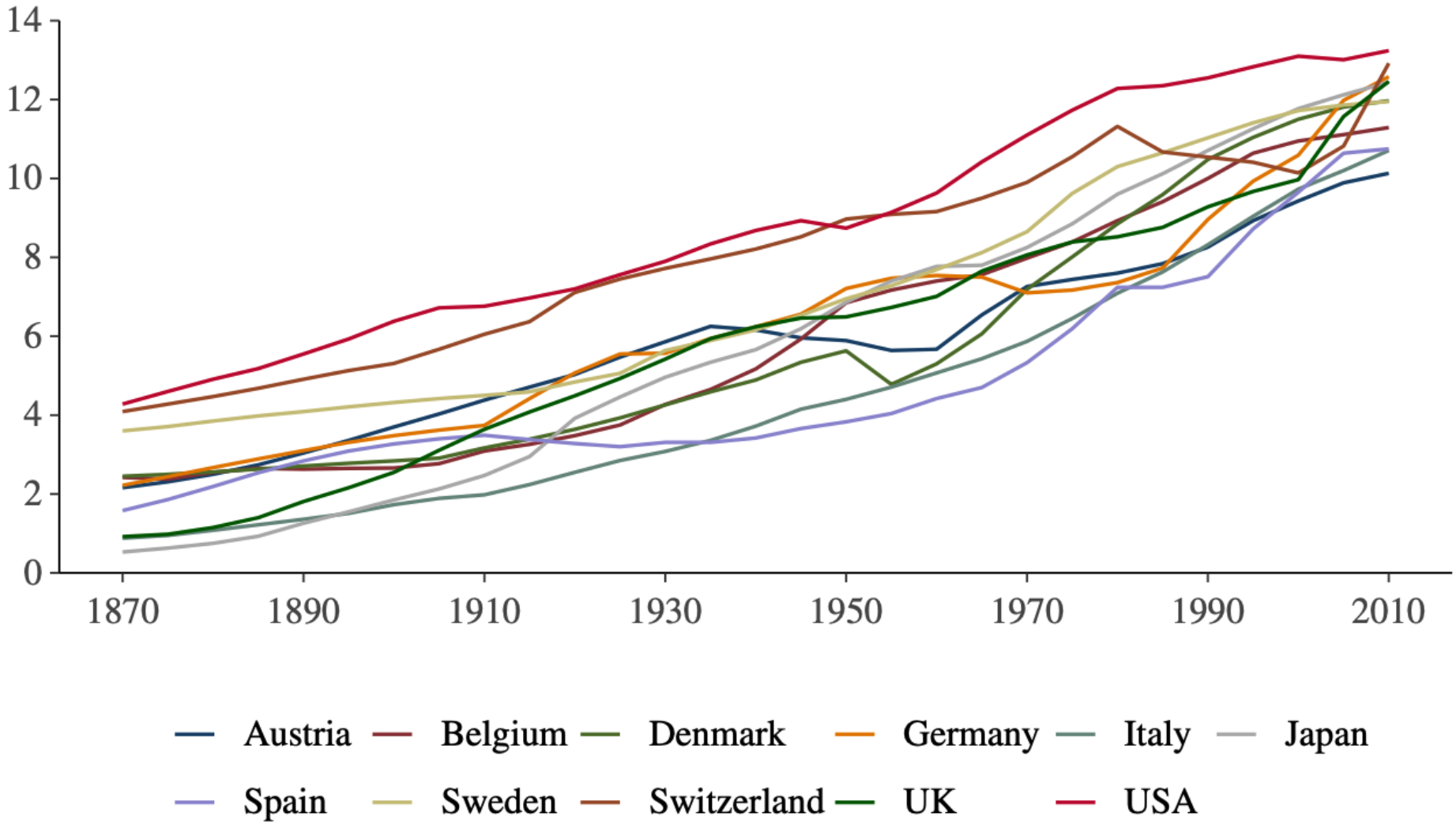
Why fertility rate decline over time?

Figure 1: Total Fertility Rates since 1850



Why schooling years increase over time?

Figure 4: Average Years of Schooling since 1870, Selected Countries



Notes: Data on average years of schooling comes from Barro and Lee (2013).

What determines the return to schooling?

