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Abstract

The hiring process is currently the least understood aspect of the employment relationship. It may be the most important for understanding the broad processes of stratification with allocation of demographic groups to jobs and firms. The lack of knowledge is due to the difficulty of assembling data on the processes that occur at the point of hire. Against this background we analyze data on all applicants to positions in one of the largest Scandinavian banks in 1997-1999. The hiring agents in the organization are fully conscious and concerned about the nonconscious biases and gender schemas they carry when making hiring decisions. Their effects on hiring are considered to be beyond dispute: Women are at a clear disadvantage. For actual hiring practices we found that the opposite is true: Women are at an advantage in getting offers. Two organizational practices may lead to female advantage, with relevance for other countries as well. The hiring agents had been educated about the role of nonconscious biases, which perhaps mitigated their effects. But they had also been instructed to search actively for qualified females in the applicant pool. With no qualified females in the first pass, they go through the pool a second and third time hoping to find one. We discuss reasons why the interpretations and meanings the hiring agents attribute to the hiring process are so at odds with what actually occurs.

Getting the Offer: Sex Discrimination in Hiring*

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ABSTRACT

The hiring process is currently the least understood aspect of the employment relationship. It may be the most important for understanding the broad processes of stratification with allocation of demographic groups to jobs and firms. The lack of knowledge is due to difficulty of assembling data on the processes that occur at the point of hire. Against this background we analyze data on all applicants to positions in one of the largest Scandinavian banks in 1997–1998. The hiring agents in the organization are fully conscious and concerned about the nonconscious biases and gender schemas they carry when making hiring decisions. Their effects on hiring are considered to be beyond dispute: Women are at a clear disadvantage. For actual hiring practices we found that the opposite is true: Women are at an advantage in getting offers. Two organizational practices may lead to female advantage, with relevance for other countries as well. The hiring agents had been educated about the role of nonconscious biases, which perhaps mitigated their effects. But they had also been instructed to search actively for qualified females in the applicant pool. With no qualified females in the first pass, they go through the pool a second and third time hoping to find one. We discuss reasons why the interpretations and meanings the hiring agents attribute to the hiring process are so at odds with what actually occurs.

1 NONCONSCIOUS SCHEMAS AND COVERT BIASES

There are many sources of the gender gap in employment caused by potentially discriminatory actions by employers: In wages for the same job, in hiring, in promotion, and in how wages are set for different kinds of work. Of these, hiring is potentially the most important. With extensive internal labor markets, getting access to good jobs in good firms may have considerable impact on subsequent career development and employment outcomes. But hiring is also where discriminatory behaviors may have the larger latitude, with much scope for prejudice and stereotypes since little information is available at the time of hire. Many analysts agree on this. Lazear (1991, pp. 13–14) writes: “My view is that hiring is most important; promotion is second; and wages are third.” Epstein (1992, p. 58) claims “..., most firms prefer to run the risk of litigation with initial hires, instead of with promotion and dismissal.” And Olson (1997, p. 61) argues: “...one should expect bigotry to manifest itself more in refusals to hire people than in the self-defeating practice of hiring them only to turn around and fire them.”

Yet hiring is perhaps the least understood of these processes. Much has been written about the initial job interview and about tests for selecting candidates, often based on laboratory experiments (see Graves 1999). Some has also been written about conditions at initial hire (Gerhart 1990). But there is limited research using field data on who gets offers of jobs and who does not. A major obstacle is lack of data. One needs information not only about those who receive offers but also about the entire applicant pool allowing comparisons of the two groups. This is difficult to collect.

Against this background we provide a case study of the hiring process in one of the largest Scandinavian banks, the Norwegian Bank (hereafter DnB). One of the authors worked two years in the hiring department of the organization, where she reviewed applications, sat in on candidate interviews, was present at selection meetings, and interviewed the agents making hiring decisions. This subsequently led to collection of full applicant data for 15 separate job openings.

From the initial fieldwork, not reported further here, and of limited added relevance for the questions we address, one thing became abundantly clear from the analysis of the interpretations and meanings the hiring agents attach to the hiring

situation. The agents are fully convinced and moreover sharply conscious that rather covert and nonconscious processes enter into the hiring decision. These are biases and gender schemas from which actions flow. And the resulting actions lead, in their view, to undeniable female disadvantage in getting hired.¹

Extensive social-psychological theorizing on the sources of gender inequality comes to the same conclusion, with an empirical basis derived mostly from rigorous laboratory experiments on undergraduate students at U.S. and European universities. Reskin (2000, p. 327), a sociologist, writes about the sources of discrimination: “I have argued that much of it results from nonconscious cognitive processes.” Valian (1998, pp. 2, 22), a psychologist, refers to the sources as “...a set of implicit, or nonconscious hypotheses” or as “the unexpressed and nonconscious nature of gender schemas and their subterranean mode of action...” The hiring agents thus articulate what researchers increasingly have concluded are the central forces behind female disadvantage.

The current study starts where the fieldwork ended. We ask, which consequences do the perceived biases have for hiring? Do they result in female disadvantage? Do women end up receiving fewer offers in this organizations? To this end we study all applicants to and offers made for positions in June 1997 through December 1998.

We assess whether the perceived biases result in biased hiring patterns. It informs us about practices in situations where agents are conscious about nonconscious biases and how the interaction of the conscious and nonconscious shapes hiring outcomes. We underline that we don't analyze these biases further. Our focus is on assessing the hiring outcomes against the fixed background of awareness of such biases.

Though our case comes from Scandinavia, the issues have broader relevance. Nonconscious processes potentially driving decisions are held to be almost universal (Reskin 2000, p. 327), though their content clearly may vary across cultures. But the central steps that may be taken to combat these, at least in Scandinavia and the U.S., but other countries as well, are likely to be similar, which we address in the conclusions. Both are in the forefront in regards to gender inequality, Scandinavia in family policies, the U.S. in affirmative action and workplace regulation.

¹A top-level executive in the company stated emphatically that “We do not discriminate against women, at least not consciously.” While both the male and female hiring agents concurred, they insisted on the role of nonconscious biases. In their views, these exert their influence at all stages of the hiring process including the interactions during job interviews.

