Is There Really a Shortage of IT Workers in the U.S.?

Over the last few years numerous newspaper and magazine articles have predicted that severe shortages of information technology (IT) workers could have a crippling effect on the growth of the economy. Groups such as the Information Technology Association of America and the U.S. Department of Commerce Office of Technology Policy identified what they considered “substantial evidence that the United States is having trouble keeping up with the demand for new information technology workers.” The most vocal concerns are coming from the computer industry, where CEOs of leading companies say that the worker shortage is preventing the development and marketing of new products, lowering sales, and costing the country hundreds of thousands of jobs. They see a shortage of IT workers that can be met in the short run only by recruiting more workers from abroad.

Those who oppose such recruitment argue that an adequate supply of native workers will materialize if these and other employers are realistic in their skill requirements and if they are willing to train workers and increase wages. A growing number of employers are demanding that prospective employees have a “bundle” of job skills on their resume. In requesting expertise in a collection of general IT skills, these employers are hoping to fill all of their needs, present and future, by hiring one perfect worker. This creates what Timothy Babbitt, an assistant professor of business administration at the University of Illinois Urbana campus, calls an inevitability of a labor shortage. Babbitt reports a conversation he had with a manager for EDS (a major outsourcing agent for IT). When he asked the manager if he thought there was a shortage of IT professionals in the job market, the manager indicated that he certainly did think so. “Why?” Babbitt asked.

“It is so hard to find good people,” the manager replied.

“How many applicant are you getting in response to ads?”

“About 250 per position.”

“Well, how is that a shortage?”

“We’ re just not seeing people that have the complete set of skills we want.”

According to Babbitt, it is this “skill bundling” that produces the appearance of a shortage of IT workers. And the suggested public policy that would loosen immigration rules does not address the problem. There is no language in the proposals to assure that the workers being allowed into the country to perform IT jobs have the correct skill bundles either. Most of the workers that would come in under such a program would be cheap programmers from third world countries. The flow of immigrant IT professionals into the U. S. simply creates an international shortage as IT professionals leave jobs in their own countries to come here, without really filling the skill needs that businesses claim they must have.

There is no single measure of occupational labor shortage, nor can one easily be developed.

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However, we can hypothesize that if shortages develop, employment growth would be strong; wages would increase relative to other professional occupations, indicating the desire of employers to attract more staff; and the unemployment rate would be expected to decline or remain low. In Babbitt’s studies of the issue, he has found that the data does not show a big difference in wages in IT. In contrast to the situation for faculty in management of information systems (MIS), in which the salaries of beginning assistant professors are increasing as much as $10,000 annually to attract faculty, business employers in IT are not responding by increasing salaries to attract better workers.

Professor Babbitt feels that the differences in opinion on the shortage of IT workers could reflect, at least in part, a lack of a shared understanding of what constitutes a labor shortage. He examined the nature of the shortages in IT and in the parallel case of the market for faculty in MIS. He hopes the better understanding gained about the nature of these shortages may provide a basis for remedying current and future problems.

Most studies of labor shortages acknowledge that there are different types of shortages, which, in turn, elicit different responses from workers and employers. The pressing need for workers usually creates a strong market for workers, which stimulates more students to major in computer-related disciplines, and for more employers to work with universities, community colleges, private training facilities, and even high schools to attract potential workers. Shortages in the IT and MIS fields belong to the type of shortage that can result from a sudden or rapid increase in the demand for workers to produce particular goods or services that outpaces the job market's ability to supply workers. Even though wages and the supply of workers may be increasing, there can still be shortages if the supply does not increase rapidly enough to keep up with the demand. On the other hand, increased demand alone may not create a shortage if the supply of labor is flexible enough to adjust to the change, that is, if workers from other fields can move in to fill the gaps with little or no additional training.

The problem is greater when years of education and training are required for workers to prepare for jobs in the field. In such cases, increases in wages offered can to do little to increase the supply very quickly. This is true of both IT jobs in general and the MIS academic job market. Shortages of MIS faculty can be exacerbated by the ability of these workers to move from academic into industry, often at much higher salaries.

While the reluctance or inability of employers to increase wages may cause or contribute to labor shortages, there are other ways employers can and do work to attract workers to fill their vacancies. One method is to increase recruiting efforts—stepping up advertising campaigns, greater use of employment agencies and headhunters, offering current employees bonuses for new workers they bring in or signing bonuses for the new employees, and retention premiums. Some employers look for innovative ways to attract workers with such benefits as a relaxed working environment, flexible schedules, child and elder care, and onsite services ranging from fitness centers to car washes.

