

NEWS from IEEE-USA  
1828 L Street, N.W., Suite 1202,  
Washington, D.C. 20036-5104

## Offshoring Is Major Cause of Technical Unemployment, IEEE-USA Survey Reveals

WASHINGTON (8 March 2005) -- Offshoring is the second-highest cause of unemployment among U.S. technical professionals, according to the 2004 IEEE-USA Unemployment Survey released today.

The leading cause of unemployment, cited by 62 percent of U.S. IEEE members who reported being laid off, was a business downturn. Fifteen percent reported that their jobs were transferred offshore, while 10 percent pegged merger or acquisition as the cause of their layoff.

A correlation between results of the Unemployment Survey and the 2004 IEEE-USA Salary & Fringe Benefit Survey, which showed the first median income decline for U.S. IEEE members in 31 years, revealed that people in industries reporting the largest drop in income also reported the highest percentage of unemployment because of offshoring. The following chart illustrates this:

<b>Industry Displacement</b>	<b>% Drop in Income</b>	<b>% Offshoring</b>
Electrical/Electronic Manufacturing	2.5	16.2
Computers	2.4	17.4
Communications	1.8	15.2

"This data supports our contention that offshoring not only contributes significantly to U.S. high-tech unemployment, but also suppresses wages," IEEE-USA President Gerard Alphonse said. "Our concerns extend beyond job loss and depressed incomes to threats to our nation's innovation infrastructure. Because innovation tends to follow jobs, key drivers of our economic prosperity could be lost."

The 2004 Unemployment Survey was sent to 5,329 U.S. IEEE members who reported being laid off at some point in the 2003-04 membership year. This represents an 80.3 percent increase in members reporting unemployment over the 2002 survey. Dr. Laura Langbein, a professor of public affairs at The American University in Washington, D.C., analyzed and reported the results, which are posted at

<http://www.ieeeusa.org/careers/pdf/EmploymentSurvey2004Report.pdf>.

Other findings reveal that 37 percent of the 988 respondents said they considered leaving engineering entirely, and 41 percent said they would not recommend the profession to their children.

"Another trend is that employers are providing much less service for laid-off workers than they did before," Langbein wrote. "Severance was provided in only 54 percent of the cases (compared with 90 percent in 2002) and extended benefits in only 27 percent of the cases (compared with 48 percent in 2002)."

IEEE-USA is an organizational unit of the IEEE. It was created in 1973 to advance the public good and promote the careers and public policy interests of the more than 220,000 technology professionals who are U.S. members of the IEEE. The IEEE is the world's largest technical professional society. For more information, go to <http://www.ieeeusa.org>.

###

Contact: Chris McManes  
Senior Public Relations Coordinator  
Phone: + 1 202 785 0017, ext. 8356

## 2004 IEEE-USA UNEMPLOYMENT SURVEY RESULTS (11/29/2004)

The IEEE-USA Employment Assistance Committee has continued its interest in developing a better understanding of the unemployment problem among older engineers by conducting a survey of unemployed engineers. The first survey was conducted in 1995, with replications in 1996, 1998 and 2002. The Committee replicated these surveys again by mailing virtually the same survey instruments used in 1995, 1996, 1998 and 2002 to all 5,329 U.S. IEEE members who reported being unemployed at some time during the 2003-04 membership year, and who consequently paid dues at a reduced rate. There were 988 surveys returned, resulting in a 19% response rate, slightly below the 26-28% response rates garnered in 1995, 1998 and 2002, but slightly better than the 14% response rate in 1996.

This report of results is organized into four sections. The first section reports the percentage distribution, or mean response, for each of the questions in the survey. The second reports the results of selected cross-tabulations that focus on age and various aspects of employment status. The third reports the results of a multivariate analysis, focusing on the impact of age on the duration of unemployment when other factors are held constant. The final section compares some of the current results to those in 1995, 1996, 1998 and 2002.

