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Globalization and the American IT Worker

Exporting IT jobs and importing IT workers not only harms U.S. IT workers, it also harms U.S. firms and the broader economy.

No matter what kind of globalization of IT one considers—whether offshoring the work or importing foreign workers to the U.S. under the H-1B and L-1 work visa programs—the losers are U.S. programmers as well as the overall U.S. economy.[1] Here, I explain why and propose remedies that should be taken to address these problems.

One might expect offshoring to produce greater savings than just labor importation, in terms of IT development costs. However, once the costs of agency overhead and communication links are factored in, the magnitude of cost savings for the two models—exporting work overseas and importing workers to the U.S.—are actually quite similar. Though programmer salaries in India are relatively low, the overall cost savings for offshoring tends to range from 15% to 40% (see, for example, [6]). This is about the same range of savings accrued for work done in the U.S. by hiring H-1Bs. A number of studies have found that the H-1Bs are paid on average 15% to 33% less than comparable U.S. IT workers.[2] Given the similarity in salary savings between offshoring and labor importation, and the fact that having the work done on-site is far more productive, it is much more cost-effective from a CEO's point of view to hire H-1Bs than to offshore the work.

This calculation suggests that, in spite of the recent attention given to offshoring, labor importation today is the bigger problem for U.S. IT workers, as confirmed by the data for these two types of globalization. A 2004 report commissioned by the Information Technology Association of America (ITAA), a major industry lobbying group, found that only 104,000 U.S. IT jobs were lost during 2000–2003 due to offshoring [1], and other independent figures are consistent with this conclusion. By contrast, as of 2002, 463,000 H-1Bs (not including tens of thousands of L-1s) held IT jobs in the U.S.[3]

There is no question that having the work done on-site is more productive than shipping it overseas. Offshoring often results in longer completion times and lost market opportunities due to delays. Numerous detailed accounts of such problems have been

[1] I use the term programmer for all types of software developers. Researchers outside the field of IT (such as [4]) tend to distinguish between the job titles programmer and software engineer, but such distinctions merely reflect variation in type of industry rather than different types of work. Note also that jobs done by H-1Bs must by law have at least a Bachelor's degree. Thus the H-1Bs in IT are programmers, not computer technicians and the like.

[2] For a detailed analysis of all the studies done in this field, see [5].

[3] This number should not be confused with the yearly cap on new H-1Bs, which in 2002 was 195,000 new visas per year [5]. In other words, the 463,000 figure included both the new H-1Bs arriving that year and the H-1Bs who had arrived earlier but were still working in the U.S. that year. The 195,000 cap was temporary, and in 2003 the U.S. Congress allowed it to revert to its original level of 65,000 new visas per year. However, this level is still unwarranted in this time of extensive unemployment/underemployment of U.S. IT workers.

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published [2]. Good software development requires constant interaction among developers and managers being able to walk down the hall for spur-of-the-moment face-to-face conversations. Another major problem with offshoring is that the Indian business model involves staffing projects with young, inexperienced programmers in order to minimize costs. This has obvious adverse effects on quality. Some Indian offshoring firms point to their high ratings under the Capabilities Maturity Model (CMM). But CMM merely assesses a project's management techniques, not the quality of its personnel. As one official in the CMM project at Carnegie Mellon University noted, "You can be an [highest CMM-rated] organization that produces software that might be garbage."

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Yet the current momentum is clearly toward offshoring. Consulting firm Gartner Group projects that 25% of all U.S. IT jobs will move overseas by 2010, up from 5% today; the programmer-specific percentage should be even higher than that, since technician and system administrator jobs need constant physical presence and thus can't be offshored. One source of the trend toward offshoring is the pressure exerted by venture capitalists on companies they fund to offshore most of their development work for (perceived) cost savings. Intel CEO Craig Barrett created a stir in making this point in a December 2003 *San Jose Mercury News* interview, stating: "Companies can still form in Silicon Valley and be competitive around the world. It's just that they are not going to create jobs in Silicon Valley."