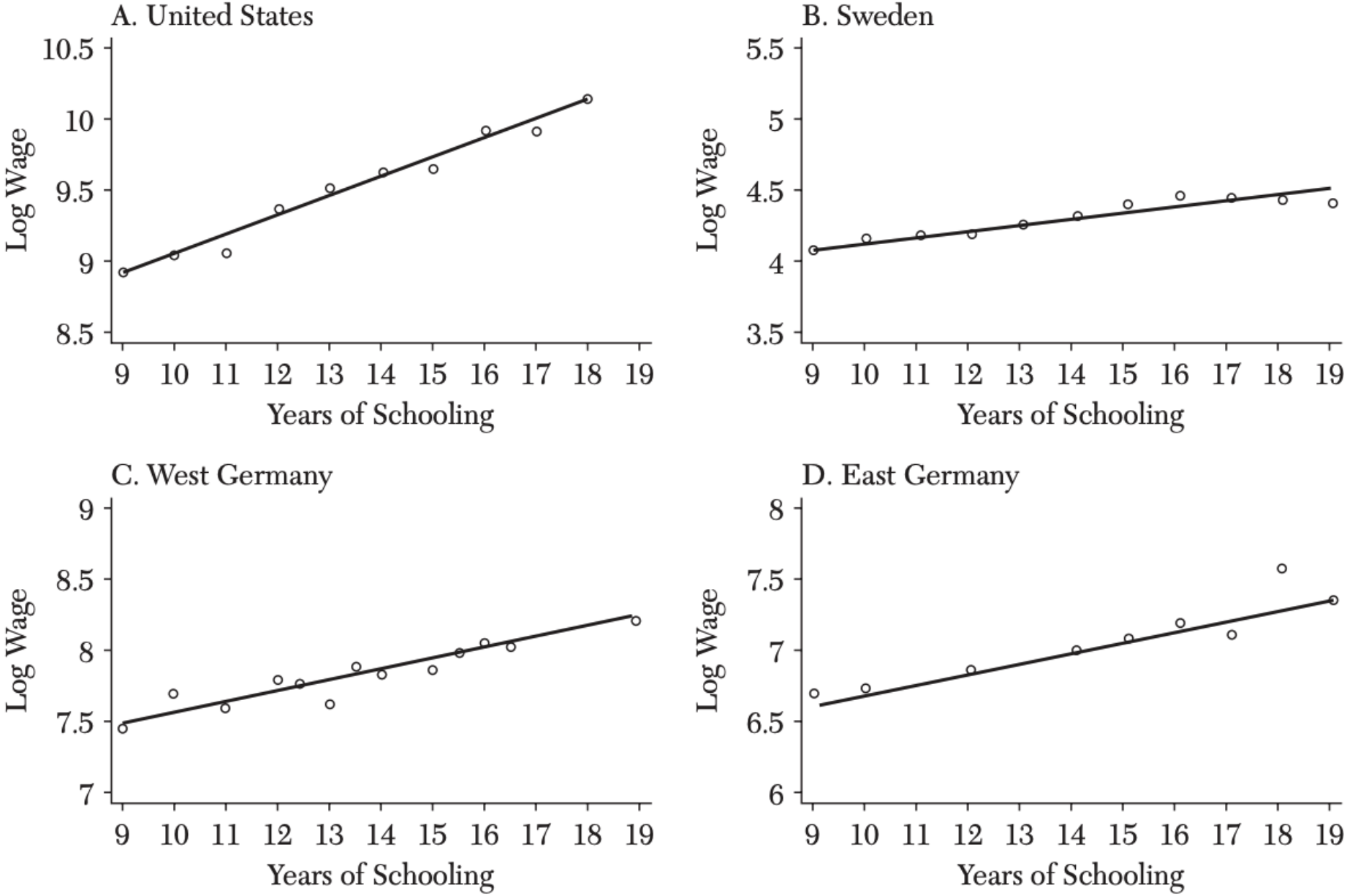


Figure 1. Unrestricted Schooling-Log Wage Relationship and Mincer Earnings Specification

Why has inequality increased?

