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Econ 321

Weeks 10-11: Information Economics and Labor

- I. Probability
 - A. Everyone is familiar with probability to some degree, from rolling dice, playing cards, and so on.
 - B. Basic postulate of probability theory: events range from impossible (probability=0) to certain (probability=1).
 - C. Probability language allows us to **quantify uncertainty**.
 - D. Even though people rarely put a precise number on each event, they almost always have some probabilities in the back of their minds.
 - E. When people are asked difficult questions, they often say "I don't know." But what if they HAD to guess? Note: in real life, you have to guess all of the time.
 - F. Common sophism: "No one can 'know' X."
 1. If this means "No one can know X **with certainty**," then it's obvious but uninteresting.
 2. If this means "No one has any idea at all about X," then it is clearly false.
- II. Search Theory
 - A. Must economists assume "perfect information"? Not at all: there is an extremely general theory of economic action under uncertainty, known as "search theory."
 - B. Basic assumptions of search theory:
 1. More time and effort spent "searching" increase your probability of successful discovery.
 2. Searching ability differs between people.
 3. People can make a reasonable guess about the probabilities of different events and their ability to influence those probabilities.
 - C. Main conclusion: People search so that the marginal cost of searching equals the expected marginal gain of searching.
 1. Qualification: You may need to adjust for a searcher's degree of risk-aversion if they are gambling a lot of their wealth.
 - D. The (endless) applications:
 1. Prospecting for gold.
 2. Searching for a job.
 3. Dating.
 4. Rational amnesia.
 - E. Main conclusion: If the economics of perfect information doesn't make sense, try search theory. It explains almost everything else.

- III. Search Theory and Unemployment
- A. In spite of the insight it offers, the supply-and-demand model of labor markets oversimplifies. It assumes that employer and worker characteristics are perfectly known to all.
 - B. In reality, people have to search for good "matches," where the skills of the worker fit the requirements of the job. These "requirements" are not always easy to quantify; and even when they *can* be quantified, people may pretend (or convince themselves) that they have more skills than they actually do.
 - C. Such search takes time: interviewing, comparing options, reading the want ads, and even re-locating.
 - D. Such search can be a frustrating experience for both workers and employers: workers don't have a job, face rejection, etc.; employers spend work hours going over applications, interviewing candidates, don't get their first choice, etc.
 - E. While S&D captures much of what goes on in labor markets, you need search theory to explain why "finding a job" seems **harder** than "buying a loaf of bread." Matching people to jobs is a tricky business fraught with uncertainty; matching people to loaves of bread is not.
 - F. What positive function then does job search serve? The better the "fit" between jobs and talents, the greater productivity is. (Imagine randomly assigning people to different jobs!)
 - G. How much should a worker search? You trade-off between the lost wages of searching, and the potentially higher wage you will earn if you find a good match. Employers make the same trade-off.
 - H. Insofar as unemployed workers are engaged in useful search activities for unknown opportunities, it makes sense to view them as voluntarily unemployed.
 - I. It is a much bigger puzzle if workers' best match is obvious, but unemployment persists. With flexible wages, this wouldn't happen - unemployed workers would bid wages down.
- IV. The Natural Rate of Unemployment
- A. Unemployment will always exist because people have to spend time searching for suitable jobs.
 - B. At any given time, some people are finding jobs, others are leaving them.
 - C. What determines the typical level, or "natural rate," of unemployment, where the people getting jobs and losing jobs approximately balance out?
 - D. Demographics play a key role. Younger people are less certain about what they want to do, and are changing more rapidly. Women are much more likely to quit or start work for family-related reasons. According, more young people and more women typically lead to a higher natural rate of unemployment.

1. This is not a bad thing; remember that search serves a vital economic function.
- E. Similarly, more highly educated workers change jobs much less. Being more specialized, they have probably already found a good match. Less educated workers change jobs more; their best use is less certain, and changes more.
- F. Regulation can greatly increase the natural rate, as discussed earlier.
- V. Job Security: Insurance as a Normal Good
- A. One important aspect of jobs is their "security." The more secure a job is, the less likely you are to lose it.
1. Note the close connection to imperfect information.
- B. Why do some people have more job security than others? We can understand this using our standard notion of "compensating differentials."
- C. Job security is basically a form of insurance that employers offer employees in exchange for lower wages.
- D. Better-paid jobs are more pleasant in most ways (as are jobs in richer countries). Simple explanation: Benefits are a normal good; the richer people are, the more they want.
- E. Does this work for job security? Yes! Empirically, high-income people have much more job-security than low-income people.
- F. Can you make people better-off by legally giving them more job security? In general, no. This just forces them to spend more on job security than they want.
- V. Signaling and Education
- A. Sometimes, schools teach skills that people eventually use on the job, like reading and writing. In other words, some kinds of schooling make workers more **productive**.
- B. But much of what schools teach seems pretty useless, at least from employers' perspective. ("What does this have to do with real life?") Why should they care if you studied Aristotle?
- C. And yet, employers do on average pay you more for completing these apparently useless classes. How is this possible?
- D. Maybe the point of school isn't to acquire skills, but to show, or **signal**, your pre-existing attributes. Signaling explanations of apparently wasteful behavior have become increasingly popular within economics.
- E. Signaling models build on three key assumptions:
1. There are different "types" of people and firms: able and unable, smart and dumb, honest and dishonest, hard-working and lazy...
 2. It is difficult to observe "types" directly.
 3. However: different types (may) have different costs (lower disutility) of performing the same *observable* activity.