Section 2 outlines the central issues in hiring. Sections 3 and 4 describe the data and the positions and applicants. Sections 5 and 6 analyze female disadvantage in hiring and the impact of family obligations. Section 7 gives concluding remarks.

2 THE HIRING PROCESS

THE ISSUES

Hiring entails at least three distinct processes. The first is how recruitment is done, for example, through newspaper ads, employment agencies, or social networks (e.g., Bloch 1994; Granovetter 1995 [1974]). The second is the process leading up to who gets hired and who gets turned away. This involves selecting candidates for interviews, how interviews and tests are conducted, and choosing whom to offer jobs (Bloch 1994). The third concerns the conditions offered—pay, level, responsibility, fringe benefits, perks, etc. To understand the extent to which differential treatment occurs at each of these nodes, we focus on its documentability, how ambiguous the documentation is, and whether someone can raise charges and pursue illegitimate treatment.

In terms of the recruitment process, discrimination can be difficult to document. For example, suppose there are few qualified available applicants for a position, but the hiring agents know one qualified man in the local labor market. An ad may be placed only in a local newspaper and the man may be encouraged to apply. Qualified female applicants may then not hear about the job. Or if recruitment occurs primarily through referral networks, these may be male dominated, resulting in female disadvantage. These processes are difficult to document. It may be especially hard to show discriminatory intent in addition to so-called disparate impact. Complainants may not be available, except perhaps from someone already in the organization.

In terms of who gets offers, discrimination is also difficult to document. All that may be accessible to outsiders is information about those that get hired, but not about the entire applicant pool. And the information is likely ambiguous, open to many interpretations. A complainant is rarely present. Those not hired and possibly discriminated against will seldomly know what occurred, and even when they do, it may be impossible to gather the relevant evidence. Those turned down often have gotten other jobs, leaving few incentives for complaining or filing suits. As

Bloch (1994, p. 1) writes: “Employees are far more likely than applicants to file discrimination lawsuits, and damages awarded to them tend to be greater than those received by applicants.”

As for quality of offers made it is typically easy to document the identities of the parties hired and their conditions but not the conditions offered to those who declined the offers. There is a clear subjective element in deciding which conditions to offer, because less is known at the point of hire than at later promotion. So disparities in quality of offers may be open to many interpretations.

Hiring thus gives excellent opportunities for discrimination precisely because the processes are hard to document, documentation is usually ambiguous, and a complainant is often lacking (Petersen and Saporta 2004). But hiring may for an altogether different reason be especially susceptible to differential treatment. Recent social-psychological theorizing has stressed that with limited information nonconscious stereotypes and gender schemas are more likely to operate (e.g., Fiske et al 1991; Heilman 1995; see also Valian 1998; Reskin 2000). This may occur even in the total absence of discriminatory intent. Less information is available at hiring than promotion and nonconscious processes may hence be more salient. The combined forces of an excellent opportunity structure for discrimination and much latitude for nonconscious biases are likely to lead to significant amounts of discrimination at the hiring stage.²

THE RESEARCH EVIDENCE

Research evidence is limited. Some studies address recruitment practices (e.g., Marsden 1994). A considerable psychological literature documents the processes at the pre-offer stage, such as selection interviews and employment tests (Graves 1999). For the process in focus here, who gets offers and who does not, only a handful of studies use data on applicant pools. But it is essential here that one has access to information on applicant pools and on the choices employers make about whom to

²While each nonconscious bias may be trivial in isolation, their combined effect need not be, referred to as the cumulation of advantage (see Cole and Singer 1991). As Valian (1998, p. 18) stresses, “a succession of small events, such as not getting a good assignment, result in large discrepancies in advancement and achievement.” Or as Bailyn (1999) writes on the status of women faculty at MIT: “...they saw that as their careers advanced something else besides competence came into play, which for them meant an accumulation of slight disadvantages, with just the opposite for their male colleagues.”

hire from these pools. Only such data may provide admissible evidence on whether discrimination occurred.

This point bears elaborating. Sample surveys of job seekers or job holders and their degree of success provide very limited relevant information (e.g., Hanson and Pratt 1995). They allow no comparison of the set of job seekers exposed to the same possibly discriminatory employer. They document only the outcomes for atomistically sampled individuals exposed to different employers. Other studies sample employers about their strategies for filling jobs and sometimes about the hired employees (Holzer 1996). But again, these yield no information about the entire applicant pool. The search for admissible evidence thus leads one to organizational case studies of entire applicant pools.

Starting with the U.S. evidence, one study, using data on all applicants to a large California service organization in 1993–1994, finds no evidence of female disadvantage in being hired (Petersen, Saporta, and Seidel 2005). Another study, using data on the applicant pool to entry-level positions in a large bank, finds a small positive effect of being female on getting a job offer (Fernandez and Weinberg 1997; see also Fernandez, Castillo, and Moore 2000). Fernandez and Sosa (2004), using data from the same company, vastly expand upon the results with respect to gender differences. A third study uses data on about 35,000 applicants and 3,400 offers in a mid-sized high-tech company in 1985–1994 (Petersen, Saporta, and Seidel 2000). It finds absolutely no differences between men and women in probability of receiving offers. A fourth study reports a slight female advantage in getting offers to managerial positions in a single department in the federal bureaucracy (Powell and Butterfield 1997). These four studies using applicant pool data from recent years, controlling for several relevant variables such as age and education, thus find no evidence of female disadvantage in getting hired.³

Goldin and Rouse (2000) use data on applicant pools from the late 1950's through 1995 to positions in eight major American symphony orchestras. Since about 1970 most orchestras have shifted from open to “blind” auditions where the sex of the candidate is unknown. In each of four audition rounds women do worse than men

³An earlier study reports on all 20,576 applicants to a large insurance company in 1981 (Kirnan, Farley, and Geisinger 1989). While 26.6% of males are hired only 17.6% of females are. There is no control for education, age, or other personal characteristics in this study. The results may reflect less favorable conditions faced by women in the early 1980s.

under sex-blind while better under open auditions. But in the subset of about 5% of the musicians who auditioned under both open and blind conditions, women do better than men under blind in each of four rounds while better under open conditions in only two. With quality of playing the same under both conditions, this shows disadvantage to women in two of four rounds when their sex is known. What to make of their results depends on how one assesses the two opposite findings and how much weight to attach to an analysis pertaining to a small subset of the women.⁴ This is an unusual labor market.

