Foreign Tech Workers in the U.S.: Failures and Remedies

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ASEE Engineering Deans Council Conference

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- Over 35.
- But my foreign students apply to the same firms, and get jobs.
Concrete Example: “Jim”

- Son of Chinese immigrant parents.
- BSEE, MSCS from UCD, mid-1990s.
- At “household name” engineering firm, his innovative work was written up in the Wall Street Journal.
- But was later caught in big layoff.
- Never got steady engineering work after that.
- Today working as a technician, e.g. installing office PCs.
- The field of engineering lost this highly innovative engineer.
- Meanwhile, lots of foreign students were hired.
- I’ve seen many, many Dans, Ikes and Jims.
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Why Do Employers Hire Foreign Students Instead of Americans?

Data

Remedies (and Non-Remedies)

Conclusions
Two Central Issues
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• Saving on labor costs.
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- Having immobile workers.
The Wage Factor

• Hard data, consistent with economic theory.
• On average, the foreign tech workers are paid less than comparable (age, education etc.) Americans.
• This is across the board, not just the "Infosyses" but also the "Intels."
• Young foreign tech workers are paid a lot less than otherwise comparable older Americans (age 35+).

Note: Unless stated otherwise, American means U.S. citizens (native, naturalized) and permanent residents.
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Job opportunities poor for those over age 35. See studies by NRC, American University/IEEE-USA etc.

Wall Street Journal, Feb. 4, 2016: Pete Edwards, EE; age 53; experience with 3-D printing; having big difficulties finding work.

The bottom line: Employers are hiring young foreign tech workers instead of older Americans.
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The Immobility Factor

Employers don't want engineers to leave for another firm in the midst of an urgent project.

D. Swaim, former architect of Texas Instruments’ immigration policy, now in private practice:

• hireF-1students.com
• Don't hire Americans, because they can leave you any time.
• Instead, hire a foreign student (and sponsor him/her for a green card), because they must stay 7-12 years.

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• Hard data, consistent with economic theory.
• Various data sources: NRC, GAO, NCSG/NSF, BLS, NACE, etc.
• Easy to lie with data; even easier to innocently misunderstand—Ptolemy's epicycles.
• But I have a "statistical license." :-)
• And I know how engineers are educated, hired and employed. No epicycles.
• Key factors include: age, education, job type, geographic region.
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Some Findings

- H-1B tech workers earn less than comparable Americans (Hunt, 2011; Matloff, 2012).
- Employers admit that they pay H-1Bs less than comparable Americans (NRC, 2001; GAO, 2011).
- Immigrants suppress the wages of U.S. PhDs (Borjas, 2006).
  (Correctly forecast by NSF, 1989.)
- Older tech workers have much more trouble finding jobs (NRC, 2001; Brown, 1998 and Brown, 2009).
  Brown (UCB Econ) attributes this to the influx of young foreign students.
- Foreign workers experience a big spike in earnings when they receive their green cards and become free agents (Mukhopadhyay, 2012).
- No STEM labor shortage, including in CS (Salzman, 2013; Costa, 2012).
- Wages essentially flat, both generally (BLS) and for new grads (NACE).
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Quality of the Foreign Workers

The average quality of the former foreign students now in the U.S. workforce is substantially lower than that of U.S. natives (Bound, 2009; Hunt, 2011; Matloff, 2013).

Compared to U.S. natives of the same age, education etc., the former foreign students

• are less likely to file patents;
• are less likely to be in R&D;
• if they earn a doctorate, then on average it is at a less-selective university

Given the indirect and direct displacement of Americans, this says we are replacing more-talented people with workers of lesser talent — an alarming situation for our national economy etc.
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Quality Examples

• "Ike" was rejected for a job in a group in which the workers (a) all were recent foreign students and (b) all came from very "ordinary" schools, e.g. University of Cincinnati. Good workers, surely, but likely not "the best and the brightest" — and probably not as good as Ike.

• A 2009 Washington Post column highlighted a worker from India hired by Microsoft, with an MS from the University of North Texas, and working in Quality Assurance. So, likely a person of ordinary talent, doing ordinary work — hardly supporting the column's claim that the foreign workers are "the seeds of tomorrow's innovation."

• The same column profiled another student from India, with an MS from UVa, hired by TI as a test engineer — again, hardly consistent with the "innovation" claim.
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Pro-Industry “Research”

- Most research with findings favorable to the industry are by researchers with financial ties to the industry (e.g. Zavodny “Each H-1B creates 2.62 jobs”), Peri, the Brookings people).
- Much of this research cuts ethical corners, e.g. Zavodny paper.
- Bias is clear: Most bibliographies have NO citations to research counter to their goal.
- Common flaw: Failure to look at per-capita rates, e.g. in patenting and entrepreneurship.
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Remedies

Industry claims the H-1Bs are either brilliant or possess rare skills.

- So, require employers to pay more.
- Set the legal wage floor for foreign workers at Level IV (67\textsuperscript{th} percentile).
- Ban ageist practices, e.g. auto rejection of experienced U.S. workers.
- Have OPT revert to the original 12-month "training" period.
- Broaden the "best and brightest" categories (O-1 work visa, National Interest Waiver for green cards).
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- Have OPT revert to the original 12-month “training” period.
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• Do NOT add funds for enforcement. Most abuse is LEGAL.
• Do NOT just ban replacing Americans by H-1Bs; ban hiring H-1Bs instead of Americans.
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2. **Why Do Employers Hire Foreign Students Instead of Americans?**

3. **Data**

4. **Remedies (and Non-Remedies)**

5. **Conclusions**
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I hope to challenge your unquestioned assumptions about foreign students and the tech job market.

I leave you with this question: Do we want foreign-worker programs that discourage Americans from going to grad school?

These slides available at http://heather.cs.ucdavis.edu/ASEESlides.pdf
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