Examining the Obstacles to Broadening Participation in Computing: Evidence from a Survey of Professional Workers

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Abstract

This article describes the results of a survey of professional workers that was designed to explore the underlying reasons for the widely documented under representation of women in information technology jobs. Our analysis suggests that it is different occupational personalities between men and women rather than the demanding nature of IT work that is largely responsible for the relatively few women in IT occupations. We discuss the implications these results have for policies that are designed to create greater gender equity in the rapidly-growing IT industries. (JEL J08, J24, J70)

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I. Introduction

Insuring that the nation has a sufficient number of trained Information Technology (IT) professionals and that the composition of this group reflects a diversity of backgrounds, especially in terms of race and gender, has been widely recognized as an important issue (Gilbert 2006). Despite recent growth in the off-shoring of some IT work, employment growth has remained strong, yet enrollment in computer science programs has declined, and the number of women and underrepresented minorities in the IT workforce has remained frustratingly low.

Encouraging more women and minorities to choose IT careers would help raise both overall numbers in the field and the diversity of the resulting workforce. Expanding the domestic labor supply that is available to U.S. employers is a major reason for encouraging female entry into IT that has been identified in the literature. Bartol and Aspray (2006) found that employers who struggled to find enough qualified IT workers at the height of the IT boom around 1999 could have solved these labor shortage problems had they done a better job of including women and minorities in the IT workforce. Rather than adopting strategies that moved women toward parity in IT, U.S. industry resorted to importing temporary foreign workers to fill the open positions. The current politically controversial trend of off-shoring technical jobs is also primarily being driven by efforts to gain access to a labor force that would allow firms to hire adequate numbers of qualified workers. As Bartol and Aspray (2006, p. 408) argued, however, "an increase in the domestic IT labor pool by representative participation by women and minorities would go a long way toward meeting that end."

In addition to the labor supply issue, diversity in the IT workforce is important since a more gender-balanced workforce is more likely to understand the concerns of an increasingly diverse customer base. As Wulf (1999) argued, "…those differences in experience are the 'gene pool' from which creativity springs."

In the past few years a number of pilot efforts have been undertaken to address a variety of perceived obstacles that are believed to discourage these underrepresented groups. These policy initiatives have focused on a variety of avenues through which the problem of under representation might be addressed including labor and workforce issues, immigration policy and research funding initiatives. Policy solutions designed to increase the diversity of the IT workforce must, however, be informed by a clear understanding of the underlying reasons for the limited numbers of women and minorities in IT careers. With this in mind, we report here a number of results derived from a recently completed study of current IT professionals that help to explain the reasons for the relatively small number of women in IT occupations.

Our data suggest two important conclusions. First, our evidence leads us to reject the argument that the demanding nature of IT careers is the primary barrier to increasing the number of women. Weinberger's (2003) survey of college women, for example, found that 30 to 40 percent of the women surveyed believed that IT careers would be incompatible with raising children because of demanding schedules. Our first conclusion suggests that this is not a sufficient explanation. Women do report that family responsibilities conflict with work more than men, but we find that women in IT report no greater conflict than in comparable careers that have much higher proportions of women workers. Thus, while work-family conflicts may discourage some women from

pursuing demanding careers, they do not offer a mechanism to explain the relatively small numbers of women in IT careers. Our second conclusion is that the concept of occupational personality can help to account for the relative shortage of women in IT careers. These findings suggest several strategies for increasing gender diversity that we discuss in our conclusion.

II. Analyzing Career Choices

High level IT occupations, like programmers and systems analysts, require specialized skills and often require substantial investments in education. Data collected by the Bureau of Labor Statistics in its monthly Current Population Survey (CPS) indicate, for example, that over 66 percent of IT professionals have at least a B.A. degree, which is more than twice the proportion (31 percent) of the non-IT workforce.[1]

When we think about increasing participation in IT jobs the challenge can be thought of in two parts: (1) increasing the number of labor market entrants with the requisite education and cognitive skills to pursue IT careers, and (2) encouraging more of those in the workforce with the necessary qualifications to pursue careers in Information Technology. Non-IT workers who have completed a level of education comparable to the typical IT professional and have opted for careers requiring comparable levels of commitment and cognitive abilities are more likely to be convinced to choose IT careers than those who have opted for fewer years of formal education and less demanding occupations.

