

GENDER DIFFERENCES IN ORGANIZATIONAL COMMITMENT AMONG EARLY CAREER ENGINEERS IN CANADA

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Abstract. To assess a possible explanation for persistent gender inequalities in engineering, this study examines gender differences in recent Bachelor of Engineering graduates' intention to look for another engineering job three years after graduation. Applying organizational commitment theories, we examined gender differences in job and family characteristics, and feelings of these graduates towards their jobs to understand what underlying factors make these graduates look for a job with another employer. Based on logistic regression analyses of the National Graduates Survey 2013 (Statistics Canada, 2013), we found no statistically significant gender differences in intentions to leave. This indicates that job commitment is unlikely to be the reason for women's underrepresentation in the occupation. However, women are more likely to look for a job with another employer when they feel overqualified for the work they are doing, are supervising someone at a job, are a visible minority, or when they have children. Moreover, significantly more visible minority men than white men are looking for a new job. These results have implications for the existing retention initiatives for women and visible minority engineers in Canadian .

Keywords: gender, engineering, organizational commitment, Canada, quantitative analysis

Résumé. Pour évaluer une explication possible des inégalités persistantes entre les sexes dans la profession d'ingénieur, cette étude examine les différences entre les sexes dans l'intention des récents diplômés du baccalauréat en génie de chercher un autre emploi d'ingénieur trois ans après l'obtention de leur diplôme. En appliquant les théories de l'engagement organisationnel, nous avons examiné les différences liées au sexe dans les caractéristiques professionnelles et familiales, ainsi que dans les sentiments de ces diplômés envers leur emploi, pour comprendre quels facteurs sous-jacents les poussent à chercher un emploi auprès d'un autre employeur. D'après des analyses de régression logistique sur l'Enquête nationale auprès des diplômés 2013 (Statistique Canada, 2013), nous n'avons trouvé aucune différence statistiquement significative entre les sexes dans les intentions de quitter leur emploi. Cela indique qu'il est peu pro-

bable que l'engagement au travail soit la raison de la sous-représentation des femmes dans la profession. Cependant, les femmes sont plus susceptibles de chercher un emploi auprès d'un autre employeur lorsqu'elles se sentent surqualifiées pour le travail qu'elles font, qu'elles supervisent quelqu'un à un emploi, qu'elles font partie d'une minorité visible ou qu'elles ont des enfants. De plus, beaucoup plus d'hommes appartenant à une minorité visible que d'hommes blancs étaient à la recherche d'un nouvel emploi. Ces résultats ont des implications pour les initiatives de rétention visant les femmes ingénieures, ainsi que les minorités visibles au Canada.

Mots-clés: genre, ingénierie, engagement organisationnel, Canada, analyse quantitative

INTRODUCTION

Engineering is a male-dominated occupation (Bystydzienski, 2009) despite an unprecedented influx of women entering university engineering programs in recent decades (O'Donnell et al., 2005). Many engineering organizations in the Western world, however, struggle to retain women in their workforce (Hill et al., 2010; Robelen, 2010). The existing literature shows that employed female engineers were more likely than men to be looking for and finding jobs with another employer and in some cases outside of engineering, especially early in their careers (Bennett et al., 2011). Some argue that this is because women are opting out of their jobs to fulfill family obligations (Stone, 2008; Howe-Walsh & Turnbull, 2016), although others contend that these women are being pushed out of a male dominated engineering culture that is hostile to women (Evetts, 2014). While women's underrepresentation in the occupation persists, recent studies analyzing the factors affecting women's decisions to look for another job are absent from the Canadian sociological literature and scarce in the international literature.

This study addresses this gap by investigating whether there are gender differences in the intention to look for a job with another employer among engineers at their early career stages and, if so, how we can explain these differences. Drawing on organizational commitment theories and using logistic regression, we analysed the most recent data from the National Graduates Survey (NGS) 2013 (Statistics Canada, 2013) for 3,236 Canadian BEng graduates who worked in engineering jobs three years after graduation. The results of this study have important implications for understanding if there are gender-specific reasons for why

women would leave a field in which they are significantly underrepresented.