An audit study analyzes sex discrimination in restaurant hiring (Neumark, Bank, and Nort 1996). Matched pairs of equally qualified men and women applied for jobs as waiters and waitresses to the same 65 restaurant in Philadelphia. Men have much higher success in getting job offers in high-priced restaurants where pay is high, with the opposite pattern in low-priced restaurants. Audit studies provide one important avenue for studying hiring discrimination, allowing almost perfect control for observables, which no applicant pool data can. Nor does the applicant pool itself adjust to discriminatory behavior of employers.⁵

Continuing with the Norwegian studies, one study of hiring into tenured jobs among academics showed that in 1980–84 women made up about 14% of the applicants and 13% of appointments, indicating minimal sex discrimination (Fürst 1988). However, focusing on appointments where both men and women applied for the same position, computations that can be made from the data presented but not reported in the study, women have a higher probability of getting an offer: 1 out of 7 women whereas only 1 out of 10 men receive an offer when they compete for the same jobs. The central problem was that there were female applicants to about only 37% of the advertised jobs. A major impediment to more equal representation of women was that many of the open positions were in male-dominated fields with few potential female applicants.

⁴Of the 7,065 musicians in the data, 367 appeared to have auditioned under both open and blind conditions for a given audition round (see Tab. 5 and n. 38).

⁵The audit studies do however not take into account the sex composition of the entire applicant pool and current employees at the restaurants. With two equally qualified applicants, from the viewpoint of the applicant each should have an equal chance of being hired. But employers may have a different calculus. In deciding whom to hire they will also consider the sex composition of their entire applicant pool and their current stock of employees. Employers may want to achieve same hiring rates for men and women across their entire applicant pool, not necessarily across the sex-balanced pool of applicants in the audit studies.

Teigen (2002) shows no disadvantage or perhaps a small advantage to being female in getting offers to managerial positions in the government. Similar results are shown in Storvik (1999).⁶

We are not aware of similar studies of hiring in Scandinavian organizations outside Norway. There is however no reason to think that the countries would differ in a major way.

Of the studies reviewed, only the research by Fernandez and collaborators are on a bank, finding little evidence of disadvantage to women. Much has of course been written on banking, given its importance in modern economies, both in Europe and the U.S (e.g., Regini, Kitay, and Baethge 1999). For case studies of banks see for example Carroll and Rubery (1998) on UK as well as Crompton and Birkelund (2000) comparing Norway and the UK. Quack (1998, p. 68) in a study of a German bank, which briefly addressed hiring, reports “recruitment also favored women”. Similarly, Villa (1999, p. 169), in a study of Italian banks, reports how the percent of hires who are female have gone up in two Italian banks and is higher among new hires than current employees, but with no data on applicant pools.

The probably most extensive evidence on discrimination in who gets offers comes from laboratory experiments. These studies are conceptually transparent, but may lack external validity for inferring practices in actual hiring situations. Reviewing about 20 experimental studies on sex discrimination in hiring Olian, Schwab, and Haberfeld (1988) conclude the evidence for discrimination is marginal.

In summary, the four U.S. studies using applicant pool data for single establishments find no evidence of sex discrimination in hiring. The symphony orchestra study finds some evidence of discrimination against women, for a subset of five percent of the musicians, but then with opposite results for the remaining 95 percent of musicians, where women do worse under blind and better under open conditions, opposite of what one would expect if orchestras discriminated. The restaurant audit study finds clear evidence of sex discrimination.

None of the Norwegian studies reports evidence of sex discrimination. These are however all from the public sector where conditions for women are held to be favorable (e.g., Hansen 1995). Ours is the first study of hiring in the private sector.

⁶Teigen (1999) goes through all 381 cases of gender discrimination in appointments in 1985–1994 treated by the Equality Ombudsperson in Norway.

The research record is hence ambiguous. But the weight of the evidence favors the conclusion that sex discrimination in hiring is limited. This is exactly the opposite of what one would expect on conceptual grounds and opposite of what many analysts have concluded.

The present case adds to the empirical record in two useful ways. First, it provides a case from a part of the world comparable to the U.S., Britain, and Canada in equal opportunity for women but more advanced in regards to family policies. Second, we study hiring in a situation where members of the organization acknowledge existence of nonconscious biases against women potentially leading to disparate outcomes.

In the introduction and the theoretical analysis we argued that hiring is the node in the employment relationship where women potentially face the larger disadvantages. As for evidence on this, there are dissenting views. Valian (1998, p. 198) claims that within the professions “Sometimes women and men start out at an equal salary footing, but disparities arise as their careers progress.” This may well be the case. But it need not be due to increased discrimination from employers as careers unfold. It might as well be due to men and women making different adaptations to family circumstances over their careers, resulting in discrepancies in rewards. No matter what is the case, the empirical evidence is limited, especially when it comes to studies using organization-level data. For the U.S., Morgan (1998) shows no increase in the gender wage gap for engineers when cohorts are followed over time, with similar results in Petersen and Meyersson (1999) for Swedish white-collar employees. Vangsnes (1992) shows that among mid-career Norwegian engineers women are promoted at a higher rate than men. Longva (1997), using organization-level data on the Norwegian company Statoil, shows that starting salaries are slightly higher for women among engineers and slightly lower among economists, but then promotion rates are slightly lower among engineers and about the same among economists. On the basis of the available empirical evidence, we cannot decide whether hiring is a more or less serious problem than say promotion. But regardless of its relative importance for gender inequality hiring is, given the paucity of studies, in need of investigation in its own right.

3 DATA AND METHODS

We use data from the largest Norwegian and one of the largest Scandinavian banks, employing about 7,400 people. The initial fieldwork, not reported further here, and for our purposes of limited interest for the issues here in focus, resulted in the finding of awareness of nonconscious biases against women among the hiring officials.