### Survey Responses

Respondents were asked to describe their current employment status. Modal respondents (42%) responded that they were involuntarily unemployed. About 26% had been re-employed full-time as a technical professional; the rest were employed in a nontechnical profession (4%), employed part-time (8%), or self-employed (9%). Some 4% reported voluntary unemployment; while 2% said they were retired voluntarily; and 5% said they were retired involuntarily.

Respondents were next asked their industry of employment. A total of 21% of respondents worked in the computer industry (hardware or software), and 21% were employed in the communications industry. Sixteen percent of respondents worked in electrical/engineering services or manufacturing; 9% worked in the aerospace or defense industry (4% and 5%, respectively). Among the other listed fields (automotive, consulting, education, medical, petrochemicals, transportation and utilities), no single field garnered more than 8% of respondents. Some 16% could not list their

field from the selections they were given. The mean number of engineers in respondents' firms was 791, but the distribution is skewed, since the median response is 40 engineers. The size of firms ranged from 0 to 100,000 engineers.

The modal respondent is not dependent on government contracts. The responses indicate that 58% of jobs are not dependent on government at all, and 27% were very little or somewhat dependent on government funding. Fifteen percent (15%) were primarily or totally dependent on government appropriations.

Respondents who were laid off were asked what reason the company gave for the layoff. The most common response was a business downturn (62%). Fifteen percent (15%) reported that their jobs were transferred offshore, while 10% reported that they were laid off because of merger or acquisition. Approximately 7-8% reported that their work was transferred to another domestic location, or that they were laid off because of an efficiency improvement, respectively. Forty-six percent reported that the layoffs were across-the-board, while 54% reported that they were targeted at specific functions or units.

All respondents were asked whether they wanted to remain in their primary area of technical competence, and 80% did. Twenty percent wanted to move out of their primary area of competency.

Most respondents (61%) do not contemplate more schooling, but 29% consider returning to school part-time, and 10% consider returning full-time. Thirty-seven percent said they are considering leaving engineering entirely.

The duration of unemployment varies widely among the respondents, from a low of one week to a high of 500 weeks (or about 10 years). The mean is 82 weeks, while the median is somewhat less, at 68 weeks. The responses reflect a skewed distribution, in which a few respondents report exceedingly long spells of unemployment (e.g., more than 300 weeks). Some of these respondents may not be actively looking for work.

Respondents were asked what services their employer provided when they left. Respondents could check more than one service, and many did. Employers provided severance in 54% of the cases, and extended benefits in only 27% of the cases. Outplacement help was provided to 38% of respondents. Employers offered retraining to only 4% of respondents. Thirty-nine percent (39%) reported that their employer provided none of the benefits listed in the survey.

Respondents were asked to describe their employment search and the results. Two-thirds (66%) agreed that it was very difficult to find a new job; only 2% said that it was fairly easy to find a new job. Less than 10% reported that an offer fell into their laps (5%); that they found a great job (7%); an adequate job (9%); or that they anticipated a raise (2%). About one-fifth of respondents (22%) anticipated a pay cut. Thirty-six percent (36%) reported they have not yet found a job.

Less than one-third (27%) of the respondents would recommend engineering to their sons or daughters; 32% are not sure; and 41% would not recommend it at all.

Slightly more than half (52%) of those surveyed reported being aware of IEEE-USA's employment assistance services.

Respondents were asked to rank on a ninepoint scale the job search techniques that worked best for them. Comparing the job search techniques in terms of whether the response was ranked in the top three, forty-two percent of respondents rated networking as especially helpful; 24% found Internet job listings beneficial; 19% said that ads were helpful; 21% found headhunters useful; and 21% found that sending out resumes was useful. About seventeen percent of respondents rated going to job fairs, outplacement services and private consultants in the top three.

Respondents were asked what they saw as major personal barriers to their employment or re-employment. Age was the most common response: Sixty-seven percent of respondents listed age as a barrier. National economic condition was the second most common response: sixty percent of respondents listed it as a barrier. Area of technical competence and geographic preferences were each listed by 38% of respondents; and 9% cited a decrease in government spending as a personal barrier. Ten percent of respondents noted ethnicity; 13% cited education; 8% listed sex; and 3% of respondents listed both disability and outsourcing as barriers.

