

Offshore Outsourcing & Off-shoring of Technology Jobs Impacts & Policy Dialogue

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Some Definitions

- *Outsourcing* – Classic Make or Buy Decision
 - Procter & Gamble contracts with HP for IT services
- *Offshore Outsourcing*
 - Sending work to outsourcers who operate overseas
- *Offshore Sourcing aka Off-shoring*
 - Daimler Chrysler has an R&D center in Bangalore
- ➔ • *On-site Offshore Outsourcing*
 - Tata Consultancy Services, Infosys, Wipro, Accenture
- *Blended Sourcing, Near Shore, Best Shore, etc*
- *Insourcing*
 - BMW in SC, Infosys Consulting

Why Do Companies Utilize Overseas Technology Talent?

- Cost
- Exceptional Talent?
 - Shortage of U.S. workers? Ph.D.'s?
- Politics & Access to the Local Market
 - Trade, e.g., China & Russia – Boeing engineers
- Developing Countries' Strategy
 - Tax Holidays & Incentives
- 24/7 Capabilities
- Collaborative Engineering Technology
- **Companies Aware Of Possibility & *Believe It Helps Their Performance - Trigger***

Overseas Engineers *Can Afford To Be Paid Less*

<u>Country</u>	<u>Purchasing Power Parity (PPP)</u>	<u>Salary</u>
U.S.	1.0 * \$70k	\$70,000
Hungary	0.367 * \$70k	\$25,690
China	0.216 * \$70k	\$15,120
Russia	0.206 * \$70k	\$14,420
India	0.194 * \$70k	\$13,580

How Much Work Has Moved Offshore?

- No One Knows
 - No one in government is collecting data
 - Commerce Department has pilot study of \$335k underway
 - Companies are reluctant to reveal their plans
 - US workers unwittingly training their replacements
 - Many believe it is only ‘low-level’ work
 - No data to support or refute this claim
- Estimates Abound from Self-Interested Research Firms
 - The Forrester Report is most-cited
 - Completed in November, 2002

Just Low Level Work?

Sample Intel India Job Ad

- **RF Simulation Engineer** (Job# 274125)
- In this position you will build various antenna, RF channel and PHY/MAC models for various RF technologies; and simulate platform noise impact. You will also interact closely with internal wireless product groups to develop solutions to enhance RF performance in notebooks.

This position requires a M.S. or Ph.D. in Electrical Engineering with experience in mobile notebooks, WPAN, WLAN, WMAN, WWAN and platform noise. You must also possess:

- Experience building various antenna, channel, PHY/MAC models, prototypes, test systems; and simulating the impact of multiple radios that are integrated into notebooks
- Fluency in writing simulations of advanced communications systems