[1] These figures are based on our calculations using the March 2006 Current Population Survey. IT occupations identified in the CPS are Computer Programmers, Systems Analysts, Operations Researchers and Analysts, and Computer Operators.

Data from the CPS indicate that there are nearly 2.8 million IT professionals in the United States today. After reviewing occupational titles and matching them to categories listed in the CPS we were able to identify another 29.7 million individuals in occupations requiring education and cognitive skills comparable to those needed by IT professionals.[2]

Figure 1 illustrates difference in the gender composition of IT, other professional and technical occupations, and the rest of the workforce. The under representation of women in IT is striking when compared both to the "control group" of other technical and professional occupations or to the rest of the labor force. Women hold close to 46 percent of other professional and technical jobs, and 42 percent of all other jobs, but only 25 percent of IT jobs.

This small fraction of women in IT is a relatively new phenomenon and, while not the focus of this paper, is largely due to distributional shifts across IT occupations. In particular, nearly all of the growth in the IT workforce from 1990 to the present has occurred among Systems Analysts, which has historically been a male-dominated IT occupation. According to the CPS data, systems analysts comprised less than 30 percent of IT jobs in 1990 but now represent well over 60 percent of IT jobs in the U.S. The more traditionally female IT jobs, such as computer operator and data entry, are a much smaller share of the overall workforce today than they were in 1990 (Ash et al 2006). These results are consistent with the study by Von Hellens et al. (2000), which found that

[2] We identified these comparable occupations, which require similar education and skills to IT professionals based on examination of job requirements as described in O*NET, http://www.occupationalinfo.org/onet/, which characterizes over 1,100 occupations on the basis of tasks, knowledge, skills, abilities and other characteristics. For the most part the control group consists of a variety of managers, administrators, teachers, technicians and scientists. A complete list is available from the authors.

women were underrepresented in management, technical and network support and systems operations but were highly represented in data entry, certain types of programming and help-desk functions. Survey data from Igbaria and Chidambaram (1997) also found that women in IT jobs are typically found in lower-level positions and that the relatively small proportion of women who were in higher level management positions typically had business training and emphasized their business expertise rather than their technical skills.

III. Studying the Characteristics of Current IT Professionals

Women and men are about equally represented in high-level professional and technical occupations according to the data represented in Figure 1, and indeed women are more likely to be employed in professional and technical occupations than they are in all other occupations. Why then do so few women choose IT careers? In particular, what can explain why so few of the women drawn to professional and technical careers opt for IT occupations? To answer this question we gathered data on the characteristics and career paths from a sample of slightly more than 700 professionals in IT and non-IT occupations using an online survey between December 2003 and September 2004. Our survey instrument included a broad range of questions on work and family history, educational background, interests, and attitudes.

We solicited participation in our survey through a variety of channels including several large organizations with offices in the central United States, and lists of business

and computer science alumni of a large mid-western university.[3] Potential participants were contacted via e-mail, and directed to a secure web-site, where they logged-in using a password provided in the contact e-mail. After completing our survey, participants were passed to a second web-site operated by Consulting Psychologists Press, where they completed the Strong Interest Inventory, a widely used career counseling tool that provides measures of what vocational psychologists term "occupational personality." To encourage completion of both surveys (which we estimate took approximately 45 minutes) we offered respondents a chance to receive one of several hundred $50 gift cards from a large electronics chain store. [4]

A total of 567 individuals completed both parts of the survey.[5] We classified each respondent as either an IT or non-IT professional based on his or her responses to questions about their current career field (one of 13 categories or "Other") and specific job title (open-ended). There were 415 non-IT professionals and 152 IT professionals in our sample. The IT professionals include application developers, programmers, software engineers, database administrators, systems analysts, web administrators, and web developers. The non-IT professionals include accountants, auditors, CEOs, CFOs,

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[3] Efforts to obtain a broader and more representative sample of respondents were frustrated by difficulty in obtaining permission from a number of the employers we approached to survey their workforce.