LITERATURE REVIEW

Organizational commitment (OC) is understood as a *psychological* attachment workers have to organizations (Porter et al., 1974). OC can be characterized by at least three factors: a strong belief in and acceptance of the organization's goals and values; willingness to exert a considerable effort on behalf of the organization, and a strong desire to maintain membership in the organization. OC is strongly and positively correlated with job satisfaction (Gunlu et al, 2010) and is a strong predictor of voluntary turnover. Tolentino (2013) linked OC to employees' performance, suggesting that highly committed employees may perform better than less committed ones.

The interest in OC has been strong in recent decades due to the changes from an industrial to a knowledge-based economy that has led to massive layoffs, outsourcing, and the replacement of "jobs for life" with contractual, insecure employment, long working hours, and limited career opportunities (Benson and Brown, 2011; Ferguson & Wang, 2014; Mowday et al., 2013). According to Lee and Galpin (2010), these organizational shifts towards "lean" organizations have had a negative impact on employees' OC, despite a continued need by these organizations to retain talented and productive workers (Lowe et al., 2011). The changes in the mode of productions and dynamics of work, not only affected the OC of existing workers, but altered the new generations expectations relation to their employers and workplace.

MILLENNIALS

Ng et al.'s (2010) investigation of the career expectations of "millennials" (born in or after 1980) found that this generation has different expectations about their first job and salary than their parents. Millennials place the greatest importance on individualistic aspects of the job, seek rapid advancement and the development of new career skills while aiming to ensure a meaningful and satisfying life outside of work. Studies by Chirumbolo and Hellgren (2003), and Martínez-León et al (2018) analyzed the effect of personal and job characteristics (Burke and Ng, 2006; Cennamo and Gardner, 2008) on employees' organizational commitment. The results of their analyses showed that, in general, for both male and female young employees (born after 1980) with university degrees,

job and pay satisfaction, and career opportunities are the strongest and positive predictors of OC. However, in the past two decades, the Canadian labour market has undergone a significant change. Many stable, well paying, life-long jobs have been replaced by short-term and low paying contract work that provide few career opportunities. As a result, many male and female millennials in Canada - including new graduates from engineering degree programs - often found jobs that were below their qualifications and/or outside of the field of their education. Because many qualified new graduates in Canada had to accept precarious jobs, the turnover of these employees is high, which is suggestive of a low organizational commitment. Even in those instances when new graduates find their first job in their fields in which they were trained, these jobs are often short-term contract jobs with no or little opportunities for career advancement. They therefore often leave these jobs in hopes of finding stable job opportunities which would allow them to build a career and family.

GENDER

This generational shift in workers and changes in the Canadian labour market, has also been accompanied by increase in women's participation in the labour force. However, there has not been an equivalent shift in women's disproportional family responsibilities, relative to men. These changes have led to growing interest in how gender is related to organizational commitment. Early studies such as Grusky (1966), who studied government managers' OC, suggested that women as a group were more committed than men, in part because they had to surmount greater barriers to success than did men in a male-dominated workforce. Later studies, however, revealed that men had a stronger OC than women (Suki et al., 2010; Jena, 2015), and Dagic (2014) found no gender-based differences in a meta-analysis of 33 studies. In contrast, Aydin's et al. (2012) meta-analysis of 15 graduate theses between 2005 and 2009 on teachers' OC showed distinctions between males and females in terms of the nature of OC. Men's OC was stronger than that of women in relation to organizational values and norms, whereas women's OC was stronger than men's in terms of belonging and loyalty. Those studies that have found gender differences in organizational commitment, tend to offer two main explanations for this situation: gender differences in family obligations and gender differences in job characteristics.