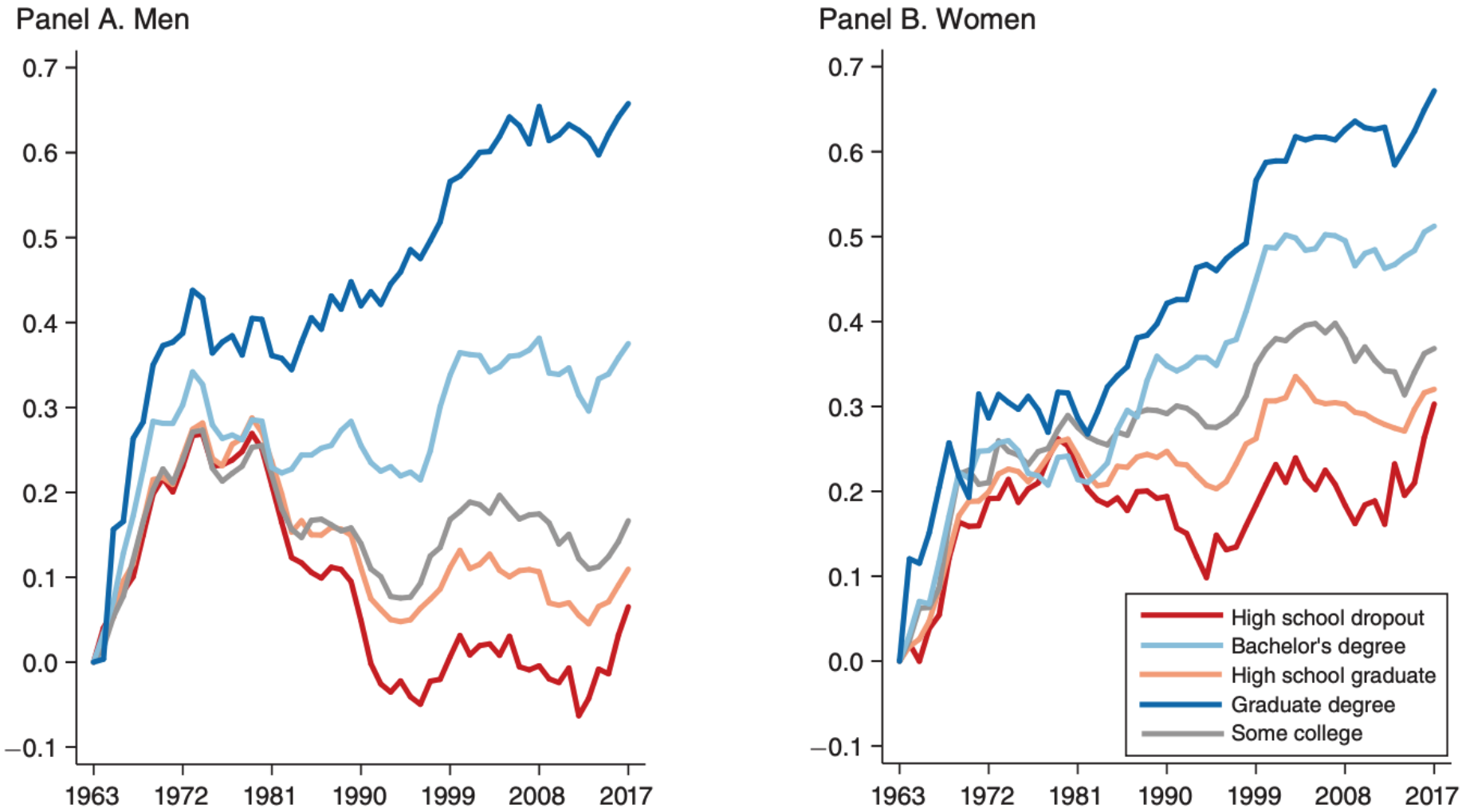


FIGURE 1. CUMULATIVE CHANGE IN REAL WEEKLY EARNINGS OF WORKING-AGE ADULTS AGES 18–64, 1963–2017

Why labor market gaps between male and female?