- F. So why then would employers pay more to workers who complete useless schoolwork?
 - 1. Employers want people who are smart, hard-working and/or conform to "the rules."
 - 2. People who are smart, hard-working and/or conform to "the rules" find it easier/cheaper to get through school.
 - G. School doesn't improve them; rather, their ability to finish school shows *they were good all along!*
 - 1. Similarly, people who are dumb, lazy, and or non-conformist have trouble finishing school. They find it too painful to finish, so they don't.
- VI. The Signs of Signaling
- A. The ubiquity of useless education.
 - B. The handsome rewards of useless education.
 - C. In case you're not convinced:
 - 1. Sheepskin effect
 - 2. Malemployment and credential inflation
 - 3. Speed of employer learning
 - 4. Education premium: personal vs. national
 - D. You might be signaling if...
 - 1. You bother to enroll or pay tuition.
 - 2. You worry about failing the final exam, but not subsequently forgetting what you learned.
 - 3. You don't think cheating is "only cheating yourself."
 - 4. You seek out "easy A's."
 - 5. You rejoice when teachers cancel class.
- VII. Criticisms and Replies
- A. "We'd just do IQ tests instead."
 - 1. Reply: Education signals a *package* of traits employers desire: intelligence, work ethic, and conformity.
 - B. "Employers know true productivity after a few months."
 - 1. Reply: Researchers find otherwise. In any case, firing aversion and "dehiring" undermine employer learning.
 - C. "Learning how to learn."
 - 1. Reply: Educational psychologists find this is mostly wishful thinking.
 - D. "Character formation."
 - 1. Reply: Plausible, at least for K-12. But work must be even better, and the experience premium is only 2-3% per year.
 - E. "There has to be a cheaper way."
 - 1. Reply: Signaling *has* to be expensive to be an effective. Otherwise everyone would do it.
 - F. Punchline: Signaling explains some otherwise very puzzling facts, and the a priori objections only apply to the most simple-minded versions of the theory.
- VIII. Signaling and Education Subsidies

- A. I have already critiqued arguments that education has positive externalities and is under-provided.
- B. They look pretty weak. But one point I didn't make at the time was that these arguments assume that education is **productive**.
- C. If education is - in part - **signaling**, then the argument for subsidies gets even weaker. The signaling argument suggests that the externalities of education are actually *negative*!
- D. Why?
 - 1. If education is mere signaling, then average worker productivity is independent of education.
 - 2. If employers pay workers for productivity, then, increases in education can't raise worker income.
 - 3. How then can education raise one worker's income? By decreasing the income of other workers by the same amount!
- E. This means that insofar as education is signaling, it has negative externalities.
- F. Why? If education is pure signaling, then at least at the margin, the **social benefit of education is zero**. Gains to workers who get more are balanced by losses to workers who don't. If productivity stays the same, employers and consumers aren't better off either.
 - 1. I say "at the margin" because there are clear social benefits of better job matching. **Some** signaling serves a useful social function. But once people are already matched to their jobs, raising education levels further has no additional social benefit.
- G. Signaling models provide some formal structure for complaints about "credentialism." As education levels rise, employers tighten job requirements. So what is the point of increasing funding for education?
- H. Support for education subsidies probably stems from a "fallacy of composition." If you got rid of subsidies for education, you might not be able to *afford* a four-year degree, but you would also not *need* such a degree to get ahead.
- I. If education were 100% signaling, there would be a strong economic case for **taxing** it. We could all have the same relative rank, but spend less time and money on schooling.
- J. Because real-world education is a mix of job-training and signaling, putting special taxes on education is probably not such a good idea. But the case for taxes is much stronger than the case for subsidies of the sort we currently have.