Employers may also handle shortages by increasing the use of overtime, restructuring the workforce (dividing up the tasks of jobs so that a worker with two or three of the job skills desired can handle part of the job and another worker with two or three other skills takes on the rest of the duties) or using workers from one occupation to perform the tasks of another. Early IT professionals were from many differing fields such as mathematics and statistics, where computational experience could be harnessed for business needs.

Still other employers try to relax or reduce the minimum qualifications or expand worker training or both. Sometimes the employer pays continued on page 8
People Are Essential to Maintaining Relationships between Firms

In a study of the relationship between the job mobility of individuals and the break-up of relationships between organizations, Assistant Professor of Business Administration Joseph P. Broschak has examined the axiom that individuals are fundamental to the dynamics of interorganizational relationships. He argues that the job turnover of key personnel can put the relationships between organizations at risk by disrupting the interpersonal relationships that bind the two firms together. He also suggests that the dissolution of interfirm relationships can affect the careers of individuals involved: after a break-up, key personnel can be made scapegoats for the failure and be fired, or they may decide to move on because other opportunities seem more attractive after the loss of a particular relationship. He tested these theories concentrating on the relationships between advertisers and advertising agencies. His analyses revealed that the turnover of key personnel was related to the break-up of interfirm relationships—but not always in the ways predicted by existing theories.

There are many types of interorganizational relationships. For instance, firms exchange goods, services, and capital through market ties with suppliers, customers, banks, and distributors as well as maintaining interlocking company directorates and entering joint ventures and alliances. While considerable research has focused on which firms establish relationships and the purposes of different types of relationships, little study has been devoted to factors that affect the continuity or ending of such relationships. The lack of such knowledge can be a problem because interfirm relationships are essential to the success, and even the survival, of many firms—yet they are often quite unstable.

Broschak’s research focused on relationships between professional service firms (advertising agencies in the New York City area) and their clients over a 13-year period and investigated the effect that the mobility of key personnel had on them. He asked three fundamental questions: (1) Does the mobility of key personnel in service firms affect the dissolution of the ties between firms? (2) Does the mobility of key personnel in client firms affect interfirm relationships? And (3) Does the dissolution of market ties trigger the mobility of key personnel in professional service firms?

An examination of the data on advertisers and ad agencies during the 1980s and 1990s revealed dramatic differences in how these two types of firms participated in the market for advertising services. On average, clients maintained ties with approximately three ad agencies per year, and they dropped one of them approximately every two years. The average length of such relationships was 6.3 years. Advertising agencies, on the other hand, maintained an average of nearly twenty different ties with client firms and lost an average of about four accounts per year. Agencies also tended to experience more personnel turnover than client firms.

Broschak hypothesized that because individual mobility is so common in the advertising industry (30% of people change jobs or firms in any year), any effects of changes in key personnel would depend on what job individuals performed in their organizations. Consistent with conventional wisdom and prevailing organizational theories, Broschak predicted that when people whose jobs span the boundaries between firms (such as account executives or marketing executives) leave, or when people involved in the creative process in agencies move on to other jobs, relationships between advertisers and ad agencies would be more likely to end. Broschak also predicted that when relationships between firms dissolved, the boundary-spanning personnel, who have developed valuable relationship-management skills, would be more likely to leave their firms, while creative people would be mostly unaffected.

As expected, the job mobility of key personnel does make it more likely that market ties between firms will dissolve. But what is surprising is that both the amount and the type of job mobility matters, and the mobility of some people matters more than that of others. For advertisers, the turnover of market-continued on p. 4

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ing personnel increases the likelihood that ties with advertising agencies will end. There are two possible explanations. The departure of marketing personnel may break up an existing good working relationship between the marketing department and the ad agency staff and lead to the dismissal of the ad agency. It may also be that the departure of key marketing personnel and the ending of ad agency relationships are both part of a shift in the marketing strategy of the client firm. Firms seeking to change strategies may shake up or retool their marketing organizations by first replacing marketing managers and then firing their ad agency. In fact, Broschak found that the greater the number of changes in marketing personnel, the more likely the client was to drop its ad agency.