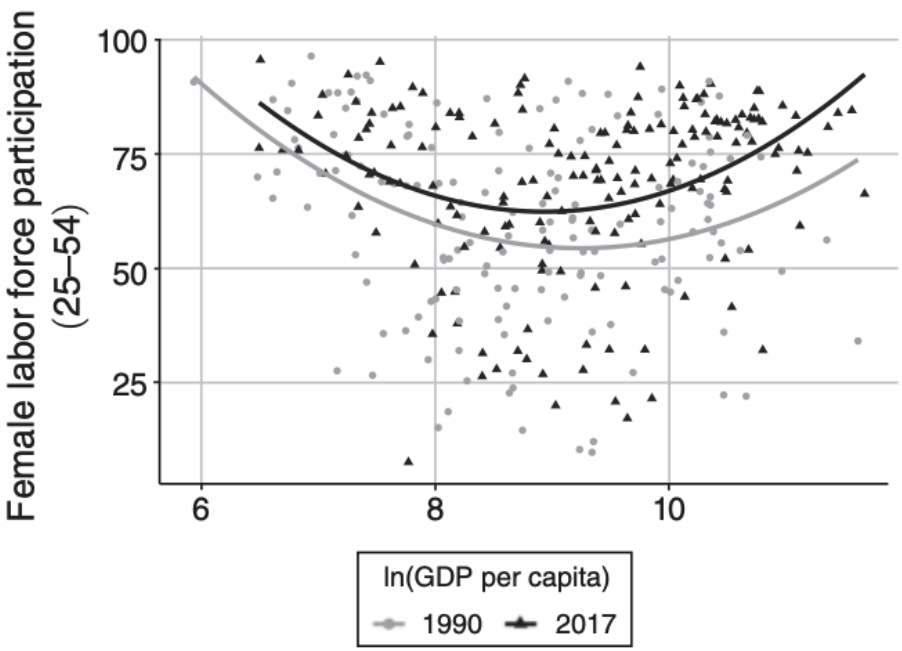


FIGURE 1. FEMALE LABOR FORCE PARTICIPATION AROUND THE WORLD

Note: The figure reports female labor participation (25 to 54 years old) around the world, as a function of log GDP per capita (purchasing power parity (PPP) based), for the years 1990 and 2017.

Source: World Bank and ILO

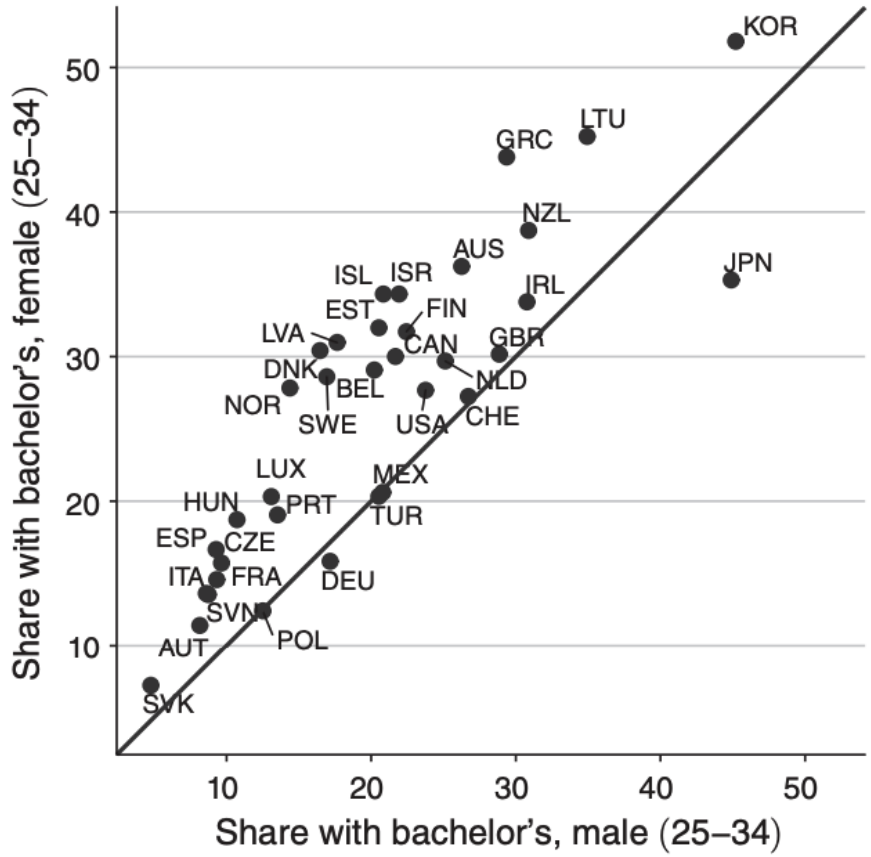


FIGURE 2. SHARES OF MEN AND WOMEN WITH AT LEAST A BACHELOR'S DEGREE

Why less people marriage? If they do, with who?