The subsequent quantitative case study concerns all 866 applicants for 15 distinct positions with 30 offers resulting in 28 hires in the 19-months period June 1997 through December 1998. Of the 15 positions, 13 were chosen primarily to represent managerial and professional jobs. These were complemented with the female-dominated secretary job and the trainee job for young recent college graduates that prepares candidates for managerial careers.

Relevant information was collected from the newspaper ads for the jobs, the application letters, the resumes, and the notes made by the hiring agents about outcomes, with about 3,500 pages providing the data input. Coded variables include age, sex, total experience, total relevant experience, nationality, first language, marital status, number of children, education, type of education, GPA, institution of education, whether the applicant was internal to the bank, job applied to, whether the applicant fulfilled the advertized requirements for the job, whether an offer was given, whether it was accepted, and more.

We use various descriptive statistics and logistic regression analysis to describe the patterns.

4 THE POSITIONS AND THE APPLICANTS

Table 1 lists the 15 positions the bank advertized, documenting the educational and experience requirements for the positions, the personal qualities sought, and so forth. The positions are diverse, ranging from secretary to analyst to managerial jobs (nos. 14, 8, 2, 3, 6, 13). With the exception of the secretary position (no. 14), these are traditionally male-dominated professional and managerial jobs in which women are held to be at most disadvantage. In positions 1–10 only one offer was given in each. In positions 11–14, two offers were given in each. In position 15, 12 offers were given. Of the 30 offers, 28 were accepted.

(Table 1 about here)

Table 2 gives the data on applicants, first for all, then for those without an offer, and finally for those with an offer, reported for the sexes combined and separately by sex. The central results are these. Of the 866 applicants, 37.9% are female, 91.1% are Norwegian, and 3.5% received an offer. The average age is 29 years, 48.4% are single, and on average they have 0.4 children. The position receiving the highest number of applicants is trainee, 45% of applicants, an attractive job, while 32.3% of the females applied for the secretarial position with only 1.1% of men doing so. Only 2.1% of the applicants are internal to the bank, but an entire 16.7% of those with offers are.

(Table 2 about here)

5 FEMALE DISADVANTAGE?

HIRING PATTERNS BY POSITION

What is the evidence for possible female disadvantage in hiring? Table 3 presents the main data. In Panel A, separately for each position, columns 1–5 pertain to all applicants, giving the number of applicants, the percent female, the number of offers given, the percent with offers, and finally the percent of the offers going to females. Columns 6–8 give the number of male applicants, the number of men with offers, and the percent of men who received an offer. Columns 9–11 give the corresponding statistics for women. Panel B gives the same statistics but for various groupings of positions, soon to be explained. As hiring occurs for specific positions, each with a given number of openings, and each with a limited set of applicants that are evaluated, one needs to pay careful attention to what occurs in the various positions, not relying on overall comparisons or grouping together positions that are not comparable with respect to likelihood of getting offers. This results in considerable detail in the analysis, but there is unfortunately no satisfactory alternative.

(Table 3 about here)

Focus first on Panel B. Among all applicants, 37.9% are female, while 36.7% of offers were issued to women, consistent with a slight bias against women. But a

necessary condition for receiving an offer is that one applies. Removing from the computations the two positions with no female applicants, we see that 38.7% of the applicants are female while 44.0% of the offers went to women. There appears to be a small advantage to being female. An entire 32.3% of the women applied for the secretary position, while only 1.1% of the men did so, a relatively low-level female-dominated position. Removing also this position from the computations, leaving the more managerial and professional positions where women are thought to be at the highest disadvantage, 30.2% of the applicants are female while 36.0% of the offers are given to women. Again, there is a female advantage.

Focusing on each position, in Panel A, the pattern is much the same. Positions 1 and 11 had no female applicants, so no comment is needed. In each of positions 2–10 one offer was given. For positions 2–5 the percent female among applicants ranged from 7.1 to 19.1 and no women were given offers. For positions 6–10 the percent female among applicants ranged from 21.4 to 46.2 and four of the five offers were given to women, even though they constitute less than 50% of the applicant pool. With a sufficient number of females in the applicant pool it appears that the organization actively seeks to appoint women.

Focus next on positions 11–14, with two offers given in each. Ignore position 11 with no female applicants and position 14 with almost only female applicants. In positions 12–13, women made up 14.3% of applicants and 25.0% of those with offers. In the secretary position (no. 14), both offers went to women.

In the coveted position as trainee (no. 15), 12 offers were given. Women made up 34.6% of the applicants and 33.3% of those with offers, receiving exactly one third of the offers, 4 out of 12. A study of a German bank shows even more favorably hire probabilities for females to a trainee position. For 97 male and 84 female applicants to the position in 1990–1992, 27.4% of women and 19.6% of men were invited for interviews, while the offer percentages were 14.3 and 10.3% for women and men respectively (Quack 1998, pp. 68–69).

EQUAL OPPORTUNITY PROBABILITIES OF HIRE

One may learn considerably more from these data by comparing the number of women who received offers to the probabilities of women receiving offers under the assumption that women and men have equal chances of receiving one. One needs

to take into account the different proportions of women applying to the positions and the different number of offers given. This involves an exercise in combinatorial statistics. It is conceptually straightforward but can be computationally tedious.

Consider positions 2–10, where 1 offer was given in each. With equal treatment of men and women, the probabilities of women receiving 0, 1, 2, 3, or 4 offers in the nine positions are then .0727, .2327, .3141, .2351, or .1076.⁷ Women received 4 offers, with a probability of .1076. The probability of women receiving 5 or more offers is .0376, while for receiving 4 or fewer offers it is .9623. In a formal statistical test, one cannot reject the null hypothesis that women have a higher probability than men of getting an offer against the alternative that women have an equal or lower probability (P-value=.9623).

