



H-1B & IT WORKERS

Demand—Labor Market Conditions

FACT: The U.S. Department of Labor (DOL) estimates that over the next eight years computer and mathematical science occupations will add 967,000 jobs and grow the fastest out of the eight main professional subgroups.¹ However, expert studies have shown that globalization has caused a leveling off of IT job growth and this trend could continue across fields, making job growth in computer and mathematical science occupations difficult to predict.²

FACT: According to the GAO, the Department of Homeland Security follows the H-1B cap, which is currently set at 65,000 but has been as high as 125,000 in the recent past. However, a previously approved exemption for educational institutions, non-profits and other entities allows another 27,500 foreign workers on average to come in to the U.S. In 2004, another exemption created still another cap loophole by adding an additional 20,000 annual allotment for U.S.-educated foreign workers with advanced degrees. Furthermore, since the “temporary” H-1B visa is good for up to six years, according to government data some 125,000 existing visa holders renew annually. As a result, under current law over 230,000 foreign professionals get new or renewed guest worker visas.³

FACT: DOL estimates that job openings in all the professional specialty occupations in the near future will average only 604,600 per year. Yet they reviewed and certified more than 960,000 H-1B applications between 2002 and 2005, nearly one-third of which were for computer and programming related industries.⁴

FACT: DOL expects that job growth in the computer industry will decline as the software industry matures and moves overseas.⁵

FACT: Between 2000 and 2005, the median weekly earnings for computer systems analysts and scientists increased from \$881 to \$1,091 (in current dollars).⁶ After adjusting for inflation, this represents an annual average increase of 1.8%.

FACT: For computer operations and systems researchers and analysts — an occupational category that was 50.5% female in 2005, the median wages increased from \$929 weekly to \$1,252, from 2000–2005.⁷ After adjusting for inflation, this is an annual average increase of 3.8%. While the current numbers increased overall during this period, the rate was unstable and fluctuated considerably.

FACT: For computer programmers, the average weekly wage increased from \$944 in 2000 to \$1,086 in 2005, which after adjusting for inflation amounts to a 1.4% change.⁸

FACT: In a candid moment, Roger Cooker, director of staffing at Texas Instruments Company — one of the nation’s largest high tech firms — told *U.S. News and World Report* (August 30, 1999) that H-1B workers are part of their strategy to keep down the wages of engineers and other high tech workers.⁹

FACT: In a Congressionally-mandated study released soon after Congress passed S.2045, the National Research Council — the principal operating arm of the National Academy of Sciences and the National Academy of Engineering — found that, “**the current size of the H-1B workforce relative to the overall number of IT professionals is large enough to keep wages from rising** as fast as might be expected in a tight labor market.” Further, it also found, “no analytical basis on which to set the proper level of H-1B visas, and that decisions to reduce or increase the cap on such visas are fundamentally political.”¹⁰

Supply—The Educational Pipeline

FACT: According to information available from the U.S. Department of Education and the Computing Research Association, **U.S. colleges and universities are graduating over 300,000 students each year with bachelors, masters or Ph.D.s in the core disciplines that are critical to this industry** — computer/information science, math and engineering. At current graduating rates, the supply of graduates will exceed the Department of Labor’s projections for average yearly high tech job creation over the next eight years.¹¹

FACT: According to the Department of Labor, **a bachelor’s degree is the most significant source of postsecondary education or training for many high-tech workers.** Among computer software engineers (both applications and systems software) and computer systems analysts, a bachelor’s degree is more significant than an associate degree, master’s degree, or on-the-job training.¹²

FACT: **These graduation statistics do not include any of the tens of thousands of community college students** who either: 1) graduate with two-year, Associate degrees in IT disciplines (out of the 500,000 who yearly complete their studies), or 2) are enrolling in IT-certification courses, as well as other continuing education curricula designed to help them transition into high tech careers. Both of these talent pools would certainly seem to qualify for employment in a significant number of professional, entry-level high tech jobs, yet they **appear to be largely ignored by the industry.** To illustrate: In Virginia — one of the nation’s high tech hotbeds — the final 1999 report of the Governor’s Commission on Information Technology, which was composed of many industry leaders, took the Commonwealth’s IT industry to task for not fully utilizing this source of qualified IT workers.