Figure 3: Marital rates among 35-44 years old over time, by education and gender

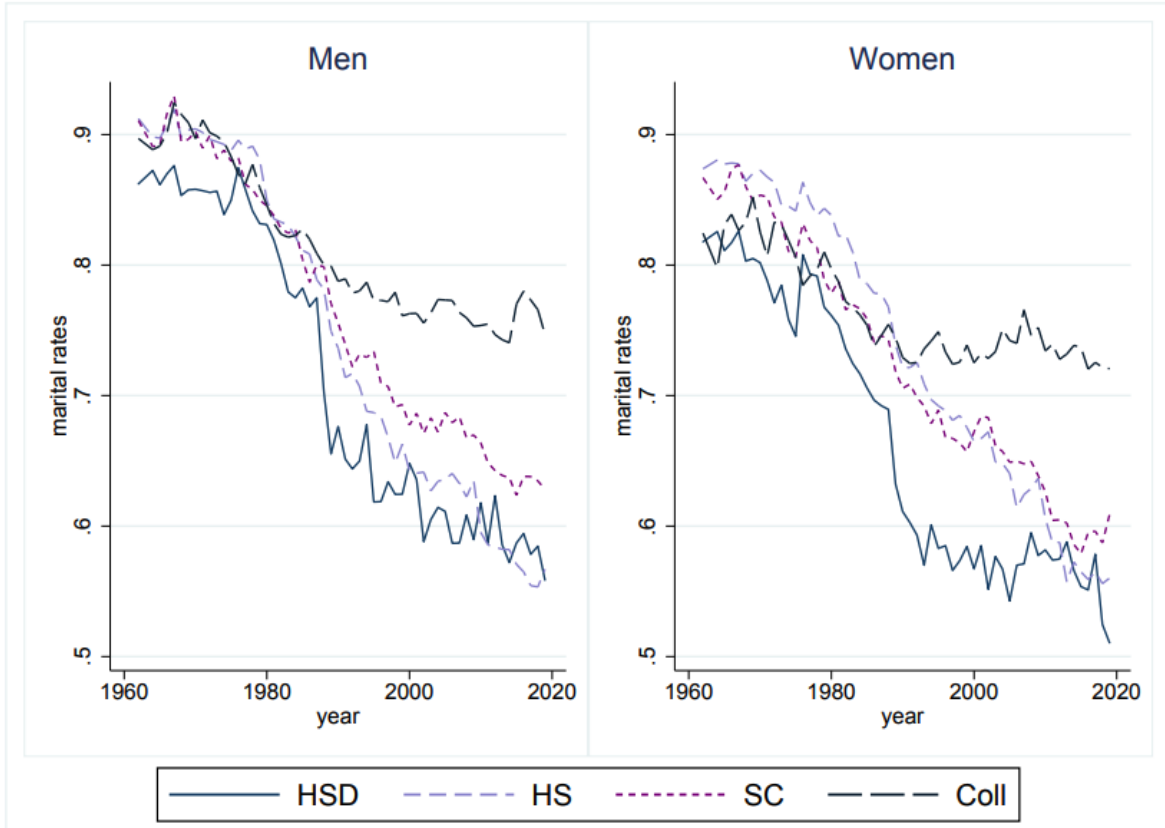


Table 1: Marriage Matching Frequencies by Education

	Low Education Men	Medium Education Men	High Education Men
Low Education Women	**0.16**	0.06	0.03
Medium Education Women	0.13	**0.25**	0.11
High Education Women	0.03	0.05	**0.17**

Notes: *Low Education* includes either only high school degree or a middle school degree plus basic vocational education (with < 11 years of schooling). *Medium Education* includes any secondary degree plus vocational education (with ≥ 11 years). *High Education* is defined as college or more. We consider an individual's maximum educational attainment and keep only one observation per couple.

Policy questions

- Some examples:
  - What policy can encourage more marriage and child birth?
  - Should we make college less expensive or entirely free?
  - How to encourage more female participation into STEM majors?
  - Does immigration hurt the employment of local workers?
  - What's the impact of population aging?
  - Should gov prevent AI to replace human workers?
  - Should gov increase the minimum wage?
  - Should gov subsidize the unemployed or have universal pay?
  - ...