Domestic IT Labor Market

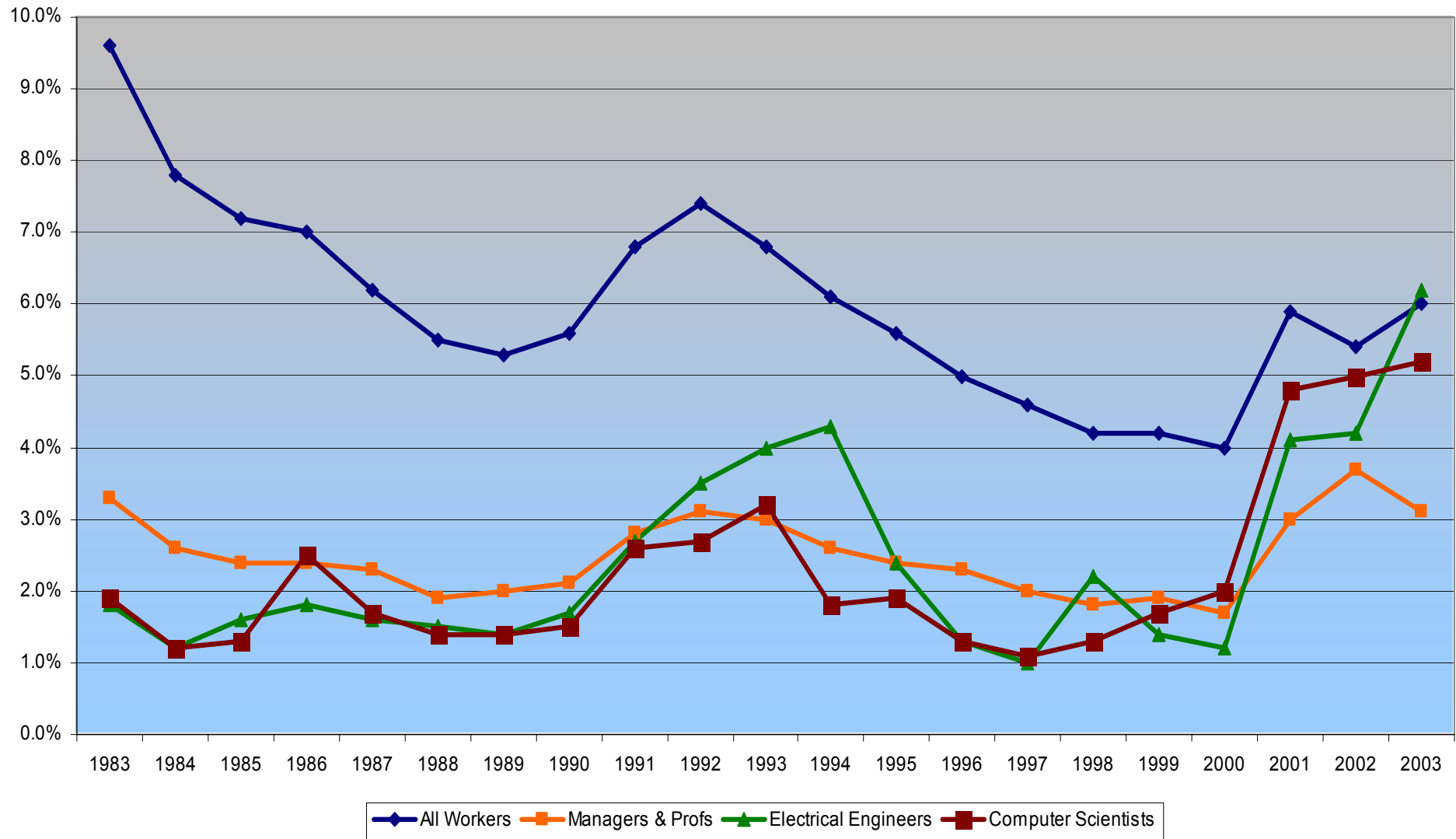
Record Unemployment

(source: IEEE-USA from BLS)

Occupation	Employed (000's)	2003 Unemployment
<u>All Managers</u>	<u>14,468</u>	<u>2.9%</u>
Computer & Information Systems Mgrs	347	5.0%
Engineering Managers	77	3.6%
Computer Scientists & Sys Analysts	722	5.2%
Computer Software Engineers	758	5.2%
Computer Programmers	563	6.4%
Computer Support Specialists	330	5.4%
Computer Hardware Engineers	99	7.0%
Electrical & Electronics Engineers	363	6.2%