Respondents were asked their view of the long-term demand for engineers. Only 5% saw the future as excellent, while 24% saw it as poor. In the middle, the modal respondent (38%) saw the outlook as fair and about a third (33%) saw the outlook as good.

As a follow-up to this question, respondents were asked the following open-ended question: What should the IEEE be doing to help (if anything)? Almost half of the respondents (49.5%) answered this question. These responses were coded into the same general categories that were used in the previous (1995, 1998 and 2002) surveys. The largest percentages of

responses fell into one of two categories. One group (28%) urged the IEEE to provide networking help, augment its job banks, provide more specialized information about jobs, etc. The largest group (37%) urged the IEEE to do something to protect the supply of domestic engineers. Of these, most wanted the IEEE to take steps to get Congress to reduce H-1B visas and stop the outsourcing of U.S. jobs. Some wanted the IEEE to unionize members and to restrict entry by licensing or certifying engineers. Eleven percent (11%) of the respondents felt there was little that the IEEE could do or they had no idea what the IEEE could do about the future of engineering. Some 6% urged the IEEE to improve the image of engineers, or to do other things to increase the demand for engineers. About 5% respondents urged the IEEE to provide more training or technical information to members. Some 2% urged the IEEE to fight age discrimination, and 3% complimented the IEEE or urged the IEEE to keep up the good work.

Respondents were asked a series of questions about their personal characteristics and circumstances. Specifically, they were asked about their age, their years of professional and managerial experience, and about their education. They were also asked about the nature of the e-mail access they had via the Internet

The mean respondent is 48 years old, and the median respondent is 49; the youngest is 18 and the oldest is 72. The mean years of experience among the respondents is 21, and the median is 23. The range is from zero years of experience to 48 years.

The modal respondent has a Bachelor of Science degree in electrical engineering or other Bachelor of Science degree (70%). About 47% have an Master of Science, Master of Science Engineering Education or other Master's degrees, and 14% hold a Doctorate.

Virtually all (99.8%) respondents report having some access to the Internet. For those with access, multiple responses were possible, so percentages will add to more than 100. Among recently or currently unemployed engineers, most have access at home (87%); 35% have access at work. Nearly 64% have full access, and less than 1% have e-mail access alone, or no access.

Of the 989 respondents, 56% indicated that they would like the IEEE to send them its packet of information for unemployed members.

## Age and the Survey Responses

A key concern of the previous surveys of unemployed engineers in 1995, 1998 and 2002 is the link between age and employment opportunities. It appeared in previous years that older engineers had significantly fewer re-employment opportunities than younger engineers. Similar patterns appear in 2004. The cross-tabulation results are below.

Consider the relation between age and employment status. The mean age of respondents who were re-employed in any capacity at the time they responded to the survey was among the youngest of the respondents. Of these, the youngest (age 43) was employed as other than a technical professional. The next youngest group (age 45) was reemployed as a technical professional, and it was also one of the larger subgroups (N=257). The largest subgroup (N=412) was involuntarily unemployed, and its mean age was 50. The mean age of those who were employed part-time or were self-employed was 48. Retirees were in the oldest groups. The involuntarily retired (N=49) were slightly older (59) than the voluntarily retired (58). These differences are significant overall, at less than the .0001 level.

A significant relation also exists between employment status and weeks of unemployment. Fifty-one was the average number of weeks unemployed for those re-employed full-time as an engineer; but, compared to the other groups, it was the shortest duration of unemployment. Those employed part time report an average of 69 weeks of unemployment. The self-employed have a mean of 64 weeks of unemployment. Those re-employed in non-engineering jobs report a mean of 61 weeks of unemployment. Among those who are voluntarily unemployed, the average is 130 weeks unemployment, while the involuntarily unemployed average 96 weeks. Involuntary retirees report an average of 110 unemployment weeks, while voluntary retirees average 194 weeks. These differences are significant overall, at less than the .0001 level.