FACT: **The supply of U.S. graduates qualified to work in high tech occupations has increased significantly over the past five years.** The pattern of bachelor’s degrees conferred shows an increase in the number of degrees conferred in technical fields. Between 1993–94 and 2003–04, the number of engineering degrees conferred declined by 8% and then rose again by 8%, and the number of mathematics degrees declined by 16% and then rose by 11%. Meanwhile, degrees in computer and information sciences first increased 25% from 1993–94 and 1998–99 and then grew by 95% from 1998–99 and 2003–04.¹³

FACT: **Undergraduate and graduate enrollment in computer science and engineering programs have increased over the past 10 years.** According to the Department of Education,

in 2003–04, nearly 998,000 students were enrolled in undergraduate and graduate programs for engineering and computer science. In addition, graduate enrollment increased by 62.2% between 1990 and 2002, from 34,257 to 55,559 students.¹⁴

FACT: The H-1B program is making it worse, not better. Highly qualified U.S. students are citing uncertainty in the future of domestic science and engineering resulting from an increasing H-1B workforce and increased outsourcing as a motivating factor in causing them to pursue other career opportunities.¹⁵

FACT: These statistics indicate that the current supply of college graduates is sufficient to satisfy future high tech industry needs.

Supply—Incumbent Workers

FACT: This industry has an abysmal record of hiring minority workers. Presently, a paltry 5.3% of this industry consists of Hispanic Americans — less than one-half their rate of total employment in the U.S. economy — and only 7% are African Americans.¹⁶

FACT: A major study done by the Urban Institute shows that the industry claims of widespread and pervasive shortages of qualified workers are just not true:

- Labor market indicators do not demonstrate a shortage of supply.
- The evidence suggesting a need for more H-1B workers is anecdotal.
 - Surveys have shown that managers’ complaints about an inability to hire qualified workers do not rest in a lack of qualified applicants but in unrealistic expectations to hire workers who have lots of specific work experience.
 - These surveys have shown that there are plenty of applicants who meet the educational requirements of open positions.
- The overall science and engineering field workforce is about 4.8 million while 15.7 million workers hold science or engineering degrees.
- From 1985 to 2000 435,000 U.S. residents graduated with science or engineering degrees while job growth in those fields was just 150,000 annually.¹⁷

FACT: The high turnover caused by the industry’s extensive use of short-term personnel requires workers to constantly move from job to job. This churning in the workforce creates reports of job openings that are cited as proof of shortages. But most of these reported job opportunities remain open for only short periods of time before they are filled.

H-1B—In Need of Repair & Reform

FACT: In 2006, the GAO issued yet another report entitled “H-1B Visa Program: Labor Could Improve Its Oversight and Increase Information Sharing with Homeland Security.” This report focused on the need for quality assurance controls within the program:

- “Labor’s oversight of the H-1B program is limited, even within the scope of its existing authority. Labor’s review of employers’ H-1B applications is limited by law to identifying omissions and obvious inaccuracies, but we found that it does not consistently identify all obvious inaccuracies [...] For example, although the overall percentage was small, we found 3,229 applications that were certified even though the wage rate on the

application was lower than the prevailing wage for that occupation in the specific location.”¹⁸

- “Additionally, Labor does not identify other errors that may be obvious... We found 993 certified applications with invalid employer identification number prefixes. In other programs, Labor matches the application’s employer application number with valid employer identification numbers. However, they do not formally do this match with H-1B applications because it is an attestation process, not a verification process.”¹⁹

FACT: H-1B workers receive less pay. On average H-1B applications for computer workers were for \$13,000 less in salary than Americans in the same occupation and state. This is despite the law stating that H-1B recipients be paid the ‘prevailing wage.’