1983-2003 Tech Unemployment Rates

Unemployment Rates for Selected Occupations: 1983 - Present



Jobs Moving Overseas

Predicted Impacts

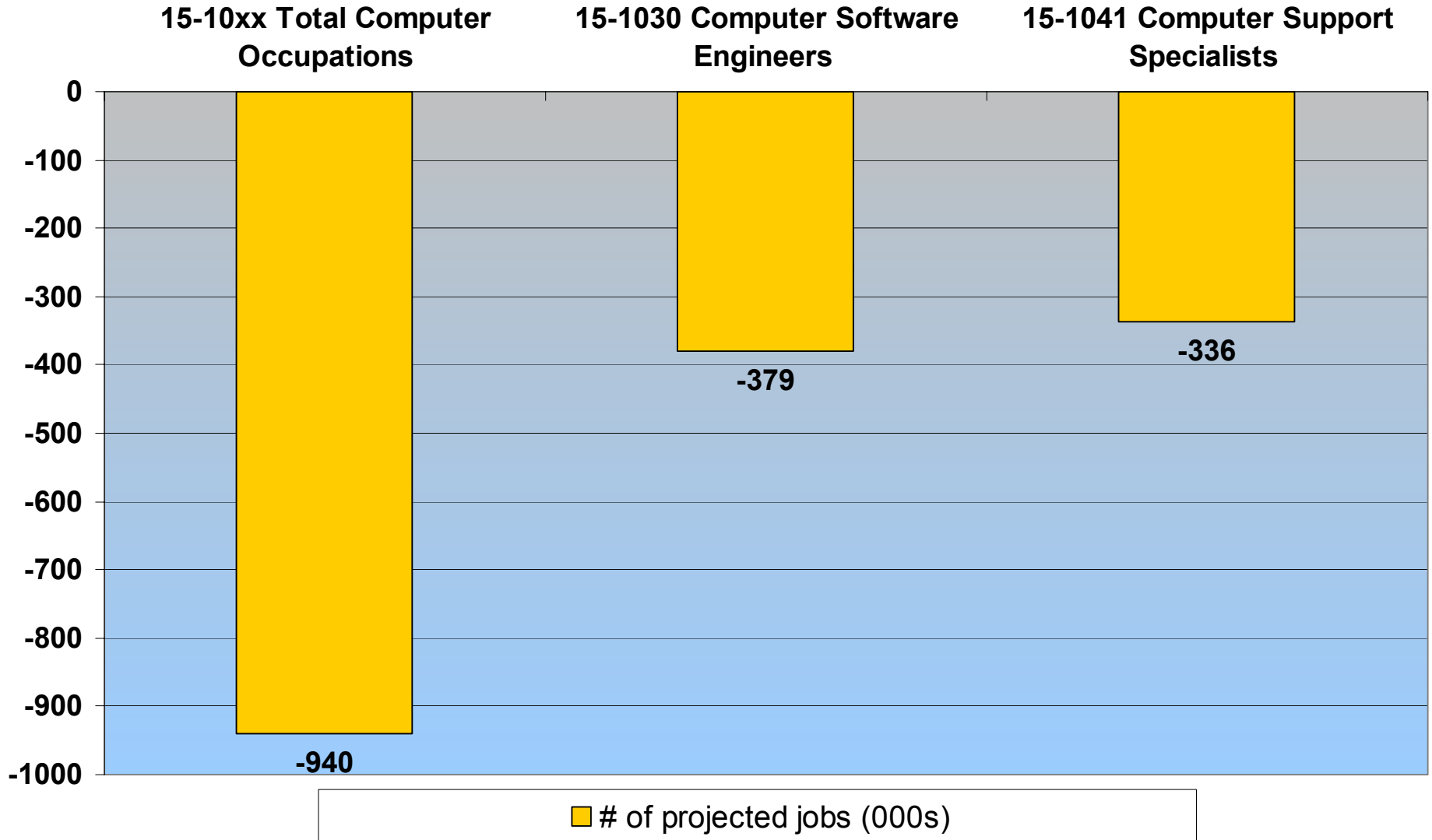
- Job Dislocation
- Change in Mix of Domestic Occupations

Job Dislocations

- Off-shoring Makes IT Job Market Worse In Short-Run
- Unemployment Duration is Long in Already Weak IT Labor Market
 - Re-employment? What occupation and wage?
- Downward Wage Pressure
 - ‘Silver lining’ according to some industry reps
- Future Generation Receiving a Signal
 - Will best & brightest shy away from technology?
 - CRA’s survey showed a 19% drop in BS enrollments in Computer Science