Consider next positions 12 and 13, where 2 offers were given in each. If women have a probability of receiving an offer equal to their proportion in the applicant pool, then in position 12 the probabilities of 0, 1, or 2 offers given to women are .822, .174, and .004. No women received an offer, which was the most likely outcome, a probability of .822. In position 13, the probabilities of 0, 1, or 2 offers given to women are .686, .294, and .012. One woman received an offer, not the most likely outcome, with a probability of .294; the most likely outcome being 0 offers with a probability of .686. Across the two positions 12 and 13, the probabilities of women receiving 0, 1, 2, 3, or 4 offers are .5638, .3610, .0638, .0114, and .00005. The most likely outcome is 0 offers given to women, while the outcome that occurred of 1 offer has a probability of .361. Were one to conduct a formal test, one cannot reject the null hypothesis that women have a higher probability than men of receiving an offer against the alternative that women have an equal or a lower offer probability (P-value=.9248).

Consider finally position 15, where 12 offers were given. The probabilities of women receiving 0, 1, 2, 3, 4, and 5 offers are .0057, .0368, .1088, .1954, .2367, and .2039. Women received 4 offers, the outcome with the highest probability. This is

⁷For the five outcomes of 0–4 offers given to women one needs to compute the sums of respectively 1, 9, 36, 84, and 126 probabilities. Each of those altogether 256 probabilities obtains as the product of 9 separate probabilities, defined by the proportion female among applicants for each position, given in column 2 of Table 3. We computed this analytically for 0, 1, 2, and 9 offers and then by simulation for 3–8 offers, making 4 billion draws from the probability distribution defined by the proportion female applying to each job.

the outcome one would expect under equal treatment.

No matter how one looks at it, there is no evidence that women receive fewer offers than what they would have received with equal treatment. There is evidence that they received more offers than what is dictated by equal treatment.

MULTIVARIATE ANALYSIS

We also conducted multivariate logit analyses with whether an offer was given (=1) or not (=0) as the dependent variable. This provided only marginal added insight relative to the results already reported in Table 3, and we here just summarize the main findings without reporting the full table. The 15 positions were grouped in the same way as in Panel B in Table 3, and for each of the 9 groupings 15 separate models were estimated, reflecting different permutations of other control variables, such as experience, education, whether the applicant matched the advertised job requirements, yielding altogether 134 estimated coefficients; only one of the 135 (=9×15) possible sex coefficients was not possible to compute due to failure of convergence of model.

An entire 113 of the 134 estimated sex coefficients show a positive effect of being female. From the logit coefficients we estimated the offer probabilities, net of the other variables. When one excludes positions 1 and 11 with no female applicants, then women have a higher offer probability in 13 of 15 models, and by some margin, ranging from .04 to .077 when the male offer probability is .035, equal to the overall offer probability for men in the data. This result gets strengthened when one also excludes the secretarial position (no. 14). Women have a higher offer probability than men in all 15 models, ranging from .045 to .069, a third to as much as twice as big as the male probability.

SUMMARY

The descriptive statistics and the multivariate analyses both show no female disadvantage in getting an offer. There is rather an advantage, when one focuses on the jobs with both male and female applicants. This holds also when one controls for education, type of education, age, experience, the extent to which the requirements for the position are satisfied, and whether the applicant was internal versus external. But care should be made in interpreting the multivariate analyses. With few hires

made, it is difficult to attain much statistical significance, even in presence of large differences. But the pattern of sex coefficients is very consistent, 84% of the female effects are positive.

One issue is worth reflecting on. The applicant pool we observe is drawn from a larger availability pool. The sex composition of the applicant pool is obviously constrained by that of the availability pool, but is in addition affected by the recruitment procedures. For example, Rees and Schultz (1970) reported how an employer advertised in Polish-language newspapers in order to avoid getting black applicants. More recently, in 1999 the Norwegian dairy and food company *Tine* advertised for persons “Effective managing and optimal operation..”, attracting only 2 females among 30 applicants. After consulting several female managers the positions were readvertized with the words “effective” and “optimal” removed. This generated an applicant pool with 50% females. All hires ended up being female (see *Dagens Næringsliv* 1999a, 1999b).

The fact that there in the present company are no or few females applying for some of the jobs may be indicative of problems at the recruitment stage or in how the applicant pool for some of the jobs gets constituted. It could be that the organization fails to identify and attract qualified females from the wider availability pool or that female applicants are steered away from certain jobs. With our data, we can only speculate on these processes. We analyze what happens once someone has applied, but the issue of how the organization gets people to apply is clearly important.⁸

6 ROLE OF FAMILY STATUS

Family obligations are considered a major impediment to female careers but not so for men. We thus explore whether family status has an impact on the probability of getting an offer. There is little need to elaborate on the theoretical or empirical literature on the role of family obligations; it would almost be pretentious to attempt so within the context of this paper. Already extensive and complex it nearly without exception comes to the conclusion that family obligations matter for female employ-

⁸Analyses of availability pools are rare. One exception is Fernandez and Fernandez-Mateo (2004) for the availability pool by race, and some brief analysis in Petersen, Saporta, and Seidel (2000). Some U.S. organizations now routinely assemble availability pool data and systematically compare these to applicant pools, for example, when appointing professors at universities.

ment and careers (e.g., Waldfogel 1998; Glass 2000), including a careful investigation of the relationship between family obligations and careers in British and Norwegian banking (Crompton and Birkelund 2000). Here we add to it by providing results for success in hiring, not yet considered, and in a country which unlike for example the U.S. has extensive family policies facilitating employment for women. For each sex we report the percent with job offers separately by marital status and separately by number of children. We also performed a logit analysis with whether an offer was received or not as the dependent variable, separately for men and women as the effect of marital status most likely varies by sex, but this yielded no additional insight and is not reported.

Table 4 gives the results. Focusing on Panel B, excluding positions 1 and 11 with no female applicants, we see that among single applicants women are more likely to receive offers than men, but that for married applicants women are much less likely to get offers than men and somewhat less likely among cohabitating applicants. In Panel C, excluding also the secretary position (no. 14), single women are again more likely to get offers than single men. There were no married women with offers once position 14 had been removed. Divorced women have the highest probabilities of getting an offer, but there were only 3 divorced women in Panel C. Most of the applicants have no children, 69.6 percent among men and 59.5 percent among women. Among those with no children, women are more likely than men to get offers, whereas among those with one child, women are somewhat less likely to get offers than men. No applicants with two or more children received an offer.