MARRIED AND PARENTS

A study by Akintayo (2010) analyzed the impact of work-family conflict on the organizational commitment of 247 industrial workers. Their research found significant differences in the level of OC between men and women based on their family responsibilities and in the situation of single versus married workers. His study showed family obligations and marital status are important predictors of OC and that such commitments vary based on gender. The competing commitments between family and work, according to his study, resulted in a lower level of women's OC in comparison to men. Casper et al. (2002); however, found no meaningful impact of work interference with family (or family interference with work) on women's OC in their analysis of 143 professionally-employed mothers who had at least one preschool-age child.

Wallace (1995) suggested that family responsibilities might modify the level of OC due to conflict between work and family because the attachment to one collectivity competes with that of another. Therefore, people who have extensive ties to groups other than their employer may have lower levels of OC. Women are more likely than men to have those ties because they are the primary caregivers and/or single parents more often than men. Therefore, the competing affiliations would suggest lower commitment levels among women. In contrast, Gerson (1985) argues that a woman's choice to commit to a career in a workplace as distinct from a "domestic" pathway is strongly affected by expanded or blocked workplace opportunities in her early years of employment. Thus, if women have satisfying experiences in the workforce, their OC would be higher than average and vice versa. In other words, the influence of family may actually be the result of one's job characteristics.

However, Risman (2004) argues that gender difference based on personal characteristics can be explained by conceptualizing gender as a social structure that is embedded in the individual, interactional, and institutional dimensions of our society, rather than just within the individual. According to this argument, the nature of work shapes behavior through the structure of rewards, resulting in men and women responding similarly in the same occupational environment. Moreover, Lacy et al. (1983) suggest that men and women in a given occupation will exhibit the same priorities on a wide range of occupational attributes (e.g. money, advancement). Based on this approach, one would expect to find no gender differences in OC for professionals such as engineers, as they would be in similar structural locations.

JOB CHARACTERISTICS

Job Permanence/Working Hours

There is ample evidence showing that OC increases in jobs with better working conditions. For instance, many organizations have introduced flexible working hours (Wilthagen and Tros, 2004). Yadav et al. (2017); however, argues that in some cases these flexible arrangements lead to longer than average working hours. White et al. (2003), analyzed OC of professionals in the UK, and found that ‘high-performance’ practices associated with longer than average working hours were a constant source of negative job-to-home spillover resulting in conflict between work-life responsibilities and low level of OC for both men and women regardless of their occupation (Bültmann, 2012).

Some therefore suggest that apparent gender differences are a result not of differences between men and women, but of differences in job characteristics within a highly sex-segregated labor market (Bielby and Baron’s 1986), where women are in jobs with fewer job characteristics associated with high levels of OC (De Wittie 2003; Kerse et al. 2018). For example, in their meta-analysis of 133 studies Cheng and Chan (2008) found an equal negative effect of non-permanent/insecure jobs, on men’s and women’s OC across occupations and levels of education. Further, OC of managers and supervisors have been found to have higher than average level of commitment to their organizations (Brown, 1969; Moon and Choi, 2017) but women are less likely to be in these positions. Job satisfaction and satisfaction with pay are also strong positive predictors of OC, regardless of gender (Gunlu et al., 2010; Singh and Loncar 2010). Vandenberghe and Tremblay (2008) found no gender differences in OC in their analysis of the role of pay satisfaction on OC and turnover intent among 531 pharmaceutical companies’ medical representatives.

Managerial Jobs

Some studies analyzed the effect of managerial and supervisory roles on employees’ OC. Early studies (Major et al., 1984; Hodson, 1989) showed that managerial and supervisory roles are more important for men than women in predicting their OC but that women managers have higher levels of OC than do men (Xu, 2008). Although in contrast, Stone (2008) argues that women who are managers are more likely to quit their jobs, due to greater levels of stress due to scrutiny and criticism from male colleagues and work-family conflict. While these studies have provided insights on how job characters affect OC of employees and assess gender

differences among men and women located in similar jobs is therefore useful to determine whether any observed differences in labor market behavior is a result of the workers characteristics or the jobs themselves. Many of the above-mentioned studies and all others that have analyzed the effect of job and employees' characteristics on OC have often controlled for overall job satisfaction, satisfaction with job duties, pay and feelings of being overqualified for the position. These aspects are directly and strongly linked and director predictors of the OC.