[4] Additional information about the survey and further summary statistics can be found on our project website http://www.ipsr.ku.edu/ITWorkforce/ . Extensive documentation of of the Strong Interest Inventory is provided by L. Harmon, et al., *Strong Interest Inventory Applications and Technical Guide* (Stanford, CA: Stanford University Press, 1994)

[5] The results reported in Table 1 are based on the first part of our survey only, which included 735 responses. However, 168 of those respondents who completed the first part of the survey did not continue to the second part. A total of 567 people, therefore, completed both parts of the survey.

presidents, consultants, engineers, managers, administrators, management analysts, scientists, technicians, etc.

Consistent with the occupational mix of our sample, virtually all respondents were employed and worked full time, and over 90 percent had at least a B.A. degree. The median salary was somewhere between $60,000 and $75,000.[6] Women made up 49 percent of the non-IT sample but just 32 percent of the IT sample, which is consistent with the national CPS data; non-whites made up about 9 percent of the non-IT sample, and 7 percent of the IT sample, proportions that are also consistent with the nationally representative data from the CPS.[7]

The data we gathered can be used to explore several important research questions related to the reasons for women's under representation in IT careers. Here we explore two of these questions. First, does the heavier burden of household responsibilities borne by women explain their small numbers in IT careers? Second, can gender differences in occupational personality explain some of the difference in career choices made by men and women?

IV. Do Household Responsibilities Impede Women's Participation in IT?

Careers in IT often require a significant commitment of energy and time, often outside the standard 9 to 5 workday. These demands may come into conflict with

[6] Our survey asked respondents to report salary information within relatively broad ranges to reduce the problem of non-response which is typical for questions of this nature.

[7] Because of the small number of non-whites in our survey we are typical unable to draw very strong conclusions about differences in the characteristics of this group from the larger sample of whites. Consequently the focus of our analysis is on Male /Female differences.

household responsibilities, and especially responsibility for childcare. Numerous time use studies suggest that despite increased female labor force participation and broader social changes, women still take more responsibility than men for housework, and especially for the care of young children.[8] Because of these greater demands on their time, and especially the difficulty of making time for children in competition with a demanding career there is a widely held belief that conflicts between work and household responsibilities may be an important barrier to women's entry into IT careers.

Our survey included a variety of questions intended to measure the extent of household responsibilities and their interference with work. In addition to questions about the number and age of children in each household, we asked about the average number of hours respondents devoted to child-care each week. We also asked whether respondents felt that their household responsibilities limited their employment opportunities, career choices, career advancement, the amount of time they could spend at work, and their ability to put in night and weekend hours. Responses were recorded on a 6-point scale ranging from "strongly disagree" (1) to "strongly agree" (6).

Consistent with other studies, women reported spending more time on childcare than men (an average of around 18 hours for women vs. 14 hours for men), and they also reported stronger agreement that household responsibilities interfered with work.[9] But

[8] See, for example, data from the American Time Use Survey conducted by the Bureau of Labor Statistics. A summary of recent results is available on-line at http://www.bls.gov/news.release/atus.t01.htm.

[9] Analysis of the reported interference of household responsibilities with work showed that it increased with the number of young children in the household and with reported number of hours spent in childcare. It also displayed an inverted-U relationship with age, rising to a peak at around age 40. Differences by gender persisted even after controlling for these factors, but there was no discernable effect of career field.

this can explain the under representation of women in IT only if IT careers create stronger conflicts with household responsibilities than do other professional careers.

Table 1 presents the evidence to assess this hypothesis, providing a two-way breakdown by gender and career-field of responses to the questions on the extent to which household responsibilities interfered with work. We do find a pronounced male/female difference in the responses to each question. These gender differences are highly statistically significant for non-IT professionals except for the question about the ability to put in night and weekend hours. For IT professionals the levels of significance are not quite so high; but the differences by gender for the first three questions are statistically significant at at least a 90 percent confidence level.

There is no evidence, however, of a difference in responses across career fields. Responses by IT and non-IT professionals are quite close in general, and none of them are statistically significant at standard confidence levels. It is worth reiterating that our survey includes only individuals employed in IT or other demanding professional and technical occupations. Conflict between household responsibilities and professional achievement undoubtedly discourages some women from entering such demanding professional careers at all. Given the decision to enter a demanding professional career, however, the evidence in Table 1 indicates that women do not find these conflicts any greater in IT than they do in other fields.