A significant age difference is also noticeable between industries in which respondents were (or are) employed. The oldest engineers worked in the transportation industry (mean of 59 years), and the youngest worked in education and the medical industry (mean of 44 years). The overall age difference between industry groups is significant, at less than the .005 level. While the age of the largest industry subgroups (computers and communication) is close to the mean of 48, the subgroup differences overall are significant, even though the youngest and oldest subgroups are numerically small. Each industry subgroup is, however, fairly homogeneous with respect to age, as the subgroup standard errors are quite small.

Duration of unemployment also varies by industry. Specifically, the

longest duration of unemployment is among those who were employed in the utilities industry, where the mean was 112 weeks of unemployment. The next longest duration was in the communications industry (mean of 91 weeks), closely followed by those who report employment in defense (mean of 84 weeks), computers (mean of 82 weeks), electrical/electronic manufacturing (mean of 80 weeks), consulting (mean of 78 weeks). Among other industries with more than 20 respondents, the results in descending order were: electrical/electronic services (mean of 72 weeks), medical (mean of 69 weeks), aerospace (mean of 67 weeks), and education (mean of 65 weeks). But these differences are not statistically significant.

Older engineers are not more likely to report that their job search is very difficult than younger engineers. Specifically, when asked whether the search was difficult, the mean age of those who chose that response (48) is not significantly different than those who did not (49). However, when asked if the search was easy, the mean age of those who said "yes" was 43, while the mean age of those who did not choose this response was 48. Although few respondents report an easy search (17 out of 988), this difference is significant, beyond the conventional .05 level. So, it would appear that younger engineers find it easier than average or older engineers to get a new job.

A relationship could exist between the reported ease of the job search and duration of unemployment. However, the reported difficulty of job search and duration of unemployment do not seem to be related at all. The mean weeks of unemployment for those who report a very difficult search is 81; while the mean for those who did not select this response option is 83 weeks. But this difference is not statistically significant (at 0.706). By contrast, among the few respondents who reported that it was easy to find a new job, the duration of unemployment was 25 weeks, compared to 83 weeks for those who did not choose this response. This difference is significant, at a .0001 level, which is consistent with the common sense view that people who were unemployed for only a short period of time found it easier to find a new job.

Respondents were asked to check whether or not they perceived various factors as barriers to their re-employment. We have already seen that national economic conditions and age were the most frequently selected among the nine possible barriers listed. More importantly, older engineers were significantly more likely to cite age as a barrier than younger engineers. Those who cited age as a barrier averaged 52 years, compared to a mean of 40 years for those who did not regard age as a barrier ( $p < 0.0001$ ). Further, those who report age as a barrier face longer spells of unemployment (89 weeks) than those who do not (68 weeks). This

difference is significant ( $p < 0.0001$ ).

Younger respondents are slightly more likely to be optimistic about the long-term outlook for engineers than older ones. Those respondents who see an excellent outlook average 46 years; those who see the outlook as good average 47 years; and those who see the outlook as fair or poor average 49 years. The differences are significant, at better than the conventional .05 level ( $p \leq .02$ ).

In general, these patterns are consistent with the next finding: older respondents report significantly more weeks of unemployment than younger respondents. Specifically, for each additional year of age, unemployment goes up by 1.4 weeks ( $p < 0.0001$ ).

Recall from the description of the survey responses that the most common request of the IEEE was to help protect domestic engineering jobs (37% of respondents). However, among those who made any request of the IEEE to do something, the probability with which some respondents volunteered this request did not substantially differ from that of others in several respects. For example, among the largest industry employers (communications, computers and electrical/electronic manufacturing), the percent that urged the IEEE to protect domestic jobs ranged from 29% in electrical/electronic manufacturing to 40-42% in communications and computers. The overall industry differences are marginally significant, at ( $p < .06$ ). Similarly, the duration of weeks unemployed between those who voiced this request of the IEEE was 84 weeks, compared to 82 weeks among those who did not volunteer this request. This difference was not even marginally significant, at ( $p < .78$ ). Those who urged the IEEE to protect domestic jobs are slightly older (50) than those who volunteered a request, but did not volunteer this one (48). This difference is statistically significant, at ( $p < .04$ ), but not clearly substantively so.