(Table 4 about here)

In summary, the results show that marital status has the opposite effects for men and women on getting an offer. Being married increases the likelihood of an offer for men, while decreases it for women. This is as one should expect from the literature on the impact of family obligations. Having one child increased the likelihood of an offer for both sexes.

7 CONCLUSIONS

We are left with two pieces of evidence. The first is where we started, the interpretations and universe of meanings related to hiring. The hiring agents are fully conscious and concerned about the nonconscious biases and gender schemas they carry when making hiring decisions. While conscious about the existence of schemas, they have not articulated what these are, which is not surprising, they are after all nonconscious. But their effects, according to the hiring agents, are considered to be beyond dispute: Women are at a clear disadvantage.

The second piece of evidence comes from our analysis of actual hiring practices. Here we found the opposite to be true. Women are at an advantage in getting offers, with no evidence of a pro-male bias. There is no question that female appointments are actively sought for in many of the positions. The few other studies of hiring in Norway and the U.S. show similar results: Little or no female disadvantage in getting offers, with the exception of the U.S. symphony orchestra and the restaurant audit study.

These two findings are both facts. We need to ask, Why are the interpretations and meanings the agents attribute to the hiring process so at odds with what actually occurs? We can only offer some speculations.

First, in interpreting the hiring patterns it could be that the agents in the organization fell victims to cognitive biases in quantitative reasoning. As documented in the cognitive psychology literature, biases in understanding statistics and probability are common (e.g., Kahneman and Tversky 1979; Johnson et al. 2000). Second, they may just be repeating larger societal views and interpretations about gender inequality, that women are disadvantaged, without considering the specific situation in this organization. Third, the hiring agents may have internalized the results from recent social-psychological theorizing. Through attending an employer-sponsored day-long seminar on achieving gender equality they were exposed to the role of nonconscious biases. Fourth, this may be a generational issue (Petersen and Meyersson 1999). All the hiring officials grew up and had their worldviews formed in the period when gender equality issues in employment had their political breakthrough, in the 1960s and 1970s. But now, 20 to 40 years later, they may still hold views formed and certainly correct when they were younger, that women are at a major disadvantage,

and presently being in positions of power, they may also act on those views.

But why did women come out better than men? It could be that awareness of nonconscious biases led the hiring officials to overreact, to compensate for suspected biases, perhaps even engaging in reverse discrimination. It may also be that they just react to broader public discourses about major female disadvantage in employment, again, overcompensating by giving women better opportunities. But the organization also had in place procedures which advantage women: They search actively for qualified female applicants in the pool. If no qualified females were found in the first pass at the pool, they go through it a second and third time hoping to find one. But it could also be that the women through the job interview were judged to be better prospective employees than the men, and thus should be given offers at a higher rate.

This suggests at least two organizational remedies against the threats of gender schemas and biases, with relevance for Scandinavia, Europe elsewhere, North America, and Australia. One is to educate those in charge of hiring about nonconscious biases, keeping in mind that they may overcompensate. This would involve educating the agents about different types of biases, in attributions, evaluations, and more. One would also have to document how such biases operate and what can be done to combat them. Another remedy is to have in place procedures that try to identify qualified female applicants. This would include ways of attracting qualified female applicants from a broader availability pool and procedures for ensuring that women who apply are not overlooked. These two organizational remedies may help overcome any disadvantages, and perhaps as in the present case, even more than overcoming, possibly leading to a small female advantage. Added to this comes the role of accountability and even rewarding hiring agents and units that succeed in attracting women (Bielby 2000). When the relevant units within an organization are held accountable for hiring, promotion, and compensation decisions, the likelihood of gender equality in outcomes increases.

We also reported on the role of marital status. It has the opposite effects for men and women. Being married increases the offer percentages for men, while decreases it for women. This is as one should expect from the literature on the impact of family obligations. Having one child increased the offer percentages for both men and women, with a slightly smaller percentage for women. Thus in spite of extensive

family policies in Norway aimed in part at facilitating employment for women, even the process of getting an offer from a large employer seems to be structured by one's marital status and differently so for men and women. One may expect family status to play an even larger role in subsequent promotion.

What is then the current situation, in the family-friendly corner of the world, for women in hiring in midsized and large Norwegian and perhaps even Scandinavian organizations? On this we can only speculate. What we found is however similar to results in Fürst (1988) on hiring of faculty in Norwegian universities and Teigen (2003) on getting offers to managerial positions in the government (see also Storvik 1999). The evidence there suggests no female disadvantage in getting hired. We are not aware of similar evidence from other Scandinavian countries. But the U.S. evidence points in the same direction (see Petersen, Saporta, and Seidel 2000, 2005). The central problem for research is assembling the data on entire applicant pools and on the choices employers make about whom to hire from these pools. Only such data will provide admissible evidence on potential discrimination in hiring.

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Table 1
Description of Formal Requirements for Each Available Position as Formulated in the Ads

Position	Education	Experience	Personal Qualities	Other
	1	2	3	4
1 Product Developer	College/University Business and Tech.	Yes	None	Interested in Stock Market
2 Marketing Manager	College/University Marketing or Business	Experience from Marketing or Financial Products pref.	Industrious, Good Communication Skills	Good Business, Social and Quantitative Knowledge
3 Sales Manager	College/University Business/Marketing	3-5 Years Sales Experience Leader Experience	Structured, Targeted, Independent, Creative, Sales-oriented, Outgoing, Co-operative	None
4 Client Supporter	Bachelor Marketing or equivalent	Not required, but can weigh up for lack of education	Positive Attitude, Energetic, Outgoing, Service Minded	Knowledge of Stock Market, Computer Skills
5 Consultant in Risk Management	Min. 4 Years College/University Math or Business	Preferred	Responsible, Analytical, Informal, Co-operative, Structured, Independent	None
6 Marketing Manager	College/University Business	None	Outgoing, take Initiative, Sales Oriented	Good Knowledge of Electronic Distribution and Dialogue Marketing
7 Administration and Internal Control Manager	College/University Business	Preferred	Analytical, Stress Tolerant, Systematic, Accurate, Independent	Good Knowledge of Financial Instruments
8 Finance Consultant	Min. 3 Years College/University Business	None	Patient, Accurate, Responsible, Industrious	Know Word and Excel
9 Journalist	College/University	Yes Journalism/Inform.	Independent, Team Worker	Good Oral and Writing Skills
10 Senior Consultant	College/University Master Business	Wide Experience in Business/Accounting and performing Presentations	Analytical	Interested in Accounting and Budgeting Good Oral and Writing Skills
11 Administrator of Orders	3-5 Years College/University Business	Min. 2 Years	Analytical, Independent, Service Minded, Take Initiative	Computer Skills
12 IT Consultant	None	2-4 Years Experience from Operating Machine Park Exp. from Project Mgt pref.	Independent, Responsible, Industrious	Interested and Knowledge of Stock Market, Good English
13 Sales Manager	Min. 4 Years College/University Business	Leader and Sales Exp.	Good Communication Skills, Inspiring, Structured	Computer and Technology Skills
14 Secretary	None	None	Service Minded, Stress Tolerant	Computer Skills
15 Trainee	College/University	None	Outgoing, Independent, Initiative	Interested in Career in Firm