Even the ITAA, as a staunch advocate of globalization, paints a gloomy picture for U.S. IT workers [1], projecting that the only major sector of the U.S. economy likely to shrink over the next decade as a result of offshoring will be IT. Its projected numbers would imply that offshoring will overtake the H-1B program in terms of numbers of jobs lost by U.S. programmers within a decade.

Not to worry, says the ITAA, because the number of jobs will increase in non-IT categories (such as construction and finance). But the vast majority of these jobs will not be of the high-level variety (such as architects and financial market analysts that have begun to migrate offshore, too). Thus the U.S. would lose IT and other jobs requiring a more rigorous level of education in exchange for gaining jobs (such as carpenters and loan officers) requiring a less-demanding education. You don't have to be a rocket economist to see that such a trend would be disastrous for the U.S.

Some proponents of offshoring argue that the cost savings incurred by U.S. businesses from offshoring will lead to increased IT investment by these same businesses, thus creating new jobs for U.S. IT workers [4]. They also argue that the U.S. should concentrate on its forte—innovation—to create jobs. But in both cases, among the new jobs, the technological ones are likely to be offshored, too, or filled in the U.S. with H-1Bs. Americans would mainly have access only to the nontechnological jobs. The venture capitalists call this new business model "micro-multinational," with sales and marketing jobs in the U.S. but with R&D done offshore. Once again, this amounts to trading jobs that require more education for jobs that need less education.

The same point applies to the argument that the answer is to provide retraining for displaced IT workers [4]. Since the professional-level jobs would be globalized, the only retraining that would make sense would be for jobs that do not require a college degree. We have already seen this to be the case for the retraining programs funded through H-1B employer fees [7].

Thus, one type of globalization—importing foreign IT workers—has already had a significant adverse effect on U.S. IT workers, and the other—offshoring IT work—has the potential to be even worse. What can be done?

On the legislative side, labor importation must be addressed, not only for its direct effect but also because it plays a central role in offshoring; most offshoring software projects include a key onshore component staffed by H-1Bs and L-1s in the U.S. The visa holders serve as liaisons to offshore staff or are offshore workers temporarily in the U.S. for training [3].

The "prevailing wage" requirement of H-1B law and regulations is defined so loosely that numerous loopholes are available to employers for keeping H-1B wages low while being in full compliance with the law [5]. Just like loopholes in the tax code, these H-1B loopholes are used aggressively by virtually all firms, from giants like Intel to the tiniest startup. Congress must fix this disgraceful situation. H-1B visas should be restricted to their original, now-forgotten, purpose: allowing "the best and the brightest" of the world to work in the U.S. Meanwhile, the L-1 program should be restricted to issuing visas for managers.

Some state governments (such as California and New Jersey) have considered legislation stipulating that government contract work be done exclusively in the U.S. However, this would not be effective unless it also required that the work be done by U.S. citizens and permanent residents, rather than by H-1Bs and L-1s.

Businesses should assess offshoring carefully, taking into account quality, time to market, and overall costs. They should also take a good look at their use of H-1Bs. Like their offshore counterparts, H-1Bs tend to be young; for example, the Indian IT giant Tata Consultancy Services reported that 50% of its programmers in the U.S. are under age 25, and 88% are under 30. The loss of experience a business incurs by hiring a young H-1B instead of an established U.S. programmer may be harmful to its bottom line. Even when hiring U.S. programmers, employers should emphasize genuine talent, rather than imposing questionable skills list requirements.

University computer science departments must be honest with students regarding career opportunities in the field. The reduction in programming jobs open to U.S. citizens and green card holders is permanent, not just a dip in the business cycle. Students who want technological work must have less of a mindset on programming and put more effort into understanding computer systems in preparation for jobs not easily offshored (such as system and database administrators). For instance, how many graduates can give a cogent explanation of how an OS boots up?

The advocates of globalization are right about one thing: Globalization is here to stay. But their claims of its benefits are misleading, and their remedies will not work, leading only to frustration and disappointment by U.S. IT workers and missed opportunities by U.S. businesses. Genuinely thoughtful, realistic solutions to the problems are imperative. C

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