### Multivariate Analysis of Age and the Survey Responses

Results indicate that, when other factors (experience, education, industry, method of job search, labor market status, etc.) are held constant in a multiple regression of duration of unemployment on age, the relation between age and unemployment is even stronger than in the bivariate analysis. Specifically, controlling for the variables in the regression, for each additional year of age, unemployment goes up by 2.3 weeks when ( $p < .0001$ ), with a range of 1.0 - 3.5 weeks (95% confidence interval). (In

the bivariate analysis, the estimate was only 1.4 weeks.) Years of professional experience have an independent, countervailing effect of the duration of unemployment. Specifically, when other factors in the model (including age) are held constant, each additional year of experience reduces the duration of unemployment by 1.2 weeks, when ( $p < .05$ ). Education has an uncertain effect. Those who report no advanced degree (that is, no Bachelor's degree or beyond) appear to have 46 more weeks of unemployment than respondents with a Bachelor's degree (1-tail  $p < .04$ ). Having a Master's or a Doctorate degree does not significantly improve (or harm) re-employment prospects relative to a Bachelor's degree only.

Unsurprisingly, those who are voluntarily unemployed or retired report 69 more weeks of unemployment than those who are actively on the job market ( $p < .005$ ). Compared to the base category, the computer industry, respondents employed in petrochemicals or transportation report 45 and 64 fewer weeks of employment, respectively, when ( $p < .008$  in both cases). With one exception, respondents' perceptions of the effectiveness of different job search techniques had no significant impact on the actual duration of unemployment. Networking is the exception. For each additional point the respondent rated the effectiveness of networking (on a nine-point scale), the duration of unemployment dropped by slightly more than four weeks ( $p < .001$ ). In this case, perception and reality appear to correspond. Respondents were asked whether their employer offered outplacement services, retraining opportunities, severance pay, extended benefits, or nothing when they left. According to the multivariate results, none of these employers' efforts had any significant effect (positive or negative) on the actual duration of unemployment, compared to doing nothing. The results (not shown) also indicate that high correlations among the independent variables cannot account for these insignificant results. Thus, with the exception of networking, employee and employer efforts appear to have little impact on mitigating (or exacerbating) the actual duration of respondents' unemployment, when the other variables in the model are held constant.

### Selected Comparisons to 1995, 1996, 1998 and 2002 Survey Responses

There are some striking differences, and some striking similarities, among the 1995, 1996, 1998, 2002 and 2004 survey responses. Further, evidence shows that the situation for unemployed engineers has gotten both better and worse. (Testing the differences for statistical significance is beyond the scope of this basically descriptive exercise.) For example, with respect to the employment status of respondents to the five surveys: in 1995, 20% reported being re-employed full-time as an engineer; in 1996, 19% so reported; in 1998, 17% so reported; in 2002, 24% reported being

re-employed full-time as an engineer, and the same statistic in 2004 was 26%. The respondents who reported being employed part-time or self-employed were 15% in 1995, 13% in 1996, 16% in 1998, 9% in 2002, and 17% in 2004. In 1995, 48% were involuntarily unemployed; in 1996, 49% were involuntarily unemployed; in 1998, 46% were; in 2002, 54% were; and in 2004, 42% were.

A clear trend, however, emerges in the industry of former employment, as well as in characteristics related to the industry of employment. In 1995, 20% reported employment in defense, and 16% reported employment in aerospace; these industries were (and are) relatively dependent on government funds. In 1996, 11% were employed in defense, and 15% in aerospace. In 1998, with further cutbacks in aerospace, 11% reported former employment in defense, but only 8% in aerospace. In 2002 and 2004, this downward trend seemed to level at 5% in defense, and 4% in aerospace. By 2004, more than half of the respondents (55%) were engaged in communication, computer and electrical/electronic manufacturing industry. Further, in 1995, 33% reported that their former jobs did not depend at all on government funding; in 1996, 42% so reported; in 1998, 40% reported no dependence on government funding; in 2002 the corresponding percent was 55%; and in 2004, this percentage has increased further to 59%. In a similar vein, in 1995, 30% reported jobs that were totally dependent on government funding; in 1996, 23% so reported; in 1998, 24% so reported; in 2002, only 10% reported these as former jobs; and the corresponding percent in 2004 was 9%. The reasons for the respondents' layoffs roughly reflect the larger economy. In 1995, 58% cited business downturn as the reason for their layoffs; and the corresponding percentages in 1996, 1998, 2002 and 2004 were 46%, 31%, 76% and 62%, respectively.