While the results for client firms supported Broschak’s hypotheses, the results for ad agencies were more complex, and sometimes unexpected. Ad agencies that experienced turnover of their key boundary-spanning personnel subsequently lost more clients than those who did not. This result confirms what previous researchers had only speculated, that boundary spanners in professional service firms play a critical role in maintaining ties with clients. Broschak’s results also indicate that other types of mobility involving boundary spanners, such as promotions and lateral job changes, had no ill effects on an agency’s relationships with clients. Evidently, the human and social capital developed by boundary-spanning personnel continue to produce benefits for ad agencies regardless of where these individuals are deployed in their organizations. Ties between firms are only disrupted if boundary spanners leave their organizations.

In contrast, the results of the mobility of agency creative personnel contradicted conventional wisdom: The mobility of creative personnel strengthened client-agency relationships rather than weakened them. One possible explanation for this rather unexpected finding has to do with the resolution of conflict between clients and agencies. It is well known in the advertising industry that there is often tension between agency creative types and client marketers: Creative personnel are generally perceived to be interested in advertising as an end product rather than for the effect it has on clients sales. Broschak relates, “one agency account manager whom I interviewed told me that after allowing creative personnel to make the initial pitch to clients, she tried to keep them as far away from the client as possible. The marketing manager of a software manufacturer told me that, if he had his way, he’d fire his advertising agency because of the way they talked down to him. The agency was interested in the color and hue of their print ads and the emotion evoked by the music in their commercials, while what he really wanted to know was how many boxes of software he was going to sell.” It appears that the turnover of creative personnel soothes these conflicts between firms and strengthens ties between clients and agencies.

Market ties between clients and ad agencies are strengthened by the promotion and lateral moves of creative personnel as well as by turnover. Broschak speculates that filling the vacancies created by turnover in agency creative departments by internal promotion rather than external hiring signals to clients continuity and consistency in an agency’s creative work. Further, it is likely that the creative personnel most likely to be promoted to fill vacancies are those who do the best job of relating to clients. Both of these are pluses for client-agency relations and strengthen market ties.

As far as how the loss of market ties affects the careers of agency personnel, as expected both the occurrence and the number of clients lost affected the subsequent departure of boundary-spanning personnel. Two factors likely explain this finding. First, when clients are lost, the key personnel most responsible are likely to be made scapegoats. Thus, it is not surprising that boundary spanners such as account managers are let go when clients are lost. Second, other advertising agencies may hire away key account service personnel hoping to attract the business of the client with whom that person previously worked. Interestingly, the careers of creative personnel are unaffected by the loss of clients.

These findings suggest a notable pattern. The loss of agency account services personnel increases the number of market ties dissolved. This, in turn, leads to more departures of account services personnel. Thus, agencies run the risk of falling into a spiral that makes it increasingly difficult to maintain ties with clients. Agencies that can break out of this
spiral or avoid it altogether may have a competitive advantage over other agencies in terms of maintaining clients. This suggests that ad agency executives should proceed with caution when meting out punishment to account services personnel when clients are lost. Firing account executives may have unintended consequences for other client-agency relations, particularly when these executives handle multiple accounts.

Death by Lethal Injunction? Taft-Hartley and the Dying Right to Strike

Not long after his January inauguration as president, George W. Bush announced that he would permit no airlines to strike during the summer of 2001. In April, under this threat, Northwest Airlines and its unions reached an agreement. This represents a good example of the great powers to shut down strikes that U. S. presidents can wield. One of the strongest of these powers, not connected with the action by the Bush administration, is the Taft-Hartley Act. This law gives the president and the federal courts extraordinary power to enjoin lawful strikes that pose a threat to national health or safety. Although rarely used, this power has great impact. John H. Johnson IV, an assistant professor in the UIUC Department of Economics and Michael H. LeRoy of the College of Law have undertaken research that shows Taft-Hartley injunctions have lowered public support for unions, by portraying them as selfish economic actors who were harmful to the nation, and have altered the balance of bargaining power in critical strikes, usually to the detriment of the unions.

Since there have been no Taft-Hartley injunctions since 1978, why are they relevant today? The two researchers traced the injunctions to common law from the 1820s, showing that courts routinely abused their equitable powers in labor disputes. The research shows that Taft-Hartley courts have failed to avoid this pitfall, failing to exercise judicial powers, relying on distorted assumptions to support injunctions, interpreting national health to mean national inconvenience, favoring the government and, by extension, powerful employers, by granting 80 percent of the petitions for injunctions, and issuing impractical orders.

