

Computer Science Degrees: Normal Science Job Market Cycles or the New “Reading and Writing Skill”?

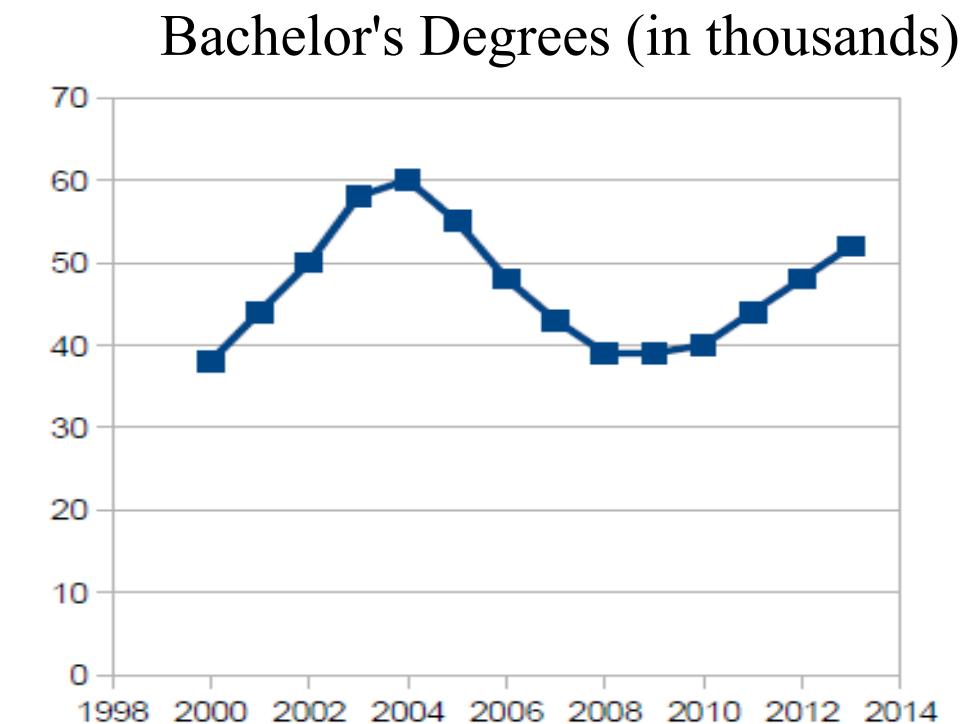
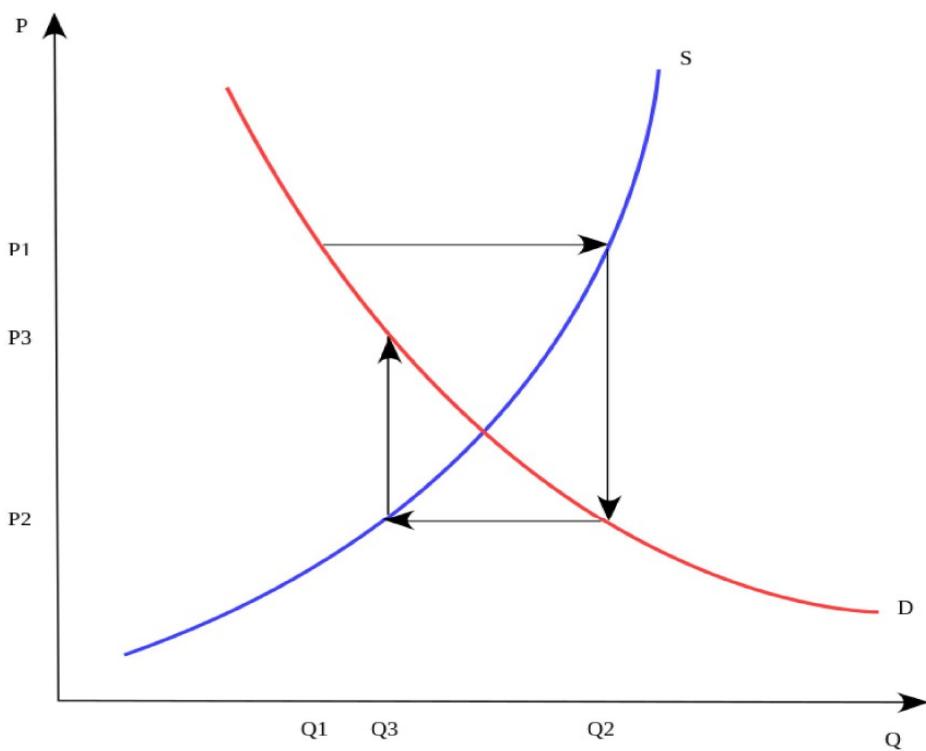
1-Market Dynamics: Historic Cobweb Cycle of Boom and Bust

2- Degrees, Skills and Occupations,

3- What Can We Learn from Big Data

4- AI Future: Where is Our Comparative Advantage?