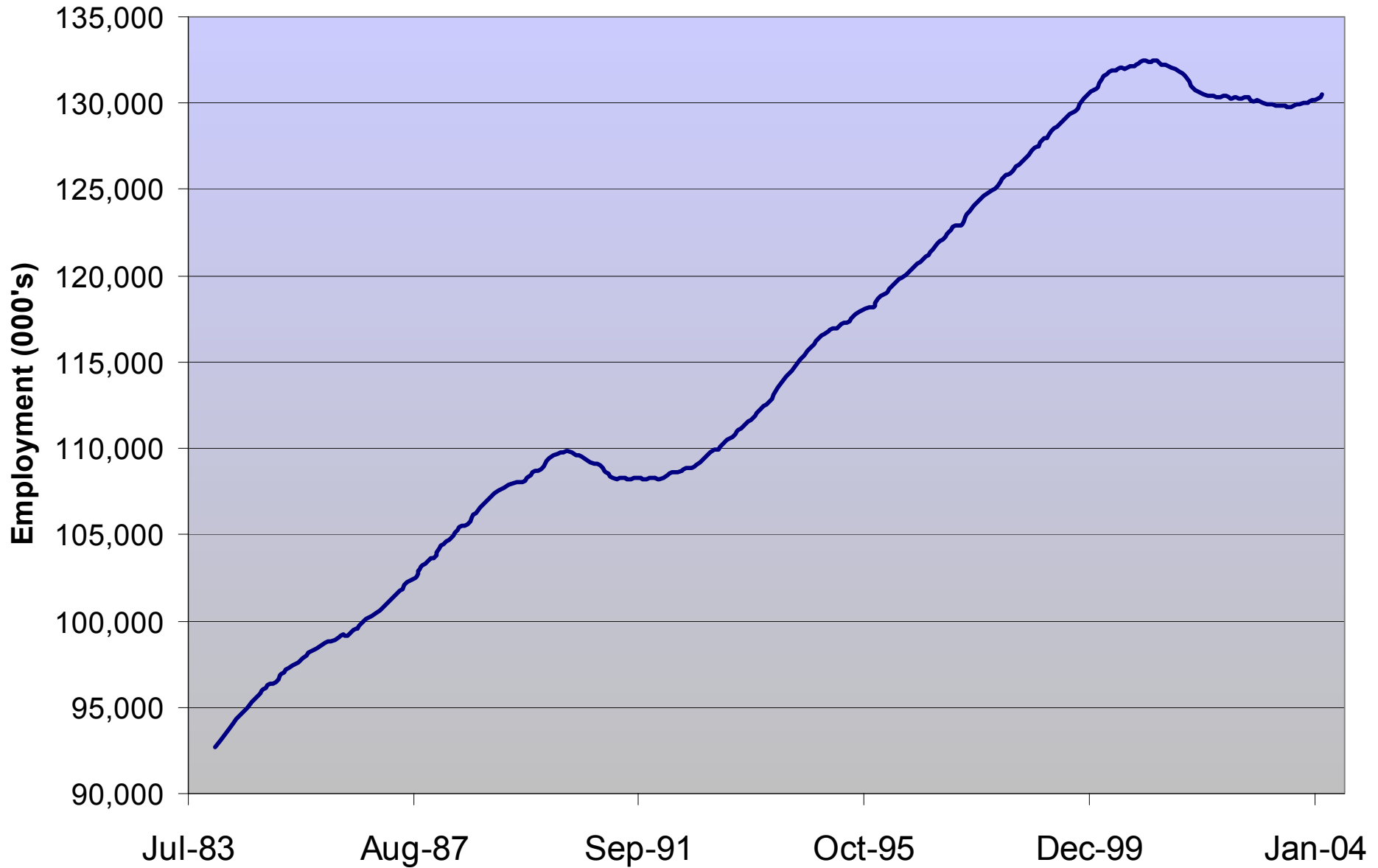
Occupation Mix - Revised BLS Job Projections

Decrease in # of jobs forecasted by BLS 2002-2012 projections vs. 2000-2010



Job Dislocation During Low Job Creation

Total nonfarm payroll employment (seasonally adjusted)



Longer-term Impacts on Innovation & Security

- What Will Be New Occupational Mix For US?
 - Is it important to maintain a strong science, engineering and software workforce in the US?
 - Will the best & brightest pursue these professions?
 - Where will future technology leaders be developed?
 - Takes time and experience to become project managers
- Impacts on Military Superiority & Homeland Security?
- Can Economic Studies Predict This?

Some (overly) Optimistic Studies

‘Win-Win’ – McKinsey Global Institute

- US gets 12-14 cents net benefit for each dollar spent offshore
- Limitations of Study
 - No one has access to their proprietary data
 - The models are not explicit & no sensitivity analysis
 - Rosy re-employment scenario
 - No accounting of impacts on innovation or security
- Potential conflict of interest
 - McKinsey sells off-shoring consulting work and stands to benefit from increased off-shoring

Some (overly) Optimistic Studies

Catherine Mann, IIE

- Thesis: Lower IT services costs will increase IT demand & in turn *increase US IT labor* demand
- Limitations
 - Will it help *domestic* IT workers?
 - Additional explanations exist for high IT labor demand in the 1990s – reduces likelihood of Mann’s hypothesis
 - Technology paradigm shifts in 1990s: Internet, ERP, Object Oriented Programming, Mainframe to Client-Server, Y2K, etc.
 - Business Strategy: Nicholas Carr, ‘IT Doesn’t Matter’
 - Will high wage/high skill work move offshore?
 - Uses old (2000-10) BLS projections for some of her optimism
 - No mention of current unemployment situation
 - No mention of H-1B & L-1 visas

