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Looking for Jobs?: Look to IT

BY ROBERT D. ATKINSON AND SCOTT M. ANDES | APRIL 22, 2010

Jobs, jobs, jobs! This is the mantra in Washington these days. And rightly so with unemployment close to 10 percent. Many policy makers are looking at new industries, particularly clean energy, to power job creation but they overlook the key role that information technology (IT) has played and will likely play in creating jobs. In fact, over the last decade IT jobs in the United States have grown rapidly. According to the Bureau of Labor Statistics' Occupational Employment Survey, between 1999 and 2008 (the latest data available), over 688,000 new IT jobs have been created, an increase of 26 percent. In fact, IT employment has grown more than four times faster than employment as a whole, which has grown by only 6.2 percent (see Figure 1). Because of this growth in these good paying jobs, GDP is over $52 billion larger in 2008 than in 1999.[1]

This positive reality is at odds with the view of many pundits who argue that since the bursting of the so-called dot-com bubble in 2000 and the rise of offshoring that the IT jobs engine is sputtering, if not running in reverse. As Harvard Business School's Nicolas Carr put it in 2003, "As for information technology (IT)-spurred industry transformation, most of the ones that are going to happen have likely already happened or are in the process of happening." In other words, while IT might have been a jobs engine in the 1990s, that time has passed. Others point to the increased number of IT jobs going offshore to low cost places like India and Eastern Europe.[2] This is the story many hear in the press about IT jobs: "so and so company has just moved x number of IT jobs to India."

There are two reasons why the pessimists have gotten it wrong when it comes to offshoring. First, even though some IT jobs have gone offshore, many of these jobs were more routinized occupations like programmers. Indeed, programming jobs have declined by 25 percent over the last decade, (a loss of 134,000 jobs) presumably with much of that decline due to offshoring. Second, while these jobs have shrunk, two kinds of IT occupations have grown even faster. The first are jobs where the IT workers have to be onsite or nearby – jobs such as network administrators[3] and computer support specialists,[4] adding roughly 147,000 and 106,000 jobs respectively. (see Figure 2) Likewise, Network Systems and Data Communications Analysts jobs grew from 98,000 in 1999 to over 230,000

Figure 1: Overall U.S. job growth and IT job growth, 1999 - 2008

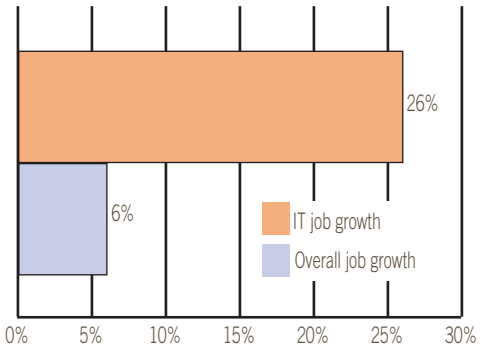
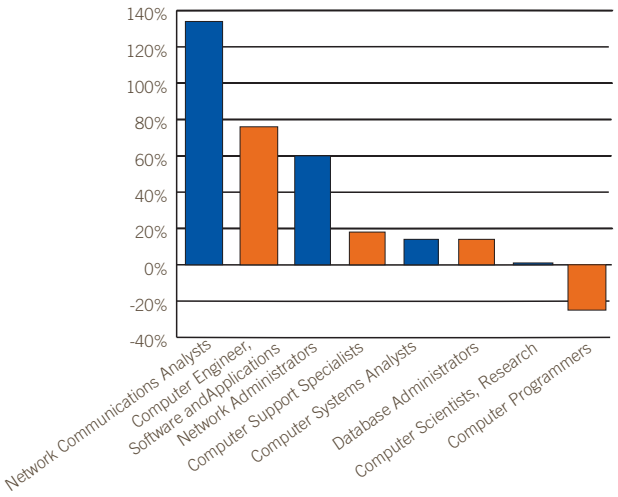


Figure 2: Percent Change in IT Occupations, 1999 - 2008



in 2008, or 134 percent. The second kind are jobs that are higher skilled and hence harder to be moved to low wage nations. For example, computer engineer, software and application engineering jobs paid 25 percent more than the average IT job and 27 more than computer programmers and grew by over 400,000 during this period.[5] Likewise, research computer scientists, which pay the most of any IT occupation, also grew, albeit not as fast.