Although the last Taft-Hartley injunction was issued in the 1970s, this public policy remains relevant in two respects. When major strikes affect the nation, as in the 1997 Teamsters strike at UPS, presidents respond to bring public pressure by threatening to invoke this power. Although politically expedient, this power undermines a main tenet of the National Labor Relations Act that permits unions to strike in support of their bargaining proposals. In addition, the research questions a current theory explaining that the sharp decline in strikes in the 1980s and 1990s resulted from President Reagan’s use of the striker replacement doctrine in the PATCO strike. By showing that President Carter’s use of Taft-Hartley in the 1977-1978 national coal strike caused the first sharp drop in strikes, the description leaves open a wide range of possibilities depending on its interpretation.

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Death by Lethal Injunction?

Globalized business, combined with technological displacement of workers, acts as a powerful brake on union bargaining power.

and by demonstrating that the law was intended to impair the right to strike, Johnson and LeRoy show that the presidency plays a more complex role in the dying right to strike.

In the years since 1978, presidents, both Democratic and Republican, have intervened in labor disputes affecting airlines and railroads. Although even these cases are quite rare, they are extremely important to the unions and the labor movement in general.

Johnson and LeRoy concluded that presidential involvement in the substantive aspects of private negotiations harms unions in two ways. When political figures and business leaders seek presidential intervention to forestall a strike, the mere prospect of an injunction is likely to have a chilling effect on a union’s use of the right to strike. This is because Taft-Hartley puts the dispute in the context of harm to the public. Unions pay a double penalty. They lose the use of their primary economic weapon—to the detriment of their bargaining power—and their public image is tarnished. There is also often a delay in reaching a settlement, for little progress is typical during the so-called “cooling off” period.

The researchers support their belief that Taft-Hartley injunctions have weakened the rights of workers with a number of observations of labor developments from 1947 to the present. Unionization of the private sector, which peaked at 37 percent in the early years of the law, has fallen sharply to about 14 percent. Pattern bargaining, which was common from the 1950s until the 1980s, is a relic in today’s global market place. Pattern bargaining is a tactic in which unions choose one company in an industry (for example the automobile industry) to bargain with. When the negotiations are brought to a successful conclusion, the unions attempt to extend the bargain to other large employers in the same industry. In the 1950s and 1960s hundreds of strikes occurred each year in bargaining units of 1,000 or more employees. Today, in contrast, strike activity has dipped to unprecedented low levels—a very surprising fact given recent historic low unemployment. Globalized business, combined with technological displacement of workers, acts as a powerful brake on union bargaining power. While employers have had a legal right to hire permanent replacements to strikers since 1938, large employers did not regularly exercise this right until the 1980s and 1990s. Research by Johnson and LeRoy shows that large employers who once relied on a traditional model of permanent employment for its workforce today use more contingent workers.

These observed developments have prompted Johnson and LeRoy to propose two small, but significant, policy changes. Because no president has petitioned the courts for a Taft-Hartley injunction since 1978, one could reasonably conclude that the law has become obsolete and, therefore, can be repealed. A more limited alternative could be to narrow the standard for Taft-Hartley injunctions. Congress had a precise and narrow meaning in mind when it adopted the current standard of peril to the nation’s health and safety. But as a result of the Supreme Court’s decision in the 1959 Steelworkers decision, the standard was interpreted too loosely. Johnson and LeRoy propose that the standard be changed to substitute danger to national defense for danger to health and safety.

Their research is significant in a broader sense. The sharp decline in strikes over the past twenty years has provoked a great deal of negative commentary from labor law and industrial labor academics. This is not, say Johnson and LeRoy, because these scholars relish or glorify strikes. In the words of Archibald Cox, “In the final analysis collective bargaining works as a method of fixing terms and conditions of employment only because there comes a time when both sides conclude that the risks of economic losses through a strike are so great that compromise is cheaper than economic battle.”

John H. Johnson IV is an assistant professor in the Department of Economics and at the Institute of Labor and Industrial Relations. Michael H. LeRoy is an assistant professor at the Institute of Labor and Industrial Relations and the College of Law, both at the University of Illinois at Urbana-Champaign. For further information on this or related research, please contact John H. Johnson IV at jhjohnson@uillc.edu.
This page highlights the recent research achievements of the faculty of the UIUC College of Commerce and Business Administration. To find out more about any of the projects mentioned, contact the editor, Janet Fitch, who can put you in touch with the appropriate faculty member.