V. Occupational Personality and Career Choice

Vocational counselors have long relied on interest inventories—the most prominent of which is the Strong Interest Inventory (SII)—to identify individual interests

and recommend vocational choices. In an influential series of publications, John L. Holland developed a typology of work environments and personalities associated with each environment.[10] According to Holland, both people and work environments can be classified by their position along six dimensions or General Occupational Themes (GOT) measured by responses to the SII.

These themes are: (1) *Realistic*, measuring preference for activities that entail the explicit, ordered, or systematic manipulation of objects, tools, and machines; (2) *Investigative*, measuring preference for activities that entail the systematic or creative investigation of physical, biological, and cultural phenomena; (3) *Artistic*, measuring preference for activities that are ambiguous, free, non-systematic and that entail the manipulation of materials to create art forms or products; (4) *Social*, measuring preference to lead others or for activities that entail the manipulation of others to inform, train, develop, cure, or enlighten; (5) *Enterprising*, measuring preference for activities that entail the manipulation of others to attain organizational goals or economic gain; and (6) *Conventional*, measuring preference for activities that entail the explicit, ordered, systematic manipulation of data. Measurement of each theme is based on responses to approximately 20 to 25 questions, and raw scores are normalized relative to a reference population assumed to have a mean score of 50 and standard deviation of 10.

Using an individual's scores on each GOT it is possible to locate his/her occupational personality within a six-dimensional space. We make use of this measurement of occupational personality to identify differences in preferences and to

[10] For an overview of the development of Holland's theory see Campbell and Borgen (1999) as well as Holland (1959; 1985).

explore how these preferences influence the choice to enter Information Technology careers.

Table 2 summarizes data on population norms by gender for each GOT, along with the average scores from our survey respondents. Two points are worth noting in this table. First, men tend to score higher on Realistic and Investigative Themes than do women while women score higher on Social, Artistic, Enterprising and Conventional Themes. Second, our sample broadly parallels scores in the reference population, but the gender differences within a number of the GOTs are larger in our sample than they are in the reference population.

Given the perception that many women have about the nature of IT work as being solitary, repetitive and highly technical work that was documented by Von Hellens et al. (2000) and the American Association of University Women (2000), these occupational personality differences may get us closer to understanding the underlying reasons behind the lack of a larger female presence in the IT workforce. For example, women score considerably higher than men on the Social dimension both in the population norm and in our survey (although the gap is larger in the survey), which suggests that women who view IT careers as being solitary would be more likely to avoid them.

Can the differences in occupational personality by gender account for differences in career choices? Based on estimates of a multivariate probit model we believe that the answer is yes. The multivariate probit framework allows us to estimate the simultaneous effect of a variety of demographic factors along with an individual's scores on each of the six General Occupational Themes on the probability that that individual will have chosen an IT career. In theory systematic differences in pay and non-pecuniary benefits should

affect the relative attractiveness of IT and non-IT careers. But these differences can only help to explain the under representation of women in IT if they differ by gender. Our analysis of differences in pay by gender and occupation suggest, however, that IT occupations should be more attractive to women than to men. [11] The same is true for non-pecuniary benefits such as health insurance and pension plan availability.[12]

In our baseline model, we control for gender, race, Hispanic ethnicity, age, and marital status, but do not include General Occupational Themes. Based on national-level data from the CPS, which show relatively few women in IT and a steady decline in female participation in IT occupations starting about 1990, we expect women to be less likely to enter IT occupations. While we might expect a tendency toward fewer non-whites in the IT occupations based on national data, this effect should not be strong relative to that in the control group; moreover, we have relatively few non-whites in our

[11] Because of space limitations we do not report detailed salary regressions here, but these results are available from the authors by request. Because salary data in our survey was reported in ranges of $15,000 we estimated an ordered probit regression with salary range as the dependent variable and found that after controlling for a variety of characteristics (including race, gender, age and education), IT worker compensation is higher than non-IT worker compensation but is lower for women in both the IT and non-IT groups. When we split the sample by career and re-run these regressions, the female compensation penalty is smaller for the IT group than for non-IT group. These facts suggest that compensation differences are not a large factor in occupational choices for those included in our survey and in any event should encourage women to enter IT in greater numbers.