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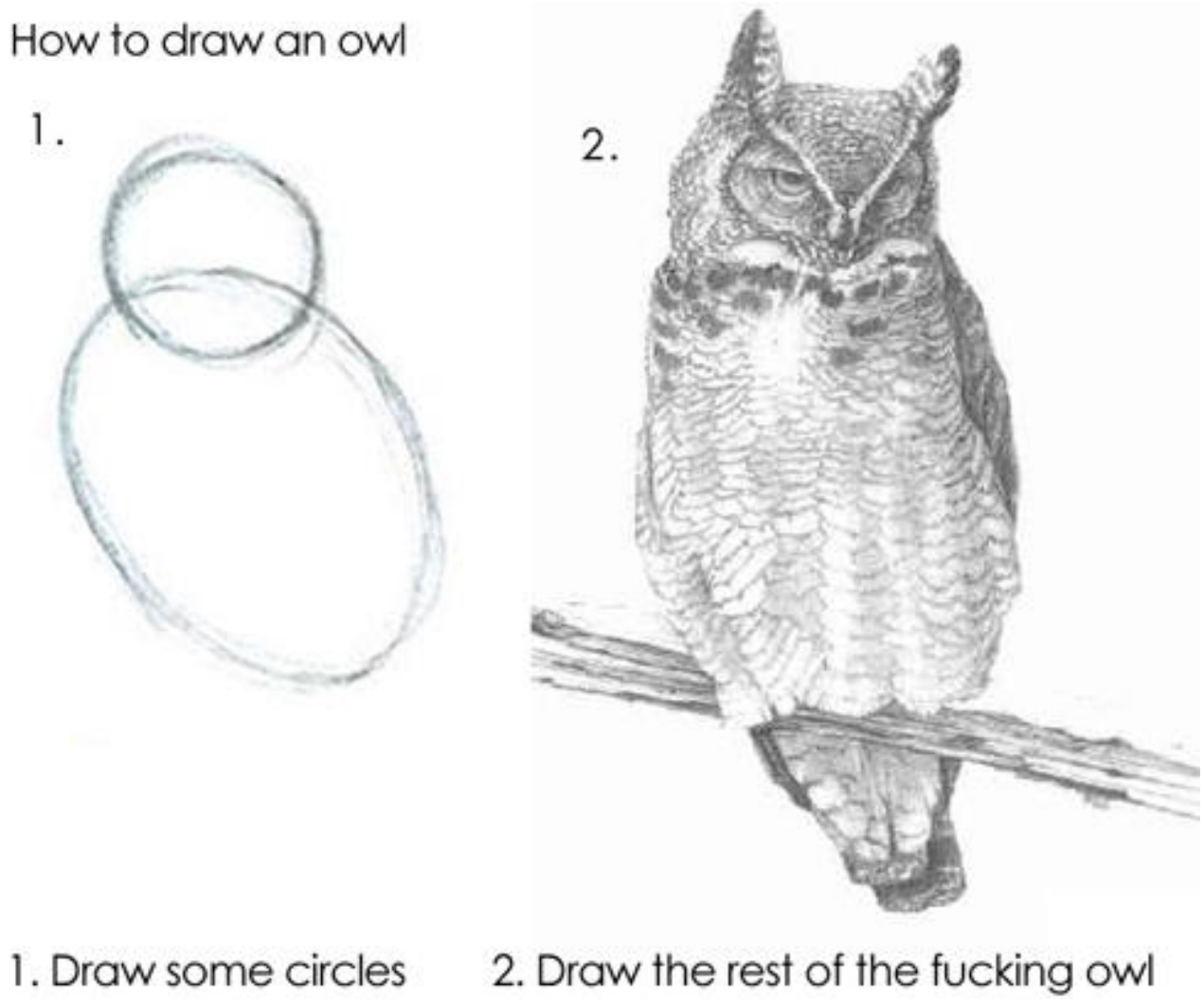
It is ”difficult” to teach/learn undergrad economics

- If the content is too basic, you might find economics plain and useless
  - Basic theories are often over-simplified and unrealistic
  - Undergraduate contents are often not self-contained
- If the content is too advanced, you might find learning process to be frustrated
  - Abstract thinking through math may seem overwhelming
  - Not the types of math you are familiar with in your h-school
- Two tips
  - Better consider them as foundational tools rather than principles
  - A bit like sports, you need some basic and often seemingly unrelated training to have fun

The fundamental tradeoff between difficulty and richness



The aim of this class is to draw something in between!