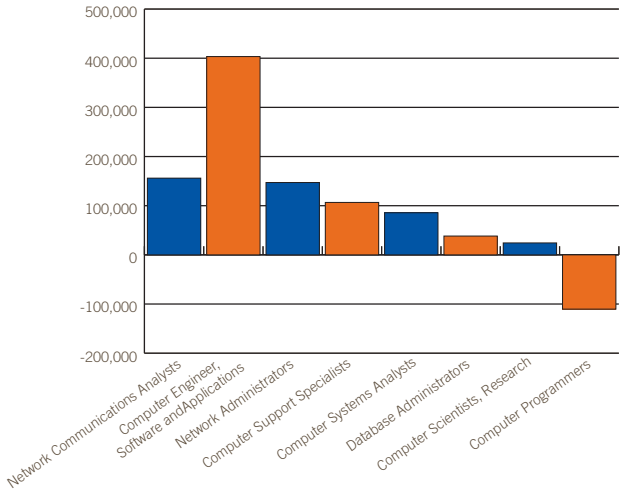
Importantly, the growth of these IT jobs has helped a growing number of families enjoy greater financial security. While the average U.S. worker earned $42,263 a year in 2008, IT workers earned $74,500 a year (75 percent more).[6] Moreover, because the jobs that have been lost in IT have tended to be lower wage (lower wage for IT, but still higher wage relative to all jobs,) between 1999 and 2008 the average hourly wage of IT workers increased slightly faster (36 percent) than non-IT jobs (33 percent).

Fortunately, as we look to the future we can expect more – not less – potential for job growth in this sector. The the U.S. economy continues to become more dependent on IT for producing innovation, higher productivity and improvements in quality of life. In contrast to Nick Carr's pessimistic prognosis, IT innovation has actually continued at a rapid pace, powered by continued significant price declines and performance improvements. New innovations are occurring regularly, from the expansion of high speed broadband, to cloud computing, to social networking. And we see more every week, as evidenced by the recent release of Apple's iPad. Moreover, industry continues to rely more on IT to drive performance. Indeed, IT capital investment by industry increased from 26 percent of all capital investment in 1999 to 29 percent in 2008. As such, industry after industry is becoming "digital." For example, a large portion of the fastest growing companies are IT-related. According to the Deloitte's *2009 Technology Fast 500 Rankings*, a ranking of the 500 fastest revenue-growing firms in the United States, 360 are IT related, or 72 percent.

And with the advent and expansion of new IT systems such as health IT and smart grids, the continued expansion of broadband, and the growth of e-commerce and e-government, the importance of IT jobs to the U.S. economy is likely to only grow.

Yet policy makers should not think that because IT has been an important jobs engine in the past that it will automatically continue to be in the future. For that to occur, policymakers must address both the supply and demand side. On the supply-side, policies to ensure that training and education programs effectively train Americans in IT skills and enable needed foreign IT talent to enter the United States are critical. Among other things this means overhauling and expanding computer science education at both the high school and college level. Too few students are entering IT, even as these high paying jobs continue to expand. For example, while over 20,000 high school students took the AP Art History test in 2008, and over 13,500 took the Studio Art AP Test, fewer than 5,000 took the Computer Science AB test. In fact, so few stu-