FACT: The H-1B program is out of control and unmanageable. U.S. professional and technical workers have made great personal sacrifices to gain the education and training necessary to compete for the knowledge jobs in the new American economy. They deserve better than to be victimized by guest worker programs like H-1B. Congress can make a long, overdue start in cleaning up the guest worker visa mess by implementing badly-needed reforms. Until then, there should be no increase in the H-1B annual visa limits.²⁰

Timeline of a cyclical ‘crisis’ ^{21,22}

1980’s: National Science Foundation (NSF) predicts “looming shortfalls” of scientists and engineers through a series of “studies.”

1990: The H-1B program is created when President Bush signs the “Immigration Reform and Control Act of 1990.”²³

1992: NSF “studies” discredited through Congressional investigation and no shortfalls materialize. Congress criticizes NSF for its carelessness and warns that an important lesson should have been learned.

1996: The “American Business for Legal Immigration” lobby is established and funded by high tech companies. (Now known as Complete America)²⁴

1997: The Information Technology Association of America (ITAA) produces a series of reports claiming mass shortages of IT workers. These reports did not rely on market indicators, but rather used monitoring of job openings.²⁵

1998: The General Accounting Office (GAO) issues criticism of the ITAA reports citing the weak methodology and lack of empirical data.²⁶

2000: ITAA report citing 843,000 unfilled jobs is used as motivation to triple the size of the H-1B visa cap despite continued GAO criticism of the ITAA conclusions.²⁷

2000: Vernon Briggs, Professor of Industrial and Labor Relations, Cornell University, warns that the increase in H-1B visas will dissuade Americans from pursuing IT careers by suppressing wages.²⁸

2003: A RAND study collected data from the National Science Foundation, the Bureau of the Census, the Bureau of Labor Statistics, the National Research Committee and others in a comprehensive report concluding: “neither earnings patterns nor unemployment patterns indicate [a science and engineering] shortage.”²⁹

2003: Bureau of Labor Statistics releases data showing high unemployment for scientists and engineers.

2005: A report led by the Business Roundtable, “Tapping America’s Potential,” calls for increased science and engineer immigration and a doubling of science graduates by 2015. The report cites anticipated job shortfalls.³⁰

2006: A National Academies report, “Rising Above the Gathering Storm,” calls for increased science and engineer immigration, citing impending shortfalls.³¹

2007: A wide variety of professional studies are released critiquing and refuting the claims of educational gaps in science and engineering and shortfalls in available workforce:

- Harold Salzman, Ph.D., The Urban Institute: “the United States’ education system produces a supply of qualified [science and engineering] graduates in much greater numbers than jobs available.”³²
- Michael S. Teitelbaum, Vice President, Alfred P. Sloan Foundation: “First, no one who has come to the question with an open mind has been able to find any objective data suggesting general “shortages” of scientists and engineers.”³³
- Urban Institute study Into the Eye of the Storm: “Recent policy reports claim the United States is falling behind other nations in science and math education and graduating insufficient numbers of scientists and engineers. Review of the evidence and analysis of actual graduation rates and workforce needs does not find support for these claims.”³⁴

¹ U.S. Department of Labor, Bureau of Labor Statistics, “Occupational Employment”, *Monthly Labor Review*, November 2005.

² Salzman, Harold. “Globalization of R&D and Innovation: Implications for U.S. STEM Workforce and Policy”, Statement submitted to the Subcommittee on Technology and Innovation. November 6, 2007.

³ U.S. Government Accountability Office, Report to Congressional Requesters, “H-1B Visa Program: Labor Could Improve Its Oversight and Increase Information Sharing with Homeland Security.” June 2006.

⁴ *Ibid.*

⁵ U.S. Department of Labor, Bureau of Labor Statistics, “Occupational Employment”, *Monthly Labor Review*, November 2005.