Note: The information was assembled from the newspaper ads for the positions. In each of positions 1-10, one offer was given. In each of positions 11-14, two offers were given. In position 15, 12 offers were given. Of the 30 offers made, 28 were accepted.

Table 2

Demographic and Other Characteristics of All Applicants, of Applicants Not Offered a Job and of Applicants Offered a Job

	Variable		All Applicants			Not Offered a Job			Offered a Job		
			All	Men	Women	All	Men	Women	All	Men	Women
			1	2	3	4	5	6	7	8	9
1	Female	%	37.9			37.9			36.7		
2	Offered a job	%	3.5	3.5	3.4						
3	Hired	%	3.3	3.4	3.1				93.3	94.7	90.9
4	Age	Mean	29.2	28.6	30.2	29.2	28.5	30.2	29.9	28.5	30.2
5		SD	7.2	7.0	8.2	7.2	6.3	8.2	6.4	6.4	8.2
6	Nationality: Norwegian	%	91.1	90.5	92.4	90.8	90.1	92.1	100.0	100.0	100.0
7	Swedish/ Danish		3.3	3.2	3.0	3.4	3.3	3.2	0.0	0.0	0.0
8	Other		5.6	6.3	4.6	5.8	6.6	4.7	0.0	0.0	0.0
9	Residence: Urban	%	46.9	45.3	49.4	46.7	45.1	49.2	53.3	52.6	54.6
10	Civil status: Married	%	18.4	16.6	21.0	18.4	16.4	21.5	16.7	21.1	9.1
11	Divorced		1.7	1.3	2.4	1.7	1.4	2.2	3.3	0.0	9.1
12	Cohabitant		15.8	15.1	17.1	15.6	14.7	17.0	23.3	26.3	18.2
13	Single		48.4	52.6	41.8	48.6	53.2	41.3	43.3	36.8	54.6
14	Children:	Mean	0.4	0.3	0.4	0.4	0.3	0.4	0.2	0.3	0.4
15		SD	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.8	0.8
16	Position: Product Dev.	%	0.9	1.5	0.0	0.8	1.4	0.0	3.3	5.3	0.0
17	Marketing Mngr.		1.6	2.4	0.3	1.6	2.3	0.3	3.3	5.3	0.0
18	Sales Manager		1.7	2.4	0.6	1.7	2.3	0.6	3.3	5.3	0.0
19	Client Supporter		3.2	4.3	1.5	3.2	4.3	1.6	3.3	5.3	0.0
20	Consultant R/M		5.4	6.9	2.7	5.5	7.0	2.8	3.3	5.3	0.0
21	Marketing Mngr.		1.6	2.1	0.9	1.6	2.1	0.6	3.3	0.0	9.1
22	Adm/IC Manager		0.8	0.9	0.6	0.7	1.0	0.3	3.3	0.0	9.1
23	Finance Cons.		10.3	11.6	7.9	10.5	12.0	8.2	3.3	5.3	0.0
24	Journalist/Info		8.9	9.1	8.5	9.1	9.5	8.5	3.3	0.0	9.1
25	Senior Consultant		1.5	1.3	1.8	1.4	1.4	1.6	3.3	0.0	9.1
26	Adm. of Orders		1.3	2.1	0.0	1.1	1.7	0.0	6.7	10.5	0.0
27	IT Consultant		2.7	3.7	0.6	2.5	3.5	0.6	6.7	10.5	0.0
28	Sales Manager		2.1	2.8	0.9	1.9	2.7	0.6	6.7	5.3	9.1
29	Secretary		12.9	1.1	32.3	13.2	1.2	32.8	6.7	0.0	18.2
30	Trainees		45.0	47.6	41.2	45.2	47.8	41.3	40.0	42.1	36.4
31	Education High	Mean	7.7	8.1	7.1	7.6	8.2	7.1	7.3	8.1	7.1
32	School Up <i>a</i>	SD	2.6	2.2	3.0	2.6	2.2	3.0	2.6	2.2	3.0
33	Part Time /	Mean	20.1	20.7	19.2	19.9	20.5	19.2	23.7	20.7	19.2
34	Summer Job <i>b</i>	SD	18.7	18.4	19.3	18.7	18.3	19.3	19.1	18.4	19.3
35	Work Experience	Mean	4.6	3.7	6.0	4.6	3.7	6.0	5.7	3.7	6.0
36	Full Time <i>c</i>	SD	7.2	6.4	8.1	7.2	6.4	8.1	7.7	6.4	8.1
37	Relevant Work	Mean	3.1	2.1	4.5	3.0	2.1	4.5	5.3	2.1	4.5
38	Experience <i>d</i>	SD	5.2	4.4	7.1	5.7	4.3	7.1	5.7	4.4	7.1
39	Internal Applic.	Percent	2.1	3.0	0.6	1.6	2.5	0.0	16.7	15.8	18.2

a Years of education above Junior High level
b Months of part time or summer job experience

c Years of full time work experience
d Years of work experience similar to the job applied for

TABLE 3

Number of Applicants, Percent Female, Number of Offers, Percent of Applicants with Offers, Percent Female among Those with Offers, for All Applicants and Separately by Sex