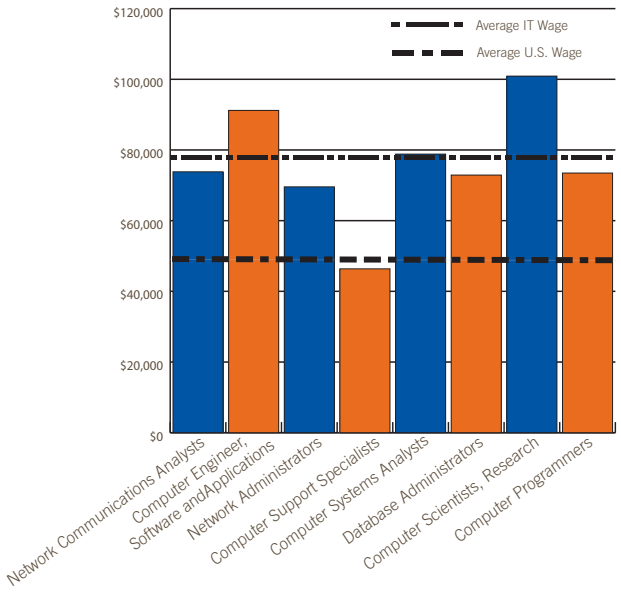
Figure 3: Total New IT Jobs by Occupation, 1999 - 2008



dents took the AP Computer Science AB Test that the College Board discontinued the test in 2009.[7] How does the U.S. expect to continue to lead the IT economy if so few high school students are being motivated to take computer science?

On the demand side, local, state and federal governments will need to continue and expand policies to spur digital transformation. The 2008 American Recovery and Reinvestment Act's funds for health IT, broadband and smart grid were a move in the right direction. And the Administration's recent National Broadband Plan lays out a strategy for not only expanding broadband but also other key IT applications. But as ITIF has shown, the U.S. lags in many IT areas, including health IT, smart grid, mobile commerce, and intelligent transportation systems. We need to not only develop plans, we need to fully fund and implement them. And finally, while smart public policies can help expand the digital economy and the good paying jobs that go with it, ill-suited public policies, such as overly stringent regulations on broadband, privacy, and e-commerce can have the opposite effect, limiting investment and retarding job growth.

Figure 4: Average Annual Wage, IT Occupations



ENDNOTES

1. The $52 billion is the sum of the average wage per IT occupation multiplied by the number of new IT jobs.

2. Patrick Thibodeau, "Can Obama reverse job offshoring?," *ComputerWorld,* November 8, 2008, http://blogs.computerworld.com/can_obama_reverse_job_offshoring.

3. These are occupations that "analyze, design, test, and evaluate network systems, such as local area networks (LAN), wide area networks (WAN), Internet, intranet, and other data communications systems. Perform network modeling, analysis, and planning. Research and recommend network and data communications hardware and software. Include telecommunications specialists who deal with the interfacing of computer and communications equipment. May supervise computer programmers." Bureau of Economic Analysis, "Occupational Employment Statistics," United States Department of Labor, http://www.bls.gov/OES/.

4. These are occupations that "provide technical assistance to computer system users. Answer questions or resolve computer problems for clients in person, via telephone or from remote location. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems. Exclude "Network and Computer Systems Administrators." Ibid.

5. These are occupations that "research, design, develop, and test operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computing applications. Set operational specifications and formulate and analyze software requirements. Apply principles and techniques of computer science, engineering, and mathematical analysis." Ibid.

6. In reality the difference between IT annual wages and the U.S. average wage is likely much larger because of the way the Bureau of Labor Statistics calculates annual employment. BLS only surveys hourly wages and assumes all employees work 2,080 hours a year (40 hours a week, 52 weeks a year), which overvalues part time employment.

7. Scott Cech, "College Board Intends to Drop AP Programs in Four Subject," *Education Week*, April 4, 2009, http://www.edweek.org/login.html?source=http://www.edweek.org/ew/articles/2008/04/09/32ap.h27.html&destination=http://www.edweek.org/ew/articles/2008/04/09/32ap.h27.html&levelId=2100.