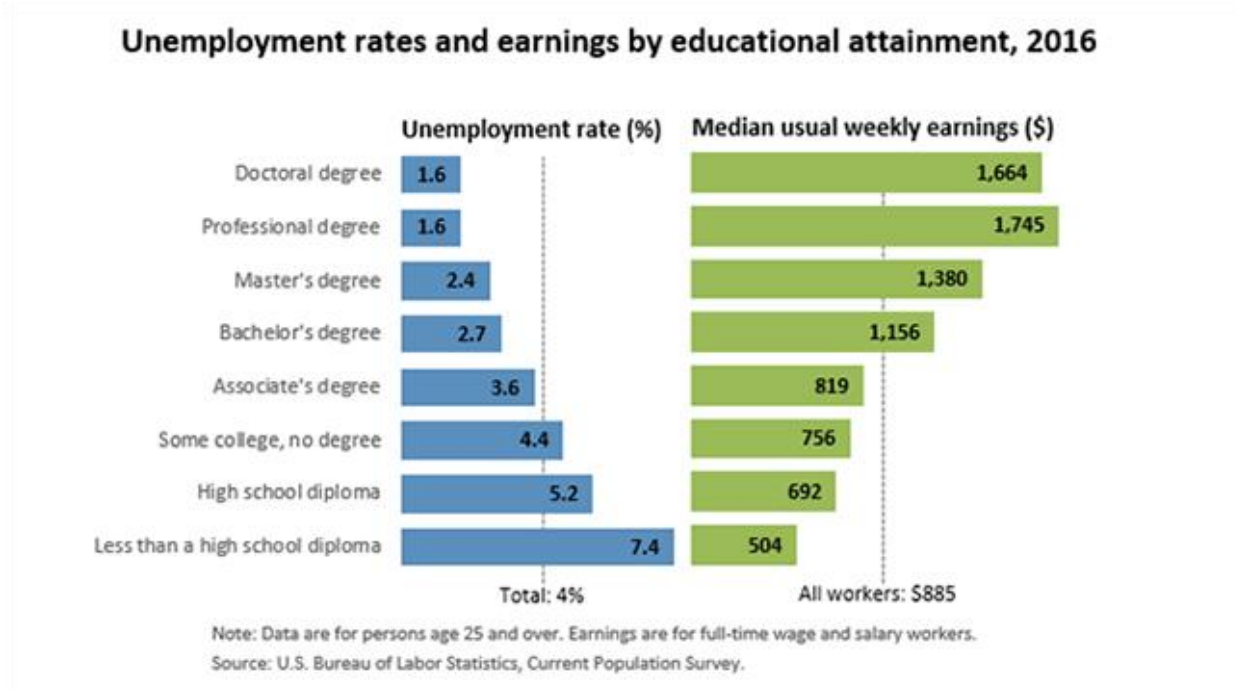


## LECTURE 09: SIGNALING AND EDUCATION

- I. The value of a degree
  - a. There is ample evidence that having a college degree not only increases your average salary, but also decreases the chance of long-term unemployment.<sup>1</sup>



- b. Why this distinction? There are two major theories as to why earning a college degree increases your attractiveness to employers.
- II. Human Capital
  - a. This first is the most intuitive: skills. In college, you learn things that are practical in the real world. Armed with this knowledge (and with the proof that you've learned it...i.e. a degree), more people want to hire you.
  - b. This is the *human capital* theory, human capital being the "tools of the mind:" reasoning skills, writing skills, technical skills, time management skills. It also includes experience, intelligence, and anything else in someone's mind which makes them more productive.

<sup>1</sup> [https://www.bls.gov/emp/ep\\_chart\\_001.htm](https://www.bls.gov/emp/ep_chart_001.htm)

- i. Notice how this theory connects with MPL.
  - c. The human capital theory suggests your major matters. In May of 2011, *The Chronicle of Higher Education* looked at Census data to determine how income changes with major. Indeed, it matters a lot. Here is a sample of various median earnings:<sup>2</sup>
    - i. Petroleum Engineering: \$120,000
    - ii. Pharmaceutical Sciences: \$105,000
    - iii. Mathematics and Computer Science: \$98,000
    - iv. Economics: \$70,000
    - v. Accounting: \$63,000
    - vi. Microbiology: \$60,000
    - vii. History: \$50,000
    - viii. Music: \$42,000
    - ix. Early Childhood Education: \$36,000
    - x. Counseling Psychology: \$29,000
  - d. It's important to remember at this time that compensating differentials also play a role here. As your textbook reminds you, for most people music is more fun than accounting. Still, it is reasonable to believe that some of this difference comes from differences in skills.
  - e. Over time, the value of a college degree relative to only a high school degree has risen which might suggest human capital is becoming more important.
- III. Signaling
- a. The human capital theory isn't perfect and has difficulty in explaining some data. For example, using the same information about earnings by major, foreign languages has the same median income as philosophy (\$48,000). There is a clear practical skill to one, but not the other.
  - b. Moreover, many things you learn in college you will not use in the real world. For example, you will never have to do so much of the modeling we will do later in this class (unless you go on to teach economics!). So what's going on?
  - c. A *signal* is an action or observable trait which can be used to demonstrate you have some unobservable trait. It is the natural response to the adage: talk is cheap.
    - i. Some students find the idea of signaling confusing. If you referenced a past leadership position you held during an

---

<sup>2</sup> <http://chronicle.com/article/Median-Earnings-by-Major-and/127604/>

interview, is that a signal? In the interview, you are *talking* about the position; you're not actually it.

- ii. But it *is* a signal. It's impractical to literally show them—to take that leadership position—during an interview. Yes, you could be lying about the leadership position which is why the interviewer will ask you follow-up questions. If you're nervous or inconsistent or vague, they will assume you're exaggerating your role. They may also contact your references. Because the claim is verifiable, it's a signal. It's less likely to be cheap talk.
  - iii. In other words, there's sometimes a distinction between the action and letting people know that you did it. The former is about fostering achievements and the latter is about selling yourself. But because the two are so closely connected, the pair is collectively thought of as signaling.
- d. Signaling works when both of two things hold:
- i. Sending the signal is easy when you have the trait.
  - ii. Sending the signal is hard when you lack the trait.
- e. The *signaling* theory of education argues that education signals competence, intelligence, diligence, and other traits which employers find valuable.
- i. If you are smart and hard working, getting a college degree is easy. If you are stupid or lazy, getting a college degree is hard.
  - ii. The same goes for grades, which is why your grades in even “blow off” classes matter.
- f. Signaling solves our philosophy/language major paradox.
- i. Philosophy requires *a lot* of reading, thinking, and logic skills. It is hard for most people.
  - ii. Languages are also difficult to learn, but for more individuals than philosophy, they come naturally. Other individuals grew up learning multiple languages.
  - iii. Thus philosophy is impractical, but hard for everyone. Languages are useful, but much easier (if you are majoring in a modern language, you probably have an easier time than most at learning a new language).
- g. Signaling can also solve why your major matters: some majors are harder to learn than others.

#### IV. Signaling Extensions

- a. Signaling has a lot of applications beyond educational value. In fact it's one of the most useful ideas in economics.

- b. *Interviews*. Dressing nicely and being organized signals that you are serious about the position, that you can act in a professional manner, and that you have valuable skills like attention to detail.
- c. *Dating*. Looking good and being funny signals that you take the date seriously, are genuinely interested, and are worth being around.
- d. *Credit Score*. Paying off your debt quickly and keeping a low balance on your credit card signals you are fiscally responsible and thus worthy of a low interest rate if you need a loan.