Another trend is that employers are providing much less service for laid-off workers than they did before. Employers provided severance in only 54% of the cases (compared with 90% in 2002) and extended benefits in only 27% of the cases (compared with 48% in 2002). Outplacement help was provided to 38% of respondents (56% in 2002) and retraining was offered to only 4% of respondents (5% in 2002).

The mean duration of unemployment was 82 weeks in 2004, which is considerably larger than that reported in the 2002 survey (49 weeks), but less than three other previous surveys. The mean duration was 103 weeks in 1998, 84 weeks in 1995 and 92 weeks in 1996. The median duration of unemployment is also comparatively large in 2004. The 2004 median

unemployment spell was 68 weeks, compared to a 2002 median of 38 weeks, 65 weeks in 1998, 57 weeks in 1995, and a median reported as "between 52-78" in 1996. Interestingly, the percentage who reported that it is "very difficult" to find a new job is about the same in 2004 and 2002 (66%), which is less than in 1998 (71%), 1996 (76%) or 1995 (85%). However, the long-term outlook for engineers turns out to be much less optimistic in 2004 than in 2002 and 1998. Specifically, only 33% view the outlook as "good" in 2004, compared to 45% in 2002, 47% in 1998, 25% in 1996, and 23% in 1995. More pessimism was clearly expressed in 2004, since 24% view the outlook as poor in 2004, compared to 13% in 2002, 21% in 1998, 35% in 1995, and 37% in 1996.

In 2002, 30% reported that they would not recommend engineering to their sons and daughters. In 2004, this increased to 41%.

E-mail access has become increasingly available. In 1995, 43% reported having e-mail; in 1996, 60% had Internet access. In 1998, only 12% reported no access to e-mail, which means that 88% did have some form of e-mail. By 2002, 69% reported full access to the Internet, and 99% had e-mail access. In 2004, almost 100% had access to Internet or e-mail, and 64% reported full access.

Preliminary results for 2004 indicate that, when numerous other factors are held constant, each additional year of age adds about 2.3 weeks to unemployment. This trend may indicate that age has had a less pernicious effect in recent years (since 2000) than it did in the late 1990s, when these surveys first began. In 2002 and 1998, each additional year resulted in three additional weeks of unemployment when other factors were held constant, compared to seven weeks in 1996 and five weeks in 1995.

Before 2002, Internet access had a significant effect in reducing the duration of unemployment. By 2002, it no longer had significant impact, undoubtedly because virtually all respondents have access. The same is true in 2004: having full access to the Internet has no significant impact on the duration of unemployment.

There appears to be a possible increase in layoffs due to transfer of work overseas, but the question in 2004 has more response options than the 2002 question. So, the increase in percent may be due to the increase in response options, and not to an actual increase in layoffs due to transfer of work overseas. Specifically, of those who responded to the question (reasons given for layoffs) in 2002, 6.6% said they were laid off

due to a work transfer. . (There were no specific options regarding transfer overseas or to another domestic location, as there were in 2004.) That percentage is a lot less than the 2004 percents. In 2004, 7% reported transfer to another domestic location as the reason given for their layoffs, and 15% reported that the reason was transfer to an offshore location. But the fact that the response categories are different makes it very hazardous to draw any conclusions about the reason for the change. The differences could be entirely or partly due to the different format of the questions in 2004 vs. 2002.

Overall, age appears to have a persistent effect on the duration of unemployment, but it cannot be determined from these surveys whether that is attributable to productivity differences, price/wage differences, the domestic supply of engineers, age discrimination, or some other factor.