GENDER DIFFERENCES IN OC FOR ENGINEERS

In the past twenty years engineering organizations have undergone significant restructuring through outsourcing and downsizing of production (Herzenberg et al., 2000) resulting in a shortage of engineering jobs in Western countries (Bidanda et al., 2006). However, despite these changes many engineering companies have introduced initiatives such as flexible working hours working from alternative places and time policies and mentorship programs to attract and retain women engineers (Rosser, 2003) as gender diversity has been linked to increase in profit. Research has shown significant gender differences in most aspects of men's and women's experiences in engineering (Niemeier and Smith, 2005; Xu, 2008; Franzway et al., 2009). Women engineers have been shown to earn significantly less and to be less likely to work in managerial and supervisory jobs (Powell et al., 2012), and more likely to experience parenthood penalties (Lips and Lawson, 2009) and sexual harassment (Powell and Sang, 2015) than men. These experiences have been linked to women's job dissatisfaction with and intent to look for a job with another employer and/or outside of engineering (Hill et al., 2010). Further, multiple studies have shown that when women engineers feel overqualified for the jobs they do, they are likely to look for jobs somewhere (Ayre et al. 2013; Cech and Blair-Loy 2010; Franzway et al. 2009). Although satisfaction with pay has been identified as another determining factor of engineers' job satisfaction and organizational commitment (Watson and Meiksins, 1991) and women in engineering have been shown to be paid less than men most of the time (Cech, 2013), some studies have shown these differences are not significant and have no impact on women's organizational commitment (Walters, 2004).

Others, such as Ceci and Williams (2011), suggest that discrimination is now a phenomenon of the past that and should be discarded as an explanation for the persistent lack of women in engineering. For example, based on their review of 20 years of empirical research they found

more than one study showing that women with PhDs in engineering get hired before any men at the university level. As such, they suggest that women's underrepresentation is caused by women's preferences and fertility intentions, "both free and constrained" (Ceci and Williams 2011, p. 3161). Similarly, Buchmann and McDaniel (2016) identified family responsibilities as one of the main reasons for women leaving engineering jobs.

All in all, and based on the reviewed literature, we would expect that for "millennial" BEng graduates their personal and job characteristics would be significant predictors of OC. In particular, we expect women's OC to be equal to men's due to recent retention and career development initiatives in engineering organizations in Canada (Allen, 2001). These initiatives suggest satisfying workplace experiences for these women and, therefore, might have a positive effect on their OC reducing the probability of their looking for a job with another employer. In cases when BEng women feel overqualified for their jobs, we expect that they would be more likely than men to look for another job. However, family obligations might reduce women's OC in comparison to men's due to their primary caregivers roles (Armstrong and Armstrong, 2010). In order to estimated what are significant factors affecting young engineers' OC and provide information that might be useful in understanding what factors are contributing to women's chronic underrepresentation in engineering occupation we conducted a study using a sample of engineering graduates who worked in the engineering jobs for three years after the graduation.

METHODOLOGY

Sample

We used the NGS 2013 (Statistics Canada 2013) sample, which contains information of 28,500 graduates from Canadian public universities, community colleges and trade/vocational programs, who were surveyed three years after their graduation in 2009/2010. The survey's primary objective was to obtain information about labour market experiences focusing on employment, occupations and the relationship between jobs and education. The data were collected between April and September 2013, using a computer-assisted telephone interview (CATI). This study analyzed the restricted use data at the Ontario Research Data Centres and was limited to graduates from BEng programs who were employed in Canada at the time of the survey in engineering jobs. After carrying out

list-wise deletion, the final sample size was 3,236 individuals of whom 86% were men and 14% were women.