1. Cobweb Dynamics in Computer Science



Questions: How much overshooting? Does globalization dampen cycles? Overshooting hurts new grads if CS grads do poorly outside CS occupations. It hurts academe if fall in majors reduces slots/pay → how dependent are class enrollments on majors?

2- Degrees, Skills and Occupations

Computer Science and information, 2013

Employed 2,412,000

With Degrees 1,623,000

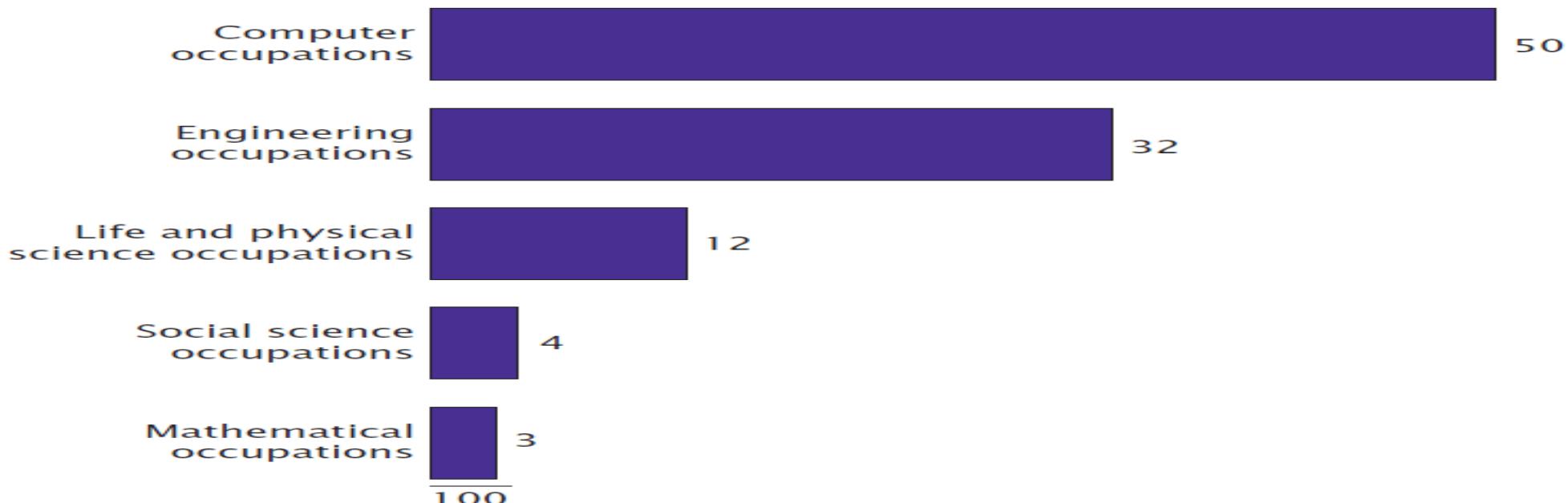
More employed than with degrees

Higher % with degrees working in field

Figure 3.

Occupational Distribution of STEM Workers

(In percent. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/acs/www/)



Source: U.S. Census Bureau, 2011 American Community Survey.

3- Big Data (Raviv Goroff-Muriciano, Stanford PhD student)

- Resumes from Linked-In, with skills, degrees, school, Dec 2015
 - looking at skills of workers laid off: whether layoffs are general or skill-specific; relation btwn skills employers look for (Burning Glass?) and layoffs. Should illuminate change in market demand for skills within firm and across firms.
- Longitudinal “Baccalaureates and beyond” 2007-2008 BAs in 2015: % of CS grads not using skills on their job: male 16% , female 40%
- | | Earnings in year 1 | Earnings in year 4 |
|--------|--------------------|--------------------|
| female | 34,000 | 43,000 |
| Male | 45,000 | 61,000 |
- Patterns: many open source CS grads do not list all languages on resume; female CS grads take fewer CS credits. Women apply less to tech schools, get 50% acceptances, but are 1/3rd of admits

4-CS Grads in AI Future: Where is Our Comparative Advantage?

- Standard econ answer to fears that computers/ robots/ machines will destroy jobs is that what matters is comparative advantage.
- Labor productivity--> fewer workers per output but also adds more output, so total employment can be safe but whatever machines can do better than humans, likely to squeeze jobs and pay. Not clear who gets better jobs.
- Many “technical” professions – accounting, surgery, news reporting – are being computerized. What about computer science – which skills, parts of jobs are more likely to face CS-designed substitutes?