#### Employment Outcomes, Job Search Techniques, Industry, Re-employment Services and Education: Some Additional Contingency Table Results

It is possible that an association exists between employment outcomes and job search techniques. I focus on the largest categories of respondents, those who are re-employed full time as a technical professional, and those who are involuntarily unemployed. In the other categories, the number of responses is too small for a reliable picture to emerge. We have already seen that respondents believe that most job search techniques are not very effective, with the exception of networking. The percent that rate a job search technique as "effective" (that is, in the top three of nine categories) does not differ much by employment status. For example, 24% of those who are re-employed full time as a technical professional rate sending out resumes as very effective, compared to 20% of those who remain involuntarily unemployed. For answering ads, the comparable percentages are 21% of the employed, and 19% of the unemployed. For using a headhunter, the percentages are 24% and 19%, respectively. For outplacement services, the corresponding percentages are 20% and 17%. For hiring a private consultant, the percentages are 17% and 19%; for going to job fairs, the percentages are 16% and 19%. However, networking remains an exception, and so does Internet job listings. Among those who are re-employed full time, 50% rate networking as effective, compared to only 34% of those who are involuntarily unemployed. Similarly, 32% of those who are re-employed full time rate Internet job listings as effective, compared to 21% of those who are unemployed.

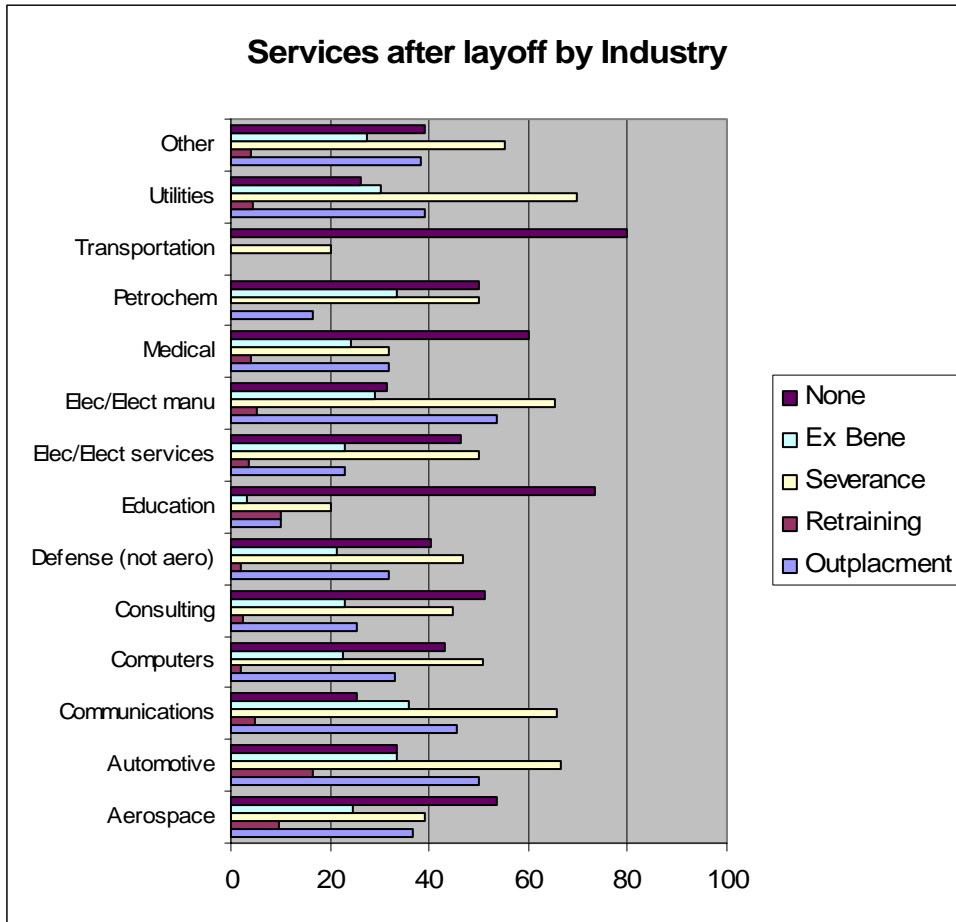
It is important not to confuse the correlation between employment