Measures

The dependent variable for the study is a binary measure asking if the respondent is “looking for a job with another employer” (1=yes/0=no). Existing literature Steer (1977) on OC suggests that individuals who look for a job with another employer are unlikely to be committed to their current organization. The main independent variable of the study is gender, measured as 0 for men and 1 for women.

To assess explanations for gender differences in intent to look for a job with another employer, we included items in three categories: (1) graduates’ job characteristics, (2) measures of their personal characteristics and (3) control measures of their feelings about these job characteristics and their visible minority status. Graduates’ job characteristics were (a) job permanency (1 for full-year permanent job; 0 for contract, seasonal, or part-year job); (b) working hours were transformed using the natural log function; (c) and supervisory status (1 for respondents who are supervisors; 0 for those who are not). The personal characteristics were marital status (1 for married or common-law; 0 for single, never married, divorced, widowed, or other), and parental status (1 for has at least one child; 0 for has no children). The control variables were job and pay satisfactions, feeling overqualified and visible minority status. Job satisfaction was recoded from a five-item Likert scale of very satisfied to very dissatisfied into a dichotomous variable to address low cell numbers in the variable categories “somewhat satisfied,” “neither dissatisfied nor satisfied,” and “somewhat dissatisfied (very satisfied or somewhat satisfied=1; neither dissatisfied nor satisfied, somewhat dissatisfied, or very dissatisfied =0). Satisfaction with pay was coded (1 for satisfied or very satisfied, 0 for less than satisfied) and feeling over qualified for a job (1 for those who felt overqualified and 0 for those did not). Visible minority was coded (1 for members of a visible minority and 0 for not belonging to a visible minority). Visible minority graduates, especially women, would be more likely to look for a job with another employer than any other graduates because of the sexual and racial harassment that has been documented by Powell and Sang, 2015; in engineering workplaces.

Method

There are two methods in the analysis: (1) descriptive statistics with t-tests to assess statistical significance in differences between men and women on all variables, followed by (2) binary logistic regression to

identify factors predicting the BEng graduates' OC while addressing the dichotomous nature of the dependent variable. All of the measures of job and personal characteristics and the control variables were included in one model predicting probability of looking for a job with another employer. We utilized the survey methodology command in the statistical software STATA, to adjust for the complex survey design in order for estimates to be representative of the target population. The survey methodology mode allows the avoidance of biased estimators, inaccurately shrunk standard errors due to the extremely large population numbers and other errors that would lead to an inaccurate estimation of results. We then followed Mood's (2010) recommendation to calculate predicted probabilities, to improve the interpretability of the logistic regression coefficients. Using Stata's 'predict' commands, we calculated the probability that men and women will say they want to quit given various hypothetical situations in the independent variables, setting all other values of the independent variables to the mean for dummy variables. The predicted probabilities allow to compare the effect of gender across groups by setting all other variables to their means using STATA software dialog box. The significance in differences of these probabilities is calculated by STATA software and indicated in the output from the 'predict' command.

RESULTS

The descriptive statistics indicate that there is no gender difference in the intent to look for a job with another employer among BEng graduates who were working in engineering jobs in the three years after the graduation (see Table 1). Although in the sample 15 percent of men and 4 percent of women were looking for another job, this difference is not statistically significant at the $p < 0.05$ level.

Table 1: Descriptive statistics gender comparison for men and women who graduated from BEng programs and were working in engineering jobs three years after graduation (NGS 2013).