[12] Women in our survey are more likely to think the benefits offered by their employers are equitable and that those benefits are comparable to those offered by other organizations. IT workers, however, score somewhat lower in their agreement with both these statements, regardless of gender. Data from the March CPS supplement, which includes information on benefits and pensions, further supports the conclusion that differences in benefits are unlikely to explain choices between IT careers and our control group occupations. In the CPS data 94% of full-time IT workers are covered by a health insurance plan, compared to 92% of full-time workers in control-group occupations. Pension plans are also more common among full-time IT workers than among control group occupations according to the CPS data.

sample, so the effects of both race and ethnicity will be imprecisely estimated. We do not expect strong age-related effects on career choice although IT workers tend to be slightly younger, on average, than non-IT workers. The national-level data also suggest that IT workers are slightly more likely to be unmarried.

The estimated marginal effects coefficients of this baseline model (reported in column I of Table 3) imply that after controlling for other observable demographic characteristics women are 14 percent less likely than men to choose IT careers. This effect is relatively precisely estimated and highly statistically significant.[13] As we would expect none of the other explanatory variables included in the base model is statistically significant.[14]

To test whether differences in occupational personality can account for the gender differences in career choice documented in our baseline model we re-estimate it adding scores on Holland's GOTs. As Table 2 makes clear, there are several pronounced differences in mean GOT scores by gender. Our conjecture, which is supported by the results of our revised model, is that there are systematic differences in the distribution of GOTs across career fields that can help to account for gender differences in career choice. In the revised model (reported in column II of Table 3) the effect of gender falls by about two-thirds, implying that women are only about 4.5% less likely to choose IT careers than men, once we control for occupational personality. Moreover, this effect is no longer statistically significant. Thus we conclude that after controlling for differences

[13] Non-whites are slightly more likely (1.9 percent) to choose IT careers than whites, but this effect is estimated imprecisely, and we cannot reject an effect of zero.
[14] Collinearity does not seem to be an important factor in the significance levels of our estimated coefficients based on the results of a variance inflation test and other post-regression diagnostics.

in occupational personality between men and women, gender differences in career choice are small or non-existent. Occupational personality appears to be an important factor explaining the relatively small number of women in IT careers.

The estimated coefficients for each of the six RIASEC dimensions help to identify more precisely which aspects of occupational personality appear to account for differences in career choice. Specifically, we find that both men and women with high scores on the Realistic theme have a greater probability of choosing IT, while those who score highly on the Enterprising theme are less likely to choose IT occupations and more likely to choose other professional or technical occupations. The other RIASEC dimensions do not exert very large effects on the probability of entering an IT occupation.

The importance of the Realistic dimension in our results is consistent with results reported by Turner, Bernt and Pecora (2002) who collected open-ended response from a sample of over 200 female IT workers about how and why they chose IT careers. They concluded that "the primary internal motivation for these women [who worked in IT] was that they discovered, usually as a result of work experiences, that they liked programming and problem solving and were 'good at it.'" Other women in IT cited the challenge of "figuring things out" in explaining how their skills matched the job demands they encountered. The Realistic measure of occupational personality thus clearly seems to play an important role in the decision to enter an IT occupation.

The importance of occupational personality as a factor in the under representation of women in IT suggests that policy solutions aimed at more clearly describing the nature

of the workplace are important, as may be efforts to help individuals to more accurately identify those characteristics of work that appeal to them.

Previous research has suggested that there is a broad misperception among women about the nature of the work done in the IT industry. The survey results of von Hellens et al. (2000) suggest that the reason many women avoid IT occupations is their belief that the work does not line up well with their interests. A survey by Craig, Paradis, and Turner (2002) of first-year university students enrolled in computer-related programs in four countries found that the women more frequently expected computer careers to be more isolating and less social.

When considered in light of our results on the role of occupational personality, there may be less of a personality-job mismatch than commonly perceived. It is true that we find that IT careers appeal more strongly to both men and women who score highly on the Realistic General Occupational Theme. But our results do not suggest that IT careers are inconsistent with higher scores on those RIASEC dimensions—Artistic, Social and Conventional—on which women tend to score higher than men. Teague (2002) found that the issues that deter many women from entering IT occupations are not supported by the actual experiences of the women working in the IT industry. Correcting these common misperceptions and demonstrating that the actual work done in many IT jobs is much closer to the occupational personality types on which women score highly is likely to be an important element for any policy solutions to ultimately be effective in creating greater gender diversity in IT.