Position Number	Title	All Applicants					Male Applicants			Female Applicants		
		N	Percent Female	Number of Offers	Percent With Offers	Percent of Offers to Females	N	Number With Offers	Percent With Offers	N	Number With Offers	Percent With Offers
		1	2	3	4	5	6	7	8	9	10	11
PANEL A: SEPARATELY FOR EACH POSITION												
1	Product Developer	8	0.0	1	12.5	0.0	8	1	12.5	0	0	0.0
2	Marketing Manager	14	7.1	1	7.1	0.0	13	1	7.7	1	0	0.0
3	Sales Manager	15	13.3	1	6.7	0.0	13	1	7.7	2	0	0.0
4	Client Supporter	28	17.9	1	3.6	0.0	23	1	4.3	5	0	0.0
5	Consultant Risk Management	47	19.1	1	2.1	0.0	37	1	2.7	9	0	0.0
6	Marketing Manager	14	21.4	1	7.1	100.0	11	0	0.0	3	1	33.3
7	Administration and IC Manager	7	28.6	1	14.3	100.0	5	0	0.0	2	1	50.0
8	Financial Consultant	89	29.2	1	1.1	0.0	63	1	1.6	26	0	0.0
9	Journalist	77	36.4	1	1.3	100.0	49	0	0.0	28	1	3.6
10	Senior Consultant	13	46.2	1	7.7	100.0	7	0	0.0	6	1	16.7
11	Administrator of Orders	11	0.0	2	18.2	0.0	11	2	18.2	0	0	0.0
12	IT Consultant	23	8.7	2	8.7	0.0	20	2	10.0	2	0	0.0
13	Sales Manager	18	16.7	2	11.1	50.0	15	1	6.7	3	1	33.3
14	Secretary	112	94.6	2	1.8	100.0	6	0	0.0	106	2	1.9
15	Trainee	390	34.6	12	3.1	33.3	255	8	3.1	135	4	3.0
PANEL B: FOR NINE GROUPINGS OF POSITIONS												
All Positions												
1-15		866	37.9	30	3.5	36.7	536	19	3.5	328	11	3.4
Not 1, 11		847	38.7	27	3.2	44.0	517	16	3.1	328	11	3.4
Not 1, 11, 14		735	30.2	25	3.4	36.0	511	16	3.1	222	9	4.1
Positions with One Offer in Each												
1-10		312	26.4	10	3.2	40.0	229	6	2.6	82	4	4.9
2-10		304	37.1	9	3.0	44.4	221	5	2.3	82	4	4.9
Positions with Two Offers in Each												
11-14		164	68.1	8	4.9	37.5	52	5	9.6	111	3	2.7
12-14		153	73.0	6	3.9	50.0	41	3	7.3	111	3	2.7
12-13		41	14.3	4	4.9	25.0	35	3	8.6	5	1	20.0
Position with Twelve Offers												
15		390	34.6	12	3.1	33.3	255	8	3.1	135	4	3.0

Note: See Section 5 for discussion. For two applicants the sex was not known, so in positions 5 and 12 the total number of applicants in column 1 is bigger than the sum of the number of male and female applicants in columns 6 and 9. For Panel B, note this. In positions 1 and 11, there were no female applicants. The probability of a women getting an offer is hence 0, and no analysis of offer probability is needed. In position 14, 94.6% of applicants were female.

TABLE 4
 Distribution (Percent) on Getting Offer by Marital Status and Sex and by Number of
 Children and Sex (In Parentheses Distribution on Marital Status and on Number of
 Children, by Sex)

	Men		Women	
	% With Offer	Marital Status and Children	% With Offer	Marital Status and Children
	1	2	3	4
<hr/>				
PANEL A:	All 15 Positions			
Marital Status				
Single	2.5	(52.6)	4.4	(41.8)
Married	4.5	(16.6)	1.4	(21.0)
Cohabitator	6.2	(15.1)	3.6	(17.1)
Divorced	0.0	(1.3)	12.5	(2.4)
Unknown	3.9	(14.4)	1.7	(17.7)
Sum		(100.0)		(100.0)
Number of Children				
0	3.2	(69.6)	3.6	(59.5)
1	8.3	(6.7)	7.4	(8.2)
2+	0.0	(7.8)	0.0	(12.8)
Unknown	4.7	(15.9)	3.1	(19.5)
Sum		(100.0)		(100.0)
<hr/>				
PANEL B:	Not Positions 1, 11			
Marital Status				
Single	2.2	(52.8)	4.4	(41.8)
Married	3.6	(16.5)	1.4	(21.0)
Cohabitator	5.1	(15.1)	3.6	(17.1)
Divorced	0.0	(1.4)	12.5	(2.4)
Unknown	3.9	(14.7)	1.7	(17.7)
Sum		(100.0)		(100.0)
Number of Children				
0	2.8	(69.8)	3.6	(59.5)
1	8.6	(6.8)	7.4	(8.2)
2+	0.0	(7.5)	0.0	(12.8)
Unknown	3.7	(15.9)	3.1	(19.5)
Sum		(100.0)		(100.0)
<hr/>				
PANEL C:	Not Positions 1, 11, 14			
Marital Status				
Single	2.2	(53.0)	4.5	(50.0)
Married	3.7	(15.6)	0.0	(11.7)
Cohabitator	5.1	(15.3)	4.4	(20.3)
Divorced	0.0	(1.4)	33.3	(1.4)
Unknown	4.0	(14.5)	2.7	(16.7)
Sum		(100.0)		(100.0)
Number of Children				
0	2.8	(70.1)	3.8	(71.2)
1	8.6	(6.8)	10.0	(4.5)
2+	0.0	(7.4)	0.0	(6.3)
Unknown	3.7	(15.7)	5.0	(18.0)
Sum		(100.0)		(100.0)

Note: For description of data see Section 3. For discussion of results see Section 6. Column 1 gives the percent with an offer among men, first by marital status and next number of children. Column 3 gives the same percentages for women. Column 2 gives the distribution for men first on marital status and second on number of children. Column 4 gives the same percentages for women.