	Men	Women
Looking for a job with another employer	15%	4%
<i>Job Characteristics</i>		
Job Permanent	96%	96%
Working hours per week	40 hrs	39 hrs
Supervised someone at a job	51%***	30%
Annual Income	\$49,800	\$46,650
<i>Personal Characteristics</i>		
Married	42%	54%
Parent	14%	18%
<i>Control Variables</i>		
Satisfied with the job	97%	99%
Satisfied with money made	92%	80%
Feel Overqualified	9%	2%
Visible minority	20%	3%
N=3,236	86%	14%

Note: Results are weighed

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

The only statistically significant difference between men and women in the sample is in the proportion of supervisors; significantly more men than women were supervisors in their engineering jobs ($p < 0.001$). However, the proportion of women and men who worked in permanent jobs did not differ and we also found no gender difference in the duration of working hours (40 hours men and 39 for women). There were no significant gender differences in terms of the annual income of these graduates; however, women were earning slightly less than men (\$49,800 men and \$46,650 women). In terms of the variables that measured personal characteristics of graduates, there were also non-significant differences in the proportion of graduates based on gender. More women than men were married (54% vs 42% respectively) and had children (18% vs. 14% respectively), but fewer were visible minorities (3% and 20% respectively). The descriptive analysis of respondents' feelings about their jobs also shows no gender differences. Almost all the women in the sample (99%) were satisfied with their jobs, as were 97% of the men. More men (92%) in comparison with women (80%) were satisfied with the money they earned, and more men felt overqualified (9%) in comparison to women (2%).

The results presented in Table 2 show that gender does not have a significant impact on the likelihood of seeking a job with a different employer for BEng graduates at the $p < 0.05$ level. The only significant predictors of job search intentions are visible minority status and pay satisfaction. Visible minority status increases and pay satisfaction decreases

the likelihood of looking for a job with another employer when all other variables are kept constant, which is significant at the $p < 0.001$ level.

Table 2: Logistic regression estimates predicting job satisfaction among BEng graduates in Canada in 2009/2010 (NGS 2013).

	Log Odds (St. Err)
Women	1.541 (-0.814)
<i>Job Characteristics</i>	
Job Permanent	1.555 (-1.136)
Working hours (natural log)	0.362 (-0.543)
Supervised someone in a job	1.320 (-0.577)
Income	1.766 (-1.146)
<i>Personal Characteristics</i>	
Married	0.772 (-0.348)
Parent	1.515 (-0.929)
<i>Control Variables</i>	
Satisfied with the job	0.064 (-0.094)
Satisfied with pay	0.209*** (0.135)
Feel Overqualified	0.584 (-0.341)
Visible Minority group member	3.668*** (1.715)
<i>N</i>	3326

Note: Results are weighted; (standard errors are in parenthesis)

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

Overall, we do not see clear evidence that men and women differ in their job or family characteristics enough to impact the predicted likelihood of looking for other jobs directly. However, to assess whether there are gender differences in the impact of these factors on the likelihood of seeking a job with a new employer and to facilitate the interpretation of our results, we estimated predicted probabilities for men and women, based on the results of the logistic regression results.

Table 3: Predicted Probabilities of looking for a job with another employer for BEng degree holders from their jobs they held in three years after the graduation split by gender (NGS, 2013)

	Men	Women
<i>Family characteristics predictors</i>		
Looking for a job with another employer, all else 0 or mean	18%	24%
Parent, all else 0 or mean	15%	30%***
<i>Job characteristics predictors</i>		
Supervised, all else 0 or mean	18%	35%***
<i>Control Variables predictors</i>		
Feeling overqualified, all else 0 or mean	21%	58%***
Visible minority, all else 0 or mean	34%	55%***

Note: Results are weighted; (standard errors are in parenthesis)
 * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