Policies That Accelerate Off-shoring

- H-1B & L-1 Visas
 - Temporary non-immigrant visas
 - ~900,000 in US
- Being used by offshore outsourcers
 - ‘Knowledge transfer’ aka ‘Knowledge *extraction*’
 - Bring in lower cost workers on-site
- Problems with law
 - Companies *can and do* prefer foreign workers over US workers
 - Protections don’t protect

H-1B Use That Meets Intent

Company	Sample Position	Sample Location	Sample Annual Wage	#Jobs FY01-03 /Median Wage
Rockwell Scientific Company, LLC	Senior Scientist	Thousand Oaks, CA	\$120,000	54 / \$72,500
Rochester Institute of Technology	Assistant Prof of Economics	Rochester, NY	\$60,000	57 / \$50,000
Johns Hopkins University	Postdoc Fellow	Baltimore, MD	\$30,500	1,052 / \$38,590

Source: R. Hira Analysis

US Dept of Labor LCA Database: www.flcdatacenter.com

H-1B Examples Stretch Intent of Law Offshore Outsourcing Companies' Use Is Order(s) of Magnitude Greater

Company	Sample Position	Sample Location	Sample Annual Wage	#Jobs FY01-03 /Median Wage
Accenture, LLC	Chief Programmer	Houston, TX	<u>\$25,113</u>	12,684 / \$53,042
Cognizant Technology Slns	System Analyst	Tampa, FL	<u>\$32,870</u>	33,148 / \$54,578
Tata Consultancy Services	Programmer Analyst 1	Warsaw, IN	<u>\$21,460</u>	13,237 / \$34,541

Source: R. Hira Analysis

US Dept of Labor LCA Database: www.flcdatacenter.com

Offshore Outsourcing Companies Pay Low Wages to H-1Bs

Company	% Jobs < \$40k	\$40k < % Jobs < \$60k	% Jobs > \$60k	#Jobs FY01-03 / Median Wage
Accenture, LLC	<u>15.3%</u>	40%	44.7%	12,684 / \$53,042
Cognizant Technology Slns	2.5%	<u>74.1%</u>	23.4%	33,148 / \$54,578
Tata Consultancy Services	<u>81.9%</u>	17.8%	0.3%	13,237 / \$34,541

Source: R. Hira Analysis

US Dept of Labor LCA Database: www.flcdatacenter.com

What About Insourcing?

- Infosys Consulting Established
 - Announced last week that over the next three years they plan on hiring up to 500 consultants
 - Purpose is to capture more US customers (not US workers) to better facilitate offshore outsourcing
 - Infosys already has created 3,700 positions in the US (according to SEC filings)
 - Foreign workers on H-1B & L-1 visas

Spate of Industry Sponsored Studies

- ITAA, AeA, US Chamber of Commerce
 - All find what they are looking for:
 - Off-shoring is good for the US
 - None address innovation impacts
 - None can address the dynamics of off-shoring
 - None provide the unemployment rates for technology workers
- Economic Studies Capture Economic Efficiency Argument But Miss Other Important Elements

Policy Dialogue Impediments

- Poor Data Enables Any Convenient Explanation
- Affecting Workers, Not Companies
- Companies don't feel any urgency to fix a problem they don't experience –
 - Focused on protecting the status quo
 - Many good innovation policy recommendations but do not address offshore outsourcing
 - Companies will not speak about their plans

Policy Dialogue Impediments

- Free Trade vs. Protectionism Discussion is Misguided
 - Good vs. Bad rather than both Good & Bad
 - You are either ‘Pro-’ of ‘Anti-’ outsourcing
 - Instead, should be focusing on mitigating the negative effects
- Labeling
 - Easy to do but not very useful
- Multiple Effects
 - Positive & negative
- No Silver Bullets

What Can We Do?

- Acknowledge A Problem Exists
 - Don't know scale and scope
- No Villains In This Story
 - Companies acting rationally
 - Workers acting rationally
- Need To Work Cooperatively
 - American workers need strong and healthy US companies.
 - Do American companies need a healthy and vibrant US science & engineering workforce?