status and the rating of networking (or the use of Internet job listings) as evidence of a causal connection. Association or correlation between two variables may result from a common cause of both variables. For instance, unmeasured "ability" may determine both the success with which people network and their current employment status. So, networking may have little or no causal impact. We show, however, that networking appears from the regression to reduce the duration of unemployment, even when other variables are held constant. Nonetheless, the problem of unmeasured common causes still makes it hazardous to draw any causal conclusions about the effectiveness of networking.

The bivariate association between duration of unemployment and the rating of different job search techniques corresponds to the findings in the multivariate analysis. There is no significant difference in the mean weeks of unemployment between those who rate sending out resumes as "effective" (in the top three of nine levels) compared to not effective (79 weeks vs. 82 weeks,  $p < .52$ ). The same pattern of "no difference" is true for answering ads; using a headhunter; using an outplacement service; hiring a private consultant; going to job fairs; and Internet job listings. Once again, networking is the exception. Among those who rate networking as effective, the mean weeks of unemployment is 69, compared to 89 weeks among those who rate networking as less effective, when ( $p < .0005$ ).

Different industries appear to offer significantly different mixes of re-employment services, according to the respondents [see chart below]. Focusing on the industries representing the largest groups of respondents (communications, computers and electrical/electronic manufacturing), 33% of respondents who worked in computers reported that their employer offered outplacement services, compared to 46% and 54% in communications and manufacturing, respectively. With respect to re-training, most do not offer it (only 4%). Employees in education report the highest availability of re-training opportunities (10%), but the overall differences among industries are not significant. Severance is more common, and there are significant differences among industries, when ( $p < .0005$ ). Among the respondents' largest employer groups, 65%-66% of those who worked in communications and electrical/electronic manufacturing reported that their employers offered severance pay, compared to 51% of those who worked in computers. With respect to extended benefits, the communications industry appears to be the most generous. Some 36% of respondents who worked in communications report that their employer offered extended benefits, compared to 29% in EE manufacturing and 23% in computers. The overall industry differences are statistically significant, when ( $p < .035$ ). According to the respondents, many industries offer no re-employment services. Overall, 39% report no services, but this varies

significantly by industry, when ( $p < .0005$ ). Although the numbers are very low (30 responses), education is the worst: 73% of the 30 respondents reported no services. Fifty-four percent of 41 respondents who worked in aerospace reported no re-employment services, as did 43% of those in computers, 32% of those in EE manufacturing, and 26% of those in communications and utilities --the lowest industry percentages.



In no case does the duration of unemployment vary significantly according to the type of re-employment opportunities offered by the employer. The duration of unemployment is not even significantly associated with whether or not the employer offered any reemployment services at all. These null findings are mirrored in the multivariable regression analysis as well.

Nearly all respondents (98%) report that it is not easy to find a new job. This proportion does not vary significantly by the industry in which the respondent worked. Nor does the report about it not being easy to find a new job vary significantly by the job search technique the respondent finds most effective. Specifically, the reported ease of finding a job does not vary with the rating of the effectiveness of sending out resumes, answering ads,

using a head-hunter, using outplacement services, using a private consultant, going to job fairs, or using Internet job listings. Even networking makes no significant difference in this case.

In the bivariate comparison of means, the duration of unemployment differs significantly with the highest degree. While the number is low, the respondents whose highest degree is a two-year degree report, by far, the longest duration of unemployment (143 weeks). Respondents whose highest degree is a Master's degree report the next longest duration of unemployment (86 weeks). This association disappears in the multivariable analysis, which holds constant many common causes of both education and duration of unemployment.

There is no significant two-variable association between current employment status and highest degree. About 25-30% of those whose highest degree is a Bachelors, Masters, or Doctorate are re-employed full-time as a technical professional, while 38-45% of those groups remain involuntarily unemployed. Even the few respondents whose highest degree is an Associate's degree did not differ from this pattern.