⁶ U.S. Department of Labor, Bureau of Labor Statistics, *Current Population Survey*, 2006.

⁷ *Ibid.*

⁸ *Ibid.*

⁹ *U.S. News and World Report*, August 30, 1999.

¹⁰ National Research Council, *Building a Workforce for the Information Economy*, 2001.

¹¹ U.S. Department of Education. *Digest of Education Statistics 2005*.

¹² U.S. Department of Labor, Bureau of Labor Statistics, *Current Population Survey*, 2006.

¹³ U.S. Department of Education. *Digest of Education Statistics 2005*.

¹⁴ *Ibid.*

¹⁵ Salzman, Harold. “Globalization of R&D and Innovation: Implications for U.S. STEM Workforce and Policy”, Statement submitted to the Subcommittee on Technology and Innovation. November 6, 2007.

¹⁶ U.S. Department of Labor, Bureau of Labor Statistics, *Current Population Survey*, 2006.

¹⁷ Salzman, Harold. “Globalization of R&D and Innovation: Implications for U.S. STEM Workforce and Policy”, Statement submitted to the Subcommittee on Technology and Innovation. November 6, 2007.

¹⁸ U.S. Government Accountability Office, Report to Congressional Requesters, “H-1B Visa Program: Labor Could Improve Its Oversight and Increase Information Sharing with Homeland Security.” June 2006.

¹⁹ *Ibid.*

²⁰ Miano, John. “The Bottom of the Pay Scale: Wages for H-1B Computer Programmers.” Center for Immigration Studies. December 2005.

²¹ Teitelbaum, Michael. “Do We Need More Scientists?” 2003.

²² Testimony of Michael Teitelbaum, Vice President, Sloan Foundation, before Subcommittee on Technology and Innovation, United State Congress. November 6, 2007.

²³ Briggs, Vernon, “American Unionism and U.S. Immigration Policy,” August 2001.

²⁴ <http://completeamerica.org/>

²⁵ <http://www.itaa.org/>

²⁶ www.gao.gov/corresp/he98159r.pdf

²⁷ “Bridging the Gap: Information Technology Skills for a New Milleneum,”

http://www.ita.org/newsroom/product.cfm?Event_ID=50

²⁸ Frauenheim, Ed, “The Scourge of Silicon Valley,” Salon.com, October 19, 2000.

²⁹ “Is There a Shortage of Scientists and Engineers? How Would We Know?”

www.rand.org/pubs/issue_papers/IP241/IP241.pdf

³⁰ http://www.uschamber.com/publications/reports/050727_tap.htm

³¹ http://www.nap.edu/catalog.php?record_id=11463

³² Salzman, Harold. “Globalization of R&D and Innovation: Implications for U.S. STEM Workforce and Policy”, Statement submitted to the Subcommittee on Technology and Innovation. November 6, 2007.

³³ Testimony of Michael Teitelbaum, Vice President, Sloan Foundation, before Subcommittee on Technology and Innovation, United State Congress. November 6, 2007.

³⁴ Lowell, Lindsay and Harold Salzman. “Assessing the Evidence on Science and Engineering Education, Quality and Workforce Demand”, Urban Institute. October 29, 2007.

For further information on professional workers, check out DPE’s Web site: www.dpeaflcio.org.

The Department for Professional Employees, AFL-CIO (DPE) comprises 23 AFL-CIO unions representing over four million people working in professional, technical and administrative support occupations. DPE-affiliated unions represent: teachers, college professors and school administrators; library workers; nurses, doctors and other health care professionals; engineers, scientists and IT workers; journalists and writers, broadcast technicians and communications specialists; performing and visual artists; professional athletes; professional firefighters; psychologists, social workers and many others. DPE was chartered by the AFL-CIO in 1977 in recognition of the rapidly-growing professional and technical occupations.

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