Let's do something in between

- We study the basic concepts, facts, and frameworks
  - Nothing rocket science; Everything is intuitive
- We lightly touch some rigorous treatment and recent frontier
  - Take them as some challenges to understand
- Key is to
  i. learn the "intuition"
  ii. be familiar with economics-type of thinking
  iii. practice using economics tools
  iv. build confidence on dealing with hard stuffs

Learn the intuition and try to apply

- Economics terminologies/logics are abstract
- Math (or drawing graphs) is a useful tool but not purpose
- Key is to understand the **"intuition"** (check "Feynman technique")
  - Explain it like I am 5
  - Recall the entire logic chain in your mind
  - Create your own examples or analogies
- Still need to practice and be familiar with math modelling as it is essential and useful tool for modern economics
  - Again it is just another language for telling stories

An example: why undergraduates dislike study

- Analyzing this question can be exactly economics
- **Student's problem**: $\max_e V \cdot p(\text{credit}|e) - c(e) + u(T - e)$
  - e represents study time or effort; T is total time or effort
  - $p(\cdot)$ indicates the conditional probability of getting credit;
  - V is the overall return (discounted present value) of getting credit;
  - $c(\cdot)$ is the disutility function of study; $u(\cdot)$ is the utility from leisure
- **Tradeoff** (from FOC): $\underbrace{V \cdot p'}_{\text{marginal benefits}} = \underbrace{c' + u'}_{\text{marginal costs}}$
- This simple toy model approximates your daily life consideration
  (In fact I found a recent econ paper that exactly studies this!)
- It can also give prediction: you will ask most questions about p'_i as it varies the most across classes
- Note the implicit assumption here: V is not a function of e; in other words, college education itself does not gives you value

Learning materials

- **Slides**
  - Basic concepts; Simple models; Real studies
  - Not self-contained so please come to the class
- **Textbooks** are not required but can be helpful for understanding the basics and more details
  - Borjas, George. (2019). Labor Economics. McGraw-Hill.
  - Ehrenberg, Ronald, Robert Smith, and Kevin Hallock. (2017). Modern labor economics Theory and public policy. Routledge.
- There are **many many free materials** on the internet:
  - CORE Econ textbooks
  - Math tutorials by Martin Osborne
  - Microeconomics lecture notes by Arda Gitmez or David Autor
  - Videos: microeconomics by Nick Huntington or Edward Glaeser; short videos by Ashley Hodgson; animations by Hoai-Luu Nguyen
  - Publicly available undergrad and postgrad lecture notes that cover from elementary to advanced content (see my list)
  - Survey papers in *JEP* and *JEL* if you want to have some board and in-depth exploration and know the frontier (can also search here)

Learning college classes

- The content become wide, abstract, and less student-friendly
- It's easy to be lost during the class if everything is new
- **So read the slide before the class and bring your questions**
- Learn to find and use multiple materials to complement and deepen understanding
- Learn to know "what I don't know" and ask questions

Should "I" ask a question in the class?

- Short answer: yes!
- A bit longer: yes because there is positive externality
- Even longer: let's write down a toy model

What if you don't understand something

- **Scientific knowledge needs to be understandable by anyone with sufficient prerequisite knowledge** (otherwise it's pure arts)
- Step 1: read the material from beginning once again
- Step 2: write down your question
- Step 3: guess what knowledge you may lack for understanding
- Step 4: search your question or the lacking knowledge through other learning materials
  - E.g. textbooks; lecture notes; Econ StackExchange; papers; ...
- Step 5: ask or confirm with GPTs
  - With caution as it is a (well) pre-trained "stochastic parrot"
  - For some problems you can directly go here (e.g. what does c' mean)
- Step 6: post the formalized question and your attempts on the discussion board of K-LMS or email to me