VI. Conclusion

Understanding the nature of a problem is essential to designing a solution. Data collected by the Bureau of Labor Statistics make clear that an important part of the challenge of increasing participation by women in IT careers centers around finding ways to encourage more of the women who are drawn to professional and technical fields to choose IT rather than other careers.

To identify the reasons that so few of these women enter IT occupations we conducted a survey that allows us to compare women and men in IT with women and men in other professional and technical fields. Here we reported on our analysis of two aspects of these data that we believe are especially illuminating.

First, we showed that although women generally spend more time on housework than men and find the challenges of balancing the demands of work and home more difficult than men, these challenges are no greater in IT careers than they are in other professional and technical occupations. Thus, given the large number of women who do choose professional and technical occupations, we conclude that the time commitment required by IT careers is not likely to be the binding constraint preventing more women from entering the field.

Second, we find that that men and women differ in occupational personality, and that these differences in disposition can account for a large part of the distribution of women and men across fields. To this extent it appears that the under representation of women in IT reflects their conscious choice in terms of preferences for work activity content.

Efforts to increase women's participation in IT careers may require more careful targeting of recruitment toward women whose characteristics are aligned with the demands and opportunities of IT careers. In particular it appears that IT careers appeal to individuals who score high on the Realistic occupational theme, indicating a preference for explicit, ordered, or systematic manipulation of objects, tools and machines. Recruitment efforts could be targeted toward women with these interests. Alternatively, efforts to increase women's participation in computing could proceed by redesigning IT occupations and workplaces to more closely align them with the preferences of a larger number of women. Women generally score higher on Artistic and Social occupational themes. Activities that draw on these dimensions of occupational personality are important in aspects of IT, and emphasizing their role and importance may help to make IT careers more appealing to women.

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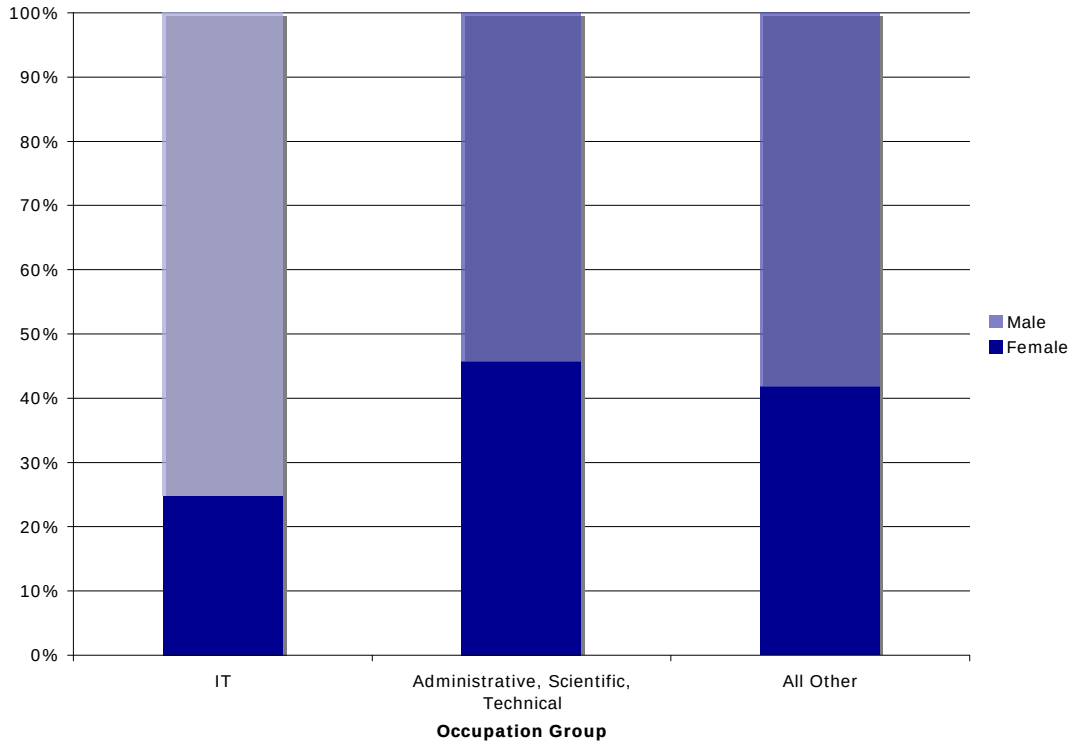
Figure 1: Gender Composition of Workforce, by Occupation Group, 2006



Notes and Sources: based on the authors' calculations from the 2006 Demographic File of the Current Population Survey. See text for definition of occupation group.