As shown in Table 3 the predicted probability for women to look for another job is 24% compared to 18% for men, net of all other factors. This difference is not statistically significant. However, there is statistically significant gender difference at the ($p \leq 0.001$) when men and women are parents. For women who are mother the probability to look for another job is 30% in comparison to 15% for men who were fathers. Another statistically significant gender difference in probabilities looking for another job we found related to the supervisory role. Women who were holders of managerial or supervisory roles 35% more likely to look for a job with another employer than men (18% chance). These results perhaps support Stone's (2008) argument regarding a high level of stress for women in managerial positions; however, we had no means of testing this. The strongest in the magnitude and statistically significant gender difference we found when women felt overqualified for their jobs. Those women who feel overqualified had 58% probability to look for a job with another employer in comparison to 21% for men who also felt overqualified. For visible minority women and men, the predicted chances of looking for another job are 34% for men and 55% for women. These difference in probability is statistically significant and consistent with existing literature suggesting lower than average level of OC among visible minority employees, with the lower OC attributed likely to racism, combined with sexism for women, in the workplace (Powell and Sang, 2015; Gibson and Espino, 2016).

Table 4: Predicted Probabilities with Multiple Predictors of looking for a job with another employer for BEng degree holders from their jobs they held in three years after the graduation split by gender (NGS, 2013)

<i>Multiple predictors</i>		
	Men	Women
Satisfied with the job, with pay, and working an average of 40 hours per week – for white graduates	15%	17%
Satisfied with the job, with pay, and working an average of 40 hours per week - for visible minority graduates	34%	55%***
Satisfied with the job, with pay, in supervisory roles and working an average 40 hours per week	13%	24%***
Satisfied with the job, with pay, and working an average of 40 hours per week- for married graduates with child(ren)	18%	45%***

Note: Results are weighted; (standard errors are in parenthesis)

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

To facilitate the understanding of our results further, we calculated probabilities for BEng graduates of looking for another job with a different employer while controlling for satisfaction with job and pay and having average working hours. We looked at four hypothetical situations: when graduates were white, visible minorities, supervisors, and married parents. These situations have been selected because the interaction term of gender and visible minority status that we tested and found to be significant. Moreover, marital and parental statuses are variables which reflect gender. And, the supervisory status was the only significant difference between men and women in the sample; therefore, we decided to calculate predicted probabilities using these variables.

From the *Multiple Predictors* Table 4 we see that the chances of looking for another job are not statistically significant for male and female *white* graduates (15% for men and 17% for women). However, there were statistically significant differences between visible minority graduates. As shown in Table 4, even in the instance when a visible minority woman satisfied with the job, paid an average salary and worked for 40 hours, they were 55% likely to look for a job with another employer than any other graduates who worked in their first engineering job for the first three years after the graduation. Similarly, there were gender differences in likelihood of seeking a job among supervisors and between married parents, which were statistically different at the $p < 0.001$ level. Additionally, we can see that there is a higher chance that visible minority men will be looking for a job with another employer in comparison to white men graduates. In contrast, for white men, working the supervisory role reduced their chances of looking for another job. Men's parental status

did not have any impact on their intent to work somewhere else unlike for any women.

CONCLUSION

This study has shown no gender differences in intention to look for a job with another employer between men and women with BEng degrees. However, although women are as committed to their organizations as men on average, when they are a visible minority, a parent, feel over-qualified or are in a supervisory position, they are more likely than men to look for a job with another employer. While we do not have any means to measure why this is the case, we can suggest that these factors perhaps are a result of existing findings about sex and race discrimination in engineering (Quinn, 2002; Hill et al., 2010). More research is needed to look at the everyday interactions in the engineering workplaces to better understand both the influence of these factors and what other factors influence women's decision to look for jobs somewhere else. Our results suggest that policies to address women's retention in engineering might perhaps need to focus on creating an inclusive and healthy workplace environment for all engineers regardless of their race and gender. In addition, the allocation of affordable childcare for women engineers might have a positive impact on their OC.

Nonetheless, our study is not without limitations. One of the main limitations of this study is that we do not measure the types of other jobs these graduates were looking for. Therefore, we cannot say conclusively that the factors we identify as increasing women's chances of looking for a job with another employer would lead to women leaving the occupation entirely. Future research is needed to examine these factors. These results might inform future directions of policies focusing on retention of the most talented and capable engineers regardless of their gender, ethnicity, and parental status.

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