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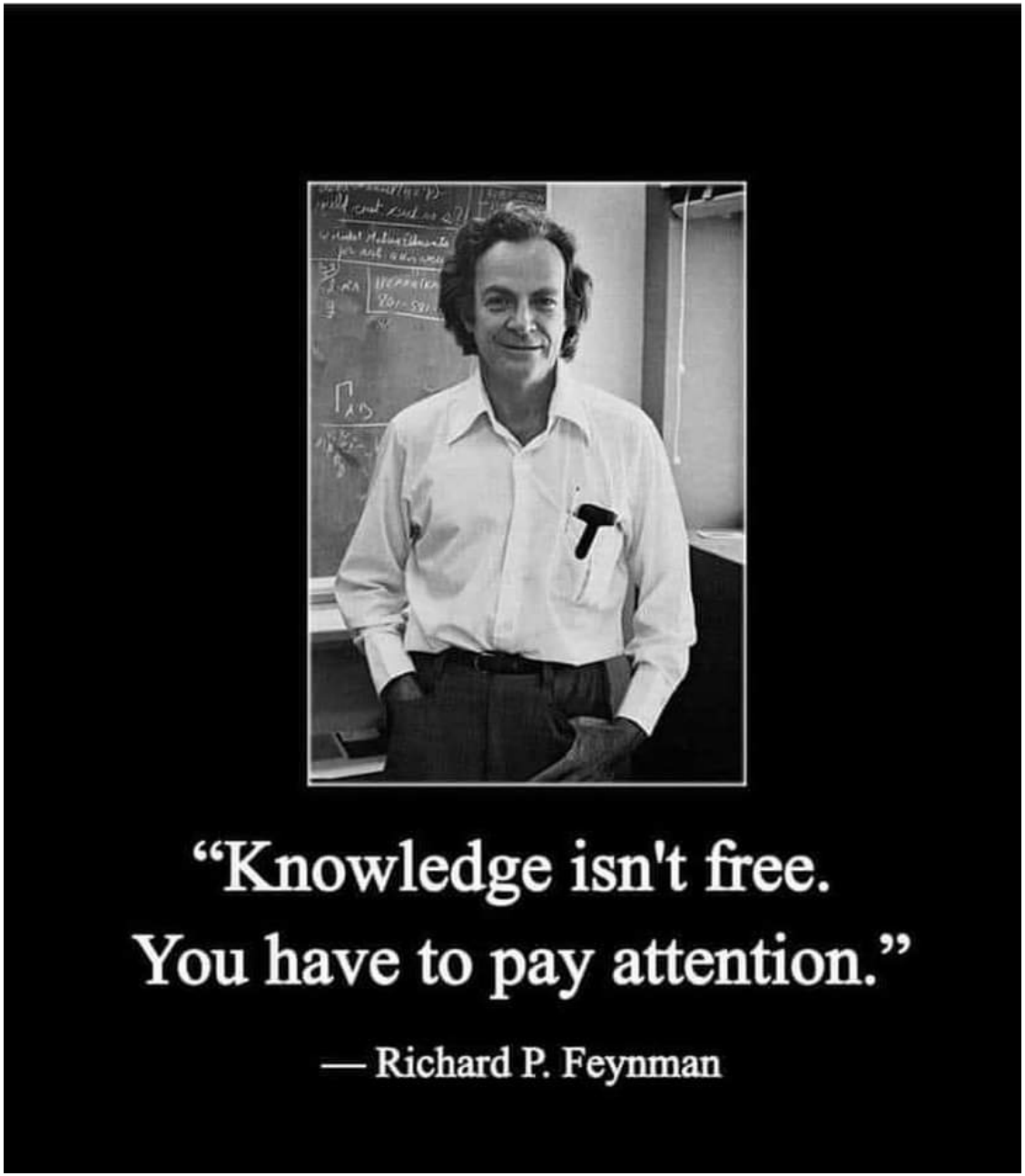
Last words (from Feynman)



Assignment 0

(a)

- Consider a labor economics topic you are curious about
- Find a recent publication in the leading economics journals about this topic and read the abstract and introduction (or more)
- Find the personal website of one of the authors (if not found, pick another publication)
- Explore what studies this scholar has done in the past and is currently working on

(b)

- Try remember the Greek Alphabet

GreekAlphabet

GREEK ALPHABET

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Αα	Ββ	Γγ	Δδ	Εεϵ	Ζζ
ALPHA [a]	**BETA** [b]	**GAMMA** [g]	**DELTA** [d]	**EPSILON** [e]	**ZETA** [dz]
ἄλφα	*βῆτα*	*γάμμα*	*δέλτα*	*ἒ ψιλόν*	*ζῆτα*
Ηη	Θθϑ	Ιι	Κκ	Λλ	Μμ
ETA [ɛː]	**THETA** [tʰ]	**IOTA** [i]	**KAPPA** [k]	**LAMBDA** [l]	**MU** [m]
ἦτα	*θῆτα*	*ἰῶτα*	*κάππα*	*λάμβδα*	*μῦ*
Νν	Ξξ	Οο	Ππ	Ρρϱ	Σσς
NU [n]	**XI** [ks]	**OMICRON** [o]	**PI** [p]	**RHO** [r]	**SIGMA** [s]
νῦ	*ξεῖ*	*ὂ μικρόν*	*πεῖ*	*ῥῶ*	*σῖγμα*
Ττ	Υυ	Φφϕ	Χχ	Ψψ	Ωω
TAU [t]	**UPSILON** [ʉ]	**PHI** [pʰ]	**CHI** [kʰ]	**PSI** [ps]	**OMEGA** [ɔː]
ταῦ	*ὗ ψιλόν*	*φεῖ*	*χεῖ*	*ψεῖ*	*ὦ μέγα*