Table 1: Mean Response to Questions on the Impact of Household Responsibilities on Career and Work, by Gender and Career Field

My household responsibilities limit my…	All	Male	Female	T-test for Difference in Male -Female Means
		Non-IT Professionals		
employment opportunities	2.39 (0.07)	2.23 (0.08)	2.57 (0.11)	2.58***
career choices	2.49 (0.07)	2.36 (0.09)	2.64 (0.11)	1.97**
advancement in my career	2.36 (0.07)	2.21 (0.08)	2.53 (0.10)	2.49**
the amount of time I can spend at work	2.80 (0.07)	2.60 (0.09)	3.05 (0.11)	3.20***
ability to put in night and weekend hours	2.94 (0.08)	2.82 (0.10)	3.08 (0.12)	1.69*
		IT Professionals		
employment opportunities	2.45 (0.11)	2.31 (0.13)	2.73 (0.21)	1.76*
career choices	2.47 (0.11)	2.34 (0.13)	2.76 (0.21)	1.74*
advancement in my career	2.28 (0.10)	2.12 (0.12)	2.60 (0.19)	2.21**
the amount of time I can spend at work	2.87 (0.12)	2.83 (0.14)	2.95 (0.23)	0.47
ability to put in night and weekend hours	2.91 (0.12)	2.83 (0.14)	3.08 (0.23)	0.95

* Statistically significant at the 90% confidence level.
** Stastically significant at the 95% confidence level.
*** Statistically significant at the 99% confidence level.

Notes: and Sources: Standard Errors in parentheses. Professional and Career Work Experience Survey, University of Kansas. Responses were recorded on a 6 point scale, where 1=Strongly Disagree, and 6 = Strongly Agree. Based on a total of 735 responses.

Table 2: Comparison of Mean Scores of Survey Sample and Population Norms for General Occupational Themes, by Gender

General Occupational Theme	Survey		Population Norms	
	Males	Females	Males	Females
Realistic	54.6	47.0	55.0	45.0
Investigative	53.9	51.5	51.4	48.6
Artistic	47.2	50.6	48.7	51.3
Social	44.9	51.6	48.0	51.9
Enterprising	47.9	50.7	49.6	50.4
Conventional	52.4	55.2	49.4	50.6

Sources: Survey columns from Professional and Career Work Experience Survey, University of Kansas; population norms from L. Harmon, et al., *Strong Interest Inventory Applications and Technical Guide* (Stanford, CA: Stanford University Press, 1994).

Table 3: Probit Regressions of the determinants of Choice of IT Career [Dependent variable is choice of IT career versus other professional career]

	I	II
Female	-0.1418*	-0.0456
	(0.0365)	(0.0468)
Non-White	0.0185	-0.0066
	(0.0815)	(0.0773)
Hispanic	-0.0626	-0.0696
	(0.1079)	(0.1050)
Age	0.0135	0.0044
	(0.0148)	(0.0145)
Age^2	-0.0001	-0.0001
	(0.0002)	(0.0002)
Married	-0.0007	-0.0163
	(0.0426)	(0.0433)
Realistic		0.0105*
		(0.0028)
Investigative		0.0000
		(0.0024)
Artistic		0.0029
		(0.0025)
Social		-0.0004
		(0.0028)
Enterprising		-0.0157*
		(0.0024)
Conventional		0.0035
		(0.0025)
Observed P	0.2686	0.2686
Predicted P	0.2623	0.2362
N obs	566	566
Pseudo R2	0.0263	0.123
Log Likelihood	-320.66	-288.72

* Statistically significantly different from zero at the one percent level.

Notes: Standard errors are in parentheses. Coefficients are transformed from their original values to reflect the marginal effects of a change in the relevant variable evaluated at the sample mean values. For zero-one dummies the coefficient shows the effect of changing the independent variable from zero to one.