Grants

Ruth Aguilera, assistant professor of business administration, received a grant from the William and Flora Hewlett Foundation for a project entitled, “European Corporate Governance.” She also received two grants from the Center for Human Resource Management, UI Chicago, and the Institute of Government and Public Affairs, one with John Denker, visiting assistant professor of business administration, for “Pre-Acquisition Motives and Post-Acquisition Behavior: How the HR Function Contributes to Effective Cost and Revenue Synergies.” The second, with John Lawler and John Denker, is on “Work Needs and Motivators of Information Technology Professionals.”

Joseph Broschak, assistant professor of business administration, along with Alison Davis-Blake of the University of Texas at Austin, received a joint grant from the Russell Sage Foundation and the Rockefeller Foundation of $121,416 for a project entitled “Outsourcing the Human Resources Function: The Role of Professional Employer Organizations.” The UI portion of the grant will be $49,005.

In-Koo Cho, William S. Kincaid Distinguished Professor of Economics, has been awarded $230,905 over three years from the National Science Foundation for “Learning with Misspecified Models.”

Hadi Esfahani, Associate Professor of Economics, has received two grants. The first is from the Arab Fund and the Economic Research Forum for the Arab Countries. The research examines the institutional requirements of successful export promotion policies and will involve comparisons of nine countries (Algeria, Brazil, Egypt, Iran, Korea, Lebanon, Morocco, Tunisia, and Turkey) by local economists under Esfahani’s direction. The second grant is from the World Bank’s Global Research Project. Esfahani will write a framework paper for the study of the political economy of growth across countries and over time and will direct a team to carry out multi-country research.

The Center for Human Resource Management has awarded Ravi Madhavan, assistant professor, and Joseph T. Mahoney, associate professor of business administration, $15,700 for “Strategic Outsourcing.”

George Pennacchi, professor of finance received $22,790 from the Federal Deposit Insurance Corporation for “A Proposal to Estimate Fair Deposit Insurance Premiums for a Sample of Banks under a New Long-Term Insurance Contract.”

Honors and Awards

Professor Werner Baer, Economics, received the Rio Branco award from the Brazilian foreign service.

Dan Bernhardt, Department of Economics, was named a member of the College of Reviewers for the Canada Research Chairs Program. He is spending this year as the visiting senior scholar at the Wallis Institute of Political Economy at the University of Rochester.

Jeffrey Kaufmann, visiting assistant professor of business administration, was named a finalist for the Free Press Best Dissertation Award by the Business Policy and Strategy Division of the Academy of Management.

The National Science Foundation’s program on Innovation and Organizational Change has invited Greg Northcraft, Harry J. Gray Professor of Executive Leadership, and Greg R. Oldham, C. Clinton Spivey Distinguished Professor of Business Administration, to join a review panel.

Michael Pratt, assistant professor of business administration, has received an “Outstanding Reviewer Award” from the Management and Organizational Cognition Division of the Academy of Management. He has also been selected as a representative at large for the Research Methods Division of the Academy.

Madhu Viswanathan, associate professor of business administration, has been elected secretary-treasurer of the Society for Consumer Psychology, Division 23 for the American Psychological Association.

Correction: In the last issue of results we erroneously identified Elizabeth Powers as an assistant professor of economics and labor and industrial relations. She is, in fact, assistant professor in the Department of Economics and the Institute of Government and Public Affairs. We apologize for the error.
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for some or all of the worker’s training—but with the stipulation that the worker will stay with the firm for a fixed period. Xerox has a policy requiring employees who receive company-financed training to stay for a period commensurate with the amount of training received.

Babbitt offers another practical suggestion to employers seeking to fill IT jobs: training so as not to lose old employees, “train to retain.” Employees will move to a job that will better fit their skills or that will offer training. The loss of such employees can lead to delays in projects and can cause the employer to incur the high costs involved in the hiring new employees, often more than the worker’s yearly salary.

The answer to the question in the title is probably “no.” But it remains to be seen whether IT employers and their lobbying groups will continue to press for changes in immigration policy that will allow them to bring in workers from third world countries.

Timothy Babbitt is an assistant professor of business administration. His research and teaching concentrates on the management of information technology.